

**Using Formative Assessment and Feedback to Build Communication of  
Understanding in Online Courses**

by

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## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

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### **Abstract**

Teachers in an online classroom face the challenge of being separated from their students but still needing vital information about student understanding to guide instruction. To fulfill this communication need, teachers can use formative assessments and feedback in a communication loop between teacher and student. The purpose of this field project was to implement various feedback and formative assessment strategies and collect data on student preferences and teacher experiences. Student survey results were combined with teacher reflections to confirm which feedback practices and formative assessment types best fit the needs of the teacher and her middle school students. The results demonstrated which feedback and formative assessment strategies best fit the communication needs of the online class.

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### **Introduction**

#### **Identify the Issue**

From the earliest days of our lives, communication, both verbal and non-verbal, marks our existence. It is how we express our knowledge and emotions, how we learn, and how we connect with others. In the classroom, communication links teachers and students and is a complicated web of messages. From the loudest questioning students to the smallest look, each message plays a part in the teacher's daily decisions: when to ask questions, when to give help, how to approach a lesson, when to reteach, who gets it and who does not. Teachers collect a myriad of messages and filter through them to understand their students.

#### **Importance of the Project**

In the online classroom, teachers cannot observe students working or the non-verbal cues that tell so much about students' knowledge, confidence, and process. Therefore, a teacher's information gathering is limited to written communication such as daily tasks, assessments, and discussions that occur between teacher and students. Similarly, online students are missing the non-verbal feedback that occurs during class time, a smile or thumbs up, and the informal evaluations that happen as a teacher circulates the room while students work (Elbaum & Smith, 2002). Teachers need knowledge of their students' thinking in order to plan instruction and guide students towards a deeper understanding of concepts (Gearhart & Saxe, 2004). Determining what students know and what instruction or help they need is one important aspect of the communication between teacher and students. Kerr (2011) found that communication between teacher and students was a key component of students getting the most out of an

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online course. Timely, consistent feedback connected online students and teachers, helped students understand their progress, and clarified expectations. Other researchers observed that feedback helped students understand their responsibilities (Baghdadi, 2011) and kept students engaged (Elbaum & Smith, 2002). Liu and Cavanaugh (2012) determined that a greater quantity of teacher comments was a commonality among students who were more successful in online courses.

### **Project Goal**

Teachers glean understanding of their students' knowledge from everything students do (Leahy, Lyon, Thompson, & Wiliam, 2005). This means that every communication is a source of assessment, that is, the gathering of information about students learning so teachers can make decisions (Chappuis, J., Stiggins, Chappuis, S., & Arter, 2012). The goal of this field study was to develop a formative assessment and feedback plan that met the communication needs of an online classroom. This field study explored several types of formative assessments and feedback methods to determine which fit the needs of this teacher, the learners, and the Algebra 1 course in which they were enrolled.



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### Literature Review

#### Communication and Online Learning

Online education is a growing area for WELS schools and as such deserves careful consideration of what practices are best suited for students in online courses at a variety of levels. The WELS Association of Lutheran High Schools Online (ALHS Online) provides online courses to students in grades 7-12.

One challenge online classrooms face is the disconnect that exists between teachers and students. A 2008-2009 study of eighth-grade students in an online Algebra 1 course was conducted by Heppen et al. (2012). They reported that communication between the online teacher and students regarding math content was infrequent but that the in-class proctor spent over an hour per week answering content related questions from students. Missed opportunities to connect teachers and students impacted student satisfaction and growth. Students in online courses felt isolated from the teacher and each other and unsatisfied with the course because of a lack of feedback on their work (McIsaac & Vradsidas, 1999). A 2006 study of literature regarding online learning by Tallent-Runnels et al. showed that teacher-student and student-student interaction were important to help learners construct knowledge, and teachers needed to participate in discussions to help scaffold student discussions. Liu and Cavanaugh (2012) found that Algebra 1 students who had received more teacher comments and spent more time in the course performed better. They concluded that more interactions with the teacher and prompt constructive feedback helped students construct knowledge.

Connecting with students and supporting their learning are key components of communication between teacher and students in the online classroom. For teachers to

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support student learning and implement quality instruction, they must first get to know each student's needs and understand their learning (Iowa Department of Education, 2016). Teachers use a variety of methods to collect this information including observations, discussions, and reading student work (Black & Wiliam, 1998). In the online classroom, viewing of student work and assessments becomes more critical because of the distance between teacher and students. Huffman (2007) argued that regular and varied assessments over time allowed for a clearer picture of a student's development. Brookhart, Moss, and Long (2008) stated that assessments and feedback go hand in hand to support learning. They explained that learning happened when teachers gave specific, timely feedback on how students were doing on particular learning targets. Assessments aided teachers giving this feedback by helping them understand each student's level of comprehension.

These assessments do not have to be summative judgements on student learning. Rather, Stiggins (1999) argued that classroom teachers assess students constantly, and these smaller or less formal assessments provide valuable information about student learning. Adopting formative assessment practices and the accompanying feedback loop have been shown to increase achievement by changing how students interact with assessments (Chappuis et al., 2012). Instead of students receiving a score and setting an assessment aside, formative assessment and feedback practices uncover for students what is important in the course and point out how they are doing on those key parts (Weurlander, Soderberg, Scheja, Hult, & Wernerson, 2012). Combining formative assessment and feedback provides teachers with a powerful set of strategies to better understand their students and support their learning.

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### **Formative Assessment**

When teachers decide to use assessments, they must ask themselves, What is the purpose of the assessment? Who is going to use the information and how? (Chappuis et al., 2012). Formative assessment, also called assessment for learning serves to support and enhance learning compared to summative assessments which monitor or verify learning (Chappuis et al., 2012). Assessments can support and enhance student learning when they are used to adjust teaching to meet learners' needs (Black & Wiliam, 1998; Black, Harrison, Lee, Marshall, & Wiliam, 2004). Formative assessments do not simply judge student work, rather, they inform teachers about students' progress, they provide information teachers can use to adjust lessons while learning is taking place, and formative assessments give students information about how they are doing (Leahy et al., 2005).

Changing assessment practices to include formative assessment can also mean a change in grading practices for teachers. Scott (2012) recommended that formative assessments be evaluated based on criteria related to the expected outcome and that formative assessments be free of grades. Forgoing grades in favor of comments directed students to improve and focus on their learning versus competition with peers (Black & Wiliam 1998, Black et al., 2004). For students, receiving a grade marked a task as done whereas using comments encouraged students to focus on improving and provided for second chances (Dill-Varga & Roubitchek, 2015). Assessment for learning focuses on gathering information about students' learning to adjust teaching and to provide students information about their own learning. By replacing judgement on students' work (i.e.,

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grades) with communication between teacher and student, teachers and students become partners in learning when using formative assessments.

Besides improving communication between teacher and students, using formative assessments can bring several other benefits to the classroom. Black and Wiliam (1998) stated that students in formative assessment experiments showed learning gains with effect sizes ranging from 0.4 to 0.7. These significant effect sizes put formative assessment at the high end of all educational strategies to improve student achievement. However, articles by Dunn and Mulvenon (2009) and Briggs, Ruiz-Primo, Furtak, Shepard, and Yin (2012) raised concerns about the application of these effect sizes to general classrooms and pointed out the need for further research regarding the potential achievement benefits and implementation of formative assessment.

Stiggins (2007) and Weurlander et al. (2012) both pointed to student motivation as a benefit of formative assessment. Using assessment for learning helped students focus on their own improvement when facing occasional setbacks and their growth instead of comparisons to peers (Stiggins, 2007). Frequent assessments may serve as motivation to study (Weurlander et al., 2012). Brookhart (2007) found that formative assessment can help impact students' knowledge and motivation by informing them of how they are doing and supporting students' feelings of control over their learning. Formative assessments may also raise expectations that students do something with the feedback from their assessments (Brookhart, Moss, & Long, 2008).

While research is still needed to definitively describe best practices for formative assessment (Briggs et al., 2012), several common threads emerge in the literature. Before using assessments, learning goals/targets need to be shared with students (Chappuis et al.,

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2012; Leahy et al., 2005; Wiliam, 2007). Teachers should give students the advantage of knowing what they are supposed to understand and what criteria they must meet.

Assessment tasks should be designed to provide evidence of students' thinking so teachers can provide feedback and determine how to adjust instruction (Brookhart, 2012; Romagnano, 2001; Wiliam, 2007). Teachers then can provide feedback that promotes learning after each formative assessment (Chappuis et al., 2012; Leahy et al., 2005; Wiliam, 2007). Students are co-users of assessment information and require opportunities to use feedback to improve their performance, thereby encouraging their success in learning (Stiggins, 2007). Involving students in the assessment process through self and peer feedback, collaborative tasks, revisions, reflections, and goal setting may empower them to take control of their learning (Chappuis et al., 2012; Leahy et al., 2005; Wiliam, 2007).

While these commonalities give a clear picture of formative assessment, they also leave a wide window for individual teaching styles and situational differences. The best strategies for using formative assessment also take into account how different assessments fill different needs that the teacher and students may have (Chappuis et al., 2012; Weurlander et al., 2012). Leahy et al. (2005) encouraged teachers to try different formative assessment strategies and customize them to their needs and their students' needs so they can give feedback, improve teaching, and help their students learn. Formative assessment is about understanding students, adapting instruction to meet their needs, and improving learning. Teachers can include effective formative assessment in their lessons by keeping in mind three simple questions, "Where am I going?", "Where am I now?", and "How can I close the gap?" (Chappuis, 2009, p. 12).

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### **Feedback**

As formative assessment informs teachers and students about their level of understanding, feedback can give students information on how to improve and give teachers information directly from students. Feedback can be used to scaffold and guide student learning during discussions (Tallent-Runnels et al., 2006), promote higher order thinking, and develop meaningful learning (Kerr, 2011). Rust, O'Donovan, and Price (2005) referenced Black and Wiliam (1998) arguing that feedback is the most important part of the assessment process in its potential to affect future learning and achievement. Quality feedback showed students that teachers want to understand their thinking and how they are doing, rather than simply seeing if they got the right answer and giving a grade (Brookhart et al., 2008). When teachers use feedback they can show students what they are doing well, make clear what went wrong in their work, and guide them to improve. "Feedback that focuses on what needs to be done can encourage all to believe that they can improve" (Black et al., 2004, p. 18). Motivating students by supporting a growth mindset is another benefit of using feedback. Finally, using quality feedback can help students become critical and independent learners (Lalor, 2012).

Wiliam (2007) suggested that feedback should promote learning, and Leahy et al. stated that "feedback needs to cause thinking" (2005, p. 22), but what does that mean? Research on feedback gives several clear directives. Feedback is effective when it coincides with instruction and learning activities. Kerr (2011) stated that feedback on student work needed to be timely and consistent. Students should not be held up waiting for instructor help (Baghdadi, 2011) but need feedback while working on larger activities and immediately after finishing work (Brookhart, 2007). Timely feedback allowed

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students to work with the feedback and use it to improve their learning (Brookhart, 2012).

Feedback during a learning task should be related to meeting the learning targets and feedback on a final product or test should be applicable to future work (Lalor, 2012).

Good feedback needs to be guided by and related to the learning targets. A learning target describes in student-friendly language what the students should know and be able to do at the end of a lesson. Students must know the learning target and understand what they are aiming for in order for feedback to be effective (Brookhart, 2012). Brookhart (2007) also stated that each feedback comment or question should help students understand what they are doing successfully to reach the target or how they can improve to meet the target. Lalor (2012) suggested teachers let the learning targets guide and prioritize their feedback. As teachers give feedback, both the content of their feedback and the emphasis given ought to be dictated by the priorities of the learning targets.

Several researchers stated that feedback to students needed to be personal, giving focused rather than general comments on an individual's work (Dill-Varga & Roubitchek, 2015; Lalor, 2012; McIsaac & Vrasidas, 1999). This feedback should include direct references to the student's work and include guidance on how to improve the work rather than to make comparisons to other students (Black & Wiliam, 1998). For struggling learners, Brookhart (2007) recommended pointing out even the smallest improvements over their last attempt to support their growth and motivation.

Feedback should be written in language the students can understand (Brookhart, 2007; Stiggins, 2007) and in amounts the students can use. Brookhart (2007) described this amount as only as much as students can improve upon at one time. Lalor (2012)

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reminded teachers to never write more feedback than the content of the students' work.

This means focusing on one or two achievable aspects of students' work (Brookhart, 2007).

Researchers recommend teachers use a multistep approach when giving feedback. Variations exist among the models, but commonalities include (a) praising strengths (Brookhart, 2007, 2012; Dweck, 2007; Lator, 2012; Nicol & Macfarlane-Dick, 2006), (b) making comments on students' use of strategies or processes (Black et al., 2004; Brookhart, 2007; Dweck, 2007), and (c) asking questions or giving constructive comments (Black et al., 2004; Brookhart, 2007, 2012; Lator, 2012; Nicol & Macfarlane-Dick, 2006). Feedback following these models points out to the students where they are being successful (strengths), what they are doing to be successful (strategies/processes), and how to improve upon their work (comments). This can help students stay focused on what they are doing to learn and grow (Dweck, 2007).

Finally, teachers should remember that feedback is not a one-time comment on student work. Nicol and Macfarlane-Dick (2006) described how students completed the feedback loop by making some type of response to the feedback for teachers to determine if learning was happening as a result of feedback. Some suggestions for completing the feedback loop include: having students redo work, two-stage assignments where students get comments on first part before starting a second part (Nicol & Macfarlane-Dick, 2006; Rust et al., 2005), giving generic class comments and having students identify which apply to their work (Rust et al., 2005), and discussing their work with a peer (Nicol & Macfarlane-Dick., 2006). Teaching students to give peer feedback by using rubrics and evaluating sample work helped them become more analytical and better at



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communicating their needs as a learner (Dill-Varga & Roubitchek, 2015). By training students to give feedback, they better evaluated their own work and worked with the feedback they were given (Sadler, 1989).

### **Summary**

Communication between teacher and students is a key aspect of online education. The more information teachers gather about students' understanding, the better they will plan lessons and tasks that help students grow. Formative assessments give teachers opportunities to learn about students' knowledge and to engage students in thinking about their own understanding. Effective formative assessments include feedback so students can see their strengths, understand strategies and processes that are working, and receive constructive comments on reaching the learning goals. Effective feedback is timely, target-centered, personal, easy to understand, given in manageable amounts, follows a multi-step pattern, and completes the communication loop by requiring students to work with the feedback given.

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### **Implementation**

#### **Introduction**

Growth involves change. In the case of this researcher, the growth began when the teacher moved from a traditional classroom to an online classroom and realized that her usual feedback and assessment practices were not effectively helping her students improve their learning. So practices needed to change. Through research and education, the researcher learned best practices for feedback and formative assessment and set out to determine which would be most beneficial in her unique situation. Would changes in feedback and formative assessment help communicate understanding between her and her students? Would these changes be practical for a busy teacher/researcher? What feedback and assessment types would students prefer? With these questions in mind, this research study was designed.

#### **Participants**

This study was conducted during the second semester of an online Algebra 1 course offered through Association of Lutheran High Schools Online. The students in the Algebra 1 course were eighth graders from WELS schools in Arizona, Minnesota, South Dakota, Washington, and Wisconsin. Four of the 17 students in the class were female and 13 were male. The teacher/researcher is a second-year online math teacher and has 6.5 prior years of experience teaching high school math. The teacher holds a bachelor's degree in education and is licensed in MN for K-5, and 6-12 mathematics. The students in this study received instruction, feedback, and assessments from the teacher/researcher and also had an onsite proctor at their school who assisted in management tasks and proctored tests and quizzes.

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### **Instruments**

This study was designed to determine a feedback and assessment plan that best fit the needs of the teacher and students in the online Algebra 1 course. To that aim, students were surveyed before and after the seven-week study time concerning their preferences for feedback types and assessment (see Appendices A and B). The teacher also kept a professional journal (see Appendix C) during the period of the study. In this journal she used checklists of best practices for feedback and assessment to keep track of which practices she implemented each week. The journal also included anecdotal records of the researcher's attempts to follow best practices for feedback and assessment during the study and her impressions of the time involved and benefit of various feedback and assessment types. The journal served as evidence of what the teacher was doing to explore feedback and assessment methods.

Student achievement data was informally analyzed to help determine changes to teaching. Student pre-unit quiz results were grouped by learning target to see which areas of the unit needed the most and least emphasis. Mid-unit quiz results were aggregated by learning target so the teacher could determine which targets needed further study during the second half of each unit. Students tracked their progress on the learning targets after the pre-unit quiz and mid-unit quiz using a simple system of ?, !, or :) to indicate if they met the target not at all, partially, or completely. Mid-unit quiz data was also compared to the student unit test results to see if the class demonstrated improvement on the learning targets between the two major assessments of the unit.

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### **Procedures**

Changing feedback and assessment practices began with reorganizing the order in which lessons were taught to allow time for review of student work and feedback before reteaching or reviewing a lesson. This reorganization allowed students to receive feedback on a lesson before they had a second chance to work with the lesson. A second benefit of this reorganization was that a mid-unit quiz became a snapshot of the students' progress on all learning targets for the unit. The quiz was now after every lesson had been introduced, but before the second opportunity to study any given learning target. This snapshot helped the teacher determine which learning targets needed the most focus for review and gave students a preview of how they would be assessed on all learning targets in the unit.

Student surveys were shared electronically at the beginning of the semester and after two units of instruction. Survey links were emailed to students and posted in the course learning management system. Parents were contacted via email and text message to inform them of the survey, explain the purpose, and request parental consent. The pre-study survey asked students their opinions and experiences with feedback and assessment before this course, and the post-study survey asked students their opinions and experiences with feedback and assessment in this course. Between the surveys, the students had seven weeks of instruction with the teacher/researcher utilizing different types of feedback and assessment.

During the seven weeks of the study, students were assessed in a variety of ways. This study focused on comparing written quizzes, online activities, and written daily work. Students completed two units of study during the seven weeks resulting in two pre-

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unit quizzes, two mid-unit quizzes, 12 online activities, and 28 daily assignments including two partner assignments.

Feedback was given to students on every assignment, quiz, and activity through a variety of methods. Online activities, games, and quizzes all utilized pre-determined auto-generated comments to direct student learning. Students were encouraged to repeat online activities until they were successful but were not required to attempt the activity more than once. Some online activities were created by the teacher and utilized multiple-choice or typed responses to generate teacher-planned comments for each answer, and other activities were selected from sources such as Khan Academy and included feedback with each question. Written daily work was reviewed daily by the teacher and students received written comments focused on the lesson's learning targets. Pre-unit quizzes were marked only for success on a learning target, good strategies that were related to the target, or failure to attempt. Students were directed to attempt all questions on the pre-unit quiz, even those that they did not know how to solve, and incorrect answers were expected. Mid-unit quizzes were marked for errors and video feedback was created for each student to direct their corrections and improvements on each learning target.

Students were required to do corrections for the mid-unit quiz and one homework assignment per unit. These activities were designed to teach students how to review their feedback and use it to improve their understanding. Two activities during the study period required students to work in groups of two or three to complete a written assignment over one week's time. Students were directed to use a discussion board to share answers, comment on one another's work, and give suggestions. These activities

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were designed to help students practice giving feedback to one another and to utilize feedback from a peer to improve their work.

### Results

Sixteen students completed the pre-study survey and 17 students completed the post-study survey. Data from one student was eliminated from survey responses due to lack of parental consent. Calculations for the student responses are based on 15 and 16 responses respectively.

**Survey data – assessments.** Developing a feedback and assessment plan, personalized for the students and teacher in a class, brings together factual data and emotion. In attempting to separate students' likes and dislikes of assessments/learning activities from what helped them learn best the researcher asked, "How much do you learn from this assessment?" and "How much do you enjoy this assessment?" (see Appendix A and B).

Pre-study survey ratings for learning from (Table 1) and enjoyment of (Table 2) assessments were averaged and showed that students thought they learned the most from daily work (2.67) and corrections (2.50) and the least from online activities (1.80). Student enjoyment was highest for group discussion (2.23) and daily work (2.00) and lowest for online activities (1.50), unit projects (1.67), and partner work (1.67).

Students' responses to the question, "How much do you enjoy this assessment?" showed increases from pre- to post-study in all categories except group discussion and unit projects. Students had only two activities that included group discussion during the study period and no unit projects, so this score may be affected by limited experience upon which to base opinions. Students ranked online activities (quizzes, games, and

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activities that gave immediate computer-generated feedback) lowest for enjoyment in both pre- and post-study surveys and lowest for learning in the pre-study survey. One student even commented, “I just don’t like the online games that’s it [*sic*]” (see Appendix D). Post-study data showed students rated online activities higher than group discussion and unit projects for learning, two types of assessments that were used much less frequently than online activities during the study period. Questions arise as to how frequency of experience impacts student perception of learning and enjoyment of assessment activities.

Table 1  
*Student Self-Response: How much do you learn from this assessment?*

Assessment Type	Average Rating	
	Pre-Study	Post-Study
Test	2.13	2.06
Quiz	2.13	2.44
Online Activity	1.80	2.13
Daily Work	2.67	2.81
Group Discussion	2.15	1.77
Partner Work	2.18	2.00
Unit Projects	1.93	1.80
Corrections	2.50	2.56

*Note.* Students rated each assessment on a 1-3 scale. Students could select NA if they had no experience with the assessment type. 1 – I learn nothing. 2 – I learn some things. 3 – I learn a lot.

Table 2  
*Student Self-Response: How much do you enjoy this assessment?*

Assessment Type	Average Rating	
	Pre-Study	Post-Study
Test	1.80	2.00
Quiz	1.80	2.00
Online Activity	1.50	1.81
Daily Work	2.00	2.25
Group Discussion	2.23	1.86
Partner Work	1.67	1.80
Unit Projects	1.67	1.69
Corrections	1.69	2.19

*Note.* Students rated each assessment on a 1-3 scale. Students could select NA if they had no experience with the assessment type. 1 – I do not enjoy this. 2 – I enjoy it somewhat. 3 – I enjoy this a lot.

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**Survey data – feedback.** Students were also asked to rate how much each feedback method helped them improve their learning (Table 3). Written comments and video comments were rated highest pre- and post-study. Student comments supported these types saying, “I liked the written feedback. That helped me the most” and “the video feedback was the best kind of feedback for me” (see Appendix D). Auto-Generated Comments received the lowest rating in both surveys. All feedback types showed an increase in rating except for Peer Comments (2.00 to 1.71), with Auto-Generated Comments increasing the most.

Table 3  
*Student Self-Response: How much does this feedback help you improve your work?*

Feedback Type	Average Rating	
	Pre-Study	Post-Study
Written comments	2.57	2.69
Video Comments	2.57	2.69
Emails/Postings	2.40	2.47
Peer Comments	2.00	1.71
Auto Comments	1.33	1.63
Grades	2.40	2.56

*Note.* Students rated each feedback type on a 1-3 scale. Students could select NA if they had no experience with the feedback type. 1 – Unhelpful, I didn’t learn anything. 2 – Somewhat helpful. 3 – Very helpful.

Students uniformly rated online activities low in learning from the activity, enjoyment, and how the feedback from online activities helped them improve. One comment from a student (see Appendix D), “I just don’t like the online games that’s it [sic] Everything else is great.” provided support for the students’ low ratings. Digging further into the type of online activities students have done in the past might help determine if these low ratings are due to poor design of activities, overuse, or if students truly prefer more traditional methods of learning. Journal comments by the teacher point out the teacher’s concerns regarding the benefits of the online activities. For example, “I



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like the online activities for the fast response [feedback on answers] they give kids, but I don't really get much data from them. Students can choose to redo until they get 100, they can be satisfied with poor scores, or they can memorize answers" (Appendix C). If students can memorize correct answers or repeat the activity *ad nauseam* just to get a high score, are they still getting an educational benefit from the activity? Student ratings for online activities and auto comments improved in learning from, enjoyment of, and feedback helping them improve between the pre- and post-study. This positive result encourages questions about which factors led to students' opinions improving. Online activities and auto-generated feedback are beneficial in an online class because of their flexibility to give feedback while a student is completing an activity rather than delaying feedback until the teacher can review student work. So it is important to determine which types of online activities best meet the students' preferences.

Students also selected from pre-generated comments describing feedback they had received (Table 4). All respondents pre- and post-study indicated that they had received comments telling them what they did wrong, but only 53.33% of pre-study responses indicated students received comments telling them how to improve their work. One student survey comment supported this saying, "The worst thing is when a teacher gives me a low score but doesn't address the mistakes that I made" (see Appendix E). Using feedback to improve learning is a key aspect of feedback and assessment, so improving student perception in this area was a concern. Post-study data indicated 87.50% of respondents received comments telling them how to improve their work. A student survey comment supported the teacher's efforts to give constructive feedback to all students. "Even though I have gotten A's on certain papers, I still get feedback on

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what to improve on” (see Appendix D). Best practice for feedback includes praising strengths of students’ work. Student reporting on “Comments that tell me what I did correctly” increased from 46.67% to 87.50% indicating that the teacher gave praise frequently in student feedback. Student post-study comments supported this saying, “I like it when you tell me what I have done right” (see Appendix D).

Table 4

*Student Self-Response: What words describe types of feedback you received?*

Descriptor	% of students	
	Pre-Study	Post-Study
Grades	93.33	100.00
Comments like: Good work, well done	86.67	100.00
Comments that tell me what I did correctly	46.67	87.50
Comments that tell me what I did wrong	100.00	100.00
Suggestions on how to improve my work	53.33	87.50
Comments that came after we finished a test or project	73.33	93.75
Comments that helped me get ready for a test or project	66.67	62.50
Comments that I didn’t understand	26.67	25.00
Comments that were easy to understand	86.67	93.75
Too many comments on one task to learn from them	13.33	12.50
No comments because I got an A	60.00	43.75
Comments that made me redo a task	40.00	31.25
Comments from a peer	13.33	31.25
Comments from a rubric or checklist I compared my work to	13.33	31.25

Interestingly, only 31.25% of post-study survey respondents indicated that they received feedback that made them redo a task. Students were all required to do corrections on four assessments during the study period, so perhaps students did not consider these required corrections to be considered “feedback that made me redo a task.”

**Journal.** During the seven-week study period the teacher used a journal to record her experiences implementing different feedback and assessment practices and included a weekly checklist of best practices for feedback and assessment (see Appendix C). The weekly checklists for best practices of feedback and formative assessment showed that

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the teacher was consistent, timely, personal, used student-friendly language, shared goals/learning targets with students, and gave feedback for each formative assessment. Student post-study survey responses support this as students reported they received feedback that included suggestions on how to improve (87.50%), was easy to understand (93.75%), and only 12.50% reported too many comments on one task to improve from. One student comment from the post-study survey supported the teacher's efforts to be personal and use student-friendly language. "The feedback was very straightforward and easy to understand" (see Appendix D).

Only once did the teacher indicate using an ungraded task to focus on improvement over grades. One reason for this could be that motivating students to complete tasks for which they do not receive a grade can be difficult without personal interaction. However, eight journal comments mention grades and the teacher's satisfaction with removing behavioral indicators such as late work from student grades, supporting the teacher's efforts to follow best practices and only use grades for academic achievement. Interestingly, students on the post-study survey rated grades (2.56) third highest for feedback type that helped them to improve. Since grades tell a student nothing about what they did wrong or how to improve, perhaps motivation for improvement is strongly tied to the feedback type.

In order to follow best practices for feedback, the teacher worked to change old habits for feedback and refrained from using "good work" or "fix number x." Fourteen journal comments spoke of the teacher's attempts to set goals for feedback (6), utilize praise/positive comments (4), or constructive/strategy comments (4). Comments from students (see Appendix D) recognized the teacher's efforts, such as "I like when you tell

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me what I have done right, and where I can improve” and “I got smiley faces and comments saying that something was a good method to solve the problem.” These indicators show the teacher’s efforts to utilize best practices when giving feedback were successful in the students’ minds.

The amount of time put into planning assessments and giving quality feedback is an important consideration for a classroom feedback and assessment plan. Teacher comments in the journal indicate that the teacher spent far more time than in previous classes giving feedback on student work and that the comments were much more specific. Technical challenges make giving video comments more time consuming than written comments, but the personal connection should not be overlooked. Student comments from the post-study survey (see Appendix D) including, “I really like the video feedback” and “The video feedback was the best kind of feedback for me” show students value the personal comments the teacher gave through video feedback.

Pre-study comments by the teacher indicate that developing her own online quizzes and the accompanying feedback was especially time-consuming. These teacher developed activities benefit from being very specific to the learning targets of a lesson. Using activities and quizzes available online saved the teacher considerable planning time, but these activities could lack connection to the student’s learning.

Teacher comments indicated that student thinking was easier to observe in daily work and traditional quizzes, but that online activities were implemented to give students a quick reinforcement of the day’s lesson. Student pre-study survey data had indicated that online activities were least enjoyed by students. This lack of enjoyment was the opposite of what the teacher expected, and while post-study survey data showed an

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increase in enjoyment, this assessment type was still rated lowest of all assessment types. Looking more closely at the data showed that two students selected “I enjoy this activity a lot” and nine selected “I enjoy this activity somewhat.” Since 11 of 16 students find enjoyment in the activity, there is support for continuing to use online activities in the course.

**Learning targets and student achievement data.** Informal analysis of student achievement data was conducted several times during each unit to determine which learning targets needed reteaching and which learning targets students were successfully mastering. Errors were recorded as careless, computational, or concept to determine how many errors were related to the learning targets rather than just total errors. Tracking of learning targets after the Chapter 6 Mid-Unit Quiz showed that a majority of students had concept errors on 7 of 14 learning targets. This data guided the content of the lessons and activities after the quiz, and similar test analysis showed that a majority of students had concept errors on only two learning targets. Analysis of Chapter 7 Mid-Quiz data showed that only one learning target had concept errors by a majority of students, and comparison to the test results showed that the total number of concept errors decreased on 12 learning targets. This analysis helped the teacher practice using assessment information to inform instruction at least four times during the study period (teacher journal checklists, see Appendix C)

Students were coached in self-assessing their progress on learning targets at several points in the unit. While their self-assessment was interesting and, in some cases, reflective of their progress on the learning targets, enough students made careless mistakes or lacked precision in their analysis that the results were not meaningful for the

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study. One comment from the teacher's journal (see Appendix C) expresses her confusion at students' lack of consistency in tracking their progress on learning targets. Teacher comparison of student tracking to their actual work showed inaccuracies that affected tallying which learning targets had the most issues. Student tracking of learning is an area where students will need further coaching to improve their self-assessment skills.

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### **Reflective Essay**

#### **Introduction**

To me, communication is the most obvious way of getting to know someone. So naturally, when I teach, communication plays a vital role in my classroom. My classroom was a place where students were sharing ideas, I was discussing with them, and we were growing together as they learned a lesson and I learned about them. Transitioning to online teaching has been a challenge because I had relied on this give-and-take of communication to learn about my students' understanding of a topic, to address their questions, and to give them feedback for improvement. From this struggle to learn more about and from my students, came my interest in communication and this resulting research into feedback and formative assessment as tools for communication.

This research study was designed to develop a formative assessment and feedback plan to meet the communication needs of my online classroom. By beginning with research into best practices for feedback and assessment, I was able to focus my efforts on the application of these practices to an online classroom. In many ways teaching online has proved to be the same as a traditional classroom: students still struggle with certain concepts, late work happens, and showing your work still matters. However, knowing my students' thinking, correcting their misconceptions, and encouraging their progress are more difficult because of the time and space between us. Scheduling and time zone differences mean that students' feedback is often 24-48 hours after they have started a lesson (most work is turned in the day after it is begun, and I give feedback within 24 hours). In order to bridge this communication gap, I knew I needed a plan.

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This study became more than just a search for a better feedback and assessment plan. Through research, my beliefs and practices regarding teaching have been modified, and I am a different teacher. I have had the opportunity to develop a plan, carry it out, and see changes in my practices because of this field study.

### **Conclusions**

The success of this research study comes not in measurable quantities such as more students passing a test, more emails between teacher and student, or a measurable increase in student enjoyment of an activity. Rather, the success of this project can be seen in the students' comments that speak specifically to what type of feedback mattered to them and which assessments they enjoyed or were helpful. These records showed me what matters to my students and supported my hope that more time and energy given to feedback and assessment practices would matter. The conclusions I share here are what worked best for my students and me in an online class.

**Learning targets.** While use of learning targets was not a specific area of this study, organizing the lessons and quizzes by learning target was a byproduct of my efforts to get more detailed information about my students' understanding. This practice also helped me give students better feedback. Instead of commenting on every error students were making, I learned to set goals for feedback each day in order to focus on improvement of understanding concepts. By referencing the learning targets, students' efforts were directed to what was most important in a unit. Maintaining this practice of referring to learning targets when teaching and giving feedback will be part of my future feedback plan.



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**Student self-assessment.** Though student tracking of progress on learning targets was not as successful as I hoped, improving on the system and reteaching students how to track their progress can help students take charge of their own learning. Improving practices for self-assessments in this way will be part of my feedback plan.

**Teacher comments.** Student comments and survey responses were clear in their preferences for teacher comments in written or video form. In either form, teachers can give personal comments that focus on strengths and improvements. Time constraints make it impractical for me to use video comments daily, but using this method for important assessments like the mid-unit quiz make it possible for me to speak directly to each student. Since beginning this study and changing my feedback and assessment practices, I have spent more time on giving quality feedback to students. Although it takes more time and effort, the benefits for giving more constructive personal feedback outweigh the increased time, especially when I see improvements on students' corrected work.

Allowing ample time for giving feedback meant making feedback part of my daily routine. I could no longer delay looking at student work one night because I had personal commitments or was sick because timely and consistent feedback was one of my goals for implementing best practices. This commitment to timely feedback paid off when I could contact students immediately if I saw big errors in concepts and work with them via video chat to fix a problem before it snowballed through a chapter. Receiving emails from students regarding a comment I made reinforced my belief in the benefits of specific, personal comments on every learning task. Written or video, timely, personal, specific comments from the teacher are an essential part of my feedback plan.

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**Traditional vs technological assessments.** Interestingly, students engaged in an online course showed a preference for traditional activities such as daily work and corrections over technology-driven methods such as online activities and games that gave computer-automated feedback. Are students just gravitating to what they are used to? Maybe. Since student self-reported learning and enjoyment of all three of these activities increased during the study, students' experiences with each type may have increased their positive perceptions of learning from and enjoying different assessment types.

Typing equations allows for possible errors, so eliminating non-mathematical errors from these activities may be an important part of increasing student success and enjoyment. Determining which types of online activities are most successful for students could help improve their learning from and enjoyment of online activities. Including daily work, corrections, and online activities are important in an assessment plan for my online class.

**Corrections.** Reviewing my journal showed multiple times when I wrote about corrections (from a quiz or daily work) showing me students' thinking (errors in understanding), and how requiring corrections from students helped students improve. Several times during the study, I had the opportunity to share with students that even if they were satisfied with a certain grade on a task, corrections were mandatory so they could improve their work and gain a deeper understanding. These opportunities to learn from feedback and use it to move forward fit with best practices for feedback and assessment. Students rated corrections second-highest in learning for the post-study survey, indicating they too saw the benefit of reviewing their work. Including more

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opportunities to do corrections will be an important part of my assessment plan as it helps train students to use feedback to improve.

**Summary.** My goal for this field study was to develop a feedback and formative assessment plan for the online Algebra 1 class that was more personal than, “Always follow all best practices for feedback and formative assessment.” How was I going to figure out what worked best for my students and myself when I never met my students face-to-face? Student surveys and personal reflection on feedback and assessment have shown me a few clear directives. My class’s formative assessment plan will include: daily work, quizzes, corrections, and online activities. Timely teacher-written and video comments, use of learning targets, corrections, and improved student self-assessment will be the basis of the feedback plan. After months of research and study, this developed feedback and formative assessment plan is a pared-down version of best practices: personal, specific, and timely feedback, that occurs with each assessment, and involves students in the feedback and assessment loop.

### **Recommendations**

A feedback and formative assessment plan is unique to each teacher and his or her students. What works in an online course for middle-school students may not be effective for adults, young children, a traditional classroom, or another class of middle-school students with a different teacher. Therefore, the recommendations I share come specifically from one situation and should be reviewed before applying them in general.

**Practice.** Improving feedback content is a constant challenge for me. Setting goals for my feedback each day, focusing on the lesson’s learning target content, and utilizing one best practice strategy, is the only way I have been able to become better.

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Consider treating improving your feedback to students as how your students learn a new math skill: practice, practice, practice! What feedback type and best practice can you make your goal this week?

**Try something new.** Each group of students will be different in their needs and preferences. There are many different types of feedback and assessments you can use. Try different feedback and formative assessments, consider the costs and benefits to you and informally survey your students. What preferences do you have as a class? What feedback practices are most effective for time and ease of implementation?

**Keep using what works.** I was surprised by how highly students rated corrections. While the practice of doing corrections on work may be outdated, writing quality feedback to guide student corrections makes it a valuable tool for completing the student-teacher communication loop. What other feedback and assessment practices do you have that need to be brought back out of the toolbox?

### **Further Study**

Similar to most reading I do, the more I learn, the more I realize how many questions I still have. Researching and developing my feedback and formative assessment plan has solidified answers to questions about writing effective feedback, using learning targets, and varying assessment types, but has left me with more areas I want to explore.

Challenges this semester with weather resulted in much late work at times, making me grateful I was not penalizing student grades for late work, but left me struggling with giving comments on work submitted after a student took a unit test. While I have plans to have students do corrections on unit tests before the semester exam, this very late work led me to more questions. “Should I not have set dates for quiz/tests

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and only allow students to take a test when all preceding work is complete?” “If work is submitted too late for feedback before summative assessments is there even a point to turning it in?” “How can I separate academic grades completely from behaviors such as late work or skipping problems or assignment?” “And how would grade schools deal with that type of report?” Changing my feedback practices causes me to question other teaching practices that are unavoidably connected to feedback.

One thing that surprised me was that in both the pre- and post-study surveys, students indicated that grades helped them improve their understanding. This is an area I would like to explore more and find out how they think that grades help them improve.

Getting positive responses from students regarding corrections has led me to rethink my unit tests. Instead waiting to review unit tests until prior to the semester exam, should my students be continuously reviewing each unit? Should corrections on all assignments and unit tests be implemented? I know some skills and concepts transfer forward each unit but much is taught in isolation. Could I better serve my students' continual improvement by using a cumulative type of assessment for each unit?

Students' low rating for online activities and assessments has me curious about the reasons behind their ratings. Further questions into students' experiences and opinions are needed to determine which types of activities students have experienced, what the feedback was like, and why students liked or disliked each activity. What designs promoted the most learning and enjoyment for students? How can I improve the ones I already use? Do students get burnout from too many online activities? Are they better used for review or introduction of a skill?

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Finally, reviewing student peer feedback on partner assignments and their self-assessment of Learning Target progress after specific assessments leaves me wondering how to train students to do better peer feedback and self-assessment in the online classroom. Watching a video on the skill does not accommodate the questions that may develop during such a task like that, but gathering students from three different time zones for a synchronous video lesson is not necessarily feasible.

While this field study on feedback and formative assessment has concluded, my learning has only begun. Changing my feedback and formative assessment practices to fit the needs of my students will be a constant practice, ever causing me to consider whose needs I serve. This field study has taught me to educate myself, try something new in my classroom, and learn from the experience. The more I considered how assessment and feedback worked together to help my students, the more questions I encountered about my teaching practices and how they impact students. Learning from this field study that the amount and type of feedback and assessments are important to students and myself, encourages me to set a specific goal for each school year focused on change and growth for my students and for myself.

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## References

- Baghdadi, Z. D. (2011). Best practices in online education: Online instructors, courses, and administrators. *Turkish Online Journal of Distance Education*, 12,(3) 109-117.
- Black, P. & Wiliam, D. (1998). Inside the black box: Raising standards through classroom assessment. *Phi Delta Kappan*, 80(2), 139-148.
- Black, P., Harrison, C., Lee, C., Marshall, D., & Wiliam, D. (2004). Working inside the black box: Assessment for learning in the classroom. *Phi Delta Kappan*, 86(1), 8-21.
- Briggs, D. Ruiz-Primo, M., Furtak, E., Shepard, L., & Yin, Y. (2012). Meta-analytic methodology and conclusions about the efficacy of formative assessment. *Educational Measurement: Issues and Practice (pre-print)*.
- Brookhart, S. (2007). Feedback that fits. *Educational Leadership*, 65(4), 54-59.
- Brookhart, S. (2012). Preventing feedback fizzle. *Educational Leadership*, 70(1), 24-29.
- Brookhart, S., Moss, C., & Long, B. (2008). Formative assessment that empowers. *Educational Leadership*, 66(3), 52-57.
- Chappuis, J. (2009). *Seven strategies of assessment for learning*. Upper Saddle River, NJ: Pearson Education.
- Chappuis, J., Stiggins, R., Chappuis, S., & Arter, J. (2012). *Classroom assessment for student learning: Doing it right - using it well*. Boston: Pearson.
- Dill-Varga, B. & Roubitchek, A. (2015). Feedback for impact. *ASCD Express*, published online. (Retrieved January 17, 2018, from <http://www.ascd.org/ascd-express/vol10/1019-dillvarga.aspx>)
- Dunn, K. & Mulvenon, S. (2009, March). A critical review of research on formative assessment: The limited scientific evidence of the impact of formative assessment in education. *Practical Assessment, Research & Evaluation*, 14(7), 1-11.
- Dweck, C. S. (2007). The perils and promises of praise. *Educational Leadership*, 65(2), 34-39.
- Elbaum, B. M., & Smith, A. (2002). *Essential elements: Prepare, design, and teach your online course*. Madison: Atwood Publishing.
- Gearhart, M., & Saxe, G. B. (2004). When teachers know what students know: Integrating mathematics assessment. *Theory Into Practice*, 43(4), 304-313. (Retrieved June 23, 2014, from <http://content.ebscohost.com.emil.mlc-wels.edu/ContentServer.asp?T=P&P=AN&K=15316445&S=R&D=aph&EbscoC>)

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ustomer=dGJyMOvX8ITz6uZT69fnhrb4osA)

- Heppen, J., Walters, K., Clements, M., Faria, A., Tobey, C., Sorensen, N., & Culp, K. (2012). Access to algebra 1: The effects of online mathematics for grade 8 students). Washington, D.C.: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Huffman, P. D. (2007). *"Look what I did!" Why portfolio-based assessment works.* (Retrieved May 30, 2018, from Earlychildhood NEWS: [http://www.earlychildhoodnews.com/earlychildhood/article\\_view.aspx?ArticleID=495](http://www.earlychildhoodnews.com/earlychildhood/article_view.aspx?ArticleID=495))
- Iowa Department of Education. (2016). *Literature review: Assessment for learning/formative assessment.* (Retrieved May 15, 2018, from Central Rivers Area Education Agency: [https://www.centralriversaea.org/wp-content/uploads/2017/03/C4\\_Lit-Review\\_assessmentforlearning-Revised-5.16.17.pdf](https://www.centralriversaea.org/wp-content/uploads/2017/03/C4_Lit-Review_assessmentforlearning-Revised-5.16.17.pdf))
- Kerr, S. (2011). Tips, tools, and techniques for teaching in the online high school classroom. *TechTrends*, 55(1), 28-30.
- Lalor, A. D. (2012). Keeping the destination in mind. *Educational Leadership*, 70(1), 75-78.
- Leahy, S. L., Lyon, C., Thompson, M., & Wiliam, D. (2005). Classroom assessment: minute by minute, day by day. *Educational Leadership*, 63(3), 19-24.
- Liu, F., & Cavanaguh, C. (2012). Factors influencing student academic performance in online high school algebra. *Open Learning*, 27(2), 149-167.
- McIsaac, M. S., & Vrasidas, C. (1999). Student and teacher perceptions of interactions in online computer-mediated communication. *Educational Media International*, 36(2), 121-131.
- Nicol, D., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199-218.
- Romagnano, L. (2001). The myth of objectivity in mathematics assessment. *Mathematics Teacher*, 94(1), 31-37. Retrieved June 23, 2014, from <http://www.peterliljedahl.com/wp-content/uploads/Myth-of-Objectivity1.pdf>
- Rust, C., O'Donovan, B., & Price, M. (2005). A social constructivist assessment process model: How the research literature shows us this could be best practice. *Assessment & Evaluation in Higher Education*, 30(3), 231-240.



## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

- Sadler, D. R. (1989). Formative assessment and the design of instructional systems. *Instructional Science*, 18(2), 119-144.
- Scott, S. J. (2012). Rethinking the role of assessment in music education. *Music Educators Journal*, 98(3), 31-35.
- Stiggins, R. (1999). Assessment, student confidence, and school success. *Phi Delta Kappan*, 81(3), 191-198.
- Stiggins, R. (2007). Assessment through the student's eye. *Educational Leadership*, 64(8), 22-26. Retrieved from <http://www.ascd.org/publications/educational-leadership/may07/vol64/num08/Assessment-Through-the-Student's-Eyes.aspx>
- Tallent-Runnels, M., Thomas, J., Lan, W., Cooper, S., Ahern, T., Shaw, S., & Liu, X. (2006). Teaching courses online: A review of the research. *Review of Educational Research*, 76(1), 93-135.
- Weurlander, M., Soderberg, M., Scheja, M., Hult, H., & Wernerson, A. (2012). Exploring formative assessment as a tool for learning: Students' experiences of different methods of formative assessment. *Assessment & Evaluation in Higher Education*, 37(6), 747-760. doi:10.1080/02602938.2011.572153
- William, D. (2007). *Five "key strategies" for effective formative assessment*. Reston: The National Council of Teachers of Mathematics.

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### Appendix A: Student Survey – Pre-Study

Rate the following learning tasks (assessments) on a 1-3 scale according to how much you learn from each activity.

NA – I have never done this activity

1 – I learn nothing from this activity

2 – I learn some things from this activity

3 – I learn a lot from this activity

- A. Test
- B. Quiz – paper and pencil
- C. Online Quiz/Activity – computer comments and score
- D. Daily work
- E. Group discussion
- F. Partner work and corrections
- G. Unit projects
- H. Doing corrections on a lesson, quiz, or test

Rate the following learning tasks (assessments) on a 1-3 scale according to how much you enjoy each activity.

NA – I have never done this activity

1 – I do not like this activity

2 – I enjoy this activity somewhat

3 – I enjoy this activity a lot

- A. Test
- B. Quiz – paper and pencil
- C. Online Quiz/Activity – computer comments and score
- D. Daily work
- E. Group discussion
- F. Partner work and corrections
- G. Unit projects
- H. Doing corrections on a lesson, quiz, or test

Please rate each type of feedback on a 1-3 scale according to how much it helps you improve your work.

NA – I've never received this type of feedback before

1 – Unhelpful, I didn't learn anything from it

2 – Somewhat helpful

3 – Very helpful, I could understand what to change

- A. Teacher comments - written
- B. Teacher comments - video
- C. Emails/postings with comments and examples
- D. Peer comments (other students)
- E. Auto generated responses from online activities (quizzes, games etc.)
- F. Grades

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Please check all boxes that describe comments or feedback you have received in the past

- Grades
- Comments like: Good work, well done
- Comments that tell me what I did correctly
- Comments that tell me what I did wrong
- Suggestions on how to improve my work
- Comments that came after we finished a test or project
- Comments that helped me get ready for a test or project
- Comments that I didn't understand
- Comments that were easy to understand
- Too many comments on one task to learn from them
- No comments because I got an A
- Comments that made me redo a task
- Comments from a peer
- Comments from a rubric or checklist that I compared my work to

Do you have anything to add about the feedback or comments you have received on your work in the past? (Types, likes, etc.)

Do you have anything to add about the learning tasks (assessments) you have done in the past?

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### Appendix B: Student Survey – Post-Study

When answering each question, please consider learning tasks (assessments) and comments (feedback) from this semester of Algebra 1.

Rate the following learning tasks (assessments) on a 1-3 scale according to how much you learn from each activity.

NA – I have never done this activity

1 – I learn nothing from this activity

2 – I learn some things from this activity

3 – I learn a lot from this activity

- A. Test
- B. Quiz – paper and pencil
- C. Online Quiz/Activity – computer comments and score
- D. Daily work
- E. Group discussion
- F. Partner work and corrections
- G. Unit projects
- H. Doing corrections on a lesson, quiz, or test

Rate the following learning tasks (assessments) on a 1-3 scale according to how much you enjoy each activity.

NA – I have never done this activity

1 – I do not like this activity

2 – I enjoy this activity somewhat

3 – I enjoy this activity a lot

- A. Test
- B. Quiz – paper and pencil
- C. Online Quiz/Activity – computer comments and score
- D. Daily work
- E. Group discussion
- F. Partner work and corrections
- G. Unit projects
- H. Doing corrections on a lesson, quiz, or test

Please rate each type of feedback on a 1-3 scale according to how much it helps you improve your work.

NA – I've never received this type of feedback before

1 – Unhelpful, I didn't learn anything from it

2 – Somewhat helpful

3 – Very helpful, I could understand what to change

- A. Teacher comments - written
- B. Teacher comments - video
- C. Emails/postings with comments and examples
- D. Peer comments (other students)
- E. Auto generated responses from online activities (quizzes, games etc.)

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## F. Grades

Please check all boxes that describe comments or feedback you have received in this semester of Algebra 1.

- Grades
- Comments like: Good work, well done
- Comments that tell me what I did correctly
- Comments that tell me what I did wrong
- Suggestions on how to improve my work
- Comments that came after we finished a test or project
- Comments that helped me get ready for a test or project
- Comments that I didn't understand
- Comments that were easy to understand
- Too many comments on one task to learn from them
- No comments because I got an A
- Comments that made me redo a task
- Comments from a peer
- Comments from a rubric or checklist that I compared my work to

Do you have anything to add about the feedback or comments you have received on your work in this semester of Algebra 1? (Types, likes, etc.)

Do you have anything to add about the learning tasks (assessments) you have done in this semester of Algebra 1?

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**Appendix C: Teacher/Researcher Journal****Pre-Study Comments**      December 2018

- Creating my own 3-10 question lesson checks that are computer assessed took a lot of time... including comments and reasonable wrong multiple choice questions meant a lot of computer work - probably an hour per task. When I can find an online quiz or activity to link to it saved me significant time but meant I had limitations as to what questions it asked students. ... I am interested to see which students prefer - I might need to add a survey question casually to see if they like Kahn Academy or mine better
- Sent out my student/parent/teacher email today (Dec 10) I expect to hear from some and follow up with all before class starts Jan 7.

*Note:* Checklist items in *italics* were implemented in the given week.

**Weekly Checklist**      **Week 1 - Jan 6-12****Feedback**

- Timely and consistent*
- Content prioritized by learning targets
- Personal
- Student-friendly language*
- Usable amounts*
- 3 Parts*
  - Praise*
  - Process/Strategies*
  - Questions/Constructive Comments*
- Complete the feedback loop – student response to feedback

**Formative Assessment**

- Use assessment information to adjust teaching
- Ungraded tasks - focus on improvement
- Share goals/targets with students*
- Give feedback*
- Provide opportunity to use given feedback
- Student involvement: peer or self-feedback, revisions, or collaboration

**Mon** - FA: I like seeing the students Sem Rvw work, it's good to see how they show their work and I already emailed with content related questions. I need to remember to steer him to the online forum.

**Wed** - Writing comments and correcting Sem Rvw work takes approx. 5 minutes per student - 85 minutes an assignment? Commenting on more than the actual solving of each problem is going to be a touch habit to break. I think I need to make a goal for each day: example - *Today when correcting I will give each student 1 positive comment and 1 strategy/process comment for improvement.* I will write this goal on a post-it-note next to my screen so that as I look at each digital assignment I am reminded of my focus for today's feedback.

## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

**Thurs** - One student called in to HH, answered one question by chat - Today I worked on asking students a question in my feedback - super hard for students who did really well. I also tried only commenting on 1 area of improvement to be specific and achievable - this was a challenge for me with students who struggled in several ways, because I had to make myself suggest only 1 area. I am struggling to give ungraded tasks because I feel if I require something I should give credit for it in some way, so I am trying to make most of daily work and online activities grades completion (example: 5 point assignment - 4 for doing it and 1 based on quality of work) Would I feel differently if the students were older or if this was a traditional classroom? I've had 2 kids email me because of things I wrote on their work - YES!

### Weekly Checklist

### Week 2 - Jan 13-19

#### Feedback

- Timely and consistent*
- Content prioritized by learning targets*
- Personal*
- Student-friendly language*
- Usable amounts
- 3 Parts
  - Praise
  - Process/Strategies
  - Questions/Constructive Comments
- Complete the feedback loop – student response to feedback*

#### Formative Assessment

- Use assessment information to adjust teaching
- Ungraded tasks - focus on improvement
- Share goals/targets with students*
- Give feedback*
- Provide opportunity to use given feedback*
- Student involvement: peer or self-feedback, revisions, or collaboration*

**Mon** - Writing comments is getting easier as I focus feedback on 1-2 things. However, does circling/marking errors in their work negate the focus of 1-2 comments? I was sick last week and over the weekend so I didn't try video comments but that is my goal for this week. 1 per kid... maybe for the quiz on Thursday.

**Tues** - Today's goal for feedback - Comments only based on learning targets - no saying things about little errors or showing work etc.

**Thurs** - Commenting and correcting are getting easier as I realize my mindset regarding homework and quizzes has changed. Research and developing this project is helping me appreciate that the cycle of student work, feedback, adjustments, work, feedback etc. is more important than late work or perfect score. I find myself wanting to skip grades on things (like quizzes and homework) and just keep having kids work on stuff until they demonstrate that unprompted (like a quiz or test) that they can do a skill and show understanding of a concept. Therefore I also find myself not caring about Late Work, yet wanting to maintain some standard "pace" through the online class so partner assignments and other group work are possible.... I realize that without a pace some students would fly and other wouldn't finish which is probably realistic of their abilities but not possible if I want to utilize peer feedback and cooperative learning.

## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

**Fri** - Recorded my first video comments today. Good things: Loved giving personal comments that the student may pay more attention to (required corrections to help create a situation where they do something with the feedback), easier to explain math concepts and able to focus on learning targets (quiz itemized by target). Technical upload issues meant this took way longer than it needed to. I probably spent 1 hour correcting, 45 minutes making videos, and another hour trying to get them to upload - same method each time but the technical side failed me. Instead of uploading the videos in Moodle next time I might email them to the students and CC the parents... I think at this age parents might like the information.

I'm afraid in my excitement I blew past the "useable amount" concern.... How do I not mark every error on a quiz... or do I mark the error, but only comment on 2-3 things to improve on? I collected data for myself on errors per learning target so I could see which targets need more work - this will help me plan for several of the lessons this coming week. Data showed mostly minor errors for most targets with 2 that need lots of work, and 0-2 outlier errors per problem (major points off vs. 0.5-1 points). Question to self: does an online activity count as an ungraded task if I give points solely for completion? They are designed for practice and immediate feedback, not scores.

### Weekly Checklist    Week 3 - Jan 20-26

#### Feedback

- Timely and consistent*
- Content prioritized by learning targets
- Personal*
- Student-friendly language*
- Usable amounts
- 3 Parts*
  - Praise*
  - Process/Strategies*
  - Questions/Constructive Comments*
- Complete the feedback loop – student response to feedback*

#### Formative Assessment

- Use assessment information to adjust teaching*
- Ungraded tasks - focus on improvement
- Share goals/targets with students
- Give feedback*
- Provide opportunity to use given feedback*
- Student involvement: peer or self-feedback, revisions, or collaboration*

**Mon** - I love giving feedback and seeing things get better. Students did corrections on 1 assignment from early in the unit and its nice to see their improvement. I am interested to see how quiz corrections go and if their correcting carries over to the review lessons. Today I am writing the TBD lesson based on feedback and learning targets...got to love using data to make the decision on what to teach. I wish my students understood why I had them tracking learning targets - the lack of consistent tracking makes me think they don't get it. How can I make it something they do naturally and see the impact of? Students work on Partner Review problems this week. Hopefully they get some benefit from talking it out with each other.



## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

**Tues** - How to motivate students to turn work in. I know it has nothing to do with feedback and assessment in a strict sense, but it impacts because I can't give feedback on what I can't see and feedback can't help them improve if I can't give it before a quiz/test. I don't want to use grades (0) to motivate students to turn work in, but in this environment, does the little push help? And am I undoing it by giving full credit... I don't want to penalize for late work but I want it turned in.

**Thursday** - I've been reviewing corrections of student homework (their choice of one assignment) and the Mid-unit quiz. While corrections are mandatory, students who need to improve the most are not turning in their corrections... why is this always the case. Also, answered several emails/msgs from students who had A/A-'s asking if they had to do the corrections because they were satisfied with their first score. Describing something as a required assignment seems to make it questionable to students... I think they are used to corrections only being for poor grades.... I had to do quite a bit of explaining that the corrections about the grade (though I am giving credit back for quality work) but they are about learning from your mistakes and using feedback to build your understanding. The students corrections are looking good... on the HW I tend to be more specific on how to fix their error, but for the quiz I tried to mark the error and in my video comments ask questions to steer them into the

**Friday** - I'm struggling with what is a "usable amount" of feedback. When correcting math homework I feel like I need to mark every error or I am giving the impression that all is OK. But does that contradict the limiting feedback to 1-2 actable suggestions ... I am limiting my written comments/but does that really count?

**Saturday** - Correcting today I made a conscious decision to give feedback in 2 of 3 ways: positive comment, point out careless oops mistakes, or point out conceptual mistakes. Giving a careless or conceptual comment helped me see which students were getting it but had errors vs which students didn't understand something. It benefited me and I'd like to have students do an error analysis like that in the future.

### Weekly Checklist    Week 4 - Jan 27 - Feb 2

#### Feedback

- Timely and consistent*
- Content prioritized by learning targets*
- Personal*
- Student-friendly language*
- Usable amounts*
- 3 Parts
  - Praise*
  - Process/Strategies*
  - Questions/Constructive Comments*
- Complete the feedback loop – student response to feedback

#### Formative Assessment

- Use assessment information to adjust teaching
- Ungraded tasks - focus on improvement
- Share goals/targets with students*
- Give feedback*
- Provide opportunity to use given feedback
- Student involvement: peer or self-feedback, revisions, or collaboration

## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

**Sunday** - Technical issues seem to keep some of my students from submitting work.

How can I help them through feedback when they seem to have issues turning in their work on time (or at all)?

**Monday** - Weather issues remind me again how frustrating the calendar can be. There are days I want to run this class with no calendar and just move students at their own pace through a core of lessons providing more or less as needed, but I like seeing the partner discussions and hearing them learn from each other - a valuable tool, so which is more important: individual pace or group elements?

**Tuesday** - Correcting tests has me wondering if students are reading my feedback.

Tomorrow I will post a “feedback” survey on Moodle just to ask if they are reading typed or written comments on their daily work. I am curious if they are using it. I feel like I am providing opportunities to get feedback, to use feedback, and to learn from each other but I’d like to know if they are taking advantage.

**Wednesday** - Thoughts on best practices for Feedback: *Timely and Consistent* - I am realizing that while I can be timely and consistent, the value to the students is limited to their consistency and timeliness in turning in work. I cannot force completion (and I am not using grades to punish lateness) so my feedback can’t be timely (usable before a quiz or test) if they are not turning in work until right before the test. *Three parts*: I’ve started using the “Two things” format and trying to make 1 positive and one process/constructive comment each time. I find the format helpful because it forces me to think of something specific from that lesson that they are doing well (I tend to dwell on what to do better) and it gives them one actionable thing to focus on. Again I wonder if my written comments are a different thing than circling/markings errors on a math page? I think they are, comments focus on strategy, skills, and process, vs marks on a page circling where little errors or things went wrong. Hmmm How often do students need to respond to feedback to make it effective?

**Fri/Sat** - Working on correcting student late work from Ch 6 as they finished things up, it seems pointless to give feedback but I continue. I know messages go to them by email, so I hope that they read it and give it a chance. I’d had some email questions over the weekend and enjoy the chance to help kids one on one solve their problems .... It’s interesting to see how much coaching they need and who just needs me to ask the right question.

### Weekly Checklist Week 5 - Feb 3-9

#### Feedback

- |   |  |
|---|--|
| <input type="checkbox"/> <i>Timely and consistent</i>                   | <input type="checkbox"/> <i>Questions/Constructive Comments</i>                              |
| <input type="checkbox"/> <i>Content prioritized by learning targets</i> | <input type="checkbox"/> <i>Complete the feedback loop – student response to feedback...</i> |
| <input type="checkbox"/> <i>Personal</i>                                | <i>track LT’s on Fri</i>   |
| <input type="checkbox"/> <i>Student-friendly language</i>               |  |
| <input type="checkbox"/> <i>Usable amounts</i>                          |  |
| <input type="checkbox"/> <i>3 Parts</i>                                 |  |
| <input type="checkbox"/> <i>Praise</i>                                  |  |
| <input type="checkbox"/> <i>Process/Strategies</i>                      |  |

## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

### Formative Assessment

- Use assessment information to adjust teaching...developing TBD lesson*
- Ungraded tasks - focus on improvement ... does a grade for completion count as ungraded*
- Share goals/targets with students*
- Give feedback*
- Provide opportunity to use given feedback*
- Student involvement: peer or self-feedback, revisions, or collaboration*

**Wednesday** - I feel like the hardest part of this process is not knowing if the students are reading comments. I took an unofficial survey on Moodle and of the 7 kids who responded (of 17) they all said they read hand written and typed comments on their daily work for SOME or ALL of their assignments. I guess that means good things for 7 kids, but I have a feeling those 7 kids are the ones who are the top students anyway. What about the kids that I have trouble reaching, getting work from, and connecting with.

**Thursday** - I have never in my teaching years spent so much time giving comments on work. I wonder how this effort would play out in my high school teaching days when I had 100 students a day, not 17. Would I be able to write 1 comment on each kids' work every day? Or would I have to give myself "credit" for comments if I gave a kid verbal feedback in class and skip a written comment? I guess this is where more Peer and Self evaluations would come in handy. I actually find I like giving comments... it is a neat way to reach each kid personally and I find the more I do it the better I am getting at writing a clear comment focused on the LT's... either that they are successful at doing a certain skill or focusing on one/two things they can do to improve their work that lesson. It's a big change from my old method of writing great work or well done or needs improvement or see me. GOAL for Friday - give video feedback to each kid tomorrow on whatever assignment of theirs I correct tomorrow.

### Weekly Checklist    Week 6 - Feb 10-16

#### Feedback

- Timely and consistent*
- Content prioritized by learning targets*
- Personal*
- Student-friendly language*
- Usable amounts*
- 3 Parts*
  - Praise*
  - Process/Strategies*
  - Questions/Constructive Comments*
- Complete the feedback loop – student response to feedback*

#### Formative Assessment

- Use assessment information to adjust teaching*
- Ungraded tasks - focus on improvement*
- Share goals/targets with students*
- Give feedback*
- Provide opportunity to use given feedback*
- Student involvement: peer or self-feedback, revisions, or collaboration*

## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

**Monday** - Lots of correcting over the weekend. Still dealing with kids behind on assignments and missing work... quiz tomorrow. How do I make them see that turning things in well before the quiz gives them an opportunity to learn before the quiz?

**Wednesday** - when it rains it pours. Today I am getting inundated with work as students submit late stuff, quizzes, and work from some who were stuck in snowy weather. I appreciate that they are taking the quiz on time, but I feel bad that they are not getting feedback on all their homework since they are submitting things late

**Thursday** - tonight giving feedback on homework I found myself slipping back into the pattern of commenting on everything that was going wrong. It made me realize that this is a lifelong adjustment of teaching style but it matters. So tomorrow when I give feedback I will again give myself the format of commenting on 2 things: 1 positive comment and 1 constructive comment. We are in the "review and reteach" part of the unit, so it should be easy to find a strength of their work and to have limited areas that need improvement. Several students have had severe weather complicate their schedule this week and it has again reminded me that I am SOOOO happy to not be including lateness as factor when grading work. It's awesome to not think about when something is/was due, and rather focus on how well it is done and what can be done better. I would be driving myself crazy. Also, I had the opportunity to explain to a proctor this week about a student's poor grade, and it was such a relief to be able to support that all her grade was academic factors or completely skipping an assignment, not timeliness. I am still using 0's for something required but incomplete, because I have no other way to convey to students and parents that their work was undone and matters.... I think in a traditional school setting or standards based grades this could be a different part of the report card... maybe in the future I can adjust my grade book to reflect grades for content and grades for behavior/responsibility somewhere else and then each grade school can decide how they want to incorporate the two.

**Friday** - send out missing work emails last night. I hope students find the reminder helpful that they have several days before the test to complete the work. The goal is learning and improvement and that doesn't happen without doing the practice. Homework corrections are looking great - I hope this means that they are internalizing what they are doing... simplifying radicals seems to be an issue for almost everyone ...everything else is hit and miss ... formulas for sequences, zero, negative, and same base exponent rules keep getting some

**Saturday** - doing some data analysis of tests regarding learning targets ... Errors are careless, calculation, or concept. Do I need to go back through my data from Ch 6 quizzes and sort out the errors of careless and computation and only count true errors of concept when I analyze????

### Weekly Checklist    Week 7 - Feb 17-23

#### Feedback

- |   |   |
|---|---|
| <input type="checkbox"/> <i>Timely and consistent</i>                   | <input type="checkbox"/> <i>Student-friendly language</i> |
| <input type="checkbox"/> <i>Content prioritized by learning targets</i> | <input type="checkbox"/> <i>Usable amounts</i>            |
| <input type="checkbox"/> <i>Personal</i>                                | <input type="checkbox"/> <i>3 Parts</i>                   |
|   | <input type="checkbox"/> <i>Praise</i>                    |
|   | <input type="checkbox"/> <i>Process/Strategies</i>        |

## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

- *Questions/Constructive Comments*
- *Complete the feedback loop – student response to feedback*
- *Ungraded tasks - focus on improvement*
- *Share goals/targets with students*
- *Give feedback*
- *Provide opportunity to use given feedback*
- *Student involvement: peer or self-feedback, revisions, or collaboration*

### **Formative Assessment**

- *Use assessment information to adjust teaching*

**Thursday** - How can mandatory quiz corrections before the test seem optional? Since I am not actually in the classroom with the students I can't just stand in front of them and make them finish them. How do they not get the benefit?

**Friday** - Today marks the end of my 7 week study. It's been interesting. Off hand I would say commenting is getting easier in terms of length, and specificity, but having a plan for the specific feedback I want to give that day helps. Learning targets make comments easier because I focus on what skill they are learning instead of writing about simple errors. I like the online activities for the fast response they give kids, but I don't really get much data from them... students can choose to redo until they get 100, they can be satisfied with poor scores, or they can memorize answers. I'd like to think they get something out of it but I am interested to see their survey responses. I have grown to like reviewing homework more. Forcing myself to slow down and really understand their work has made me a better teacher. I can see what is going wrong and give a better comment - its like how in the classroom you review their work as they are working...just later. For me, video comments on quizzes are a great way to personalize the feedback and give really specific tips for improvement, but I struggle to know if my students are really using the video. Tests are the least helpful - but I have enjoyed looking at the test/quiz comparison...which targets improved, which are the same, and how much in general did the class improve. Corrections on student daily work and quizzes was one of my favorite ways to see their thinking. One idea for future units would be to shorten the second/review assignment on a skill and require corrections on the original assignment to be turned in with the new assignment... more work for me, but more opportunities for them to learn from their mistakes and improve.

## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

**Appendix D: Student Comments from Post-Study Survey**

**Do you have anything to add about the feedback or comments you have received on your work in THIS SEMESTER of Algebra 1? (Types, likes, etc.)**

No/Nope (8)

The feedback was very straightforward and easy to understand

Even though I have gotten A's on certain papers, I still get feedback on what to improve on.

I liked the written feedback. That helped me most.

I think this was a good semester.

It is something different

I like when you tell me what I have done right, and where I can improve. I really like video feedback

I got smiley faces and comments saying that something was a good method to solve the problem.

The video feedback was the best kind of feedback for me.

**Do you have anything to add about the learning tasks (assessments) you have done in THIS SEMESTER of Algebra 1?**

No/Nah (10)

They were challenging, but fitting

I just don't like the online games that's it. Everything else is great.

It is fun and I would change nothing

Not a huge fan of doing these

No, but I very much like this. it helps me know what to work on and get it stuck in my brain.

The review and lesson practices were very helpful.

## FEEDBACK AND FORMATIVE ASSESSMENTS IN ONLINE CLASSES

**Appendix E: Student Comments from Pre-Study Survey**

<b>Do you have anything to add about the feedback or comments you have received on your work in the past? (Types, likes, etc.)</b>
Most comments I have received were positive
No I have nothing to add / nothing (6 responses)
Usually all the feedback that I get in the past is helpful, but the worst thing is is when a teacher gives me a low score but doesn't address the mistakes that I made.
I like getting very clear and concise answers that are straight to the point
I like comments that are written, on the paper, next to the incorrect problem.
I have had to wait a long time for feedback.
I dont know because I usually barely pass
They were helpful and easy to understand
The work is hard, but its possible to do
Comments about what problems I forgot to do

<b>Do you have anything to add about the learning tasks (assessments) you have done in the past?</b>
no (7 responses)
They have been pretty easy to understand and they were pretty easy
Some definitely take time
They were fine enough
I like projects that connect to everyday life. By that I mean math problems we do everyday without realizing it.
After learning the lesson, there were things that weren't explain that we're in the assignment
Their not too tough, but challenging enough
I thought they were fun-ish
The tongue twister was fun