

WRITING SAMPLE 1 (EXCERPT)**Making an Open Design:
A Philosophical Connection Between Music Education and STEM**

Education is a malleable discipline. The ebb and flow of new educational ideologies throughout history has shaped our modern pedagogy in every academic area. The recent drive for a core focus on STEM principles has pervaded many educational settings as a result of rapid globalization and the genesis of the technology revolution. In the field of music education, we find ourselves searching for a hole in which to insert music into what seems like a STEM wall. This approach is fundamentally flawed. Notions of “STEAM in your engine” are devoid of substance when they are employed as nothing more than an advocacy statement. Music educators need to find a trace of their core values in the values of STEM, or the two camps cannot fully integrate. Using the music education philosophies of praxialism and the “open philosophy” in conjunction with the STEM pedagogies of problem-based learning and design-based thinking, this chapter explores convergent, interdisciplinary beliefs to ensure that music educators adapt to a changing paradigm without compromising their personal teaching philosophies.

When examining music education and the disciplines of science, technology, engineering, and mathematics, a natural reaction might be to immediately categorize them into brain hemispheres. Music, you exist in the vacuum of the creative, emotive right brain. STEM, you are a constructivist, logical, left-brain dweller comprised of work in science, technology, engineering, and mathematics. One could choose to accept that base reading of the brain’s functionality, or one could focus on the incredibly active bundle of nerve fibers that connect the two, the corpus callosum. There is significant overlap in the philosophical groundings of both music education and STEM areas, and their interplay is the focus of this groundwork to foster a symbiotic educational space for our students. This fusion philosophy would cement the salience of modern music education.

The two STEM pedagogies most well-suited for musical adaptation are problem-based learning and design-based thinking. These philosophies reflect core values of music education through their innovative, creative, and growth-oriented outlooks on problem-solving and collaboration. In the studies of Vandenhouten (2017), problem-based learning is understood “as a student-focused pedagogy in which learners develop intellectual independence as they work through problems with little direction from the

teacher (Williamson and Gregory, 2010)” (p. 117). There are many multifaceted applications for this outlook in the field of music education. Adam Royalty, the Designer-in-Residence at Columbia Entrepreneurship, posits that design-based thinking operates in a more abstract framework to emphasize that “learners build knowledge by connecting what they already know to their continued interactions with the environment” (2018, p. 139). Most educators, and music educators in particular, can concur that augmenting the natural creativity and independence of students is a paramount goal of education. Through the understanding of how these four philosophies can be interwoven, music education can find an evolutionary partner in the world of STEM.

ALIGNMENT OF CORE BELIEFS IN MUSIC EDUCATION AND STEM

There are three universal values of education that I have found to be true: teachers want their students to have an education that is *meaningful, enriching, and transformative*. Methods of implementation will differ according to necessity, yet the goals are essentially the same. In an attempt to wed theory to practice, I will explore the intersection of problem-based learning, design-based thinking, a praxial philosophy of music education, and an open philosophy of music education to find fundamental commonalities that might engender greater collaboration.

A meaningful education strives to intimately understand the strengths, weaknesses, and predilections of our students so that we can more acutely nourish their education. It must arise out of a deep understanding of the students in the classroom. In music education, the praxial outlook stresses that for someone “to understand and enjoy music, a person’s education must include music-making experiences” (Elliott, 2015, p. 93). This concept is salient, whether in the general music classroom or orchestral rehearsal. However, when we strip away the word “music” in Elliott’s statement, the principle of “making” retains its prominence. The STEM world echoes this belief with the prevalence of the maker movement, a culture that emphasizes the need for students to actively construct their educational space. Roy Hanney (2018) explains the power behind this school of thought, saying that “experiential learning is analytical, immersive and requires learners to be participant both cognitively and affectively” (p. 771). These attributes lend themselves to a meaningful educational experience.

The process of making music is a “maker process” with significant, unparalleled humanistic import. It generates the same type of creative, critical thought as STEM projects, while simultaneously

fostering an environment that necessitates meaningful interaction amongst students and teachers. There is little wonder to be found in the overlap of terminology between the disciplines, as one might notice within James Purdy's (2014) exploration of design-based thinking when he notes that "for Wysocki, design encompasses 'the human shaping of material' and 'the consequences' of how composers use a range of materials" (p. 618-619). Wysocki perfectly captures the reality of making music in this simple phrase. Music is our own design, and choral music education uniquely capitalizes on the "human shaping of material." At its core, sound is conceived, given meaning, created, and received by people. There is no restriction on how this interaction is designed, and it will change constantly.

Tracing similarities of approach between STEM and music education is not a vain attempt to create an advocacy statement. It is a necessary step in the progress of both disciplines. There is unexplored potential in the transformative power of student-centered learning as practiced in music, problem-based learning, and design-based thinking. When all three pedagogies align, we can speak to more of the student population, affecting widespread change that can inform the educational climate. This evolution begins with a mutual understanding between the perceptive music educator and STEM educator that cohesive approaches to learning will strengthen their students' holistic knowledge of content and of self.

RESTATEMENT OF EDUCATIONAL VALUES

A new framework must be created in order to extract the benefits from a collaboration between music education and STEM philosophy. The best term we have at present is "STEAM," an acronym that places arts in lockstep with the sciences. Of course, this excludes the other humanities that are imperative to a well-rounded education. Therein lies the necessity to extend beyond our sphere of music education and pioneer a new nomenclature of inclusion within the greater school atmosphere, complete with a "plan of action" of sorts for how to approach academic and philosophical cohesion. I propose we refer to this idea as making an open design in music education.

First, we discuss the epithet of making an open design of education. There is intentionally no affiliation with one subject area, as this platform should serve as a conduit to inspire unity throughout the school setting. It involves principles that have roots in STEM thinking as well as in celebrated philosophies of music education with the hope that universal educational truths will emerge from both

and extend to all. When dissecting each of the terms, it is important to realize that this is, first and foremost, an active, solution-seeking process. The goal is to foster student growth through engaging their higher-level thinking skills, forming solutions to various educational puzzles. Vandenhouten asserts that diligent educators “must first consider differences in academic cultures and then shape PBL [problem-based learning] activities with consideration of the perspectives of the disciplines represented” (p. 121). Proponents of problem-based learning strive for solution-driven educational endeavors, as they allow students to access their most creative potential.

The notion of an “open classroom” was pioneered by the music education philosopher, Randall Allsup (2016). The pedagogue must think of their role as creating space for students to succeed, always encouraging new perspectives and welcoming feedback as material unfolds. In music, we often find that the emphasis placed on mastery versus exploration limits educational opportunities to those with innate talent. Perhaps the same goes for the deep end of the STEM spectrum, reserving the more creative, abstract experiments or problems for more advanced students. Opening the paradigm would encourage more active participation in the shaping of the classroom’s activities from the students in a way that will appropriately stimulate each student’s imagination.

Design-based thinking provides a lens through which one can examine the open classroom. Royalty (2018) suggests that this “is not a teaching strategy, but rather an encompassing learning environment that invites students to practice design in order to explore and expand the boundaries of their creativity” (p. 143). When combined with an emphasis on problem-solving, educators construct scenarios in which students have the freedom to construct and extract their own meanings from course material. That is the foundation of an open classroom. Educational psychologist, Rim Razzouk (2012), explains that “design starts as a cloudy idea about how the design/product should look like and how it should work. With time, this idea crystallizes and transforms into a clear and complete image of the product” (p. 335). The descriptive language used by Razzouk sounds like the process of music-making at its core. We are concerned with human expression through music, and that outward manifestation is by design, created and renewed with each performance. Combining the efforts of STEM and music education takes root in examining the similarities in their thought processes.

There is nothing prescriptive in the theory of making an open design of music education—no precedent to exult. Allsup discusses a “framework as a structuring device for the design of the open music classroom” (p. 95). A framework is flexible by definition, making it an optimal tool for education. In the third chapter of *Remixing the Classroom*, Allsup outlines seven principles that one must consider when evoking an open atmosphere for music education: dialogue, environment, challenge, experimenting, assessment, new problems, and the renewal of the process (p. 95). Dialogue is the first step. This is when problems or discussion arise and imagination kicks into gear. The ensuing environment of creativity engenders many possible solutions through the flow of ideas from teacher to student and vice versa. Out of these two steps, a challenge arises. For music education, this may be the choice to tackle a difficult Bach motet in the high school choral setting. In STEM thinking, it may be the study of baroque versus modern tuning, exploring mathematical relationships between the two and discussing acoustic implications of different string types. Experimentation places the onus on the student population to adopt this material as its own and extract possible meanings. At the end of any unit framed in this way, there would be some type of qualitative or quantitative assessment to show the facilitator how the students have progressed from the initial dialogue through the experimentation phase. A successful cycle would yield new problems or avenues to explore and a renewal of the pattern. Though the above framework was created as an outgrowth of music education philosophy, it reads very similarly to the “order of events” for STEM processes like problem-based learning and design-based thinking. Using one of these easily-adaptable frameworks can promote cohesion of instructional and learning approaches through the school setting.

CONCLUSION

A fundamentally holistic education is achieved when students are able to see their courses working in tandem rather than in solitude. Placing student growth at the fore of any educational platform is imperative if we are to grow as a society. I am not advocating for a one-way street here. We should not alter music education to merely reside in a STEM-like framework, nor should we expect the inherent driving force of “maker-movement” constructivist thought to be lost in the music education world. The classroom environment must remain open to student exploration if it is to enable students to take ownership of the material being discussed. **(2,000 words)**

WRITING SAMPLE 2**Prose and Passion: Debussy the Aesthete**

Music has a transportive quality that allows the listener to suspend reality and indulge in an alternative experience. Certain composers are able to harness this unique quality of music in their works and render pieces that cause paradigm shifts in music history. Claude Debussy displayed a unique propensity for capturing the transportive ability of music through compositions that ultimately inspired an increasingly-intricate way of writing music. His music, though respected in its time, has grown to represent some of the most meticulous and celebrated compositions in terms of text-setting, articulation, and evocation of feeling through musical line. Debussy's connection to poetry is his greatest compositional strength as well as his most innate musical sensitivity. His position in the Western musical canon suggests that Debussy was perhaps a clandestine catalyst for the basis of modern composition and, indeed, a brilliant interpretive mind of the Fin de Siècle.

Debussy was an aesthete, an ardent admirer of the beautiful in art and in the world around him. This sometime critic, sometime philosopher, and constant composer was a tour-de-force in terms of his capacity to tap into the art around him for inspiration in his own. There are many correlations between the visual artists of the Fin de Siècle and Debussy himself. Though he strongly rejected the "Impressionist" label that was associated with his work, Debussy shares many commonalities with the visual artists of his milieu. Both visual artists and musicians worked to redefine traditional forms. Experimenting with small motifs as a recurring pattern was a common thread between both visual and aural art. They were used to evoke color in the sound or dimension in visual artwork. This term "color" can be quite elusive when it comes to music; however, Debussy has a specific array of musical manipulations to engender this "color." Where visual artists would use literal color to create their work, Debussy used timbre as his most expressive device. In these ways, we can see how music and art mutually influence one another in a cyclical way.

While the correlation between visual art and music is prominent and beautiful, the connection between vocal music and poetry is essential and eternal. Debussy understood that relationship more profoundly than any other composer of his sphere. One of the most important pillars of understanding regarding the compositional world of Debussy is his relentless pursuit of poetic engagement. This is most

ardently expressed in his vocal writing and the way in which he uses both the voice and collaborating instrument(s) to create an atmospheric experience. Debussy's settings of Baudelaire poetry, such as the 1890 song "Le balcon" shows a remarkable ability to reflect text through his own compositional voice. The poem addresses frantic emotive changes as the narrator muses about memories that linger in the mind's eye through repetition and symbolism. Although there is little repetition in the song itself, Debussy uses cleverly-placed repetition of the outer lines of each stanza in the poem, such as "Mère des souvenirs, maîtresses des maîtresses," to remind the listener that the narrator is relentlessly lulled into the land of remembering. Each line is so well-suited to its accompanying music, and that is a direct result of Debussy's growing desire to make text-setting a central focus of his work. Debussy described a poet as "one who states only half who states only half of what is being said and allows me to graft my dreams onto his, one who conceives his characters as out of place and out of time." The two are inextricably linked, though they have their own roles in a collaboration.

A paragon example of text married to music can be found in Debussy's *Chansons de Bilitis*. In terms of thematic content, poetic stress, musical liberty, and composition technique, this cycle embodies many aspects of Fin de Siècle ideology. Published in 1894, the *Chansons de Bilitis* show a poignant growth from his earlier style of poetic interpretation. Each of the three songs in *Chansons* teems with the intent of the text. There is no doubt that each note of each phrase in both the voice and piano was meticulously chosen to enliven the text. Pierre Louÿs, the architect of the *Chansons de Bilitis* text, was a good friend to Debussy. Their mutual admiration for each other's work likely played a significant role in solidifying this song cycle as the epitome of poetry-driven music composition.

From an external perspective, there are many deliberate compositional decisions that Debussy chose to illustrate his interpretation of the dense Louÿs text. The cycle is set for mezzo soprano and piano, and choosing this fach with this text was not by happenstance. The poetry is intentionally ambiguous when it comes to the subject of the lover. It is clear from the first song that there is a relationship between two people and that the speaker must keep it a secret, perhaps because of the age or station of the speaker. Her vocal range could be that of a younger person with relative inexperience with love or of someone reminiscing on a past infatuation. That relationship evolves through the rest of the cycle.

The first piece of *Chansons de Bilitis*, “La flûte de Pan,” is perhaps the most dense text-wise. The music affects a somewhat uneasy yet alluring feel with the use of a Lydian mode ascending in the right hand of the piano. The composition of this piece is extremely complex, brimming with speech-like rhythms that give life to the poetry in a way that is unique to Debussy. The whole of this first song feels like an invocation to the listener of this deeply intimate tale. There are, essentially, two characters: the speaker and this enchanting, quasi-apparition lover. A palpable sense of nervousness pervades through the entire piece, and there is no concrete ending. The same Lydian melodic material bookends the first song, leaving the listener in a nebulous state of uncertainty following a depiction of a rapid departure on behalf of the speaker. The lack of finality in this piece leads perfectly into the succeeding movements of this complex cycle.

While commonly translated as “the hair,” the second piece of this cycle, “La chevelure” more aptly translates to a tress of hair. The way that Louÿs is able to capture such an air of sensuality through that simple reimagining of words is the motivating theme for the piece. Debussy constantly develops his thematic material by forming small cells of music and using them in any number of ways. Through the piece, Debussy juxtaposes the singer in triple meter and the piano in duple, creating a sense of dreamy uneasiness. The enchanting lover is quoted at the beginning of this song as dreaming of the speaker and her alluring qualities. It is incredibly intimate, and the song reaches a high point when the lover speaks of the speaker’s attributes becoming his own. Freudian psychology could be considered in this instance, as the Id was likely exercising its imaginative properties in the mind of the lover. Debussy paints the imagery of this meaningful interaction between the two lovers with the relatively simple writing. As the speaker reflects on what she has just heard, the harmonic rhythm slows. The relationship between the piano and the voice becomes more accompanying, as in a recitative. Debussy really allows the narrative of the poem to come alive without much musical input or interpretation and, again, repeats the opening melodic cell. The last lines of Louÿs’s poem expose the potential jeunesse of the speaker and her complete devotion to the lover. The end of the piece is beautiful in that way. Within the context of the song cycle as a whole, the final G flat major chord seems out of place, foreshadowing something final on the horizon for the couple.

The final song of the *Chansons de Bilitis*, “The tomb of the water nymphs,” is perhaps the most chilling in terms of imagery and transportive quality. From the title of the song alone, there is an implication that something has died. Water nymphs could symbolize frivolity and pleasure to the point of mischief and mayhem. Louÿs uses that correlation as a death knell for the relationship that once bound the speaker to her lover. Sadly, the naïveté of the speaker is painfully evident in this piece. The tone at the beginning of the poem, beautifully meshed with the music of Debussy, shows the speaker searching for her sometime lover, believing that following his footsteps will bring them together again. She is met with derision from the lover when they do reconnect; he retorts her saying that “the satyrs are dead.” Referring back to “La flûte de Pan,” this can be interpreted in many ways. The lover, formerly acting as the jovial role of Pan, has taken himself out of that equation. He finds no more pleasure in their relationship, and ends it all with her through mythological hyperbole. The two stop to examine the tomb of the water nymphs, or perhaps to part ways for good. The harmonic rhythm accelerates at this point. There is a shift to F sharp major that ends the piece without a formal resolution. The final bar outlines a whole tone scale, another unique organization of pitches that gives an ethereal quality to the end of the cycle.

The last stanza of this poem is both a fitting conclusion to this piece and an ill-fitting conclusion to anything else. The speaker interjects a final bit of ironic ambiguity through the use of symbolism. As the symbolist movement gained traction during this time period, the cushion room for poetic interpretation grew tremendously. The final stanza of “The tomb of the water nymphs” could certainly be analyzed in a myriad of ways.

“With his hoe he broke the ice
of the spring where long ago the water-nymphs used to laugh.
He took large cold slabs of ice,
and lifting them toward the pale sky,
He peered through.”

One could infer that the ice is a metaphor for the relationship between the speaker and the lover. The speaker is watching her fantasies, her joys breaking and becoming vapid, void of any substance. It is achingly tragic. Instead of employing a sparse accompaniment from the piano for this fragile scene,

Debussy makes the piano its own, mocking character with a complicated harmonic texture in high tessitura. The device succeeds in creating a wistful feeling that could suggest a powerful memory or a present reality.

Through each of the songs in *Chansons de Bilitis*, the listener is gifted with the profound music that comes from a thorough understanding of how text informs the creation of music. Debussy proved himself a wonderful poetic collaborator with this cycle. His understanding of that symbiotic relationship culminated in his opera, *Pelléas et Mélisande*. This project found Debussy working furiously throughout the 1890s to perfect the complicated relationship between narrative story and music. He wrote extensively about his new way of writing for the voice and trying to find his unique voice in capturing speech. Art forms found lines of distinction start to fade away during this period. Debussy was able to create his legacy with his understanding of how art breeds aesthetic engagement.

There is no doubt that Debussy's pioneering of fastidious compositional style and his own stylistic evolution had major impacts on the Fin de Siècle artistic scene. From his innovations in the areas of text-setting and timbre to his profound musical intersections with poetry, there are few minds who have had the same poignancy of long-lasting effects in the music world. His work with song cycles, such as *Chansons de Bilitis*, illustrate just how innovative Debussy was with his craft. In essence, examining Debussy is a study in the origins of what brought music to where it was in the Fin de Siècle period as well as a study of where music progressed in the modern era.

(2,000 words)