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Teaching To The Student: Using The Learning Modalities To Maximize Student Engagement In
Middle School Percussion Lessons.

Abstract

The enormity of research on what to teach matches the volume of literature on how to teach it; however, most instructors ignore the many pedagogical innovations in pursuit of a lecture type most suited for a minority of learners and with the lowest rates of information retention (Sousa 2006; Treichler 1967). This study explored five middle school cohorts in a percussion class and examined how they developed, achieved, and struggled when exposed to specific teaching methods developed in the disposition of Howard Gardner's learning intelligence.

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Statement of Purpose

The purpose of this empirical-philosophical study was to examine through pedagogical engineering techniques, the influence of Verbal/Spatial instruction, Kinesthetic/Musical (aural) instruction, and a mixed pedagogical methodology of both paradigms on a middle school percussion class. I divided the students into five randomly assigned, heterogeneous cohorts, and assessed students on musical performance and academic musical growth. I questioned the students qualitatively on their own experiences related to the instructional paradigm.

Research Questions

This study espoused to determine if there would be any impact on the student given the deliberate teaching style. The goal was to clarify the following:

Does teaching within a defined set of learning modalities to a heterogeneous class in which their perceptual learning strengths are unknown to the instructor enhance learning with respect to performance assessment?

Does teaching within a defined set of learning modalities to a heterogeneous class in which their perceptual learning strengths are unknown to the instructor enhance learning with respect to the students' own facility in the class?

Does teaching within a mixed set of learning modalities to a heterogeneous class in which their perceptual learning strengths are unknown to the instructor enhance learning with respect to performance assessment?

Does teaching within a mixed set of learning modalities to a heterogeneous class in which their perceptual learning strengths are unknown to the instructor enhance learning with respect to students' own facility in the class?

Rationale

Howard Gardner (1993) asserts that children learn in eight fundamental ways. Would it then not make sense that musical learners approach the development of their learning practice differently as well and under certain paradigms, enhance their learning while others limit it (Dunn 2008)?

This study sought to examine three environments of Gardner's pedagogical approaches applied to a small group percussion class; the first format, a verbal/spatial approach, and the second explored kinesthetic and musical (aural) techniques. The goal was to determine if the method of instruction based on the specific learning modalities has any impact on the effectiveness of student growth, understanding, and facility within the class. I collected basic

demographics, gender, race, and the length of the musical experience of the students and examined the research questions through each for correlation, trends, or causation.

Literature Review

The idea of a single common intelligence modality upon which to evaluate human development and success, like the IQ test, only centers on a single skill and is hence blind to the talents and gifts beyond its scope and the lessons learned, understood, and synthesized through other modalities. “The Multiple intelligences theory, ..., pluralizes the traditional concept” (Gardner 1983). Gardner sets forth a list of criteria to which each intelligence must adhere to be valid. Each intelligence paradigm must be stimulated by a specific type of internal or external factors. Gardner gives the example of the pitch in musical intelligence and phonological features in linguistic intelligence (Gardner 2006). The second stipulation is the relationship to a symbolic encoding system like language, pictures, or mathematics (Gardner 1983; Tierney 2009).

This study examined student action, development, and achievement through three sets of modality cohorts. Verbal/Spatial, kinesthetic/musical, and a combination of the four. For the purpose of this study, I used Howard Gardners’ definitions of the intelligence modalities to study as defined below (1993).

A student who exhibits strong musical intelligence demonstrates a propensity for music performance and composition and structure their thinking in terms of patterns, rhythms, or sounds. These students would recognize musical patterns faster or more easily than other students in musical literature. They often recognize similar motives in lesson examples in class literature, and these students will often be able to replicate musical examples heard with minimal

coaching or repetition (Gardner 1993; Gorjian, Bahman, et al. 2012). Students in this category would easily be able to verbalize the rhythm in time but not necessarily with the correct syllable.

A student with a strong Kinesthetic Intelligence is usually comfortable within their own body and can manipulate their bodies to achieve the desired outcome requiring physical control, strength, or prowess. Their skills align best with vocations like a dancer, sculptor, painter, or athlete. While the physical condition can enhance performance, this student desires to execute the task rather than hearing a lecture or seeing someone else perform it (Gardner 1993).

In the class, this student is sticking the examples or patting rhythms on their bodies. Once they gain a mechanical understanding of grip and sticking, this student generally finds the standard percussion rudiments simple, although they may not understand the underlying placement of each given note within time. A teaching technique used during the instructional portion of this study was to have the students clap a rhythm and to use demonstration and critique to get the student to the correct performance of the example.

Students who are strong in the Visual/Spatial domain learn from what they see and observe and can logically understand. Like the musical learner, they will identify patterns but in the sheet music rather than in the auditory performance of the piece (Gardner 1993). This is not to say that students only learn through a single modality. Students exhibit primary and secondary modalities and often uses two or more in the synthesis and collection of knowledge. Low and Sweller describe mixed mode in which students have primary and secondary paths to learning (Mayer 2005).

Students with verbal intelligence learn through reading and can memorize information easily. This student might hear another student, memorize his or her example, and replicate it without the concept of a given example. While good at communicating, this student often

describes the lesson with an abundance of detail but may struggle in the performance of the music example. Verbal learners prefer to hear about the lesson rather than read about it like the spatial learner. This student usually verbalizes the correct syllable, but not necessarily in the correct time. A teaching technique used was requiring the students to write out the syllables on the sheet music and find common motives in the sheet music (Gardner 1993).

The next step following the explanation of what the study proposed to do, is to describe why the study has educational value to the academic community. What was the educational value to study the learning modalities, especially within the context of percussion pedagogy? Educators cannot simply recite curriculum into a students' ears and expect the student will learn or grow across an age-appropriate developmental and educational spectrum. Understanding that children learn the material in differentiated manners can help educators unlock a deeper, more authentic relationship between the student, the educator, and the material, we strive to teach (Silverman, and Casazza 2000).

Scholars Tanwinit and Sittiprapaporn (2010) discuss that knowing the students preferred learning method can develop a tailored approach to student instruction. This knowledge can motivate teachers to move away from their preferred mode in an effort to see each students' differences not as an obstacle to teaching, but part of the students him or herself and expand the skills and pedagogical prowess of the instructor (Crişciuc 2016). Tanwinit and Sittiprapaporn (2010) go on to say that these adaptations on the part of the teacher will "will be able to make the educational experience more productive."

As educators learn to master the identification of the multiple intelligences in their students and grow in the development of their own personal understanding of when and how best to implement these techniques, the students can move toward a more genuine relationship with

the curriculum and a more personalized understanding of the subject (Lujan and DiCarlo 2006).

Lujan and DiCarlo (2006) go on to say that although a student may have a specific strong learning modality, exposure to multiple learning methods enhances the child's appreciation and understanding of the lesson. Miller (2002) goes further and specifically notes that in music multisensory teaching fosters a "...deep more transferable understanding," thus strengthening the student's abilities beyond the music classroom. Lehmann and Seufert (2018) support that multisensory techniques produced superior results in their research on the learning modalities.

An educator's ability to exercise these tools effectively across their curriculum is frequently documented to assist children in the learning process and reduce gender disparity in classes (Tanwinit and Sittiprapaporn 2010) (Cutietta, 1990; Ellison, 1992; Ellsworth, 1994; and Hoerr, 1992). It is important to note that while multisensory education is successful, the educator must not ignore the students' primary learning modality with which they learn most effectively (Babacan 2015).

Methodology

Concept of the study

Upon approval to begin the thesis project, the next six weeks focused on the construction and development of the methodology of the research. Beth Sokolowski, the program director, granted approval for my thesis in the summer of 2017 at the completion of the thesis development course. Dr. Jenny Neff, the new program director, validated the previous approval during the summer of 2018. Once approved by the principal and district supervisor of the school district, I began the research in the fall of 2017.

The first phase of the research began with a pre-assessment. This was three, eight-measure excerpts demonstrating an age-appropriate skill from a seventh and eighth-grade percussion student. Each student was given two minutes to analyze, sight-read, and practice the example they were given. The student then performed it in a tempo of 100-110 beats per minute.

During the second phase, I analyzed the results of the pre-assessment to determine the best pedagogical and thematic way forward for each class. While the curricular goals were all the same by grade level, some students performed better than other students. Preparing more challenging work was critical for more advanced students and more instruction support time for students who struggled significantly with the pre-assessment.

Phase three was the instructional phase. The goal was to meet with all classes no less than six times and no more than eight times. All cohorts met eight times. This was once every four to six days, depending on holidays or school events that prevented them from being in the class. During this phase, I also collected anecdotal data about the understanding each student displayed throughout the lessons through journaling and open-ended questions. Only two students missed school during their assigned lesson meeting but met with me after school to make up their lesson within two days of the missed class.

In phase four, I conducted the post-assessment and asked each student qualitative questions based on understanding or comfort level of the instruction. The post-assessment was similar in construct to the pre-assessment assessing the same skills. As in the pre-assessment, the students prepared the example for two minutes to and then performed it. The questions asked explored if the student felt the instruction prepared them for the assessment and if so, or not, how. The final phase was the analysis of the data collected. I graded the assessments and

analyzed the growth from the pre-assessment. I coded the qualitative data for commonalities, trends, and divergent anomalies.

Cohort:

The cohort groups for this study were five percussion classes of two to six students each. The breakdown was two classes of eighth-grade students; and three classes of seventh-grade students. The school administration determined the breakdown of the classes, as well as the assignment of each individual student to the class period. While most of the students started playing percussion in fourth grade, all have received formal musical instruction for at least one full year before the start of the study.

The groups were then assigned by the pedagogical modality in which they were taught. One seventh and one eighth grade group were taught using the Verbal/Spatial modality and designated as Alpha Groups, (A-7, A-8). The two Kinesthetic/Musical groups were designated Bravo groups (B-7 and B-8). The hybrid group was designated Charlie (C-7) and was only seventh grade students. Each group had both boys and girls, veteran and newer/beginner students, and a diverse ethnic makeup.

Gender

A-7= (Boys-3, Girls-2) B-7= (Boys-5, Girls-4) C-7= (Boys-1, Girl-1)

A-8= (Boys-6, Girls-4) B-8= (Boys-4, Girls-4)

Race/Ethnicity AA-African American, C/E-Caucasian/European, A/P-Asian/Pacific, LX-Latin)

A-7= (C/E-3, A/P-1, LX-1) B-7= (AA-2, C/E-5, A/P-2) C-7= (C/E-2)

A-8= (C/E-3, A/P-6, LX-1) B-8 = (AA-1, C/E-3, A/P-4)

Skill Vet=Veteran student with two or more years, N/B= New Student with less than two years

A-7= (Vet-2, N/B-3) B-7= (Vet-7, N/B-2) C-7= (Vet-1, N/B-1)

A-8= (Vet-7, N/B-3) B-8= (Vet-6, N/B-2)

Define the cohorts

The alpha cohort was taught using a verbal, spatial method. In this group, I would explain the relationship between the notes, count the examples (although not in time), and show them examples of previous motives and phrases that were similar and discuss the similarities and differences in the sheet music.

The Bravo cohort was taught using Kinesthetic and aural techniques. I would sing clap or perform the examples but would never discuss the relationship to other examples or count using our district standard operating procedures of 1e+a, 1+2+, etc., but used a neutral syllable like la, or tut. Cohort Charlie was a mix of the four modalities in the other two cohorts; verbal, kinesthetic, aural, and spatial.

Data Collection

I collected the data through two techniques. The performance assessment was a transactional data-collecting instrument; specifically, a pre-assessment to set a baseline of the individual student ability at the beginning of the study and a post-assessment to determine academic/music performance growth.

Each student was evaluated on three standards; correct performance of the rhythms, correct performance of the tempo and dynamics, and use of technique and performance of a given rudiment. This evaluation criterion is standard across our district and the students were familiar with the testing procedure.

The second data collection method was qualitative information captured through two approaches. The first approach was a journal I kept on each cohort carefully recording struggles and growth during the study as well as my perception of the ease with which the student would display to my instruction. Each student would receive a score of one, two, or three after each class and a brief observation of my interpretation of their understanding and facility with the instruction. A score of one indicated the student exhibited signs of stress during the lesson or a retrograde in musical development. A score of three indicated growth or the student was more likely to take chances regardless of the outcome. A score of two indicated no significant behavior exhibited during the lesson.

The second approach was a series of questions posed to the students at the end of the lesson to validate or challenge my journaling observations. These were open-ended questions to determine if the student understood the instructional method as helpful or not. Given the time constraints, answers were captured in my journal and given a “+” if my observations correlated with their response or a “-” if my observation was not aligned with their response. If the student reported something that I did not observe, I would add it to my journal and code it as an “o.”

Results and Discussion

In the performance assessment, all but two students scored below 70 percent in the pre-assessment. The scores had no statistical significance across ethnicity/race or the three

assessment standards. The two students who passed scored almost perfect scores across the three performance standards; both were eighth-grade females.

In the post-assessment, all students received a score of 95 percent or above. Differences across most demographics were insignificant; however all females, with one exception, scored higher than male students. There was no other significant trend across demographics.

In the exit interviews, student reports correlated with my journal observation almost the time. In cases when the student self-report did not align with my observation, the student did not do well during the lesson but reported: “nothing was wrong.” In my journal, I noted ‘student seems distracted’ and ‘student is distracted by something.’ In all cases, I checked with the students’ counselor and in two situations, the counselor had indicated there was an external factor they were aware of affecting their behavior and attentiveness to class.

The most noteworthy information emerged from the journal kept on the cohorts. The qualitative method of the journal allowed for the collection of non-verbal cues giving validation or doubt to the responses of the child and their performance in the individual lessons. Given that the students were dispersed into a cohort regardless of their strong tendency toward a specific learning modality, each cohort had students who were placed into a learning format that aligned or contrasted with their preferred learning style. The students knew they were part of a project about percussion lessons, but were unaware of the learning modality facet of the study.

Beginner students tended to ask for clarification more often than experienced students, but experienced students would ask for more specific help when the teaching method did not answer their questions. Over time, I would notice some students would use the techniques I was not using in their cohort lesson to practice either in the lesson or in after school help. During the lesson some students would ask on what syllable they made the mistake in the kinesthetic cohort,

or would ask for a demonstration in the verbal/spatial cohort. This was difficult for me sometimes as I would have to ensure I was answering their question, but not in a manner that would disrupt the authenticity of the study. An example was a student in the 8B cohort asked, “where am I making the mistake, on the “&” or the “e” [of the example]?”

There was no difference across gender with one exception. A veteran female from 8A figured that I was teaching the other class differently and said, “I can’t explain what you’re doing, but I know what you’re doing in the other class makes more sense to me.” She had spoken to a friend in the 8B class; both were veterans and students who took private lessons. It was not statistically significant to the study because this was only one student.

There were no significant differences across race/ethnicity, grade, or cohort. However, both of the students in the 7C cohort had struggled with their core academic classes and their band grades from the previous year. Being in the cohort in which I taught across the four learning modalities in the study I felt it was advantageous for them to be exposed to multiple methodologies as I often had to apply all of them in a single part of the lesson for the students to grasp the concepts. Given they were the smallest cohort and the amount of time spent individually with them, I surmise that they both might have struggled significantly in the A or B cohorts.

Another significant data point was the post-assessment discussion with the cohorts. Following the post-assessment, I explained to each student cohort that people learned in different ways and explained to them a brief description of the seven learning modalities. I explained to them how their classes differed from those of their fellow students in the other cohorts. I then opened up the group for questions and comments. The 8th-grade students asked more questions about what I did differently in the other cohorts than the 7th-grade students. In both 7th and 8th

grade A and B cohorts, female students spoke up if they felt that the teaching method they did not receive would have been better for them. The female students who felt they were in the class that was best from them also indicated as such. Only one male in the 8B cohort indicated he would have preferred the alternative method. The 7C cohort had no questions or comments. When asked, all 7C students stated that the instruction they received was satisfactory. I questioned the validity of their response as the comments in my journal indicated when I only employed one technique; they often struggled with the material, and would better understand the lessons when I used multiple techniques.

Restating the Research Questions

Does teaching within a defined set of learning modalities, and within a mixed set of learning modalities, to a heterogeneous class, respectively in which their perceptual learning strengths are unknown to the instructor enhance learning with respect to performance assessment?

Based on the data from the research, there was no significant difference between the cohorts with respect to the performance assessment. The standard deviation was only five points between the top and bottom performing students' assessment grades. All students showed growth and all students passed the final assessment. Cohort C, as referenced above, was smaller and both students received extra support in other classes. Although the size of the C cohort cannot indicate causation, professionally, I feel that the students would not have been as successful if only taught in the A or B cohorts with a more constrained pedagogical model.

Does teaching within a defined set of learning modalities, or within a mixed set of learning modalities to a heterogeneous class in which their perceptual learning strengths are

unknown to the instructor enhance learning with respect to the students' own facility in the class?

The comments and observations indicate that some of the students who were academically disenfranchised by a learning paradigm became aware that there was something different or awkward in the way I was teaching them. Some students spoke up of their own volition, while others had to be encouraged to speak up. It is likely that some students were disenfranchised and were unaware. This may be caused by past practice, low academic prowess across all subjects, or the developmental cognizance of the student. Students who felt they were at ease with the pedagogical format did not express strong feelings during the study.

Limitations of the study

One limitation to this study was the collective number of cohorts. Educationally, the size of each cohort was ideal for the teaching and learning of the curriculum and development of the student percussionist. Even the C cohort of two students was beneficial given the academic struggles of the two participants. However, it is impossible to draw any strong conclusions or causation given only five cohorts in one school.

A second aspect of the study I would have changed was the method of assignment of the students to their cohorts. Upon reflection, throughout the process, I felt that assigning the students to a cohort in which their learning modalities align most would have produced a clearer answer to my research questions and more useful results to other educators.

Finally, being the educator and the observer has the potential to influence the desired response from the students in the qualitative questions. My relationship with the students as their teacher may have influenced my interpretation of their behaviors or answers as well as their

responses to my questions. They are my students; I want them to do well, and they want to learn and impress me. An outside observer might have been more likely to draw out more unbiased data from the student. However, as their teacher, I was more likely to see past anecdotal distractions of the student having an off day than someone who did not know the nature of the child.

Summary

The greatest insight from this study supports the literature that multisensory teaching is beneficial to the student, and understanding and teaching to the strength of the student are beneficial. The master educator has many techniques and tools in her or his bag and knows when and how best to employ them to benefit their students' educational growth and learning experience. My hope is that this experience will be a beginning to a more comprehensive and far-reaching research study in the future.

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