“Oreos” in Orchestra: Feedback Loops and Performance Based Assessment

Mary Nguyen

Colorado College

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Abstract

This mixed-method action research explores how peer feedback influences performance quality as measured by pre- and post- Performance Based Assessments (PBAs) in a suburban high school orchestra program. Students used “oreos” as a structure to provide a piece of positive feedback, a piece of constructive criticism, and a second piece of positive feedback. Beginning, Intermediate, and Advanced orchestra students gave and received feedback during three iterations of “oreos:” self-reflection “oreo,” stand partner “oreo,” and other section “oreo.” Their performance quality was measured by two teachers in a pre-test PBA and a post-test PBA. Results show that though the change in PBA score was positive, it was not statistically significant; however, the “oreos” provided students the structure to identify and define what elements constitute a good performance, to give and receive detailed feedback, and to continually promote the feedback loop.

Keywords: Music, Orchestra, Performance Based Assessment, Feedback, Performance Quality,

Introduction

When learning a skill that takes years to acquire, such as playing a string instrument, students often stagnate or find themselves unsure of what skills they need to practice or improve upon in order to give a good performance. However, if they understand the elements that make up a good performance and recognize what needs to be done, they can take steps towards improving their overall musicianship and enhancing the quality of their performances. Immediate, constructive, and individualized feedback gives students the opportunity to self-correct and work towards their performance goals.

No matter what career path young musicians ultimately embark on, it is necessary for them to become self-directed learners who know how to improve their skills in orchestra and any other discipline on their own. By utilizing the “oreo” structure, this action research aims to foster self-directed musicians by exploring feedback and assessment practices in orchestra.

Literature Review

Because of a lack of national standards guiding assessment in music compared to math or reading, music teachers (band, choral, and orchestra) at a single school may utilize a wide variety of assessment strategies (Cranmore & Wilhelm, 2017). Generally speaking, music teachers often develop their own assessments based off their personal beliefs and experience. Russell and Austin (2010) found that lack of pre-service training, time restraints, large class sizes, and resource shortages play a large role in music teacher grading policies. In particular, “Attendance and attitude were the most common grading criteria employed by instrumental and choral music teachers” and “non-achievement criteria such as attendance, attitude, effort, and participation may be given more overall weight in the grading process than achievement criteria” (p. 39).

When teachers do not rely on basing assessments on non-musical items like attendance, or behavior, they frequently balance individual/group informal/formal assessments in a rehearsal setting (Hale & Green, 2009; Wesolowski, 2012). Goolsby (1999) identified and defined four types of assessment: placement, summative, diagnostic, and formative. A placement assessment

is used to determine a student’s abilities to place them within a program and include auditions and chair testing. Summative assessments are when the final “product” of the group’s learning is demonstrated and evaluated such as a concert or festival. Diagnostic and formative assessments are used most commonly. Diagnostic assessments determine where difficulties exist, and formative assessments regularly monitor student learning. The Performance-Based Assessments (PBAs) in this action research falls under the summative category as it is given before a concert where the group’s learning is demonstrated. Wesolowski (2012) suggested a rubric system to assess music performances. Using these guidelines allows for more objectivity in assessing student performances (Hale & Green, 2009).

PBAs typically involve a variety of factors including, but not limited to: rubrics focused on observable skills (Pellegrino, Conway & Russell, 2015), beginning with the end in mind (Wiggins & McTighe, 1998), assessing during instruction, and teaching students to self-assess (Hale & Green, 2009). The basic parameters that affect the assessment of music performance include: type of music task, choice of repertoire, assessment criteria, overall impression, technical ability, and expressive components (Mazur & Laguna, 2017). By taking the opportunity to ensure students understand what is expected of them and involving them in the rating process, they come to deeply understand what makes a performance satisfactory. The pros to PBAs are great and are indeed worth the tenuous preparation and commitment.

As useful as PBAs are, they are not without their downsides. One, PBAs can take up a lot of time as a teacher must evaluate every student individually. Two, the tasks may not transfer or be generalizable enough to other contexts. Three, the amount of content that can be assessed is limited as it takes additional time per student. Four, the authenticity of a single, high-stakes performance is questionable. Finally, adjudicators or raters of performances are typically inconsistent with each other and with different contexts. All of these factors influence the validity, variability, and expectations of PBAs (Bergee, 2007).

Arguably the most important aspect of PBAs is feedback. Teachers tend to give specific feedback to students directed towards improvement of technique and musicality. In general, the overall performance quality is largely affected by technique and musicality (Russell, 2015). In the orchestra classroom, technique includes skills such as good posture, fingerings or shifting plans, and intonation. Musicality includes broad aspects of music such as phrasing and dynamics. To deliver good feedback, it must be given in a timely manner (Dunbar, 2011), break down concepts and techniques into observable skills that make daily progress checking concise (Pellegrino, Conway & Russell, 2015), and encourage students to appreciate their own music decision-making abilities so they have ownership of their repertoire (Burrack, 2002).

Teacher feedback is a critical component of PBAs, however extending that duty to students by teaching them to self-assess is a critical component of nurturing self-directed musicians. The key is the students’ own perception of their abilities and performance (Burrack, 2002; Hale & Green, 2009). The benefits of peer feedback and cooperative learning are great and enrich the overall PBA experience by assisting students with developing their perceptions of peer performances and their own ability level. A warm classroom with high peer rapport encourages meaningful discussion. Additionally, such a classroom is aligned with ideal approaches to curbing music performance anxiety because these classrooms utilize the two-pronged approach of promoting positive functioning in performance practices and reducing debilitating classroom circumstances (Cohen & Bodner, 2018). Like Zimmerman’s (1990) notion of self-regulation, the three-phase cycle for student self-reflections is as follows:

1. Students observe and emulate proficient self-regulators.
2. Students apply criteria to self-assess their own performance through scaffolded activities that enhance performance.
3. Students engage in autonomous self-assessment that leads to self-regulation and progressive practice and performance.

At the first level, students accurately apply performance criteria to others’ performances but do not use performance criteria to self-assess personal performance. At the second level, students engage in teacher-structured self-reflection during practice sessions that lead to changes in performance. At the third level, students engage in self-directed reflection during practice sessions that also lead to changes in performance. For students to eventually become self-directed in their own practice sessions, it is necessary that they self-reflect and give feedback to each other in addition to teacher feedback (Deluca & Bolden, 2014).

The students who participated in this study are high schoolers aged 14-18. During adolescence (approximately 10-20 years of age) the human brain is 90-95% of its adult size, nearly fully grown, but not yet fully developed. During this time, myelination processes continue to prune and proliferate the number of synapses between neurons. The parts of the brain that undergo change during this time are the corpus callosum, primarily responsible for task-switching; the pineal gland, primarily responsible for producing melatonin necessary to sleep; the cerebellum, which is responsible for posture, movement, and balance; and finally, the prefrontal cortex, which is responsible for executive functions including high-level cognition (OECD, 2007). During this time when the prefrontal cortex is developing, teaching and learning practices should be informed by brain development. More effective and age-appropriate teaching should allow for adolescences to hone their cognition. Thus, the need for feedback practices to foster more self-reflective students.

Zimmerman (1990) defined self-regulated learners as those who actively participate in their own learning by demonstrating motivation through their actions, such as planning, setting goals, staying organized, and consistently self-evaluating themselves during the skill acquisition process. Oftentimes individuals attempting to acquire skills that take years to attain, such as learning to play an instrument, may be at a loss for what goals to set along the way. This is why providing students with multiple opportunities to reflect and receive feedback from different sources assists with short- and long-term goal setting. After that, it is still up to the teacher, peers,

and individual students to continue to monitor, which is why it is important that feedback loops are perpetuated and continually promoted in the classroom.

PBAs provide one of the biggest outlets for teacher feedback, and when done in conjunction with student self-reflection and peer feedback, students will have three sources of information to triangulate in order to improve their overall musicianship. The purpose of this action research study is to foster self-directed musicians through teacher-directed self-reflection activities. The research question is: How does peer feedback influence performance quality in performance-based assessments (PBAs)?

Methods

Site

The action research took place at a public high school in a suburban area. This school serves 2,861 students from grades 9-12. The student demographics are as follows: 9.5% Black/African American, 15% Latinx, 9.4% Asian, 58% White, 6.5% Multiple Races, <1% American Indian/Alaskan Native, <1% Hawaiian Pacific Islander. Of the student body, 13% are on Free and Reduced Lunch.

Participants

85 orchestra students participated in this action research. 24 students were 9th graders in Beginning Orchestra. 35 students were 10th to 12th graders in Intermediate Orchestra. 26 students were 10th to 12th graders in Advanced Orchestra. All students had participated in orchestra in middle school and have to audition annually to join each respective ensemble.

Procedure

Students were administered a pre-test PBA in December before their final winter concert. Each student performed the required scales and excerpts from their concert repertoire in front of their peers and teachers. The teachers, a cooperating teacher and the action researcher, scored the students based on a 5-point rubric across four broad categories: rhythmic accuracy and bowings, note accuracy and intonation, dynamics and tone, and posture and technique (Appendix A). The

scores were given in conjunction with teacher feedback, which the students received immediately afterwards via email. After a PBA is completed, peers offer feedback “oreos” to the performer: a positive comment, a piece of constructive criticism, and another positive comment (Appendix B). During the following spring semester students were given three opportunities to give “oreos.” The first “oreo” they gave was to themselves to self-reflect on their progress in class. The second “oreo” they gave was to their stand partner, a peer playing the same instrument who is also similar in ability level. The third “oreo” they gave was to a random student in a different instrument section. At the time of each “oreo” students rated how helpful the experience was in improving their musicianship on a 7-point scale with 1 being not helpful and 7 being extremely helpful. After the three peer feedback sessions, students were administered a post-test PBA before their final spring concert where they played the necessary scales and concert repertoire excerpts. Due to time constraints, only the Beginning Orchestra was able to complete their post-test PBA.

Data Analysis

This action research used a mixed-methods approach. Qualitative data was collected from student “oreos” and the teachers’ feedback on PBA. Then, it was coded for emerging themes and trends. Quantitative data was collected from student ratings of the various “oreos” and from the pre- and post- PBA scores from the action researcher and cooperating teacher. Then, means were calculated for each class and teacher scores.

Results

When comparing the pre-test PBA scores to the post-test PBA scores, results show a positive change in student scores from winter to spring. A paired T-test was calculated for each teachers’ pre- and post- ratings. The ratings that the action researcher gave were statistically significant ($p = 0.006$), and the ratings the cooperating teacher gave were not statistically significant ($p = 0.277$). A possible reason for this discrepancy is the difference in time each teacher spent with Beginning Orchestra. The action researcher was lead teaching this class, so

she was able to observe progress from rehearsal to rehearsal and scored the PBA with each individual's growth in mind, whereas the cooperating teacher scored the overall performance and sound. The overall mean of the scores given by each of the teachers as well as the breakdown for each category are shown on Table 1 below. The rubric used was a 5-point rubric adding up to a total of 20 possible points (Appendix A).

Table 1

Beginning Orchestra PBA Scores

	Winter (Pre-Test)		Spring (Post-Test)	
	Action Researcher	Cooperating Teacher	Action Researcher	Cooperating Teacher
Overall Mean (μ)	18.61	18.57	19.27	18.95
Rhythmic Accuracy and Bowing (μ)	4.76	4.48	4.90	4.81
Note Accuracy and Intonation (μ)	4.33	4.57	4.52	4.62
Dynamics and Tone (μ)	4.90	4.90	4.90	4.95
Posture and Technique (μ)	4.62	4.62	4.95	4.57

At the conclusion of each respective "oreo," students were asked to rate how helpful this experience was in improving their overall musicianship on a Likert scale of 1-7 with 1 being not helpful and 7 being extremely helpful as indicated in Table 2.

Table 2

Mean Student Rating of "Oreos" by Class

	Self-Reflection Oreo	Stand Partner Oreo	Other Section Oreo
Beginning Orchestra	5.05	5.70	4.75
Intermediate Orchestra	5.09	6.00	5.54
Advanced Orchestra	4.71	5.04	4.84

When transcribed and informally coded for qualitative analysis, student feedback on the three types of "oreos" they gave and received was strikingly similar between the three orchestra classes. All of the classes found the stand partner "oreo," to be the most effective, and the other section "oreo" to be the least effective with the self-reflection "oreo" in-between.

It is worth noting that some of the scores were likely influenced by the quality of the feedback given. For example, if a student gave their stand partner nonspecific feedback that they felt was inaccurate, the rating of the "oreo" was decreased.

Self-Reflection "Oreo" (Give feedback to yourself)

Many students commented on how being explicitly asked to write out their self-reflection helped them proceed forward. A violinist in Beginning Orchestra wrote, *"I began to notice things I should practice."* From Intermediate Orchestra, another violinist said, *"It forced me to take what I already thought of and put it into words, prompting a plan of action."* Additionally, a violist in Advanced Orchestra said, *"I believe reflecting on my performance in class is a good way for me to identify areas of improvement."* By having to give themselves detailed feedback on specific skills such as vibrato, bow articulation, and note accuracy, students gained a better sense of what to focus on during their individual practice sessions.

Stand Partner "Oreo" (Give feedback to someone who plays in the same section)

Of the three "oreos," classes found this feedback loop seemed to be the most effective due to the outside perspective and how it encourages students to listen to their stand partners. A cellist in Beginning Orchestra described, *"I think this was better than giving ourselves an oreo cause it gives an outside perspective."* A violinist in Intermediate Orchestra noted, *"Helped me realize how my playing sounded to others and what I need to work on."* From Advanced Orchestra, a violist said, *"I think the opinion of and feedback from my stand partner, who has heard me play during rehearsal, is helpful and valuable."* Typically, students become quickly acquainted with the peers they sit nearby and maintain good rapport with them. This is likely one reason why students are particularly receptive to receiving feedback from their stand partner as well as invested in giving their partner detailed feedback as well.

Other Section "Oreo" (Give feedback to someone in a different section)

In general, this "oreo" was the least useful to students. Many students discussed how difficult it is to give good feedback to someone you cannot individually hear because they are not close in proximity. A violist in Beginning Orchestra compared the self-reflection "oreo" with the stand partner "oreo," *"It's good to know from other perspectives, but not as much as stand partners because you couldn't hear each other."* A violinist in Intermediate Orchestra wrote, *"It's nice to know what others think, but it isn't as beneficial from across the room."* And a cellist in Advanced Orchestra remarked, *"It's difficult to receive helpful criticism from a person who I wasn't sitting next to and may not be able to accurately critique my performance."* Students who typically sit far away from each other due to their instrument section (i.e. bassists typically sit with cellists both of which are usually far away from the violinists) were unable to give detailed feedback. Additionally, students generally had less rapport with the peer they exchanged this "oreo" with, which seemed to influence their willingness to give constructive feedback. During the "oreo" exchange time in each class, most pairs seemed to give encouragement and praise effort, rather than discuss specific points of improvements.

While the other section "oreo" was not necessarily helpful for improving musicianship, it was surprisingly effective at encouraging students to listen to other sections. A violinist in Beginning Orchestra succinctly put, *"It helps me be a better listener."* Another violinist in Intermediate Orchestra might have thought that listening to other sections was the purpose of this activity because they wrote, *"To see if you notice other players besides your stand partner or section."* It seemed that in Advanced Orchestra, many students were at a loss for what feedback to give as a violinist said, *"I need to be more aware of the other sections, particularly the basses and rhythmically complex parts."* Oftentimes, during rehearsal when the teachers are working with a specific instrument section, students in other sections tend to zone out or play with their phones. Typically, maximizing the amount of time students are playing their instrument in a given class period is the best solution for keeping them focused and on-task; however during this "oreo," because students knew they had to give feedback to someone in a different section, most of them were more attentive during times where the teachers needed to work with a single section. Though the other section "oreo" was not as effective for feedback loops, perhaps modifying it could assist with ensemble cohesion as it encourages students to learn and listen to the parts of other sections.

Conclusion

Throughout the process of learning an instrument, students require constant feedback from multiple sources in order to hone their skills. Using the various "oreos" for feedback may not have produced statistically significant change in students' performance quality, but it did spark positivity during rehearsal and promote an atmosphere where peers can push each other to grow. This action research provided structure for students to be able to identify and define what elements contribute to a good performance; be able to give and receive detailed and specific feedback on what skills to improve upon; and be able to continually progress using the feedback loops. Peer feedback is most effective when students are close in proximity, have good rapport,

and play the same instrument part. Being close in proximity enables better observation and listening, and having good rapport supports students’ willingness to give constructive criticisms. When the “oreo” partners play the same instrument and music part, students have a more appropriate self-regulator they can observe and emulate. Additionally, it is easier for students to give more comprehensive feedback to their peers who play the same instrument. So long as feedback is timely, constructive, and individualized, students can take the opportunity to polish their skills.

Limitations

The PBA instrument itself has limitations. Rating performances is a highly subjective practice, and the performance itself is only a glimpse of what a student is able to do at a single point in time, which brings into question the accuracy of the PBA score. Despite the score, giving a performance in itself is a skill that must be practiced, thus the need for giving students as many opportunities to practice this skill as possible.

Another limitation of this action research was time constraints for the Intermediate and Advanced Orchestras, both of which were unable to complete their post-test PBA due to their more saturated performance schedules.

Reflection/Action Plan

The purpose of this action research was to understand how students improve as musicians when given constant feedback in various forms—evaluative and coaching. A primary focus of mine was to improve my ability to give meaningful feedback that was helpful to students, not just encourage and praise their efforts. As a musician, there were many times in my training where I remember feeling disappointed in the feedback I was given because I felt like I was not being recognized for the improvements I was making. Now that I am the one giving feedback, I realize how important it is to continually push students and not simply be nice with my criticisms. A critical point in my realization of this was during another class that is not a part of this action research. In Beginning Piano Class, we did our first PBAs. A lot of students were

nervous, so I had the intent of showing them that it was not so scary which resulted in inflated scores. Every email I sent after a performance included scores broken down by rubric area and comments. In the midst of the performances, a student celebrated the high score I gave without reading the feedback I left in the comments. It was then I realized that especially during the evaluation, that the score is just as important as the feedback. Now I worry that next time, students will have different expectations of PBAs because the scores this time did not reflect what was said in the feedback.

In the future, I aim to be clear with the types of feedback I am giving to students at different times. I believe that praise and encouragement is good feedback to give, especially at the beginning of learning a new song, or starting a new concert cycle. Coaching should be the type of feedback I give the most of during rehearsals, sectionals, and one-on-one lessons. And finally, during evaluation, I need to hold students to the rubric so that they understand how they measure up to the standards. The next time I have a class that is doing PBA for the first time, I will encourage the class verbally and align rubric scores with my written feedback.

For a future action research, I would like to give students more chances to refine the feedback they give their peers by doing multiple iterations of “oreos.” Because the stand partner “oreo” seemed most effective, I think it would also be good to try different “oreo” partner pairings based off ability, personality, or possibly student-selected. Additionally, I would like to see how PBA variations, such as student-submitted audio/video or using SmartMusic software, affect performance quality and live performance readiness. Additionally, I look forward to observing more assessment strategies from band and choral teachers as well to find commonalities between the artforms that may prove beneficial to all young musicians.

In doing this action research, my own opinion of PBAs has changed. Growing up, my own orchestra teacher was aversive to PBAs and rarely administered them, which has resulted in my own aversion to solo performance. Coming into my cooperating teacher’s classroom, I initially thought the PBAs were time-consuming and did not accurately reflect what a student

was capable of. However, because the PBAs were the norm in this setting, the students have much less aversion to performing. With PBAs every quarter, the students in this program get the chance to regularly practice playing in front of people, which is a skill in itself. Even if students struggle in this assessment, it creates the opportunity for them to safely experience failure without serious consequence. Moving forward, I will regularly have PBAs where everyone is required to perform so that my students will have familiarity and some level of comfort when it comes time to playing in front of others.

I truly believe that the ultimate goal of education is to shift the responsibility of education onto the student, which means fostering self-directed learners. Of course, this action research did not single-handedly create 85 more self-directed musicians in the world, but it did begin to show students how they can take responsibility for practicing individually and improving their skills. As a music teacher doing what I can to support 21st century literacy, I think one of the best things I can do for students is to help them help themselves. I hope that students will find themselves able to transfer the feedback, goal-setting, and focused practicing skills from orchestra to their chosen career paths.

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Appendix A

Performance Based Assessment Rubric

Criteria	Grading Scale				
Note Accuracy & Intonation Correct notes, observations of key signatures and accidentals and intonation	**5** Student played correct notes (observing key signatures/accidentals), and demonstrated superior intonation	**4** Student played mostly correct notes (observing key signatures/accidentals), and demonstrated great intonation (1-2 mistakes)	**3** Student played some correct notes (key signatures/accidentals), and demonstrated good intonation (3-4 mistakes)	**2** Student played some correct notes (key signatures/accidentals), and demonstrated only fair intonation (5-6 mistakes)	**1** Student played few correct notes (key signatures/accidentals), and demonstrated poor intonation (more than 6 mistakes)
Rhythmic Accuracy & Bowings Steady pulse, precision of bowing, articulations, rhythms, and correct tempo	**5** Student played with a steady pulse, correct bowings, articulations, rhythms, and at the indicated tempo	**4** Student demonstrated almost all correct rhythms and bowings, with one exception	**3** Student demonstrated mostly correct rhythms and bowings, with two exceptions	**2** Student demonstrated some correct rhythms and bowings, with 3 exceptions	**1** Student demonstrated some correct rhythms and bowings, with 4 or more exceptions
Tone Quality & Musicality Warm and resonant sound, dynamics, contrast, phrasing, vibrato, and stylistically appropriate	**5** Student demonstrated all the criteria descriptions for Tone Quality & Musicality	**4** Student demonstrated almost all the criteria descriptions for Tone Quality & Musicality (needs improvement in one area)	**3** Student demonstrated most of the criteria descriptions for Tone Quality & Musicality (needs improvement in two areas)	**2** Student demonstrated some of the criteria descriptions for Tone Quality & Musicality (needs improvement in three areas)	**1** Student demonstrated some of the criteria descriptions for Tone Quality & Musicality (needs improvement in four or more areas)
Posture & Technique Appropriate physical approach to the instrument, including bow hold, instrument hold, shifting technique, and seated posture	**5** Student demonstrated all appropriate criteria descriptions for Posture and Technique	**4** Student demonstrated almost all appropriate criteria descriptions for Posture and Technique (needs improvement in one area)	**3** Student demonstrated most of the appropriate criteria descriptions for Posture and Technique (needs improvement in two areas)	**2** Student demonstrated some appropriate criteria descriptions for Posture and Technique (needs improvement in three areas)	**1** Student demonstrated few appropriate criteria descriptions for Posture and Technique (needs improvement in four or more areas)

Total: _____/20

Comments:

Appendix B

"Oreo" Feedback

Name:
Who the Oreo is for:

Oreo Feedback

Positive:

Constructive Criticism:

Positive:

How helpful was this experience in improving your overall musicianship?

1	2	3	4	5	6	7
Not helpful					Extremely Helpful	

Explain your rating: