Fiat Lingua

Title: Language Creation in Early Learning

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MS Date: 09-11-2016

FL Date: 10-01-2016

FL Number: FL-00003D-00

Citation: Garrett, Danny. 2016. "Language Creation in Early Learning." FL-00003D-00, *Fiat Lingua*, <http://fiatlingua.org>. Web. 01 October 2016.

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September 12, 2016

Abstract

This paper explores how conlanging impacts learning outcomes for middle school students in a structured English classroom. Starting in May and ending in the same month, 6th and 7th graders from Iberville Charter Academy in Plaquemine, LA created conlangs for their end-of-the-year English projects. 44 students participated. I, their teacher, oversaw the project, taught the necessary material for it, and studied the project's pre- and posttest data. The data and highlighted student works are presented in this paper, framed in their proper historical, pedagogical, linguistic, and literary contexts. To protect student identities and statuses as minors, all student names are fictional and thus obscured in accordance with California law.

[1] According to the U.S. Department of Education, "Early Learning" means state-licensed education for infant- and kindergarten-aged children (ed.gov). In the title, I use the term poetically to emphasize that conlanging is usually practiced at the college level, not the middle school level. In comparison to the former, and to use a decent adjective, middle school is "early" learning.

Introduction

Who creates conlangs? Whom is conlanging for? In academic circles, our minds shoot towards higher learning and the highly learned. After all, L.L. Zamenhof was a Polish physician who created Esperanto in 1897. Brown University has overseen the Conlang Listserv since 1991. And David Peterson and Madeline Palmer alike started their conlanging journeys in academia.

I understand the knee-jerk association. The craft is hard intellectual work. The conlanger in question needs more than basic knowledge in grammar, syntax, writing and sound systems, language history (not only English's history), and linguistics. This knowledge doesn't sit idly in the ether. Our dedicated conlanger needs to wield weapons of deduction and induction, testing if affixes are consistent and molding the layered grammatical concepts within language. Such work takes time and thought – a lot of it. It's perfect work for the dedicated grad student or for a twenty-something (or older) lover of language who's not associated with an academic institution.

However, have we considered conlanging for the youth? High school students? No, younger. It takes little strain of the imagination to imagine, not just a precocious lone wolf in her late teens creating a full-fledged conlang, but also a high school AP creative writing class creating languages for a semester-long project. These students are on the cusp of college; and depending on where these students are on a map – an elite, privileged school district, for example – the knowledge needed to create a decent conlang is well within their grasps.

But, no, younger. Middle school young. One might think, "That's not out of the question! My preteen partner-in-crime and I had our own language. Its beginnings came from nefarious intentions." As in, "Through coded language, how can we conceal the fact that we've been setting off the fire alarms at school? Or, through the same coded language, figure out another way to exclude my little sister from my mischief?"

So close. Very close. But not exactly. Conlanging has a unique signature and organizational principle. It's been there since its early modern beginnings. First comes the intention to create a functional language, not merely a code. Then comes the back-breaking linguistic work with individual practice running in tandem. And lastly arrives sharing your work with a community of more than two or three. The hopes are that this community embraces your

language, actually seeks to understand its grammar and its purpose for living, and hoping to some lettered deity, that this community tries to speak your language.

Organization of this type can incubate in the confines of a seasoned, singular, and talented conlanger's notebook. Or, this organization can rise from a classroom – a middle school classroom.

Part I. All Stories Have Beginnings

It was May 9, and I still had my first period 6th grade ELA class. The clock read 9:15 a.m. -- only five minutes remained until the bell rang to dismiss them to the computer lab, which gave me only five minutes to let my students in on a surprise. I stood in front of the classroom, between desks in four sets of three, facing my students. Hush fell over the room, a rare occasion for a middle school classroom, when I uttered the words, "I have excellent news, and you're going to want to hear this." During school, no matter the time of day, I'm under a coffee spell, born from my steady diet of eight ounces of medium roast a day. The liquid manna joins my adrenaline that's produced from running after 11- and 12-year-olds all day; and when that's joined with my already natural ability to quickly bounce from thought to thought, even completely disparate ones, my oration during school is one of entertainment. My voice, and my words, are thus given to rapid succession, but I have an uncanny ability to make sudden stops in speech to punctuate my main points.

Quickly, I informed them that the news had to do with their end-of-the-year language creation projects, the large ninety-point assignment where students create their own languages. I also resummarized and reiterated the project's main components and aims – as it's never not a good time to refresh memories of post-millennial children. I mostly touched on the fun parts. It was only last Tuesday when students excitedly raised their hands and arms in the air when I explained that they will create the worlds, where their language is born out of, and the people, who speak their language, with permission to converse in their created languages on kid-friendly virtual worlds like SmallWorlds and Roblox. I put their excitement into words, in the form of a summary. But, never missing an opportunity to slip in some instruction, I surreptitiously

reminded them of the close connection between language and culture, and how it's difficult for one to live without the other.

After that necessary refresher, I came with the good news, now with my speech slowed and stern, and general eye contact surveying the room.

"Last night, I contacted David J. Peterson to tell him what we're up to in class. He writes for shows on HBO and Syfy; he even writes for movies like *Thor*. In fact, his specific job is to create the fictional languages for the characters within these shows. It's really fascinating stuff. It's also work that's not for the fainthearted."

I reached behind me and retrieved *The Art of Language Invention*, Peterson's book, from off my desk. I held the book up in my right hand with its front cover facing young, searching eyes.

"Peterson's the author of this book! In it, he shows how much work goes into creating a language for a show or a movie. You need to work out a sound and a writing system, grammar, and even the people's history who speak your created language. This is all necessary. It makes the story more real for the viewer."

"Well, OK, Peterson emailed me back this morning. He's impressed. He wished that he did a project like yours when he was your age. He's so impressed that he wants to publish your work on his website!"

Nicholas, a young boy who sits west of the Smart Board, sat frozen. His mouth was widely agape; his eyebrows arched far towards his hairline; and so much light had entered his eyes, which too, froze into place.

"You know famous people?!" he exclaimed, finally breaking his congealment.

"Wait, no, I just contacted him. It's actually quite easy to contact academics like Peterson…if they want to be contacted. They're interested in knowledge first and foremost, and people who are interested in their distinct fields, and if you make a well-reasoned and a well-crafted argument that you're working on an interesting project within their field, still talking about language creation here, then a response is more than warranted," I rebutted.

But I'm not sure how many students heard this rebuttal. Half of the students' heads were down and buried in their projects, pencils and pens moving rapidly on paper, especially Nicholas's. He pulled his sketchpad out so quickly that the wind pressure from his materials-grab jolted his book bag against the black tin cabinet behind him.

But the bell had already rung. Their energy, like their other classmates' energy from classes I had yet to see for the day, needed to be conserved for tomorrow, the day when the real work started.

Part II. A Language and Its Home Environment are Siblings: *You don't have to know why they're so close, but be happy they are.*[2]

My dad is one out of eleven children, but he's closest to his brother, John. Perhaps the closeness comes from the fact that they share the same father, which sets them apart from their three sisters and five brothers (Don't worry. My arithmetic isn't that bad. Dannie, my dad, and John have one more brother from the same father.) Or perhaps the closeness comes from their closeness in age; they're only two years apart. I'm uncertain. I just find it remarkable that out of all their siblings – who span the Midwest from Chicago to Wichita, and the South, from Tennessee to Florida – Dannie and John left their family enclave in Forrest City, Arkansas, to both marry Louisiana women, and with keen engineering minds, to both retire from Union Pacific after working decades on the railroad, and to now sit on a legacy of five college-educated children. And, get this, both brothers live less than three miles of each other in a small, southwestern Louisiana city, about sixty miles north from the Gulf of Mexico. In this part of the world, they've grown and evolved together. Their clothing thinned first off. Humidity is the devil

[2] It's not uncommon for linguists to think of human languages through families, metaphorically speaking, family trees even. Minna Sundberg, creator of the comic *Stand Still. Stay Silent*, has drawn a beautiful language tree diagram that puts others to shame. In my analysis, I've added a slight addendum to the traditional language tree. I've added how speakers from a certain language, who were heavily influenced by their home environment, can bring this language-environment symbiosis to a new environment. And instead of unwieldily calling a language and its home environment "symbiotic partners," I've settled on describing them as "brothers," as close siblings, to emphasize their familial closeness.

in Louisiana, and brutal cold doesn't nefariously fly off the backs of Ozark Mountains towards Arkansas flatlands. And on this same thinned clothing, imprinted heraldic symbols changed from the red razorback to the golden fleur-de-lis. Aside from wardrobes, even their accents changed together. The Arkansas drawl, the alveolar ridge "urs" that buttress words like "there" and "here," turned into Louisiana twangs.

Languages and their environments share a similar story. (Little "e" environment, not capital "e." The uppercased one is a pitiful metonym for the universe or the world.)[3] They're siblings out of many. They're close despite how much diversity could have separated the two. Forget for a moment that my dad and uncle are brothers, and only focus on the fact they're two English speakers from Arkansas who moved to Louisiana in their twenties. Yes, their language changed based on the move, but no matter the linguistic and geographical diversity in Louisiana, their Arkansian English and their Arkansian environment still remained close, brotherly close. It didn't leave their brains that "hope," as a word, can be either an optimistic feeling or a city in southwestern Arkansas (and this was before the dynastic Clintons popularized the association for a swath of Americans). Or that "pop" is an umbrella term for Coke, Sprite, Pepsi, and Dr. Pepper. Even if my dad and uncle decided to move in with an Amazonian tribe, who knew only of an equatorial climate in the Amazon rainforest, my favorite patriarchs wouldn't lose their many terms for snow. Much has been made about how some random tribe of Arctic Eskimos have thousands of words for snow because they live in an environment where the cold, powdery substance is plentiful. Arkansas isn't the Arctic, but there's still snow in the Natural State, and there are books about snow there, too. Yes, Dannie's and John's minds may be slightly altered from chewing on coca leaves, while relaxing under the shade of Amazonian kapok giants, but not altered to such a degree that they'd forget the many words and concepts associated with snow in Arkansas: snowballs, sno-balls (the cold, sugary treat that seeped into Arkansas's vocabulary

[3] Using a University of Bristol study, I could have informed the reader how English is lacking in its descriptions on lightness, which is an interesting phenomenon since the surface reflection of objects is highly variable, "between 4% for charcoal and 90%" for virgin snow (Attewell and Baddeley 1). But this was too simple to introduce my topic. This so-called "lightness introduction" would have simply used a version of "environment" that subsumed plants, rocks, and precipitation under the term, a common connotation for the term. I wanted "environment" to subsume more: not only plants, minerals, and precipitation, but mores of a southern, working-class family, the local lingo in an uptown Arkansas neighborhood, and the smell of formaldehyde from the walls of one's childhood home.

perhaps by way of northern Louisiana), snow cream (also called Maple Toffee), snowman, snow day, and so on.

This has been language's story all along. Human language itself, out of all the evolutionary diversity that abounds, didn't have to exist, nor did it have to split into thousands of languages with speakers that enjoy mutual inclusivity with their environments.

Language – the recursive, grammar-filled, and open-ended one – is a gift that only humans possess. *Homo sapiens* first spoke in East Africa about 150,000 years ago. Modern humans who spoke this language or something similar migrated to Asia, with another group spreading to Europe, and another spreading in two separate directions: southeastward across Asia down to Australia and northeastward across the Bering Strait to the Americas. Because of these migrations, the original language evolved into the "six thousand extant ones today," all of them living in a familial harmony with particular environments by their sides (McWhorter 9-10).

The other large factor that could have separated languages and environments is brain evolution. It's quite miraculous that, about "150,000-odd years ago," a mutation occurred in *Homo Sapiens* that left them and their descendants genetically predisposed to acquire and use language, with much activity brewing in the brain's left hemisphere (McWhorter 8). Broca's area, Wernicke's area, and the like.

Be happy that it did. I sure am. Environments, with an emphasis on its little "e" plural form, influence languages, and the speakers influence their environments in turn. The relationship created the fun linguistic gift that my dad and uncle share – filled with playful terms like "pop" and playful concepts like red razorbacks designating collegiate heraldry – I'm sure you know of more.

When creating your own conlang, this is one of the many considerations that must be confronted. The first set of students and their projects, presented here, make a clear and distinct link between the close familial relationship between languages and their environments. To be frank, they're odes to their brotherly love.

Following this line, a handful of students first started creating ancient, early dawn-of-man languages. The students painted the letters, or symbols, on rocks. Because in this environment out of many, this civilization, along with its language, hadn't placed much emphasis on how

ideas could be expressed through other means – like through papyrus or parchment. Their time didn't allow it. Their topography didn't bear such a thing out either. (Instead of creating languages that have migrated with their speakers for millennia, they restricted matters a bit, which is fine. It lessens the work of having to create cross-pollinated histories for these speakers.) This was a time before a machine could turn raw wood into pulp, and it was a place surrounded by crude rocks and not verdant plants and trees.

But the artwork wasn't crude, nor were the thoughts behind the artwork. 6th grader, Danielle Lewis, created the most beautiful rock art. She remarked that her language was based off an African aesthetic. Her work resembles rock art from early Nigerian cultures in the Sahara. The work is abstract, angular, and above all, naturalistic – from the light blue of the firmament to the yellow of a burning sun. This was a foreshadowing of project ideas to come that gravitate towards a synesthetic experience: symbols and letterings that mixed color and shapes with actual experience.

Figure 1: Danielle Lewis's conlang based off of an African aesthetic.

The next group of students remarked that their people lived next to the sea. Instead of writing lettered symbols on rocks, the material of choice was seashells. Yes, symbols again represented concepts and specific vowels and consonants. But matters became interesting. Two students, Steph and Layla, started asking about and creating colors of the Milky Way galaxy: deep purples, deep blues, and deep blacks, punctuated with the brilliant light of stars. I inquired about their reasoning, and of course, prodded. According to Steph and Layla, their people lived

in a place on Earth completely void of light pollution, mixed with the perfect hemispheric and seasonal conditions to view the spiral wingspan of our galaxy.

Figures 2 and 3: Steph Baker's and Layla Coleman's seashell conlangs pictured left and right.

A prodding observer may interpret this as early signs of escapism in the students' work. In my view, we're not there just yet, at least not the gloomy form of escapism[4]. No, at this juncture, an observer needs to respect this budding and flowering of creativity. It's a creativity that's boundless and far-reaching.

Our next group with associations of environment and language on the brain focused on the desert. And finally! Whole sentences began to form, not mere solitary letterings and symbols on a naturalistic canvas. The following sentences were inscribed in sand by 6th graders Trey Franklin and Jessica Myers. What I found amazing about their inscriptions is that they realized

[4] Escapism isn't always negative. Take an average reading of L'Engle's *A Wrinkle in Time*, for example. As a literary response, nothing's wrong with *escaping from* your everyday lived reality of a 9 to 5 workweek and, virtually, *escaping to* the imaginative planets of Uriel and Camatotz with Charles Wallace and Meg Murry. The process makes for a more creative and less dull life. Plus, most of us, if we're not champions for masochism and sadism, argue that humans should escape lives of poverty, squalor, and oppression of any form. Before any of this is done physically, the person under such less-than-desirable conditions needs to *mentally escape* the physical torture to imagine a future better life. If we champion the physical escape, the mental escape must be championed, too.

by themselves that spacing needed to be indicated for their language. Peer closely in their alien-pink, sub-Saharan sand, and you'll find lined tracks that separate sentences. This was fascinating to witness. I felt transported back in time, blessed to watch early Latin scribes favoring a language devoid of *scriptio continua*. Yes, I was still drifting in this world of pure creativity, but there surely were pleasant distinctions to be made within this world, which slowed the aimless drifting.

Figure 4: Trey Franklin and Jessica Myers's conlang that transported me back in time.

However, matters became murky as I continued to observe Trey and Jessica's project. In their next work, one sees their diacritics and slanted letters, but above the English translation reads, "Help." Their last work seemed to follow a similar pattern. They created temples representing life and death. The temple of death has inscribed on its dome an "x." The temple of life has inscribed at its entrance, *lite,* with a diacritic above the "t." I thought the word was "life" in English, but they argued against this interpretation. They admitted that their language contains similarities to English, but it's wholly different from it. Look closely, you'll find that the word *lite* is created by tiny circular punctures. Trey and Jessica argued that English isn't written in this way. They convinced me. Plus, look a little farther above *lite*. Two dots punctuate the temple's

dome. They're symbols that represent phonemes. They're not Indo-European colons that indicate an ensuing list or extra information to embellish a previous clause.

Figure 5: Trey Franklin and Jessica Myer's Temples of Life and Death.

I began to claim that this was finally some sort of negative escapism. I saw "Help" and its fictional translation imprinted in sand. I saw temples of life and death. My Freudian indicators were wildly blinking. But this was still very wrong. It wasn't escapism. It was its better twin -- exploration. First, Trey and Jessica explored a stranded-island scenario with their language. Second, they were exploring what it would feel like to create ancient-like temples of life and death, similar to ancient Egyptian pyramids.

The last language in this set comes from Aaron Sorrells. It's called Zima. Aaron's language coincides very much with earlier student languages that focus on language and cultural production. His language is spoken by a people from a highly advanced age. Its people are so advanced technologically that they use tiny robots in the written form of their language to communicate information. All languages have many distinctions. The *la* in *la pomme* (apple) is used to distinguish this French feminine noun from a masculine noun like *le melon* (melon). The future *ai* at the end of *Je parlerai* distinguishes its meaning from the regular present conjugation *Je parle*. "I will speak" turns into "I speak." Zima makes the same linguistic distinctions, but it does so based on a robot's movements. Aaron coded the device's movements with color codes.

Watch his language in real time, and you witness how the robot moves with the consonant and vowel pairing *zi*, and how the colors determine the robot's movements. Matters become interesting when the tiny machine reaches the tittle in the *i*. The bot makes two rotations around it. A linguistic archaeologist from a much further time in the future would distinguish this diacritic from the one atop an English "i." The latter isn't a glyph that changes the sound of the vowel. Without the diacritic, an English reader would still say the same vowel sound. However, in Zima, the diacritic is emphasized by the robot's 360 movements, which brokers an inference that the diacritic is a glyph proper, ideogrammatically speaking – it changes the sound of the vowel and its meaning.

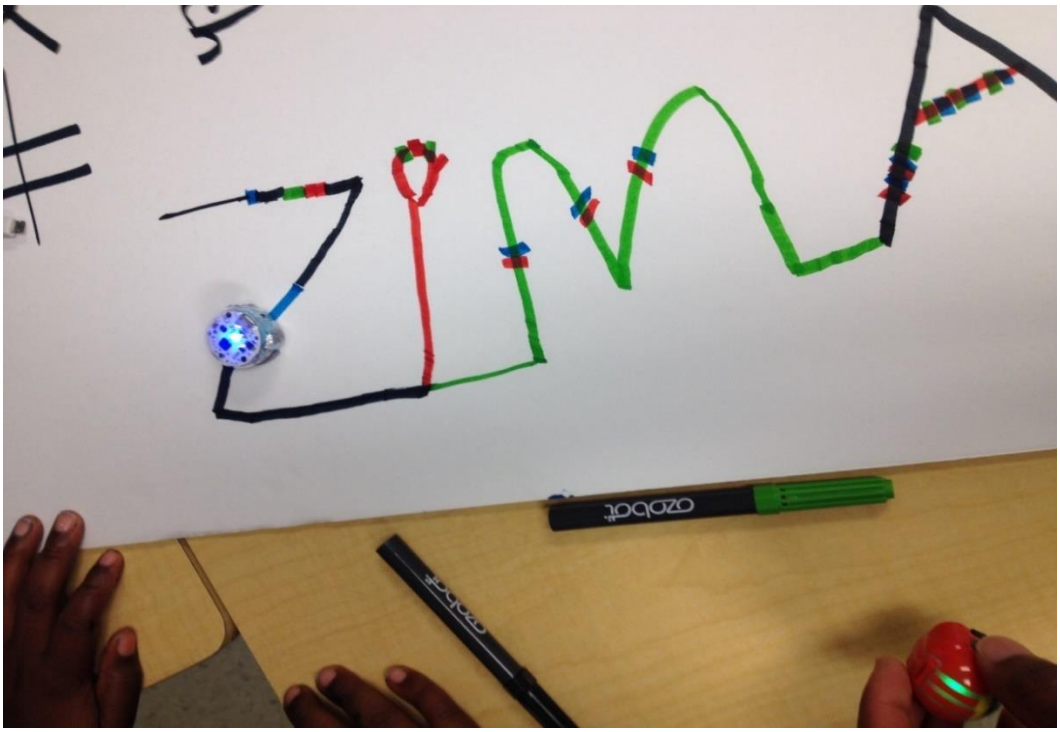


Figure 6: Aaron Sorrells's futuristic conlang.

It was beautiful to see how exploring the connections between languages and environments brought students this far. It wasn't a simple transaction, where specific environments gave way to specific writing materials and words that represented objects according to where and when one lies, sits, or stands on earth. On the contrary, their environments created a wide path for large concepts like "exploration" to exist in their languages, along with an infinite amount of like concepts that span human experience.

When a conlanger creates an environment or worldbuilds on this scale – a paradisial oasis, a chilly, arctic outpost, or a tropical forest – this presents many access points to explore a people's cultural language, the nuts and bolts that people conceptually use to capture, at least try to capture, the plethora of external and internal stimuli swimming around their perceptual fields. The field's ripe. Languages cover the simplistic: shapes and sounds, colors and movement. They also cover the complex: philosophy and spirituality, politics and class. Matters become highly intriguing once we all – not just the conlanger – start making value judgments about human languages, and really, start consciously appreciating the amazing feats languages can accomplish. Travel deep into the silica sands and the mint-kissed air of Far North Queensland, Australia, and you'll find an aboriginal tribe that lays claim to such a language. The language's right to fame and its more important right to legitimately grandstand about its mother tongue derives from the fact that this language can increase your geographical intelligence when spoken fluently. Instead of, like in English, mostly using words like "left, right, front, and back" to explain or describe the direction for the mundanest of objects, a Yimithirr speaker uses terms like "north, south, east, and west" (Deutscher, "Does Your Language Shape How You Think?" 2010). Cardinal directions are the language's lifeblood. If you're a Yimithirr speaker, and you wish to inform a houseguest where the painting of the orchid is located, you'd say, "It's northeast, on the southwestern edge of the table." Or, if you're a Yimithirr ballet instructor, and you want your lined armies of soft-pink tutus to practice their croisés, you'd command, "Place your right foot at an angle to the south and your left foot to the southeast. Now, widely arch both of your arms to the north." The results produce a people that have a better geographical balance than most. Blindfold a Yimithirr speaker, and while blacking out his world, spin him around 15 times. Once the rotations have stopped, and with his eyes still shielded, my money's on that he could still correctly identify north from his south, east from his west.

Those who appreciate language's power appreciate even more: for one, how we as speakers distinguish between romantic sounding languages and guttural ones, subjectively of course. Languages that tend to have a *la* or a *le* before their nouns and stressed open vowels dancing at the ends of those same nouns, instead of jumbled wires of consonant clusters that are common in German and Yiddish, and sometimes English. And how we as speakers, still giving language more than a half-baked nod for its powers, use languages that cover specific sensations. Instead of preferring a language that contains words that generalize sensations for the sake of

holism – the knife of distinctions comes to apportion beautiful words like “thermoception, proprioception, and equilibrioception” (Boron and Boulpaep). Personally, I don’t find these words beautiful because they’re multisyllabic – hauntingly so. Portly and clumsy nominalizations are never recognized for their sex appeal anyway. I find these terms beautiful because they cause your mind to actually focus on exact sensations. You have a word for them. You feel them in body and in mind. Thus you start down another path of exploration. The mere word “equilibrioception” makes me queasy. As I spin my pen around as I write, my head starts to spin. The word diverts me down a path of phonaesthetic medical and scientific terms injected with hormones: gravity, vestibular, labyrinthine. I’m sure there’s a sense term that connects recall and emotional chills.

Thankfully, the next set of students didn’t produce anything that came close to this type of disorientation. Their works produced the opposite. Balanced and beautiful. Secure and stunning. The key word is still exploration, but now it’s an exploration into art and the beautiful.

Part III. Artlangs: The Language of Beauty

There was once an English boy who fell in love with language. He lived with his mother in Kings Heath, Birmingham in 1896. The location gave him access to the white billowing mills of Sarehole, the boggish landscape of Moseley, and the rolling hills of Malvern. The boy loved this cherished English landscape, but he loved the language surrounding him more. Welsh was his first love. The Celtic words printed on freight cars that rolled in at the train station, behind his English home, were matters of enchantment for him. When the boy grew a little older, and heard Welsh spoken more, he once remarked:

> Most English-speaking people, for instance, will admit that ‘cellar door’ is beautiful, especially if dissociated from its sense (and its spelling). More beautiful than, say, ‘sky,’ and far more beautiful than ‘beautiful.’ Well then, in Welsh for me ‘cellar doors’ are extraordinarily frequent (Okrent 283).

The boy attended Oxford in his teens, the place where he'd discover Finnish. He described this language as like "discovering a wine-cellar filled with bottles of amazing wine of a kind and flavor never tasted before" (Okrent 284). His experience with Finnish made him finally construct a language of his own. He even created a history and a mythology for the people who spoke it. His language evolved into Quenya, one of the languages spoken by elves in *The Lord of the Rings*. This English boy was J.R.R. Tolkien.

He considered his language a work of art, as he thought the words in Welsh (he created a language based off of this, too) and Finnish were analogous to watercolors in a J.M.W. Turner painting.

7th grader, Sophia Hayward, created an artlang, a constructed language designed for aesthetic pleasure. However, she didn't base it off the music of Welsh and Finnish. She based her language off of music itself.

Her people are another seafaring lot with symbols written on seashells, but her culture differs quite distinctly from her other classmates' by the way in which her people speak. Sophia's a solo vocalist, and a quite good one at that. Her talents no doubt influenced her choice to create a language that's only spoken through singing. Vertically written on her auger shell are musical notes: an eighth note, two eighth notes, and a half note with two beats. I'd fence any reader from beginning to infer that her language and her culture are one big musical. It's deeper than that. Firstly, the written language is communicated through musical notes. This means that a vowel can represent a note, a consonant a beat, a rest an affix. Within this culture, too, music's inside the people. Even a casual observer of the musically inclined knows that music surveys more than a human's vocal cords. Music also covers the chords of instruments. And those who play the guitar, the piano, the harp, or the violin know full well that when, caught up in their zeal, the instrument becomes an extra extremity; it becomes a part of them. The same goes for Sophia's language. The instrumental chord part plays an essential role in communicating tone and emotion. C major intones happiness, while C minor intones melancholy. Sevenths invoke an inviolable soul, whereas the ninths inspire that same soul's damnation. Thus, imagine that you're approaching Sophia's culture from a sail. The nautical distance separating you and her shores are within eyes' reach. The music drifting in the wind is not the product of people who sing all their words for cheap entertainment. In the wind is an eternal siren song that beckons not dangerous

things, but tranquil things. Their language is composed of needed rests, calm hums, soothing lullabies and lilts. Songbirds have a language of their own, so do Sophia's people.

Figure 7: Sophia Hayward's musical artlang.

6th grader Danielle Lewis joined Sophia with an exceptional artlang. Her next conlang, or artlang, was based off a culture and a people who lived in diamond mines and quarries. One of their modes of communication is through diamante poems. When written, their culture surrounds their poems with actual diamonds. This type of poem takes the shape of a diamond. It's composed of seven lines with the following set structure:

Line A: Topic A (must be a noun)

Line B: Two vivid adjectives that describe Topic A

Line C: Three interesting "-ing" action verbs that describe Topic A

Line D: Two concrete nouns about Topic A and two about Topic G

Line E: Three "-ing" action verbs that describe Topic G

Line F: Two vivid adjectives that describe Topic G

Line G: Topic G (must be a noun) (Nesbitt, "How to Write a Diamante Poem")

It's a poem of inversions. If done rightly, the reader feels almost a kaleidoscopic effect. The poem could begin with hard-hitting adjectives and gerunds about darkness: "black and quiet," "deepening, sleeping, and encroaching." Then, the poem turns over. Especially in this one, the darkness dies when light enters into the poem: "light and pure," "glowing, radiating, and revealing…"

Here's Danielle's poem in English. She contrasted a brilliant diamond and a fossilized Neospirifer, rather than a clichéd diamante poem about lightness vs. darkness:

Diamond

Hard, soft

Shining, lighting, caring

Crystal, rock, Doiny, floor

Abandoning, loving, horrifying

Old, uneven

Neospirifer[5]

Rigor arrived on the scene when creating her artlang based on diamantes. In a diamante poem in English, the third and fifth lines contain "-ing" inflections. The inflections are consistent. "Shining, lighting, caring." In her diamante artlang, her inflections are consistent in lines three and five with *sss* buttressing their base words. The next matters of business were to ensure that she could distinguish a noun, adjective, and gerund from each other, while simultaneously checking to see if she has the right numbers for the right lines. In 6th grade, students are still learning their parts of speech; this assignment was a fun way to keep them engaged with this instruction. The assignment also provided another opportunity for students to

[5] A diamante poem, once finished, takes the shape of a diamond. Instead of indenting Danielle's poem 10 spaces from the left margin, like the usual block quotes, I centered her work to clearly reveal the poem's diamond form.

practice brainstorming. Before Danielle was able to reach the finished product with diamonds surrounding her diamante poem, she needed to brainstorm, and recall, her major nouns, adjectives, gerunds, and her inversionary theme on graph paper. The process was beautiful to watch. The research, the revisions, the rigor.

In 6th grade, students start to solidify their understanding that writing and reading can be a game of patterns and matchings. You have the holy trinity of rhetoric – the tricolon. When one reads, "I came; I saw; I…" The reader awaits for the magical third, and perhaps predicts the third correctly. When a young reader searches for the main idea within multiple paragraphs, she knows first to examine topic sentences and thesis statements. She also searches the paragraphs for the details that point towards the main idea. For Danielle's diamante artlang, she was able to do all of these things and create a work of art at the same time.

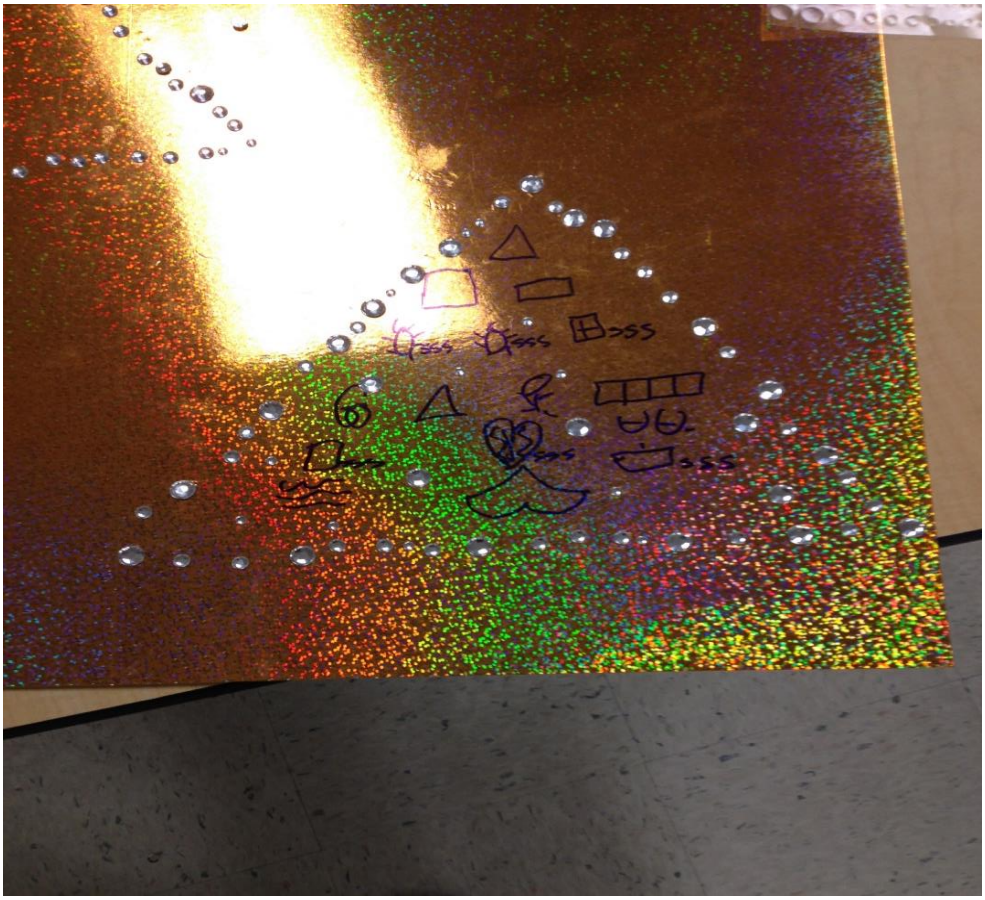


Figure 8: Danielle Lewis's diamante artlang.

Part IV. War and Peace in Language Creation

All throughout the project, I reminded students, when creating their languages, to think about why they're creating them. In two questions: "What do you want your language to do? And why do you want it to do this?" When most of the projects were three-quarters on their way to completion, I finally was able to use Esperanto and Duolingo within class instruction. I waited about a year to use the former and about four years to use the latter. In my five years of teaching middle school, all the chances I had at using these tools in the classroom were for circuitous purposes at best and completely irrelevant purposes at worst. Duolingo, the free online language-learning software, services more than ten natural languages to learn from Spanish to Ukrainian. But, best of all, it services two constructed languages, one of them being Esperanto. Of course, I showed students how Duolingo works when learning a language like Esperanto. The sleek software provides a nice ding whenever you translate, conjugate, and speak correctly in a new language. The thematic categories and vocabulary related to the language you're trying to learn are plethoric. Introducing students to this website/app helped them recognize that, in their own constructed languages, they could combine features from Latin, English, German, Spanish, and French – just like Esperanto.

I had another reason to include Esperanto in this project. It has to do with Esperanto's noble aims. One of L.L. Zamenhof's high aims for this language was that it:

> …find some means of overcoming the natural indifference of mankind, and disposing them, in the quickest manner possible, and en masse, to learn and use the proposed language as a living one, and not only in last extremities, and with the key at hand. (O'Connor and Zamenhof 10)

This is an extraordinarily beautiful goal! The idealism had its origins in Zamenhof desiring more peace and unity between nationalities in his hometown of Bialystok, then a part of the Russian Empire. In this setting, and during the 19th century, Poles, Germans, Jews, and Russians were split based on cultural and national lines to disastrous effects. Worse still, the

seeds were already there for a fascist Germany and Russia, so Zamenhof was especially premonitory and right in his peaceful aims.

I once asked my students to consider creating a language that not only tried to create peace based on its ease of access grammatically and culturally, but also based on the way a language sounds and the way its words and sentence structure seek to create peaceful thoughts and actions within a speaker. Cue the Sapir-Whorf straw men. "Language doesn't create thought."[6] It doesn't, but it does influence it. And the influential power of language requires great attention and intention, especially in constructed language circles. In his book, *The Art of Language Creation*, Peterson considered a language that would be easier on the animals. The language in question would acknowledge that the animal you're about to eat was killed (which the animal didn't want to be); in other words, its flesh didn't magically appear in a nicely packaged plastic container in the supermarket for your prized consumption – and the language itself would theoretically help clearly bear this out. This would definitely help influence more people who spoke this language to be kinder to animals. But, of course, it wouldn't create this thought pattern that would wholesale obliterate the idea that it's OK to eat animals. Consider Barbara Kingsolver's quoting of Kahlil Gibran in her book, *Animal, Vegetable, Miracle*, on eating animals:

> When you kill a beast, say to him in your heart:
> By the same power that slays you, I too am slain, and I too shall be consumed.
> For the law that delivers you into my hand shall deliver me into a mightier hand.
> Your blood and my blood is naught but the sap that feeds the tree of heaven (qtd. in Kingsolver 224).

[6] In his indispensable essay, "What Whorf Really Said," Nick Yee, a scientist at Palo Alto's research center in CA, argues against such straw men. In Yee's view, Whorf "advocated a connection, not a correlation and certainly not a causality relation between language and cultural norms or cultural thought" (Yee, "What Whorf Really Said" 2007).

The recognition is there. Kingsolver knows that she's eating an animal that was killed for her consumption, although the recognition didn't change her craving for animal flesh. All it did was soften the language and the sentiment of the feast.

Thus, when creating a language whose major purpose is to push its speakers toward nonviolence, and accordingly, a relaxed and less fiery or ferocious mind, then more variables are needed. One is breath. Enter a yoga studio on Main St. or a psychiatry clinic hidden from Main St., and you'll hear these common words: Deep breathing relieves stress and anxiety. Which is correct. Using your full lung capacity weakens your fight-or-flight response. And furthermore, your heart rate and blood pressure positively lowers. Along this line, it's easy to imagine a language where, after a speaker finishes a clause or an assembly of such complete thoughts, she inhales with a four count, holds the breath for a four count, and exhales with the same measure. The recipient of the speech would replicate the procedure in her response.

The next consideration must be the content and structure within the language. In reality, when humans are at their calmest and language is involved, the language is meditative and prayerful. It's therefore of logical consequence to study the structure of such words. Let's consider the following prayer from the Jainist tradition:

> I grant forgiveness to all living beings.
>
> May all living beings grant me forgiveness.
>
> My friendship is with all living beings.
>
> I have no animosity towards any living beings
>
> (*Khameni Savva-Jive Sutra* 1-4).

Then consider a prayer from the Christian Psalmist tradition:

> The Lord is my shepherd, I lack nothing.
>
> He makes me lie down in green pastures,

He leads me beside quiet waters,

He refreshes my soul.

He guides me along the right paths for his name's sake.

Even though I walk through the darkest valley,

I will fear no evil, for you are with me;

Your rod and your staff, they comfort me

(*New International Bible*, Psalm 23. 1-4).

Both prayers are linguistically simple and life-affirmingly vague. They use universal fillers like "I," "me," and "right." Who grants forgiveness? "I" grant forgiveness, so does anyone who reads the prayer as a subject. Whom does the Lord comfort? He comforts "me," as does everyone else who's the grammatical object within this prayer. What are the "right paths"? There's no need to be anxious about what exactly this right path is; it's whatever the Lord says the right path is (Psalm 23. 2-4).

Any casual student of world religions knows that Jainism has a much better peaceful track record than Christianity does. The Jainist prayer already gives a hint. It reads, "My friendship is with *all* living beings," not a few, not some (*Khameni Savva-Jive Sutra* 1-4). Jains are so fanatically peaceful that adherents cover their mouths with white cloths so that they don't kill insects, and cover their feet with similar cloth so that they don't trample on the same living beings while walking.

As is apparent, much of this discourse surpasses the bounds of language and enters the home of culture. Peace happens not by language alone – even though it helps – but by cultural and political practices. Bhutan, for example, is quite peaceful because they're very isolationist and ethnically monochromatic.[7] And peace takes thought. Just as the Psalms need their theologians, Jain prayers need theirs. Religion is interpretation. So is language.

[7] According to the 2014 Global Peace Index (GPI), Bhutan ranked in the top 20 of the most peaceful countries in the world. The index lauded its peaceful transition from monarchy to democracy, and the government's use of Gross National Happiness to measure its citizens' well-beings (Global Peace Index). I labeled the country ethnically

The funny thing is, the last part is what stuck with these last set of students. Language is interpretation. They viewed this whole peace talk with suspicion. Most of the students were already finished with making sketches on how their people's physiology connected to speech patterns, so I attempted to make the peace idea more marketable using oral physiology. I told them to imagine their people came equipped with overly enlarged glottises, and this would be the primary organ used to utter speech sounds. I explained that the peaceful sound made should sound like a calm wind or a relaxing whisper. I provided an example, and what came from my mouth sounded like Parseltongue. The glottis-enriched vowels didn't sound like a calm wind beckoning a wayward traveler towards a babbling brook. Rather, a serpent language was coming, drifting through the air like evil steam, with sound waves intending to strangle, not to soothe.

The peace idea was out, which was fine. Something about it broke the fourth wall of language construction. As my students well understood, language construction needs to leave room for evolution and thus realism. In this case, they're not little manipulative deities in training, creating people, their language, and then their environment. Thinking back to the first set of projects, students chose the environment first and then let matters roll. This isn't surprising. We spent some time in class on language evolution, and it was a topic that many students questioned since the pretest. "That's interesting. Why is there a 'p' in 'Thompson'?" "How was the word 'knight' pronounced hundreds of years ago?" Later on, after the pretest, I explained to students that "Thompson" is supposed to be "Thomson" after Thom's son. As speakers, however, when we "move from an [m] sound (lips closed, air passing through the nose, vibrating vocal folds) to an [s] sound (lips open, air passing through the mouth, vocal folds still) it's not so not simple (Peterson 171). It can be done, sure, but in casual speech, what ends up happening is we stop our vocal folds from vibrating before opening our lips, but only after raising our vela (Peterson 172). The result? Our vocal folds are still, our lips are closed, and the air is released through the mouth. This creates an accidental "p" sound!

Therefore, the last set of students sketched the oral physiology first and then let matters roll.

---

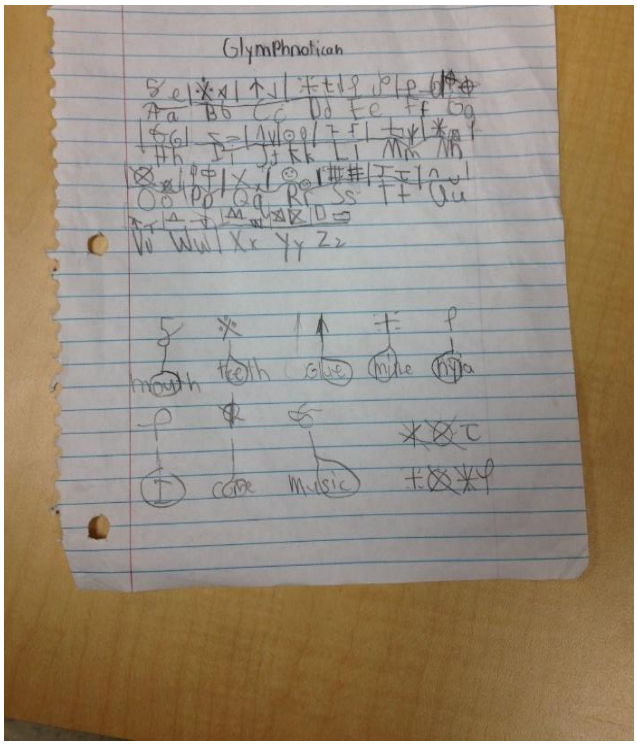
monochromatic because it's 75% Buddhist and the majority of its people are of Tibetan stock ("Bhutan," *The World Factbook*). The country's access to universal healthcare and tuition-free education, along with its restrictive immigration policies, keep the country's tight-knit culture mostly intact, too.

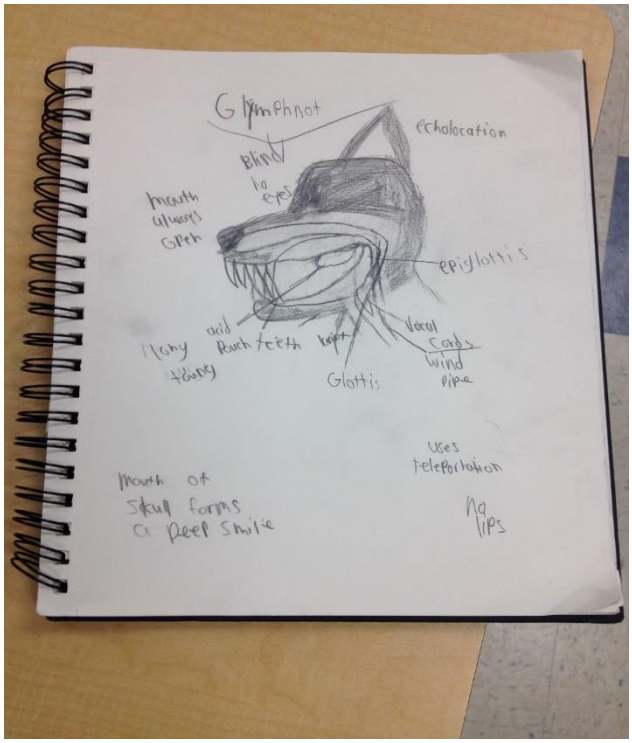
Part V. When Oral Physiology Isn't Human

I have a general rule. Students need to pass their pretests, 90% or above, to create a language that isn't close to Indo-European tongues. The rule was meant to guide them away from creating a language that was too difficult to compare and contrast with English; in my view, they needed this part of the assignment to help improve their English skills. Although, if students scored 90% or above, then they could experiment with animal-like conlangs that focused on echolocation, aquatic vocalizations, and primate sign language. The stress is on "like" since animals communicate through mostly sounds and instinctual gestures, arguably; it's not as if their modes of communication are full-fledged languages with grammar, syntax, and writing systems. With that, the burden of work would be on the student to compare and contrast a human language like English with a constructed animal communication system. A project such as this requires higher thinking and more resolve. A middle schooler first needs to get past the somewhat sticky question about what truly distinguishes animal communication from human languages. "Don't humans communicate through gestures and sounds? What's the distinguishing factor between our forms of communication and theirs besides the bleedingly obvious?" a hypothetical student might ask. For this hypothetical student and her hypothetical project, at some point during the project I'd expect a written analysis on how a meaningful sentence in English and an avian mimicry differs, or how an idiomatic warning about the future in English differs from a leopard call based in instinct. Of course, a student could openly disagree with this reading and argue that whale songs and ultrasonic bat chirps are languages or proto-languages. Even more encouraged, a student could create an "animal conlang" where the language evolves from a simple communication system into a full-fledged language. If aquatic vocalizations were the choice, I'd require use of spectrogramic data for research, which students would build upon. And that's where the resolve comes in.

This year, one student already took a step in this direction without any of my mentionings of animal-like conlangs. The language is called Glymphnoticon, created by Adam Lacy. The language idea is excellent. The wolf-like creature below switches between language that's human- and animal-like. Its human form contains an alphabet, vowel digraphs, and, of course, words. The *I* and the consonant-vowel blend of *Nyi* looks like a Greek *Rho*. The symbols for the

vowel diagraph *ee* and another consonant-vowel blend *sic* look frankly Asiatic, primarily east coast island Asiatic.





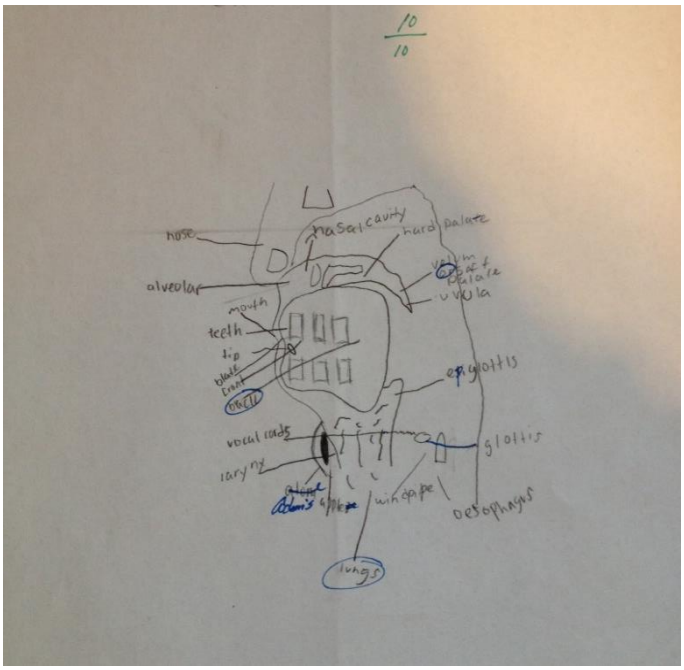
Figures 9 and 10: Glymphnoticon's language key pictured left, and a Glymphnot's oral physiology pictured right.

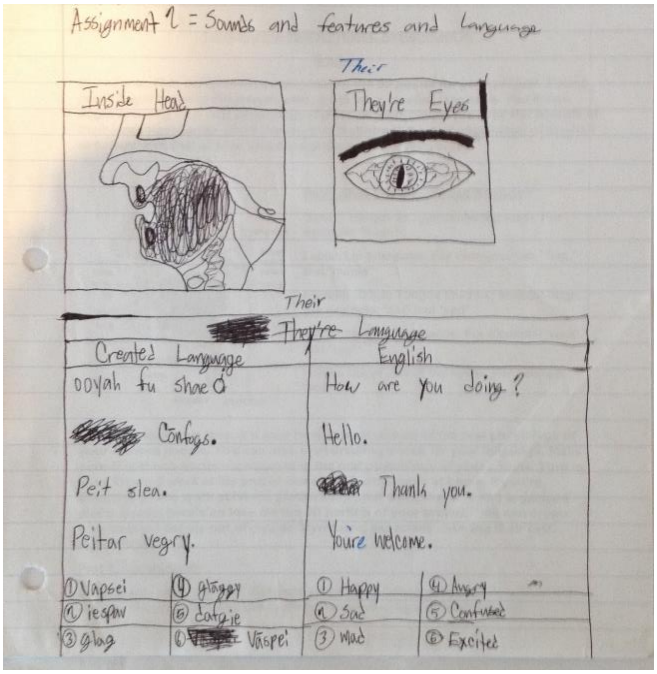
On the other hand, Glymphnoticon's animal form contains echolocation. A Glymphnot, as Adam's demonym goes, comes evolutionarily equipped with this sonar system by way of the unfortunate fact that they're blind. Glymphnots join the animal kingdom with other eyeless friends like the star-nosed mole and the Texas blind salamander. While the star-nosed mole uses its supersensitive snout to play offense and defense in his subterranean world, Glymphnots use their acid pouches, which are located north of their vocal cords and wind pipes.

Adam's project is significant on another level. He was one of the students who, when I was going on about creating a Cistercian prayer of languages, stopped me and sardonically and, of course, rightly asked, "Well, why would I want to do that?" I was prodding my students to create a sweet poem of a language. Behind my daffodil-colored glasses, this was a pretty interesting idea. Though, seen in another way, I was asking for a narrative without a conflict, a

moral universe with all goodness and no evil. Such things exist in books, but they're boring and one-dimensional. Utopias exist in books as well, but it's well known that utopias are mostly dystopias wearing veils. A utopic tongue, at least a thoroughly constructed one for all intents and purposes, would have a similar stench.

As I reiterated earlier, when it comes to project design, a framework needs laying. The framework could be the oral physiology of a character, an environment, a history, or speech patterns. Then let the imagination run wild. Tedious micromanagement of where you want your language to go isn't necessary. In real life, language is too organic and ever-changing to be burdened by such concerns.





Figures 11 and 12: Preliminary sketches of oral physiology by Matthew Theriot (left) and Van Savoie (right).

Part VI. The Pretests vs. Posttests

Finally came the pre- and posttests. The tests were composed of 35 questions with four sections: part 1, sounds; part 2, words; part 3, language evolution; and part 4, the written word[8]. Creating your own language already fulfills a great many pedagogical goals for a middle school English class. In this capacity, students navigate through grammatical concepts and sound systems. They make connections between culture and language. This, frankly, is enough proof that pedagogy has been served and has served them well.

However, on my end as a teacher, more needed to happen numerically. Math needed to bear out to what statistical degree did these students grow on their knowledge of English and linguistics. On May 4, students took a general English and linguistics pretest to measure what they knew entering into this project. The pretest also readied their minds for the entire project, for it showed what type of linguistic features they'll need to incorporate in their own languages.

Sixteen days later, they took a similar posttest to measure how much they grew after this project.[9]

Here are the results (fictional student names are initialized, and thus further obscured, for sake of anonymity):

Student Information	Increase or Decrease in Score	Notes
Initials: CV Grade: 6 Age: 13	23%⬆	On the posttest, CV scored two-thirds better on the written word section of the test compared to the pretest. This section asked students to answer and reflect on questions about the

[8] If students are working on grade level, vary the pre- and posttests to a moderate degree, still testing them on the language skills covered during the projects. If students are working below grade level and possess learning disabilities, test variance should be at a minimal degree.

[9] I work at a public charter school, which is belabored by No Child Left Behind afterbirth. From August through April, teachers are required to teach only end-of-the-year (EOY) testing material. It's not uncommon that teachers are forced to follow lesson plans (not of their own creation) that are tailored solely for EOY testing, which can lessen creativity from students and teachers, and rigor from the same instructor. In January, this measure went through at my school. This explains why the language creation project only took place during May. If teachers would like to try this project with their students, I recommend this project occur over two to three months, preferably from March – May. If you'd like to learn more about standardized testing and school choice, especially the former's deleterious effects, I recommended Anya Kamenetz's *The Test* and Diane Ravitch's *The Death and Life of the Great American School System*.

		differences between the way English and Arabic are read and, of course, written. In this same section, students needed to apply the same brain power on dictations of Spencerian cursive and the purpose behind its use.
Initials: TM Grade: 6 Age: 12	20% ⇧	TM scored 80% better on the vowel diphthongs section on his posttest compared to his pretest. He also outscored, in the double digits, his previous score for the consonant pairs section.
Initials: EB Grade: 6 Age: 12	6% ⇧	EB scored 100% better on the figurative language section from the posttest compared to his pretest. The figurative language section contained questions on metaphor, metonymy, synecdoche, and augmentation.
Initials: LJ Grade: 6 Age: 13	6% ⇧	LJ scored 80% better on the word order section of his posttest compared to his pretest.
Initials: MA Grade: 6 Age: 12	12% ⇧	MA scored 100% better on the figurative language section from the posttest compared to his pretest.
Initials: OL Grade: 7 Age: 13	5% ⇧	OL scored one-thirds better on the written word section of his posttest compared to his pretest.
Initials: BR Grade: 7 Age: 14	63% ⇧	Out of all of the pre- vs. posttests comparisons, BR made the highest leap in scores. He scored three-fifths better on his vowel diagraphs section; and 100% better on his word order section.
Initials: AO Grade: 7 Age: 15	6% ⇩	I expected more decreases in scores since four days of school remained. I assumed

		more students wouldn't take the posttest seriously. Luckily, I saw decreases from only two students. I stand by this reasoning for AO since I'm incredulous on how he could know the plural form of "goose" and the superlative form of "good" on his pretest, and forget this information sixteen days later on the posttest. Leaving 51% of the test blank adds more fodder to my suspicions, too.
Initials: DS Grade: 7 Age: 13	11% ⇩	DS's performance was similar to AO's. DS completed more of the posttest than AO – although leaving 25% of the test blank is nowhere near a shining endorsement – but he followed this sad pattern of missing or not answering simple questions on the posttest that he knew on the pretest.
Initials: AS Grade: 6 Age: 12	22% ⇧	AS scored 100% better on the figurative language section from his posttest compared to his pretest. As an aside, it should also be noted that AS employed a nice bit of hyperbaton in the word order section of his pretest. Instead of revising the sentence, "The cat blue was" into "The cat was blue," he poetically rendered the sentence into "The blue cat was."

Initials: DL Grade: 6 Age: 11	9% ⬆	DL scored 100% better on the sounds section from her posttest compared to her pretest. Not only did she score 35% better on pages 3-5 on her posttest, but she also completed 93% of those pages compared to 0% on her pretest. This level of participation should come as no surprise, judging on how much she produced earlier in the project after the pretest.

Figure 13: The data that measures posttest growth.

The following table documents observations for students who took either the pre- or posttest only. Interesting performances took place on these tests, which is why notations are documented below. Student names remain fictional.

Student Information	Pretest or Posttest (Only)	Notes
Initials: GH Grade: 7 Age: 13	Pretest Only	GH discovered that Arabic speakers read from right to left by observing the sentences' punctuation marks. He also numbered (in ascending order) the words in the sentences from right to left to help him visually see the order. GH loves numbers; thus, he's often highly encouraged to view language through a numerical prism when appropriate. Math and science teachers should take note. For students who love language and stories, they should be highly encouraged to view numbers through language and narrative.
Initials: IP Grade: 6 Age: 13	Posttest Only	IP didn't complete a pretest, but she did complete the posttest. In the sound section, she answered questions based

		on her knowledge of ascending and descending pitch within sentences.
Initials: LC Grade: 6 Age: 13	Posttest Only	Similar to IP, LC only completed a posttest. In the sound section, she answered questions based on her knowledge of the "lightness" and "heaviness" of words. When LC reached the reflection portion of the exam, she remarked how she enjoyed learning about the people involved in the history of the English language.

Figure 14: Observations from either the pre- or posttest.

Eleven students[10], seven in the 6th grade and four and the 7th grade, volunteered their time to take both the pre- and posttests. The average age in total among the participants was 12.7.

81% increased their scores, and out of this 81%, 45% saw a double-digit increase in their scores. Furthermore, 36% increased their scores in the single digits. The verdict was in for this small sample group[11]. Giving middle school students the opportunity to create their own languages in a structured ELA environment helped increase their knowledge in linguistics and their performance in the English language itself.

At the end of the posttest, it was asked, "What did you mostly learn about language itself during this project? Most importantly, what did you have the most fun learning about during this

[10] A small number, yes. More students were desired. The lack of numbers stemmed from the fact that attendance weakens during the last week of school, and it's not mandatory, regrettably, for teachers to count attendance during the last week at the type of public charter I'm employed at. If you're a teacher who's bound to such circumstances at your school, and you wish to try this project with your students, it's well within your rights to configure the pre- and posttest portion of the project as a blind experiment of sorts: you tell your students that the pre- and posttests count as a grade and they're doubly used to measure how much you've grown in your English and linguistics knowledge; but in reality, you're using the tests, especially the pretests, to ready them for the information that needs to go within their conlangs. If you're unconvinced, the tests can simply be used to provide students with important information on English, other languages, and linguistics to help improve their language skills overall.

[11] Despite the small numbers, I stand by my decision to show the data and keep this pre- and posttest configuration. For me, the small data shows that I'll need to build more on the data as I complete this project with different students for upcoming years. I also stand by the data because it gives more than a glimpse into how students can grow in their language skills based on the contents within this project.

project?" The question didn't carry any points towards their overall score. The question's right-to-life was to provide students space to reflect upon their experiences during this project. Many students explained how creating lettered symbols and painting them on rocks and seashells was enlivening. Their explanations then went on to emphasize that language and culture make great bedfellows.

Part VII. Having A Word with ELA Teachers

LC connected the two in her posttest reflection – and with great accuracy. According to her, she most enjoyed learning about the people involved in English language history. In this instance, she comments on the raucous history that transformed the English language from a Celtic stronghold in Britain to a Germanic, French, and Latin hybrid on the same island. It's a compelling story of Viking invasions, Anglo-Saxon battles, and throne musical chairs. Luckily, this rough-and-tumble narrative has graced modern English with Anglo-Saxon words like *root*, *hearty*, and *skin*; and Latinate French words like *sovereign*, *cordial*, and *parliament* (Gardoqui).

English's biography has a right to be in an English classroom because of its plot structure alone, but its story carries more pedagogical elements than one might think. For language arts especially. Take the word "doubt," along with its suspect silent letter "b." Next, imagine an educator who teaches this word's spelling by admonishing students that English words have silent letters, and you'll just need to memorize them. In the same direct instruction, this theoretical teacher lists similar words with a silent "b" embedded within them on the whiteboard: "climb," "crumb," "lamb," and "dumb." Her students dutifully pen them down in their notebooks. Then, a thoughtful student injects a needed question into this bland lesson, "Why are there silent letters in English in the first place?"

If the teacher responds in one of these two ways – "English is weird like that. Or, that's just the way it is; there is no rhyme or reason to it" – then we have a problem. Young students love stories, as do we all. A great majority of us likewise love stories that are multi-dimensional and didactic. The silent "b" in "doubt" has those cherished literary qualities within its story. The word began its narrative as a Latin word, *dubitare*, when the "b" wasn't silent. Its spelling changed when the word moved to France. *Dubitare* now became *doute*, without the "b" (Cooke).

English and French are close cousins, and the familial connection's made even clearer with English speakers presently not pronouncing the letter "b" in "doubt." We somewhat retained the French pronunciation, and somewhat kept the Latin spelling. Why? Blame medieval longings for the ancient. Feeling nostalgic, 14th century scribes injected the Latin "b" into our English word.

Fortunately, the story deepens. Those with wide vocabularies are familiar with the words "dubious" and "indubitable," and your average English speaker certainly knows the words "double" and "doubloon" (in Louisiana). Those who have followed the story can well infer that "dubious" and "indubitable" derive from the Latin *dubitare*, with a closer pronunciation to Latin than to French. But, what of "double" and "doubloon"? Are they related?

In fact, they are. All of these words derive from the Latin word *duplus*, which means "double" (Cooke). It makes sense. Two is inherit in each word. A masked and "dubious" villain may present himself as kind-hearted and harmless to some, but cruel and venomous to others. Behind the sweet façade are sour ulterior motives. There's your two. If you're a friend or family member of this "dubious" malefactor, and you've started to catch on to his schemes, then you "doubt" most if not all of his intentions. In this sense, you're of two minds about his true motivations.

"Double" is simple. We know this means two. "Doubloon," not so much. In Louisiana, we test our vertical leaps and the flexibility of our vertebral columns during the Mardi Gras season to catch golden doubloons. However, how a doubloon connects to the number two is less well known in Cajun country. A doubloon was a former golden coin of Spain and Spanish America, originally equal to "two *escudos*" ("Doubloon" 156). There's your two – the most un-loneliest of numbers – once again.

To this word lover, the story's beautiful with its infancy in Latin and its continued growth in English and French. To teachers and students, this story should hold beauty and key lessons. When students learn these stories, their confidence builds.[12] There's less reticence in the air when they approach an unfamiliar word because they're now equipped with the past lives of

[12] For more information on how to teach writing, grammar, and spelling in this comprehensive way, Steven Pinker's *The Sense of Style* is recommended reading.

words in Old French and in Latin. And knowledge of Latin prefixes and suffixes are bundled in this same mental pocket.

Teachers are also less likely to ambush students when they pronounce a word incorrectly. Beginning readers may pronounce the "k" in a word like "knight." Instead of a teacher raining down damnation on this mispronunciation in modern English, she has the flexibility to say something nuanced. "You're on the right track, John. If you lived in the Middle Ages, you'd be partly right. English speakers then used to pronounce the 'k'; now we don't in similar words like 'knapsack,' 'knowledge,' 'knock,' and 'knot.'" The teacher ensuingly writes the similar words on the board, having her students pronounce and write them following her lead.

No wonder LC and OL wrote about this subject in their reflections. Knowledge of this kind is a source of strength. When my students were creating their own languages, they were at liberty to create a language and a culture where the invisible hand of history changed spellings, shifting tectonics changed dialectal concerns, and ease of articulation changed pronunciations. Once made abundantly clear that this happens in their own language, English, their confidence and comfort level in reading and writing grew.

Part VIII. Who Creates Conlangs? Whom is Conlanging For?

So, who creates conlangs? Whom is conlanging for? It was for them. It's for you. It's for everyone who loves language and desires to know more of its ways. Detractors of this view perhaps see this project as a circuitous and roundabout way to teach English, belying traditional grammar and writing instruction – which they need more of. Detractors of similar ilk take such criticism beyond middle school ages and apply it to adults from history who tried their hand at conlanging. Read a book like *In the Land of Invented Languages* by Akira Okrent, and despite her last chapters that grasp at redemption, you walk away feeling that those who invent languages are eye level in intelligence and in eccentricity with astrologists, alchemists, and phrenologists. A frivolous spotlight shines its brightest on historical figures like John Wilkins – an eminent seventeenth-century English scientist and close friends to Robert Hooke, Robert Boyle, and John Ray – who sought to create language "free from ambiguity and imprecision that

afflicted natural languages." Language should, he'd go on to say, "directly represent concepts" and "reveal the truth" (Okrent 24).

Wilkin's work is splayed in his epic *An Essay Towards a Real Character and a Philosophical Language.* Since its aim is to purify, to free language of imprecision, Wilkins created a tree chart to map concepts of the universe so that the "words must be cousin to the deed"[13] – sort of. In plain and simple language, Wilkins believed that language wasn't specific enough, which bore incessant lines of miscommunication. So he created a chart to help our suffering lot with countless categories from metaphysical ideas (existence, truth, and the good) to objects of the world (herbs, stone, metal, and fish). This is an excellent idea, admittedly. It fell in line with Francis Bacon's fondness for Chinese writing, which he described as "real" writing since the symbols represented ideas more than sounds or words (Noth 272).

As maligned as Wilkins work may be, his writing system should catch one's attention. This natural philosopher despised that words told you nothing about what they refer to. It wasn't enough that "dog," *cachorro*, *hond*, and *kutya* were arbitrary and capricious sounds that didn't fully capture the concept of a fluffy and domesticated canine, whose genetic lines stretched back to wild and feral wolves. Seeking to remedy such caprice, Wilkins's word for "dog" tells you what a "dog" is. If you didn't grow up speaking his language, and you needed the right word to identify Fido, you, as a new learner, had Wilkins's language tree at your disposal.

> Since the concept dog is located in category XVII (Beasts), subcategory V (oblong headed), sub-subcategory 1 (bigger kind), the character for "dog" would be formed with the symbol for category XVIII, along with modifications indicating subcategory V, and sub-subcategory 1 (Okrent 51).

It looks confusing, but writing becomes easier when fishing for a similar concept. If, for example, you're writing a fable and a boy has cried wolf, or a novel where a half-breed Saint Bernard has turned wolf, your carnivorous main character will have a similar pronunciation and

[13] Or, in Middle English, "The wordes moote be cosyn to the dede," according to Chaucer's Plato-loving narrator in the *General Prologue* of the *Canterbury Tales*.

spelling as “dog.” Head to the chart. Find your category that focuses on slight opposition, particularly docile vs. a non-docile beast, and there you have it – your written symbol for “wolf.” The path is similar for pronunciation, and it bears similar results for likeness between two related mammals. Whereas “dog” is pronounced *zita*, “wolf” is pronounced *zitas* (Wilkins).

Was his language perfect or at least doable? No, not really. The proverbial train came off the tracks when his categories and concepts themselves became arbitrary and, unfortunately, nonsensical. Disparate things like “irony and semicolons” were grouped together under “discourse > elements,” and similar items like “milk and butter” were spread miles apart. Milk congregated with other bodily fluids in “Parts, General,” and butter found home with other groceries in “Provisions” (Okrent 58).

At least Wilkins’s project outperformed his lessers. Sir Thomas Urquhart of Cromarty, the English translator of Rabelais, tried to create a language that clarified concepts in math (although I have my suspicions that Sir Thomas meant this language as satire), so mathematicians and non-mathematicians alike could perform better in the subject:

> Every circle is divided into three hundred and sixty parts, called degrees, whereof each one is sexagestimated, subsexagesimated, resubsexagestimated, and biresubsexagesimated (qtd. in Okrent 29).

If this seems confusing – and it should -- another Scot, George Dalgarno, brought more unnecessary garnishments to the table. This seventeen-century Oxfordian, still with universalizing and purifying on the mind, devised a language that placed concepts into verse. The verse was composed of stanzas with seven lines each, so that they could be easily memorized. For its written characters, lines and hooks carried weight. Their place and direction meant something. Let’s say you wanted to write “light,” with the word in question located in the first stanza (Okrent 47). To get your point across, you’d have to draw the character representing the first stanza, modified by a small mark that indicates the first line and the fifth word. High school English students haven’t revolted yet from being forced to read Nathaniel Hawthorne’s

The Scarlet Letter or Joseph Conrad's *The Heart of Darkness* or having to sit through a lesson with a tactless teacher butchering stressed and unstressed syllables in verse. However, I'm more than certain that the long-talked-about revolt would finally come if Dalgarno's language actually succeeded, and high school students had to learn iambic pentameter in the language.

I understand where they're coming from. These seventeenth-century Royal society types, so enamored with the "new science," yet still with one boot within Old Testament myth, couldn't help it. But all of this confusing language, talk of universals, and further talks of baptizing already existing languages provokes ire. So much so that I wish they and their followers would join the Answers in Genesis, the group responsible for the multi-million-dollar replica of Noah's Arc in Kentucky, and go on a journey to find the "actual" Tower of Babel and prehistoric scrolls proclaiming the existence of an original Adamite language, and never return from this fool's errand of all fool's errands.

My fire-breathing ire isn't religiously based, even though it seems so. My fits of hysteria have roots in a game of sad conflations. Yes, it's true. John Wilkins's language and L.L. Zamenhof's language share a similar oxygen reserve, but Zamenhof's creation, Esperanto, has 95% of the oxygen. Because Esperanto actually succeeded. Zamenhof had enough sense to mainly base his language off of existing Indo-European languages. And, arguably, he had a much better reason politically to try to create a universal language in the 20th century. But to the language's credit, more specifically, there's an estimated 10,000 to 2 million Esperanto speakers in the world. Thousands of books, songs, and films are produced in the language. And Esperanto is still a part of the 30 plus languages that Vatican Radio uses to convey its bulletins (Radio Vatikana).

Figures 15 and 16: Nicholas Sim's conlang in the making pictured left. Corey White's seashell conlang pictured right, which is somewhat reminiscent of the Tower of Babel.

Part IX. Why Artlangs Matter

Figure 17: Ryan Howard's seashell artlang that's based off of a synesthetic experience.

One can be forgiven for this case of mistaken identities. I can't say the same for mix-ups between a Dalgarno-like language and literary conlangs. (A literary conlang is an artlang created specifically for a narrative. For my students, you'd need to imagine Sophia's, Danielle's, or Aaron's artlangs within a story.) The latter is cut from an entirely different fabric. Literary conlangs already hail from a solidly established art in human culture. Literature. Since I'm from an overly pragmatic and practical age where it's still kosher to challenge literature's necessity in the "real world," the examples are always fresh in memory to rattle off. Jules Verne inspired Simon Lake, the inventor of the modern submarine and the periscope. Robert Heinlein's mechanical hand did the same for hand surgeon Dr. Charles Eaton. And Screenwriter Gene Roddenberry emboldened Martin Cooper to design the first mobile phone (Strauss 2, 6, and 7).[14]

[14] Jules Verne is the French author who wrote *Twenty Thousand Leagues Under the Sea* and *Around the World in Eighty Days*. Across the ocean, Robert Heinlein is most famous for writing short stories "Waldo" and "Drafting Dan" and the novels *Stranger in a Strange Land* and *Starship Troopers*. A tad bit more contemporary, and another author from the same continent, Gene Roddenberry is most known for screenwriting and creating the original *Star Trek* television series.

Understanding literature's impact on the sciences requires a little research. However, to find literature's impact on matters of the heart, soul, and society takes no research. All one has to do is slightly crane the neck and raise the ears to look around and listen. "Orwellian" still remains a favorite term used by political pundits to warn us of totalitarianism and surveillance-heavy police states. Those who have loved seriously and properly can reach back into their childhoods and quote lines about love as "star-cross'd" and "boundless as the sea" from *Romeo and Juliet*. And for those who enjoy following Appalachian trails or hiking Green mountains, it's not uncommon to see a pocket version of Thoreau's *Walden*, Emerson's "Nature," or Leopold's *Sand County Almanac* tucked securely in their back pockets. Literature – storytelling, novels, and poetry – is often likened to a mirror. It's a powerful metaphor if we remember that more types of mirrors exist than the rectangular ones in our private bathrooms that open to medicine cabinets. The latter is too predictable and uncreative. They spit back an image we expect and are all too familiar with. However, if we remember that mirrors can be curved, concave and convex, spherical, and rear-view – then and only then, the metaphor has power. Like literature, they reflect and provide images of us that are comfortable and familiar, but they also reflect back an image of the world and us that we may have not noticed and frankly needed to.

Fictional languages embedded in literature are not tangential to a story's success, or tangential to its power to provide a genuine reflection of the world. In many cases, they're effectual aids. HG Wells often belongs to the member of names, along with Verne and Roddenberry, whose books inspired scientists and engineers to create groundbreaking inventions. When reading Wells, his descriptions of future inventions are not solely responsible for pulling readers into a story – otherwise most of his novels would be engineering blueprints. On the contrary, it's literary elements, and his talent for using them astonishingly well, that bring readers to the books. Wells can definitely set a realistic scene. This fact was made no clearer when, in 1938, on his radio show, Wells horrified many Americans out of their wits by convincing them that a Martian attack was bringing an end to the world. The production was so convincing that civilians in New Jersey jammed highways seeking to escape the alien invasion. Similar civilians begged police for gas masks to safeguard themselves from toxic gas; and asked electric companies to shut off the lights so that Martians couldn't spot their homes ("Wells Scares Nation"). Wells's ability to describe a realistic scene and craft realistic characterization

are part blameworthy for the hysteria. When a radio announcer described aliens emerging from a metallic ship, the poetry began:

> Good heavens, he declared, something's wriggling out of the shadow like a gray snake. Now here's another and another one and another one. They look like tentacles to me…I can see the thing's body now…It's large, large as a bear. It glistens like wet leather. But that face, it… it … ladies and gentlemen, it's indescribable. I can hardly force myself to keep looking at it, it's so awful. The eyes are black and gleam like a serpent. The mouth is kind of V-shaped with saliva dripping from its rimless lips that seem to quiver and pulsate ("Wells Scares Nation").

Wells's fictional language, Eloi, in *The Time Machine* pulls readers into its story in a similar way. When the Time Traveller travels 800,000 years into the future, he meets the Eloi civilization who speak a language different from his own. Not stopping there, Wells describes the speakers as "speaking in soft cooing notes to each other" in a very "strange and very sweet and liquid tongue" (Wells 33-34). "Soft" suggests little to no complex clusters in a language. It's the opposite of words and sounds like "strudel" in English, *Angstschweiß* in German, and *vzglyad* in Russian. And "cooing" and "liquid" more than implies a free-flowing language that's rarely aspirated and commonly filled with long and open "a/o" vowels.

Luckily, the reader doesn't need to infer or imagine with as much strength what Eloi grammar contains since the Time Traveller gives us specific descriptions, "…and presently I had a score of noun substantives at least at my command; and then I got to the demonstrative pronouns, and even the verb 'eat'" (Wells 38). The well-rounded descriptions of this fictional language, along with Eloi's agrarian culture, helped pull readers into a story about the possibilities of bending space and time, and this would help yield further discoveries about the universe's past and present. The choice is yours as a reader if you find pleasure ruminating on the politics (there's much about class warfare in this novel) or the science within this book.

Wells's Eloi still exemplifies a case where a fictional language works as a part of a literary system. It helps the whole system breathe and generally function, working in tandem with narrative structure, characterization, imagery, and dialogue in English.

However, Eloi is not the head of the operation. *The Time Machine* would still live without Eloi, although its life wouldn't be as full and defined as it once was. The best examples where fictional languages are at the head are Orwell's Newspeak in *1984* and Kingsnorth's Old and Modern English hybrid in *The Wake.* Without these fictional languages, these novels wouldn't exist in their powerful form. Much has been made about the scientific fruits one can collect from literature with fictional languages embedded within them. That's not all literature of this type offers. *1984's* Newspeak, a language created by the Oceanic government meant to obliterate complex thought, is an indispensable gift for politics and society at large. We live in a time – and most times exhibit such obfuscatory behavior – where Congress and national businesses intentionally use doublespeak to control what others think – whether that's to sell a product or to generally restrict freedom of expression to keep power in the hands of the few. It should sound terrifyingly familiar when you hear that Newspeak requires that all negative words and concepts must be eliminated from language. The word's not "bad" anymore; it's "ungood." The comparative form of good no longer is "better"; it's "gooder" (Orwell 302). And my favorite, the word and concept "blackwhite," meaning black is white and white is black (Orwell 212). The idea is to prevent speakers of this language to think about or think through contradictions (an indispensable skill for critical analysis), which is a subversive thought for Big Brother. Put it all another way. Limit vocabulary, and your language becomes redundant and less expressive. Eliminate negative concepts, too, and your language becomes a certified headhunter for rosy-eyed citizens who waddle in ignorance and subservience to power, especially governmental power.

And still remembering how novels are factories of vicariism and empathy, *The Wake's* Old and Modern English hybrid is a similar gift that should be welcomed by most. The language transports you into an old and strange world where Old English gods like Woden and Thunor still roam the British Isles. When the language is read aloud, you feel like a lost soul traveling a scorched and lost earth after William the Conqueror destroyed and ransacked England. You may not care about the Norman Yoke theory, but if you've ever had your culture and livelihood stolen

or destroyed, or your lush and plentiful land subjected to the same treatment, then you'll feel the authenticity of this novel. There's a safety that comes when you discover that someone different from you has experienced your story. For those who haven't, you can't miss the out-of-body experience of navigating a lost world like a ghost, while still trying to retain the world's former glory.

This is language creation at its best – doing what literature does best. On par with other great disciplines, literary conlangs compel you to think, feel, and act in such a way that transforms this world into a smarter, more beautiful, and more empathetic place.

Part X. Final Answers in the Last Days of School

Who creates conlangs? Whom is conlanging for? More revealing answers lie in the last day of the project. The calendar on the Smart Board read May 20, which meant only four days of school remained. It was a half day, and classes didn't switch. On the middle school back hall, I hopped from classroom to classroom to huddle as many students as I could for a picture to document the project's participants and to happily signal the project's end. Once I wrangled a decent number, we moved pencil-marked and gum-bottomed desks to the sides, and crammed in the back of my classroom for the photo. Two sixth graders held up a sign in front of the seven of us. Not everyone had arrived for school yet, the clock showed 7:45 a.m. – the morning was still early. Written in red and blue lettering, the sign read, "The New Conlangers." A few nights before, my curriculum advisor and I traded ideas back and forth, through text message, on what the sign should say. Ideas went from the oafish "Conlang Constructors" to the grotesquely wordy "The Conlangers of Youth." We finally settled on "The New Conlangers."

The adjective "new" doesn't come to usurp the "old." There is no "old" yet. "New" has two purposes. First, to express the youth of the writers. And second, to clarify that these young minds, like other modern conlangers, are under no illusions that this craft is a highly beautiful and creative means for expression and a necessary component for humanities education. Neither modesty nor reticence needs to accompany such a declaration. The connections are undeniably true.

Since illusions and timid emotions have left the premises, leaving confidence to build, any attempts by naysayers to dub conlanging as a pseudoart must be met with strong disputation. My students, The New Conlangers, can do this. They know what art is and what artists do, and why everyday art lovers and academics alike hold them up with high esteem. Consider the painter. She spans the periodic table and employs the raw materials of nature to create a representational and visual masterpiece that's fodder for the viewer's eyes and mind. It's interesting enough: one painting, one statue, one cathedral can join a string of others with like characteristics, and there's your access point for umbrella terms like Baroque, Renaissance, Classical, and Romanticism. As more than umbrella terms, and as more than words that one may mistakenly believe pay heed only to what's comprehensive, they're entryways into history, into selective spirits of ages, and into the minds of people who lived centuries ago, yet seem so alive. Because we still reap the blessings of life from them.

If this is true for the painter, it must be true for the writer. When my students created languages of their own, using the raw materials of the world – seashells, sand, rocks – they also used the raw materials of letters, sounds, and human vocal tracts. Paint brushes turned to pens. Paint and oil turned to ink and graphite. Experiments with lightness and darkness, and rich and intense color contrasts, turned into investigations of soft and guttural phonemes. Like art, entryways were created into intimate meetings with linguistic and scientific history – and the choice individuals, possessed by the daemonic genius, who characterized the selective spirits of their ages. For the most precocious students, of these New Conlangers, who used every ounce of their intelligence and creative genius – the Danielles, the Adams, the Aarons, and the Sophias – were blessed enough to travel the Saussurean highway of language that bridges concepts to sound patterns and arbitrary signs to sure-footed symbols. They know this less-traveled road undergirds natural languages and fictional languages, and in a way, serves as a language itself. A shadow language and a shadow tongue that frees your mind to speak and write in vibrant colors; in landscaped pictures that pay heed to a world of fecund and various particulars; and in concepts that are free to piece together or flow through all the words, symbols, and signs that bolster our logic, our ethics, and our emotions.

Who creates conlangs? Whom is it for? It's for the old. It's for the young. It's for the lovers of words. It's for the lovers of stories and storytelling. It's for the keen minds who know language creation is a powerful art that enhances whatever it touches.

For that and more, its longevity must be cheered to continue on.

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Appendix

To view the pre- and posttests themselves, visit the following link:

file:///C:/Users/Danny%20Garrett/Desktop/School%202016/Language%20Creation%20Pre%20and%20Posttests%20II.pdf

It's worth to note once more: if students are working on grade level, vary the pre- and posttests to a moderate degree, still testing them on the language skills covered during the projects. If students are working below grade level and possess learning disabilities, test variance should be at a minimal degree.