

## **Waste in Popular Music Education: Rock's Problematic Metaphor and Instrument-Making for Eco-Literacy**

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### **ABSTRACT**

Popular music education can ease or worsen the waste problem. Waste refers to things with “no value,” and the Global North produces a lot of waste. Not limited to material, waste can be seen as a dominant metaphor in rock music. The guiding question for this essay is, what opportunity does rock music present for cultivating eco-literacy through music? Before we can find solutions though, we need to recognize rock's distinctive ecological challenges. Popular music is both implicated in the challenge of waste, and can help music educators explore opportunities for resistance. In music education, qualitative research suggests instrument-making increases knowledge, interest, creativity, and builds attachment to an instrument, in addition to reducing material waste. In our field's move to incorporate popular musics, instrument-making can be a part of eco-literate music pedagogy.

*Keywords:* popular music education, rock music, eco-literacy, waste, instrument-making

*“I just added a new pickup, and its radical!” The dark-haired teenager was wearing a Ratt t-shirt and playing “Paranoid” on his homemade guitar. The late 1980s, and though it was already nearly two-decades old, this Sabbath classic provided an accessible riff, frequently played by self-taught rock guitarists. Still in 8<sup>th</sup> grade, I was the youngest member of this, my first, garage band. I began playing drums because I wanted to play music that I listened to.*

*Though I doubt the guitarist's aim was waste reduction, he felt a deep connection to this particular instrument because he built it. He upgraded and replaced parts over the years. I suspect few purchased, factory made, instruments inspire as deep a connection. Like Theseus's famed ship, some version of this instrument lives today.*

The purpose of this essay is to consider how music educators can reduce material and metaphorical waste, such as through instrument-making in popular music education. Eco-literacy theorist David Orr (1992) discusses the failure of the 20<sup>th</sup> Century's two main social systems: "Communism has all but collapsed because it could not produce enough; capitalism is failing because it produces too much and shares too little" (xi). With capitalism reigning as the dominant system, and with praxial conceptions, which view music teaching and learning as "a *living* process that welcomes and guides newcomers into a musical-ethical network of dynamic, dialogical, and social relationships and values" (Elliott and Silverman 2015, 49), the values of capitalist/commercial musics, like rock, need to be understood. In this essay I argue that music classrooms produce waste,<sup>1</sup> and instrument-making, used in coordination with popular music pedagogy, can help worsen or alleviate waste through learned *dynamic social relationships* and *values*, whether explicitly intended by teachers or not.

The guiding question for this essay is, *what opportunity does rock music present cultivating eco-literacy through music?* Before we can find solutions though, we need to recognize rock's distinctive ecological challenges. Unlike a "research question," this guiding question is not fully answered in this essay, but rather it served as a guidepost. As critique, in this essay I focus on "indirect" (Dewey 1997, 4) aspects of popular music pedagogy; and as a more direct possibility, I focus on instrument-making. Instrument-making activities can include simple instrument-making or, as in the example from the opening reflection, can include electronics.<sup>2</sup> I begin the essay with a description of waste, and consider the problematic link

between rock and waste, which includes both the production of material waste and a more metaphorical waste. I continue to discuss popular music education, and then propose instrument-making as a form of resistance to waste. In this instrument-making section I discuss four published studies to highlight various reasons music educators incorporate instrument-making. Finally, I propose some opportunities for reducing, reusing, and recycling, which are part of challenging material and metaphorical waste.

I have previously argued that music education should be expanded to include ecological literacy (Shevock and Prest in press, Shevock 2017, Shevock and Bates in press; see also my blog at <http://eco-literate.com>). Ecological literacy is an interdisciplinary movement that helps students cultivate critical consciousness<sup>3</sup> around environmental issues. As Orr (1992) writes, “the ecologically literate person has the knowledge necessary to comprehend interrelatedness, and an attitude of care or stewardship” (92). Recognizing the waste challenge requires comprehending interrelatedness—how we relate to nonhuman life and places—and entails a persistent care for the environment, even when it is easier to create waste within our capitalist system. This is not a value-free or libertarian education. As Orr points out, medical education has a “clear bias toward human health, not disease,” and those of us teaching for ecological literacy “ought to have a clear direction favoring harmony between human and natural systems while preserving objectivity in handling of facts, data, and logic” (142).

In the monograph, *Eco-Literate Music Pedagogy*, I suggest there are ecological aspects in music that teachers use in the classroom (Shevock 2017). For instance, natural soundscapes have long inspired compositions (see Schafer 1994), and many activists use folk music in environmental justice movements (see Pedelty 2012). Because of interdisciplinary initiatives, teaching music for eco-literacy can help music teachers meet those aims. But more than meeting instrumental policy goals, teaching for ecological literacy helps teachers’ and students’ ecological conscientization—toward harmful, taken-for-granted societal values, for

recognizing the intrinsic value of human and nonhuman beings, and of unjust domination and oppression. Using ecofeminist and Freirean scholarship, I contend there are parallels of injustice between the ways we oppress other human people and dominate nonhuman life (see also Freire 1993, Warren 2000). Teaching for ecological literacy, as a critical praxis, can lead to increased solidarity across human groups—intersectionality—and between human and nonhuman beings (see Figure 1: A Valuing Structure).

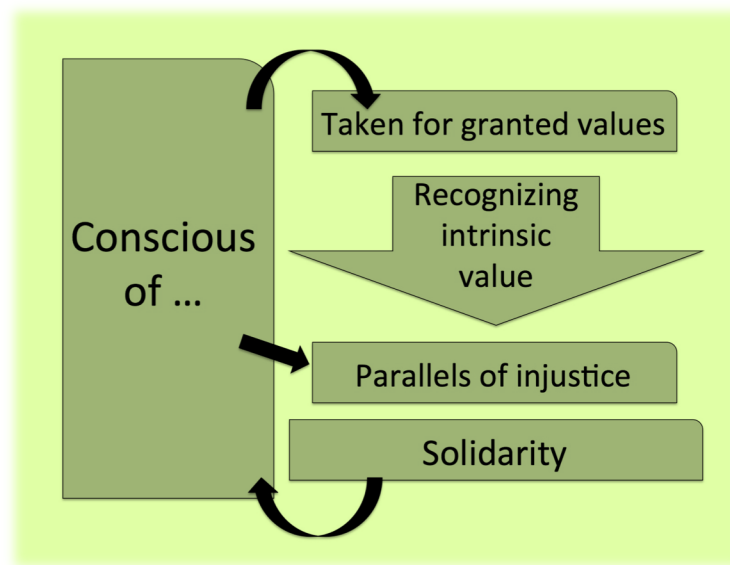


Figure 1: A Valuing Structure (from Shevock 2017, 82)

In the current essay I narrow my attention to considerations of waste and instrument-making in popular music pedagogy. The waste we produce is a taken-for-granted value, or at least a result of such valuing. Most of us fail to even consider waste. It may even challenge us in ways we dislike—making us consider our failings.<sup>4</sup> Indirect ways music teachers contribute to students' education include equipment and energy use. "What makes for good music, in the aesthetic sense, has always been partly dependent on what makes music good, ethically. That implies some recognition of material effect" (Pedelty 2012, 11). Rock music is implicated in

the waste crisis (see also Hamelman 2004). But rock may also help music educators explore opportunities for resisting waste.

### Waste

Music education scholars are beginning to recognize our responsibilities in our wasteful consumer society (Bates 2013; Koza 2006; Lafontant Di Niscia 2017; Shevock 2017). The Landfill Philharmonic emerges in the Global South, a mirror challenging the Global North's waste.<sup>5</sup> Many musicians and groups, from Ken Butler,<sup>6</sup> to Uakti,<sup>7</sup> to the Anarchestra<sup>8</sup> are making music with homemade instruments, including repurposed trash. Julia Eklund Koza (2006) suggests, "rather than slavishly supporting consumption and depletion, musicking can foster *jouissance* and also, in a metaphorical sense, replenish and vivify" (35). And music teachers are discovering many benefits of employing instrument-making in the classroom (Coleman 1927; Matsunobu 2013; Randles 2015; Shevock 2017; Thibeault and Evoy 2011). Music teachers are opening space for creative, instrument-making activities for many reasons. Some of those reasons ~~are~~ include waste reduction; and some of those activities occur in popular music ensembles.

The links between material and metaphorical waste are explored in popular culture, including music and film. To exemplify in film, in *Toy Story 3*, as the toys' owner leaves for college, they are unintentionally delivered to a day-care, rather than being stored in the attic. There, frenzied toddlers damage the toys, and ultimately the protagonist, Sheriff Woody, convinces the other toys that Andy didn't discard them. The toys decide to return home. However, the antagonist, a toy bear gang-leader named Lotso, wants to stop the toys' escape.

Lotso explains, "Tell me this, Sheriff. If your kid loves you so much, why is he leaving? You think you're special, cowboy? You're a piece of plastic. You were made to be thrown away" (Anderson & Unkrich 2010).

As the anthropomorphized toys battle for survival, a robust portrayal of waste, material and metaphorical, unfolds. In it, waste seems inevitable, and the toys

have to confront what it means to be understood *as* waste. As children grow, waste is accepted as normal. Andy is expected to throw away his toys as he leaves for university. However, the message of Toy Story seems to be in reducing waste. We are made to empathize with our material toys—to feel bad when we waste them.



*Figure 2: Plastic Beach, Versova, Mumbai<sup>9</sup>*

But we don't have to feel bad for anthropomorphized toys to feel bad about the results of our waste. Much of our material waste, produced in the Global North, negatively affects the Global South (see Lafontant Di Niscia 2017, and Figure 2: Plastic Beach, Versova, Mumbai). And schools can be wasteful places. But many school districts have made strides in reduce waste in recent years. Music classrooms can make explicit their role in these efforts through instrument-making, including reducing, reusing, and recycling material, keeping those objects away from the garbage.



Though all music education practices can potentially exacerbate our waste problem, this paper focuses on popular music education because, as our field incorporates popular music genres we make decisions about what practices are “best.” In the 21<sup>st</sup> Century ecological concerns should not be ignored. For instance, because popular music education uses electronic instruments, e-waste becomes a matter music educators must understand. United Nations Environment suggests e-waste is a fast-growing ecological concern “in developed as well as in developing countries.”

Due to the fact that the life span of computers has dropped in developed countries from six years in 1997 to just two years in 2005, and mobile phones have a lifespan of even less than two years, the amount of generated e-waste per year grows rapidly.<sup>10</sup>

We music teachers increasingly use iPads in our classrooms. And many of the other tools of rock (and hip-hop, country, and other popular music genres), such as electric guitars, synthesizers, and computers become, after their use, e-waste.

Waste has both a material and metaphorical expression. We call something waste when it can no longer be used (Falasca-Zamponi 2011). The idea of waste must be understood within context of our ecological challenges. The U.S. and other nations of the Global North create a lot of waste, including through music education. According to sociologist Falasca-Zamponi, waste isn’t limited to physical objects. According to her, metaphorically, we talk about people “wasting their time,” or, in the extreme, we talk about people *as* waste! As something that no longer has value, waste can refer to those things people do, such as employment. And *waste* is a common metaphor in popular music, especially rock (Hamelman 2004).

The arts themselves are often viewed as metaphorical waste. Many music teachers have heard some variation on the theme, “playing music is a waste of time,” or have been told their work is supplemental to the important work of schools. With “core subjects” being narrowly defined by many, music education might never be at the core of education. More than at any time in history, waste is a social concern.

Material waste emerges from unreflective consumption. And, in consumer societies, waste is something we neglect: “When we deem something useless, we take our distance from it. Therefore, once we produce waste, we want to forget about it” (Falasca-Zamponi 2011, 19). This is where problems begin. On a planet with more than 7 billion human inhabitants, landfills (and methane), incinerators (and dioxin), and radioactive waste become inescapable realities for many. “Musics result when persons engage in critically reflective actions and active reflections within musical praxes, at specific historical times, and in the contexts of specific cultures” (Elliott and Silverman 2015, 1). At this time in history, the goal of reducing waste requires critically reflective action.

Perhaps the hardest hitting critique of our wasteful nation comes from poet and literary scholar Wendell Berry (2010), who implicates us all in our waste. He writes:

But our waste problem is not the fault only of producers. It is the fault of an economy that is wasteful from top to bottom—a symbiosis of an unlimited greed at the top and a lazy, passive, and self-indulgent consumptiveness at the bottom—and all of us are involved in it. (127)

Berry’s body of work connecting material waste to passivity (a type of metaphorical waste) is persuasive. He points out that waste is the result of our economic system—“the centralization of our economy, the gathering of the productive property and power into fewer and fewer hands, and the consequent destruction, everywhere, of the local economies of household, neighborhood, and community” (128). Music education is connected to the same economy Berry criticized. Our economy has centralized the production of music notation, instrument-making, and the aural representation of songs, which are written, performed, and produced by distant others and shared in every corner of the globe. It’s no surprise that music students arrive in our classrooms passive—every step of musicking is already produced, and the only choice available to them is to consume. The structure sets the stage for the worst sort of banking education (Freire 1993), because to make all aspects of the pedagogical world is far more challenging than passive consumption. I



also suspect popular music provides distinctive opportunities for music classrooms to challenge waste, material and metaphorical. In particular, popular music education might begin to resist waste by resisting passivity and decreasing the use of material waste—both accomplished in the praxial acts of songwriting, co-constructing curricula, and instrument-making. Next I will discuss the challenge of rock and waste, material and metaphorical.

### Rock and Waste

Music industry can refer to the people and laws governing music business interests, or it can refer to material. Music industry can “describe a complex network of materials extraction and materials processing, a continual flow of exhaustible resources and exhausted commodities, of patterns of accumulation and dispossession which have discernible and describable logics—as well as measurable material consequences” (Devine 2015, 384). As the material consequences of an industry, rock and waste is a social justice concern.

It seems inescapable that popular music produces material waste. Noting this, ecomusicologist Mark Pedelty (2012) asks, “Is the environmental crisis ultimately a genre crisis for rock, hip-hop, and other energy-intensive musical styles” (4)? For performers, waste includes electronic equipment, which is often built for obsolescence (built to break down); and for listeners material waste includes vinyl records, cassettes, CDs, and now iPhones. Fans who collect these popular music artifacts are sometimes called *junkies*, a term that refers to drug abuse endemic in rock, perhaps also referring to the waste they accumulate. Also, performances are “energy-intensive” (3). Set-ups include power for PA systems, instruments, amps, and monitors. While famous groups travel from city to city on jets, even local performers doing an acoustic set require a large van—a small electric car won’t carry much equipment.

In an article published in *The Growler*, Jackie Renzetti (2017) recommends ways to minimize your music listening environmental footprint—including

streaming, rather than using LPs, cassettes, or CDs. She suggests purchasing digital music can reduce carbon dioxide emissions. Similarly, in *General Music Today*, Robin Giebelhausen (2015) suggests replacing paper music with digital copies. In contrast, Kyle Devine (2015) challenges the idea that digital musics are waste-free, or even better options:

The move to a data-based musical materiality could represent a step in the wrong direction: from the use of raw materials that are relatively renewable (shellac) and commodities which are readily recycled in secondary economies (LPs) to delivery infrastructures that weigh heavily on the environment (server farms) and musical commodities with short life expectancies (accessory electronics) and ambiguous afterlives (MP3s). (384)

But the picture that emerges is not yet clear, with Devine's scholarship overriding Renzetti's and Giebelhausen's. Greenpeace, in 2012, confronted Apple, Amazon, Facebook, Google, Yahoo, Microsoft, and other companies over their use of cloud power—providing percentages of the Cloud that uses Clean Energy, Coal, and Nuclear, as well as rating transparency—and recommended ways to “clean our cloud” (Cook 2012). In response, Apple (which had received a “D” for transparency from Greenpeace) made changes, resulting in a press release, in 2018, noting they are 100% powered by renewable energy.<sup>11</sup> However, previous reporting had suggested that the part of Apple that is 100% renewable represents only 2% of Apple's total activity.<sup>12</sup> Perhaps the cloud can be made greener, and old LPs, cassettes, and CDs can be recycled. Whichever side is right in this dispute—CDs and paper, or digital musics—music education can be a wasteful endeavor. And by understanding the complexity of the discourse helps us better become eco-literate—including understanding the discourse corporate and activist groups, visible and hidden waste.

Waste is also a metaphor. In *But Is It Garbage?*, media theorist Steven L. Hamelman (2004) discusses waste as a prevailing metaphor in rock music. In descriptions of rock, critics use many variations of the trash trope; rock lyrics and band names incorporate trash, waste, and garbage; and the early deaths of rock

stars is itself “a tragic dimension of the trash trope; the ultimate form of waste—men and women dying well before reaching middle age” (p. 14). Consequentially, as we increasingly incorporate popular musics into our teaching practices, what can we do to resist material and metaphorical waste already embedded in rock? When I presented this paper at a conference, Gareth Dylan Smith made me aware of a movement toward using bamboo drumsticks, which are more sustainable. This seems like an interesting start. Resistance seems to begin with our material choices. Next I will explicate some strengths of popular music education, generally, and link these strengths to the alleviation of waste.

### **Popular Music Education**

It has been argued that music education can increase its impact by incorporating popular musics, which are part of many students’ out-of-school lives (e.g., Colquhoun 2018). Popular music education is connected to ideas of informal learning, enculturation and immersion, performing, creating, and listening (Green 2008). Lucy Green suggests each of these involves a teacher giving up power, providing students “more autonomy to decide on curriculum content and to direct their own learning strategies” (185). However, teachers who open their classroom to student control may open themselves to uncertainty and possible failure. While closed, teacher-centric, approaches to music teaching are not inherently unethical, Randall Everett Allsup (2016) argues for a teaching approach that appreciates art’s ideals as “ambiguous and open” (139). This approach to popular music education may provoke a more ethical pedagogy for teachers and students, even when, or maybe especially when, we allow our authority, as teachers, to be destabilized.

Approached in an integrated way, popular music has an opportunity to increase ecological literacy (see Shevock 2017). Certainly songs like Neil Young’s “Be the Rain,” Ziggy Marley’s “Dragonfly,” Joe Walsh’s “Song for a Dying Planet,” Rush’s “The Trees,” The Pretender’s “My City Was Gone,” and The Beatles’ “Mother Nature’s Son” contain clear environmental ideas. And these can be incorporated into

curricula. But an integrated approach to ecological literacy doesn't only mean directing students to learn such songs. Teaching as ecological literacy "holistically reintegrates the moral with the ecological, the scientific with the aesthetic and ethical—weaving together the array of perspectives that moderns need to attend to their question to live 'the good life' in times morally difficult and ecologically destructive" (Prakash 1995, para. 5).

Living the good life can involve making music one loves, rather than being uprooted from out-of-school musical cultures, and it also can involve making music in sustainable ways (see Bates 2013; Shevock 2017). Further, students can write songs about the social concerns that most affect their lives—waste being a global challenge each student is already aware of. When creating musics, students can return to their communities, to learn from and teach their families and friends, creating an ecologically reciprocal relationship that preserves actual local places. We live the good life through decency and kindness, and personal and cultural preservation can parallel ecological conservation. And ultimately, many diverse local musical cultures may provide the ideas needed to solve the greatest social challenges we face. With this in mind, there are three strengths of popular music for reducing waste:

1. By connecting in-school teaching to students' out-of-school lives, students learn that all of their knowledge matters, not just what we provide in the classroom
2. By teaching music performing, creating, and listening together, students learn musical knowledge exists in an integrated way. They do all of these, and they are interconnected
3. By songwriting, students learn that they are able to make musics, and not just consume them.

### Instrument-making

I use instrument-making in a class I teach, *Rudiments of Music*. Making their own instruments provides students with an opportunity to explore various music elements, such as melody, rhythm, texture, timbre, and form. I have come to believe that instrument-making can be a part of resisting waste more broadly. Research into the benefits of instrument-making has been qualitative, beginning with Satis Coleman's case studies in the early 20<sup>th</sup> Century, and involving ethnography and autoethnography more recently.

Satis Coleman (1927; 1931) wrote extensively about her creative approach to music education. Her pedagogy began with simple instrument-making. Her approach was considered an expression of Dewey's ideas, and it is interesting that the ideas of constructivism and construction are linked through the practice of instrument-making. Coleman had students take field trips to museums and into nature, used found sounds and guided young students to compose their own symphony. She suggested making instruments in school expanded students' knowledge and appreciation, self-cultivation, improved student interest, fostered initiative, and interdisciplinary thinking. There seems to be a connection between her spiritually expressed concept of "silence in nature" and teaching for "ecological consciousness" (Shevock 2015, 59). Though reduction of material waste was not part of Coleman's expressed aims, it is easy to see that knowledge, interest, and initiative each help cultivate a non-waste-metaphor view of the self.

In more recent scholarship, Matthew Thibeault and Julianne Evoy (2011) described instrument-making as collaborative, and noted that building ukuleles increased personal attachment to the instrument. "Having put several hours into the construction of my ukulele, I now cringe at the thought of rock stars bashing their guitars into amps at the end of concerts. Someone put a lot of time and effort into making those instruments" (46)! This quote educes and then rejects material waste that is characteristic of much rock music. It shows how the experience of instrument-making, by increasing knowledge and love for an instrument, can

become an ethical act—students who make instruments respect the work that goes into making instruments.

In an ethnographic study of the *Shakuhachi* tradition of Japan, which begins with going outdoors to choose bamboo for instrument-making, Koji Matsunobu (2013) described increased attachment to the instrument. Instrument-making fostered a better understanding of acoustics, allowed students to explore the relationship between instruments and music, and increased “cultural awareness” (196). Further, he noted participants experienced increased connection to places and communities, increased creativity, and integration of the ideas of mind and body. This type of spiritual, place-conscious education is at the heart of eco-literate music pedagogy (see Shevock 2017, esp. *Chapter 5: Spiritual Praxis*).

In an autoethnography considering pedagogical implications for making guitars, Clint Randles (2015) discussed learning how material variables contributed to the tonal characteristics of the guitar. He saw this as a part of adaptive and innovative change: “all of the components of a guitar (wood, pickups, electronics, etc.) contribute to the overall sound, all of the *enabling skills* and *enabling conditions* work together to contribute to the creative process” (192). Important to music educators, instrument-making augmented Randles’s love for music making. This seems to connect to Coleman’s insight into instrument-making increasing student interest (their “seeking attitude”). Both approaches put creativity, as both improvisation and instrument-making, at the core of music education. As such, instrument-making in popular music education can:

1. Embed an ideal of constructivism in the music classroom
2. Be spiritually uplifting
3. Connect students to lived places beyond the school walls
4. Help students realize and respect the work that goes into making an instrument, and thus be reticent to discard them
5. Increase cultural awareness, especially through the construction of non-Western instruments



6. Increase students knowledge of material and creative elements of musicking. In the next section I will clarify how three postmodern “r’s” can provide an overarching ethical praxis for eco-literate music pedagogy.

### **Reduce, Reuse, and Recycle**

Though the phrase “the three r’s” has fallen out of fashion in education, attempts to reduce curriculum to a narrow core do not seem to have fallen out of fashion at all. In contrast to curricular reduction, music education can, with some change, exemplify the postmodern r’s—“reduce, reuse, and recycle” (Prakash 1995, para. 38). Instrument-making can help us be models for reduced consumption in our schools, and as we reuse and recycle equipment, we can do our part to resist waste.

Educational philosopher Madhu Suri Prakash (1995) describes the global economy as wasteful, and recommends teachers look to rooted cultures, where local inventiveness and sustainable living are embodied (para. 27 & para. 32). This reducing ethic for moral education can involve letting each classroom decide on purchases, rather than making purchases at the district or state levels. A teacher might also consider how far components have travelled, in a process similar to the better-known concept, “food miles.”<sup>13</sup>

There are many opportunities for popular music educators to reuse equipment. We can begin by refusing to purchase equipment with built-in obsolescence. This may begin with something as simple as asking your vendors how long a piece of equipment can be expected to work and, for software, remain up-to-date. Vendors need to know long-lasting equipment is important to customers. You can also challenge yourself, and anyone else involved in making purchases, by asking: “Do I really need these?” We can use our equipment, and reuse it, and when it doubt, fix it and use it again. A new piece of junk isn’t always better than an old one. Further, as we move toward more popular musics in the school, encourage local stores to, if they do not already, begin instrument rental programs similar to those in band and orchestra.

Finally, it is important to recycle electronics. With 20 to 50 million metric tons disposed worldwide every year, e-waste, which represents only 2% of trash in U.S. landfills, contributes 70% of overall toxic waste.<sup>14</sup> Many cities and towns sponsor electronics pick-up days, and you can check the Call 2 Recycle website to learn how to recycle equipment properly.<sup>15</sup> You can also learn to disassemble and recycle components using online resources such as instructables.<sup>16</sup> This may be most consistent with a rock ethic embracing DIY (do it yourself). Emerging in punk musical culture, a DIY ethic has been used to increase sustainability in such fields as various fashion design (Kejing and Qi 2011), and environmental justice (Shepherd 2014). We can return DIY to an anti-wasteful approach to popular music education. Don't allow yourself or your students to become obsolescent.

### Conclusion

Filmgoers know the toys in *Toy Story 3* are fated to become garbage. This is why it is such a powerful film. As it is currently configured, our consumer society is more wasteful than it needs to be. Whether the toys spend a couple of decades in the attic or are torn apart by toddlers, all “plastic” seems “made to be thrown away” (Anderson & Unkrich 2010). The great pacific garbage patch is evidence enough of that.

But all hope isn't lost. Instrument-making can be one way for music teachers and students to resist waste. Returning to Elliot and Silverman's (2015) idea of *social relationships* and *values*, in this essay I suggest not only does instrument-making reduce material waste, it also increases student knowledge and interest, helps them see music as interdisciplinary and creative, builds attachment to an instrument, and increases personal and communal agency. Each of these factors can work together in a potent way. They can cultivate flourishing, wellbeing, and care.

On a final note, music educator Vincent Bates (2013) challenges the glamorization of “mass-produced consumables.” He describes this type of waste as magnified—“*waste compounded many times over by reinforcing in the minds of*

*children the unquestioned goodness and necessity of technological innovation!"* (p. 81; emphasis in original). What a horrible thing it is for music educators to teach children that they need to produce more waste! In this paper, I argued that instrument-making can resist the type of magnification Bates noted by placing in the hands of students, quite literally, the power to construct their worlds rather than making them into passive consumers in a faceless, placeless, wasteful global economy. Students who have been taught that they are not waste, they are not passive, have a chance to challenge our wasteful society at every point. Through embodying the postmodern r's we can challenge our taught desires for a level of consumption out-of-reach for, and destructive to, many people around the globe (see Lafontant Di Niscia, 2017). In our field's move to incorporate popular musics, instrument-making can help reduce waste, material and metaphorical, and can be a part of a truly ecological music education praxis.

### About the Author

Music education philosopher Daniel J. Shevock is the author of *Eco-Literate Music Pedagogy*, peer-reviewed articles, and the *Eco-Literate Pedagogy* blog at [eco-literate.com](http://eco-literate.com). He teaches at Penn State Altoona and State College Friends School. Previously he taught at Indiana University of Pennsylvania and the Pittsburgh Public Schools. He earned a Ph.D. in Music Education at Penn State (2015), a master's at Towson University (2000), and a bachelor's degree at Clarion University of Pennsylvania (1997). Dan's scholarship blends creativity, ecology, and critique.

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### Endnotes

<sup>1</sup> And I suggest that waste is both material and metaphorical, which will be described later.

<sup>2</sup> For instance, see Rathgeber's website where he details explorations with instrument-making with technology such as "Makey Makey." Link: <http://composingk12.wixsite.com/rathgeber-impact2014>

<sup>3</sup> Freire (1993) conceptualized conscientization as movement toward critical thinking, "thinking which discerns an indivisible solidarity between the world and the people and admits no dichotomy between them" (92). Though Freire never theorized an ecological pedagogy, I have pushed this idea of conscientization toward recognizing solidarity between human and nonhuman animals and places using Warren's (2000) ecofeminism (see Shevock 2017).

<sup>4</sup> My only YouTube video to receive a thumbs-down is this study, which I shared before presenting this essay at the 2018 Modern Band Colloquium. Link: <https://youtu.be/knU5qQfbJPE>

<sup>5</sup> Link: <https://youtu.be/UJrSUHK9Luw>.

<sup>6</sup> Link: <https://youtu.be/wKzflCztXd4>

<sup>7</sup> Link: <https://youtu.be/c0yPo3nKCTw>

<sup>8</sup> Link: [https://youtu.be/c\\_xzSfQA5g](https://youtu.be/c_xzSfQA5g)

<sup>9</sup> Plastic Beach, photographed by Ravi Khemka. "Dredging at the mouth of Versova Creek and dumping of the plastic-filled sediment on the beach is evidence of careless neglect of an area that is home to large tracts of mangroves and beautiful birds such as the Great Egret. The plastic unearthed is probably from the garbage dumped upstream along Malad Creek." Creative commons, "attribution 2.0 Generic (CC By 2.0). Link: <https://www.flickr.com/photos/ravikhemka/4393897533/>

<sup>10</sup> Link: <http://web.unep.org/gpwm/what-we-do/e-waste-management>

<sup>11</sup> Link: <https://www.apple.com/newsroom/2018/04/apple-now-globally-powered-by-100-percent-renewable-energy/>

<sup>12</sup> Link: [https://www.theregister.co.uk/2013/03/21/apple\\_goes\\_green\\_in\\_america/](https://www.theregister.co.uk/2013/03/21/apple_goes_green_in_america/)

<sup>13</sup> When considering food miles, locavores attempt to produce as little CO<sub>2</sub> waste in their food purchases

<sup>14</sup> Link: <https://www.dosomething.org/us/facts/11-facts-about-e-waste>

<sup>15</sup> Link: <https://www.call2recycle.org>

<sup>16</sup> Link: <http://www.instructables.com/id/Recycle-old-PCB-components>