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TURNING THEORY INTO PRACTICE: A CASE STUDY IN THE ARTS

By

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Abstract:

Students who take art and music courses learn not only content, but also develop new ways of thinking, communicating, and evaluating. Ultimately, such classes teach students to hear and to see, to be comfortable with ambiguity, to examine issues from multiple perspectives, and to develop sound strategies for working through confusing and sometimes controversial issues. We argue that the ways of thinking presented in these courses can transfer to any discipline. This article presents a targeted case study of our experience tailoring a multi-disciplinary arts course specifically to nursing students. We outline the course construction, document our findings, assess our results, and argue for the benefits of visual and aural training.

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For many, teaching in the arts today can seem like a Sisyphean task. With ever tightening university budgets and emphasis on professional degrees, arts educators find themselves constantly struggling to maintain their place at the academic table. Just as in pre-secondary education, where arts teaching is often the first to go when school boards mandate cuts, those working in collegiate arts curricula find themselves under threat, often perceived as superfluous to post-graduate success. Witness the number of colleges experiencing declining enrollments in humanities (Hayot) or those eliminating curricula entirely (Zamudio-Suaréz, 2018).

Nothing, however, could be further from the truth. Many studies have pointed out how arts education provides fundamental skills that transfer to a wide variety of disciplines (Lieberman & Parker, 2018). Jasani and Saks (2013, p. 1329) found that students who took part in art classes successfully transferred their newly developed observational skills to other settings, were able to arrive at a broader set of interpretations, were open to multiple perspectives, and recognized the impact of context on perception. Bell and Evans (2014, pp. 371-72) found that proficiency in visual observation, for example, allows students to gather and assemble data in a coherent and logical way and heightens awareness of pattern recognition. What is interesting is that in these and numerous other studies, students do not study visual art or music as it applies to medicine. (For an extended review of these studies, see Lieberman & Parker, 2018, pp. 126-27, 130-31, and 137-40.) Rather, as Braverman (2011, p. 345) points out, studying works of art serves as a means of developing critical thinking and abstract skills that are then transferred to any field that values critical thinking, enhanced awareness, unbiased inspection, accurate reporting, and an ability to consider multiple perspectives. Educators know that employers clamor precisely for the things that form the basis and foundation for study in the arts: self-discipline, persistence, risk-taking, collaboration, problem-solving, careful and attentive looking and listening, empathy, and the ability to see an issue from varied viewpoints (Lieberman & Parker, 2018). Convincing

colleagues and parents of our undergraduate students that this is the case can, however, be daunting. This seems particularly the case with the most recent batch of traditionally aged students, born in the mid-to-late 1990s, also known as Generation Z (Seemiller & Grace, 2016; Selingo, 2018; Pappano, 2018).

We thus decided to put such a challenge to the test at our own university by devising a course and providing empirical evidence of an arts curriculum's foundational significance. We took on this challenge initially to provide disciplinary alternatives in the humanities, thereby easing staffing constraints. We quickly realized that such an effort could provide empirical data to corroborate the necessity, as well as the practicality, of visual and aural intelligence. Such results could convince even the most skeptical student, parent, or administrator that the arts had foundational value. What follows below is thus a detailed examination of our course, ARTS 188: "Learning to Look, Learning to Listen," taught in 2017 to nursing undergraduates in their second semester of freshman year (herein referred to as ARTS 188). This case study includes an overview of our institution and our initial rationale for creating the course, a discussion of course content and pedagogy, and pre-and post-course assessment results. By sharing this with others, we hope to provide another strategy for confronting "arts animus," the erroneous belief that the arts have only limited value in today's educational marketplace.

Institutional Context & Rationale

We are an art historian and a musicologist housed in the same fine arts department. We both have administrative posts that allow us to teach courses in our disciplines each semester and have taught at Widener University for many years. Widener self-identifies as a metropolitan university close to Philadelphia (approximately 12 miles). The institution offers more than 40 undergraduate majors and 50 minors as well as graduate and professional programs. Our undergraduate population is currently around 3,400, with the majority of our students enrolled in the professional degree areas, such as engineering, nursing and business (*Widener University Fact Book*, 2018, p. 6). Fewer than half of our students find themselves in the College of Arts & Sciences (roughly 26% of the total undergraduate population [3,345] in 2018), and many of these are in pre-professional "pathway" programs in pre-physical or occupational therapy, pre-med or pre-law (*Widener University Fact Book*, 2018, p. 6). Our faculty-to-student ratio—which has long been one of the hallmarks of our institution—is currently 13:1. We have a high number of first-generation students. And, although our students do come from 48 states and 37 foreign countries, most come from the tri-state region closest to the university, namely Pennsylvania, New Jersey, and Delaware (Widener University, 2018).

The university has general education goals that "promote awareness and synthesis of different strategies of knowing, questioning, and

understanding” (Widener University *Undergraduate Catalogue*, 2018, p. 18). Goals and objectives include critical thinking, communication, and quantitative reasoning, and development of intellectual perspectives and methodologies. Ultimately, students fulfill these requirements through distributional courses in the humanities, sciences, and social sciences. Each school and college (e.g. engineering nursing, business, human service professions) decides its own general education curriculum within these parameters.

The rapidly increasing student population admitted in professional areas in recent years has necessitated a corresponding increase in general education service courses, including those in the humanities. This increase is especially notable in the School of Nursing, where undergraduate enrollment from 2014 through 2018 grew incrementally, from 686 in 2014, 708 in 2015, 776 in 2016, 807 in 2017, to 846 in 2018 (Widener University Office of Research and Effectiveness, 2018, p. 6). This has led to a high percentage of adjuncts to cover mandatory ethics and values courses needed for the Schools of Business, Nursing, and Engineering, since nursing requires ethics (PHIL 350), business mandates business ethics (PHIL 352), and engineering mandates a values seminar (ASC 400) addressing current societal issues. All are meant to be taught by philosophers, but staffing has forced us to rely on adjuncts as well as those from other disciplines to meet expansion in these areas. Since the university has greatly encouraged the population in these professional areas, but has not augmented tenure-track lines in the humanities to meet the requirements demanded by the accrediting agencies for the professional programs, we recognize that we can no longer sustain the curriculum we have in this area with only two full-time philosophers and constant flow of adjuncts. We thus decided to make an incontrovertible, empirical case that our art history and music history courses could cover an alternative content to the philosophy courses that would prove just as valuable in meeting curricular needs and could address accreditation concerns. We approached one group, the School of Nursing, which has consistently championed the value of general education, and laid out our plan. We argued that the skillset our arts courses provide could meet the targeted accreditation standards currently met only by our ethics course. Hence, we proposed and piloted ARTS 188, “Learning to Look, Learning to Listen.” We met with the nursing faculty and discussed the current practice of using arts classes in medical school training and then proposed doing the same for our undergraduate nursing students.

We had practical issues we needed to address before considering course content. How many students should we include in the pilot? How should we organize the course so that we would each have time with them? Would they self-select or be placed in the course? Although we thought it important that students self-select the course, thinking that if they chose it themselves, they would have a higher degree of engagement with the material, our nursing faculty opted to target students in Widener’s Nursing Educating Together (NET) Living Learning Community, which places students

in shared courses and housing and already has a strong unit identity. NET organizers anticipated this would further enhance cohesion among this population. We divided this cohort of 30 into two equal groups. Each of us taught a section for two to three weeks; we then presented the same material to the other students. In this fashion, we covered topics from our two distinct disciplinary perspectives. After we completed our respective art and music sessions with both groups, we brought them all together for some interactive activity that allowed them to put to use what they had just learned (see below).

Course Content and Pedagogy

Arts programs have become standard at many prominent medical schools in the United States, including those at Harvard, Yale, Stanford, and Cornell. Such arts programs, also known as interventions, are valued because they have been shown to improve students' observational and visual diagnostic skills, ability to empathize, and comfort with ambiguity and uncertainty. A 2004 study by Rodenhauer, Strickland, and Gambala examining teaching and learning in medicine, found that more than half the schools they surveyed used the arts in learning activities. Most included literature, visual arts, performing arts, and/or music; all of them reported improved clinical skills and an ability to empathize. Boudreau, Cassell, and Fuks (2008, pp. 859-61) argue that such skills fit directly with the goals of clinical observation.

Two different strategies have been used by researchers to investigate and document these heightened observational skills and increased ability to empathize. The most frequently used approach is Visual Thinking Strategies (VTS). The approach was initially created for use with younger students to "teach critical thinking, visual literacy and communication skills" (Jacques et al., 2012, pp. 1-10). Students are trained to observe color, light, shadow, contour, form, texture, pattern, line, symmetry, and balance (Naghshineh et al., 2008, p. 992). Its application has been expanded to many audiences including medical residents; the methodology embraces the same goals of critical thinking, communication skills, and visual literacy as set out for younger students. VTS focuses on three questions: What do you see? What makes you say that? What else do you see?

A second arts program designed to cultivate skills of observation is the Art of Analysis program. This was developed at Ohio State University College of Medicine. It is frequently referred to by the acronym ODIP (observe, describe, interpret, and prove). The program was specifically created to "encourage critical thinking skills, engender empathy, create a foundation for cooperative achievement, increase students' tolerance for ambiguity, and build visual observation skills" (Jacques et al., 2012, pp. 1-10). Like VTS, ODIP was first used with younger students. In its earliest form, ODIP was piloted over a two-year period with a group of fifth graders. Researchers successfully documented the students' increased critical-thinking skills and

greater depth of observation. Examining works of art, students were asked to consider the following:

- 1) Observe: What do you see? Try to find a detail no one else will notice
- 2) Describe: Describe what you see. What colors are present? How would you describe these colors?
- 3) Interpret: What's going on in this work of art? Make an interpretation based on what you see in this work.
- 4) Prove: Prove your interpretations using visual evidence. What do you see that supports your interpretation?

At the graduate level at Ohio State University, students participating in the program were asked to answer additional questions by identifying works of art in the museum where the program took place, and articulating why and how these images depicted a particular concept. A key component of the Art of Analysis program is oral discussion. This format teaches students to support their ideas and theories, and form proofs. It challenges the participants' presuppositions and observations. Students learn that the sharing of ideas often expands and alters their own viewpoints.

Like VTS, listening to and discussing music encourages the respectful sharing and consideration of ideas. It opens students to divergent interpretations and ultimately to an exploration of possibilities not previously considered. Learning to listen helps students develop a variety of ways of perceiving and thinking. It encourages critical assessment of sound, performance, interpretation, and creation.

Boudreau, Cassell, and Fuks (2008) argue that the study of visual and musical works stimulates recognition and cultivates empathy. Such an argument is not isolated. Investigations over the past 20 years by Darbyshire (1996); Kirklin, Meakin, Singh, and Lloyd (2000); Lazarus and Rosslyn (2003); Blomqvist, Pitkälä, and Routasalo (2007); Geranmayeh and Ashkan (2008); and Kumagi (2012) point out that the study of the arts improves one's ability to empathize. Viewing and listening to works of art teaches the dangers of self-selecting observations. As Pellico, Friedlaender, and Fennie (2009, pp. 648-49) point out, students who participated in arts interventions found that they no longer ignored conflicting cues, and, furthermore, they recognized the influence of their own backgrounds and understood how this affected their analyses.

Based on this research, we decided to use the same visual strategies and art interventions employed in the above mentioned graduate programs, hypothesizing these would work equally well in undergraduate populations (Lieberman & Parker, 2018). We divided the semester-long course into four three-week units: "Tools of the Trade," "Reasoning," "Different Perspectives," and "Ambiguity and Uncertainty." In between each section, we placed an "interlude," where we brought both groups together to watch and then discuss some art, music, and dance performance. Students also had daily reading, viewing, and listening assignments, which we had preloaded on a flash drive and distributed at the beginning of the course. We gave written and oral assignments for each unit, which we called "Flash Presentations."

These six assignments--three visual art, three music--gave students the opportunity to contribute their own "take" on the material, as well as to promote both written and oral skills in papers of one page and presentations of two to three minutes. Additional written assignments included two two-to-three page papers (one in visual art, one in music), as well as a midterm and a final exam that had both visual and musical components. Each instructor provided a supplemental syllabus for her sections, giving students specific assignments relative to each unit. At the end of the course, we asked students to answer a short survey outlining their experiences in the course.

We began the course by explaining what we hoped to achieve over the semester, using the learning objectives set out in our syllabus. After an introduction, where we outlined our expectations and hypotheses to the students about what we anticipated the course would allow them to accomplish, we reinforced our comments with a short TED talk by art historian Amy E. Herman, called "How art can help you analyze" (2013). In her talk, Herman explains how visual intelligence directly benefits doctors, nurses, and law enforcement agents, by providing them with "tools to improve their visual acuity and communication skills critical during investigations and emergencies." Herman's bottom line: whatever your profession, "Art can make you better at it" (2013). We used this video to set the stage for the class and to reinforce why we chose to bring this group of NET students together. Finally, at the end of this first class meeting, we gave all students a pre-test, which included one visual image and one musical example. For Henri Matisse, *Harmony in Red: Red Room* (1908, Hermitage Museum, St. Petersburg), we asked them, "What do you see?" For Sergei Prokofiev, "Troika," from *Lieutenant Kijé* (1934), we asked them "What do you hear?" Our choices for these pieces reflected our desire to use material that would be both unfamiliar and somewhat ambiguous, but at the same time, accessible, thereby referencing where we knew we would end up at the conclusion of the semester. When students had a chance to revisit these examples at the end of the course, they would have developed all necessary tools to critically analyze these pieces. From the inception of the course, we planned to match this short exercise with one at the end, using the same examples, to see how much, if at all, the students had increased their perceptions. In other words, we set out to prove Herman's argument.

We met with the students in 50-minute periods, three times a week, presenting each unit so that the art and music sections covered material from similar but distinct disciplinary lenses (see below). Both of us expected students to participate in each class, and we made notes about these contributions. Students were encouraged to share ideas both inside and outside the classroom.

Our first section, "Tools of the Trade," introduced the students to the elements of art and music. Flash presentations for the art section asked them to write a one-page response to an *Annunciation* image by either Simone Martini (1333, Uffizi, Florence), or Henry Ossawa Tanner (1898, Philadelphia Museum of Art), indicating how each artist expressed his ideas

and noting what set his image apart from others of the same subject we had examined in previous classes. Students in the music section were asked to listen to selected portions of Robert Schumann's *Carnaval*, op. 9 (1834-35), and to explain, using value-free, non-subjective terminology, how the individual character pieces accurately portrayed specific personalities. Students then shared their work with the class, so that each contributed ideas and perspectives and could get a sense of what their peers thought. The interlude following this section used Modest Mussorgsky's *Night on Bald Mountain* (1867), as visualized in Disney's *Fantasia* (1941). We thought the use of these selections would be an engaging way of combining both the art and music the students had encountered up to this point.

Our second unit, "Reasoning," presented students with additional material they needed to analyze using the tools they learned in the first unit, namely the elements of art (e.g. form, color, light, and space) and music (e.g. texture, timbre, melody, and rhythm). Here, the written assignment asked students to comment on either Caspar David Friedrich's *Wanderer above the Sea of Fog* (c. 1818, Kunsthalle, Hamburg) or his *Woman at the Window* (1822, Alte Nationalgalerie, Berlin), where they had to address what they thought were the most significant elements used by the artist. The music written assignment required students to listen to the final movement of Hector Berlioz's *Symphonie fantastique* (1830). They were informed only that there was a program associated with the entire composition. Students were asked to construct a scenario based solely on what they heard and to support their ideas with specific sounds and events in the music. The interlude finishing this section involved a hefty combination of music, visual material, and dance, and was doubtless surprising to the students: *Thriller*, the video by Michael Jackson (1983). We wanted to show students something familiar, something they had seen before, allowing them to consider it from a critical perspective based on adopted skills learned in the course.

In our third unit, "Different Perspectives," we diverged a bit in content. The music assignment was designed to encourage students to think how sound, inflection, and articulation could be used to convey emotion and attitude. After working together to construct musical representations of happiness, anxiety, isolation, contentment, and ambivalence, students were asked to review the various examples on their flash drives and select one or more compositions that best conveyed those abstract concepts. Students were asked to explain their choices and support their decisions with musical evidence. The art section presented students with the opportunity to analyze the art on campus. It involved a "walkabout," an onsite viewing of the university's outdoor sculpture collection, which includes modern abstract works in stone, bronze, and stainless steel. Students passed these works every day, but never consciously registered what they saw—in fact, most of them admitted the works were invisible to them. Now they were asked to consider the sculptures aesthetically, putting to use the skill set they had already encountered while evaluating art in the classroom. The experiential

component of the unit continued with a visit to the University Art Gallery (Widener University Art Gallery, 2016), which includes Asian and African three-dimensional works and American and European paintings from the nineteenth and early twentieth-centuries. Each student chose one of the paintings on display and studied it intensively. They then wrote a formal analysis essay, which they each presented while standing in front of their chosen work, thereby sharing their results with the entire class and answering questions about “their painting.”

As we had anticipated, the fourth unit, “Ambiguity and Uncertainty,” proved the most difficult for the students. The art section focused on abstraction. Students were asked to “make meaning” from images with no discernable subject, to find some way of dealing with material that seemingly lacked a definable, figurative focus. We knew going into this section that it would be the most problematic and taxing, so were not surprised at the responses we got to our last “flash presentations.” In the art section, students had to examine Albert Gleizes’ *City and the River* (1913, Private Collection) or Vassily Kandinsky’s *Small Pleasures* (1913, Guggenheim Museum, New York City). They attempted to understand artistic expression in a completely abstract work and tried to articulate what they saw as the most significant elements used by either artist in his composition. Few, if any, of the students enjoyed the ambiguity they saw in these works, and almost all fought the parallel we attempted to express: they would encounter an equivalent level of uncertainty in their clinical work and needed to develop strategies for coping with it. In the music section, students were given the task of determining how Earle Brown’s *December 1952* should sound. As the piece is a prime example of graphic notation and aleatoric music, the students had to determine every aspect of the realization from instrumentation to dynamics to texture to pitch, and even where to start the piece. The interlude proved equally complex, asking students to watch and discuss a George Clinton Parliament Funkadelic’s “Atomic Dog” performance from 1998 (Clinton, 2006). A wild final interlude, to be sure—one that asked students to make meaning out of something they found disconcertingly intangible.

Assessment and Conclusions

Weekly writing and presentation assignments allowed us to give the students a good deal of feedback. Since they encountered complementary material, with topics approached from our own disciplinary lenses, it was easy for us to ascertain how effectively they grasped each unit’s goals. As we told students at the beginning of the course, we expected that by the end of the semester, they would be able to listen and look critically, to recognize the pitfalls of personal preference, and to consider multiple interpretations of a single visual object or musical composition. Ultimately, we saw these qualities as being imperative for their professional development as nurses

and hoped for confirmation from them in that they would understand and appreciate the course's professional relevance. We further hoped to convince their faculty that courses in art and music history greatly benefited their undergraduates, matching or even surpassing other courses that they had traditionally mandated in the humanities (both English and Ethics).

In an effort to make our results most tangible, we administered the post-test in the course to match the pre-test with which we started (see above). Truly heartening to both of us was the degree to which the later test showed substantial growth in both critical thinking and observational skills. To adequately measure improvement, we revisited the same artistic and musical material we had used at the beginning of the course to establish a baseline and included it as part of our final exam. What follows are some representative samples of students' work, which we have intentionally not edited, paired from the beginning and end of the course. For clarity's sake, we include the pre-test responses in *Times-New Roman italics*, and the corresponding student's post-test in ***bolded Times-New Roman italics***. First, the art examples, using Matisse's *Red Room*:

There is a woman in a dark red room, colorful fruits/lemons, and a table.

The painting shows table, 2 chairs, decorative walls, and one main figure—a woman (a maid?). Her hair is tied up in a bun; she is wearing a black blouse with a light blue collar and white lacy cuffs, and a long white apron. The woman is placing lemons and apples onto a silver, tall pedestal fruit bowl. On the table are lemons and various colored fruits scattered around. At the back of the table is a tall, round fruit bowl with a tiny vase filled with red, pink, and yellow flowers. Also on the table are two decanters. The one on the left is small and filled with orange liquid. The one nearer the woman is larger and filled with yellow liquid; it is on a plate detailed with small red roses. The most prominent color in the painting is red. Walls and tablecloth are red with a blue flower design. Each chair has a tan seat with a woven texture. The rest of the chair is wooden and brown. The window is on the left side of the room. The frame is golden brown. Outside there are trees covered in white flowers, a green bush against the window, and a red house in the distance.

A woman in her dining area fixing a stand or bowl of fruit. The tablecloth design continues on to the wall. There is a scenery toward the left hand side that can either be a painting or a window.

A woman (a maid), dressed in black with a white apron, is placing fruit on a dining room table. Table has two fruit stands with fruit. One of these has a vase for red and yellow flowers in the center. There are two types of drinks on the table: the yellow one sits on a white plate; the other is red or orange. The table and wall, both red with blue flowers pots with flowers, flow into each other. Around the table are two chairs but only one can be seen as a whole. Back of the chair is a darker color while the seat on it is yellow. Beyond the chair is a window with a yellow frame that shows a yard or garden with another house in the left corner. One can see yellow and blue flowers, trees, grass, and bushes. The sky is blue without clouds.

A sad-looking woman sitting at table holding fruit. There are flower pots are all around. There are flowers on the walls and on the table.

Vibrant colors. A maid is in the right corner of the painting dressed in a black top with a white apron. She has brown hair. The focal point [of the painting] is the brightly colored yellow, red, and green fruit. Some fruit is in the centerpiece; other pieces are lying on the table. In the middle of the table is a turquoise vase with yellow and red flowers. The flowers are facing down. Also on the table are two jars; one has orange liquid and the other, on a plate, has yellow liquid. Red tablecloth has blue flower decorations; we see this on the wall paper as well [same red, same blue flowers.]. Around table are two brown chairs with yellow seats. (Can only see the seat of one chair.) In the back, left corner of painting is a window. The outer rim of the window is yellow on the bottom and orange on one corner. Outside we see green grass, a green bush, two white trees, and a royal blue sky.

There is a maid placing fruit into a bowl with what looks like to be in the background a window that overlooks the yard with beautiful plants and maybe a barn. Vibrant colors—red, yellow, blue

Almost everything in the room is dark red—wall and tablecloth. On these I see a royal blue floral paisley design. Some things break up the red domination: the window, the woman, and the fruit. In the middle of the table is a skinny, clear vase with red flowers and some sort of flower with a branch-looking thing with small yellow balls at the top end of it. Set on the table cloth throughout are yellow, green, and orange balls which

look like fruit. To the right is a clear tray that holds yellow, red, and green apples. These are atop something that looks like lettuce. To the left of the tray is a long pear-shaped clear glass with reddish-orange liquid inside. To the right of the tray in the background is the same looking pear-shaped glass with yellow liquid. This glass sits atop a cream-colored plate with a black design similar to that found on the wall and table cloth. To the far right of the painting is a woman with blonde hair. She is wearing clothing of a maid or servant. She is holding a tray that is the mirror image of the one on the table. She is slightly bent over. Closest to her abdominal area are two oranges. To the left of the painting is a large window with a wooden border. This takes up nearly half the wall. Outside there is a grassy hill with three wide trees and a red barn. The sky is bright blue.

The dining room is set for a meal. There is a window displaying trees outside. Fruit is on a table, flowers. A maid is setting the table.

A woman is standing in a room with table, two chairs, and a window. Walls are deep red. The window has a vibrant yellow frame. Window shows grass, trees, and a bush. Also shows a light pink building with a dark roof. The sky is deep blue. The woman wears a black top with a white apron and matching collar. Her hair, up in a bun, contains tints of yellow similar to the window frame. She leans over the table as she holds up a fruit arrangement. There are two arrangements on the table. Fruit varies in color—yellow, orange, red and green. Color blue appears as decoration on the table and on the wall. This contrasts with the deep red also used in both areas. The backs of the two chairs are a dark reddish brown. The bottom of one chair is visible and is yellow. There are two glass containers on the table; both contain liquid. One lays on a small plate. The color of the liquid matches the fruit suggesting it is juice.

Now, the musical examples, using Prokofiev's "Troika" from *Lieutenant Kijé*:

I hear jingling bells, violin, and a tuba. The piece is fast.

The timbre consists of different wind instruments, strings, and percussion. The piece started loud with a focus on the winds and percussion. The percussion played short and loud notes with little pauses in between each note. After a slight pause, the bells took over. The bells were softer and high pitched;

they had short notes and little-to-no pauses. Throughout the piece I heard a lot of variety between long and short held notes, and loud and soft dynamics. Bells and strings alternated. At the very end of the piece all the instruments played at the same time to create a defining loud sound and fast tempo.

I hear trumpets, bells and violins.

The piece, beginning with strings, piano, tuba, drums, trombone, and bells, moves at a moderate speed; the beats are organized in four-count clap. The dynamics change throughout the work but in clumps. First it is loud and when there are fewer instruments it gets softer. This happens twice when just the violins are playing. In the beginning, the pitches are sustained. Then there is a rest and the bells, tambourine, and other instruments are added. Notes are then shorter [in length].

The harmony is consonant. The notes [pitches] move stepwise while the register of the pitches [melody] fluctuates and is lyrical. The opening of piece is repeated towards the end. The piece ends with the notes being held for a longer length than in the middle of the piece.

I hear trumpets and bells. There are tempo changes.

This is an instrumental work with an emphasis on trumpet, strings, and bells. Dynamics are consistent throughout with little change. Tempo is also consistent. The piece seems to slow down when there are fewer instruments. In the beginning the tempo is slower than when the bells enter. At that point, things speed up. The melody is conjunct and smooth. There is no dissonance.

I hear strings, woodwinds, brass, tempo changes, dynamics.

I hear a polyphonic piece for full orchestra including strings, woodwinds, brass and percussion. The piece begins with all of the instruments in unison that creates a loud dynamic. From there the dynamics vary from loud to soft. The tempo is steady and is kept so by the sleigh bells or tambourine. The tempo sounds like it changes. The harmonies are consonant with times of dissonance in the French horn. The melody is

both conjunct and disjunct. It sounds like the cellos have the main melody as it comes back often in the piece. The cello's melody is accompanied by other instruments. It is catch and easy to sing. The rhythm is fairly smooth; feels legato. The piccolo and violins have a short and staccato rhythm. The form could possibly be ABBCBDBA'. The B section comes back multiple times. This section is the one with the cello melody.

I hear bells [and] trumpet.

The piece is set up in sections, each with a different instrumentation and with different melodies. First part has an orchestra with both high and low register instruments. Loud dynamics and moderate tempo. At the end the dynamics lessen slowly and proceed to next section. When the orchestra stops, there is a different sound. Second section has chimes and high register instrument (violin or brass). Melody is conjunct. Fast tempo for this part with consonant harmony. Texture is homophonic. Dynamics are softer than first part.

Next section: melody changes, brass timbre, faster tempo with shorter rests between each note. The melody is conjunct. This section lasts only for a couple of seconds then get a repeat of second section. Then go to the brass section. Next get a combination of sections 2 and 3. There are different melodies/ideas at the same time. In the final section there is the full orchestra. It follows the same melody as in the beginning. Here the dynamics are loud with a gradual decrescendo until everything dies away.

Overall the piece contained three sections that used the same melody. When repeated, the sections did not change. Piece was consonant.

What is so remarkable here is that, although these represent numerically only about 20% of our students' responses, the examples capture the overall quality of performance of all the students. The examples we chose here are not isolated incidences, but illustrate the increased level of student achievement shared by almost all who participated in the course. We focused specifically on the amount they wrote, the level of detail they included, and the sophistication of their analysis. Ironically, students themselves did not recognize what they had achieved: in the end-of-the-semester survey we administered, they distinguished no discernable difference in their visual or aural abilities, nor did they find the skills they had garnered over the semester to be transferable to other situations (i.e., 70% did not recognize they had skills they could use outside the classroom).

Our data, however, clearly validates our original hypothesis. In light of the incontrovertibly enhanced skillset--one these students will need in their professional context--we have made a case to our colleagues in the School of Nursing about the value of this curriculum. We have hard evidence that students' critical thinking, acute listening and observation abilities, sensitivity to multiple perspectives and difference have all vastly improved with the art and music they had encountered over the course of the semester, based on concrete evidence provided by the pre- and post-test (indicated by examples above). Additionally, with each incoming class of nursing freshmen (a cohort that is, incidentally, growing markedly each year), we will need more courses providing the requisite tools that encourage empathy and complement clinical practice, as outlined in the extensive research quoted above.

These claims have equal relevance for other professional areas. Students in engineering, business, social work, and other pre-professional areas can similarly benefit from courses in the arts. The developed skills and ways of thinking resulting from in-depth visual and aural investigation, such as we have outlined above, clearly improve our students' chances at professional and personal success. They provide universal skills both for those who pursue graduate study and for those who choose to enter the workforce. Arts coursework clearly provides the essential, practical tools demanded in today's world.

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