

THESIS

PACKAGING HUMAN EXPRESSCHÖN:
THE INTERSECTION OF VISUAL COMMUNICATION, ART, AND MUSIC

Submitted by

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ABSTRACT

PACKAGING HUMAN EXPRESSCHÖN: THE INTERSECTION OF VISUAL COMMUNICATION, ART, AND MUSIC

The human ability to communicate and share thoughts and ideas is fascinating and is the foundation upon which our cultures and societies have been built. I examine human expression through words, art, graphic design, and music. Verbal and written languages have developed with thought and words that communicate meanings contained within their definitions. Words can combine and express straightforward ideas and abstract thought, but words cannot and do not express everything. They are limited. Paintings, images, and visual design can communicate and express in realistic and abstract ways that are outside of words, just as music can. I investigate these ideas in my work, most recently through three specific projects. In *WORDS ARE BOXES*, I express and explore the idea that words themselves limit thought. I also investigate the connection between art, design, and music in two works. The first, *LSWRTH*, proposes that the physical packaging of music can also be a freestanding, independent piece of art through the design and construction of an Ellsworth Kelly-inspired vinyl record packaging triptych. I further develop the art, design, and music connection with a project titled *MODES*. *MODES* combines compact disc (CD) packaging as art, along with the animated model for a digital application which hears notes and visually generates corresponding colors in real time. This work models the concept that the music itself is creating art as a digital extension of human-initiated creative practice. Humans express themselves in many ways. Combining methods of expression can potentially result in a powerful multisensory experience that enhances our connections to ourselves, to others, and to our world.

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INTRODUCTION

My thesis work is an exploration of human expression through words, visual communication, art, and music. The multiple means and methods that humans have developed to express ourselves are, in large part, what many of us think make us human and distinguish us from other living beings. Language and collaborative activity gave birth to human culture. The ability to have thoughts that are independent of our sensory experiences has allowed us to imagine and create rich and highly developed cultures. The wide variety of human culture throughout time, expressed through traditions, arts, and never-ending creative pursuits, shows the vast reaches of our intellect.

The evolution of verbal and written forms of communication – from the development of drawings and pictographs into characters that represent objects or sounds, to words and phrases that contain thoughts and ideas – has transformed our ability to share ideas. Visual communication through icons, visual art, and music can express ideas beyond words and connects creativity, logic, and emotion. Our experience of these things may create a space that encourages connecting to life in new and meaningful ways.

Art and science are reflections of the creativity of the mind. The arts reflect the playfulness that is distinct from pure knowledge and are another powerful way to help us understand ourselves and our world. Science investigates and seeks new explanations and technologies that expand our knowledge. Graphic design is about non-verbal expression. It is born from the human desire to communicate, to record experiences, to share ideas and to transfer knowledge. Artists, designers, and musicians share a long history of influencing and drawing inspiration from one another.

Music is an extensive expression of human creativity, order, disorder, thought and emotion. It is primal and has been with us from the dawn of civilization. It is a reflection of ourselves. Listeners appreciate and respond to what music captures and represents on many

levels. Art and graphic design have the ability to visually express and enhance a participant's encounter with music.

Graphic design is a practice that bridges the gap between information and art, representation and communication, humanity and technology. Designer, educator, and author Ellen Lupton describes, "...the position of the designer as someone who is both inside and outside of culture: the designer is a spectator of his or her own world, rather than a connoisseur of a nostalgic past, an exotic other, or a visual underclass."¹ Design provides order where there is disorder. Graphic design is an extensive and ubiquitous part of modern society. With this level of integration and interaction with humans and their surroundings come both social and environmental responsibilities. Human society is remarkably complex. The role that graphic design plays in different communities has the potential to inspire positive interaction between humans and the physical world around us. Raising the level of design that engages this complexity encourages more intelligent interaction with knowledge and creativity.

I strive to create interesting, thoughtful, challenging, and beautiful things through design. My work aims to reestablish and redefine the once-important link between visual art, design and music. The roles of artists and audiences are evolving because of interactive art. I propose that digital smart device applications can reunite art with music and provide unique interactive experiences for the participant. I always attempt to interject some whimsy into my designs. I want the viewer to interact with my work: to physically, visually, and intellectually engage with it. I want them to see different things and gain new perspectives and more information each time they encounter it.

In my experience, music opens more new worlds to me than any other art form. Music has been and continues to be the focus of my career. Music is intriguing because of its non-verbal, non-visual expression and its ability to stimulate emotion and cognitive response. My

¹ Ellen Lupton, "Low and High: Design in Everyday Life," in *Looking Closer, Critical Writings on Graphic Design*. eds. Michael Bierut, William Drenttel, Steven Heller, DK Holland. (New York: Allworth Press, 1994),

work is an ongoing attempt to marry design and music. One of my main goals is to represent and try to enhance the experience of both aspects together. My intent is not to create design that satisfies the typical role of simply communicating in a way that works for the masses. The design choices I make are not determined by consumer or market-driven expectations, but rather through notions of wanting to add more: to create a space for an encounter with both the design and the music.; to create a design and space for an encounter between the two is for me something that is more than just providing pure communication. I work to design in a way that holds something back and leaves room for interpretation. To borrow Alain Badiou's way of describing language used in poetry, I look for "diagonal" design solutions to "interrupt the typical".²

² Peter Hallward. *Badiou: A Subject to Truth*. (Minneapolis, MN: University of Minnesota Press), 2003.

WORDS ARE BOXES

Classifications have a world of their own. After you begin to classify anything, the classification becomes alive and it rules you. But since classifications never started as energy-giving affairs, they always remain like dead logs. They are not trees; they are merely logs.

- Don Juan³

Humans have developed the ability to verbalize and express abstract thoughts and ideas beyond simple, immediate, emotional reactions. Paired with our ability to share our individual and collective experience, human knowledge and creativity seemingly set us apart from our non-human cousins. Speech is fleeting, however. The earliest marks and symbols were the birth of recording and transferring written knowledge and concepts. The development, refinement and agreement upon symbols and their meanings began with pictographs, followed by cuneiform, hieroglyphics, characters (Eastern and Western), alphabets. These systems led to hand-drawn and -lettered illuminated scripts and chiseled proclamations in stone. These hand-wrought expressions were refined into designed typefaces, evolving along with the mechanical press and now the digital world that we live in.

Words are boxes that express, contain, and can limit thought. Written and verbal linguistic communication allows humans to share a vast number of common experiences, thoughts and ideas, but there are also limitations to words. Words themselves are limited - limited to what they specifically represent. What about thoughts, experiences, and ideas that exist outside of words? Do humans have thoughts outside of the boxes of words? I think that we do.

Words are implements for communication, but rather than words just being tools, we often mistake them, or elevate them to the thing itself. Semiotics – which defines the word, the thing itself, and the image of that thing – makes us ponder which of the three is reality. They

³ Carlos Castaneda, *The Active Side of Infinity* (New York: Harper Perennial, 1998), 147.

each have their own reality and are provably distinct from one another. However, as much as Structuralists sought to establish order in the world, words and their various manifestations and uses break down in our Postmodern, Post-Structural society. Words are losing their form, as texting abbreviations for known phrases have become commonplace. Beyond words and letters, emojis now convey emotions and moods in a way that is not dissimilar to the way a logo represents a brand. Forms of communication are continually shifting with and without words.



Figure 1. Tim Schwartz, WORDS ARE BOXES, 2016, woodblock prints on craft paper, cardboard, individual letter size: 11" x 9.5 "; overall size: 37" x 78".

I explored these thoughts and ideas in my WORDS ARE BOXES project (Fig. 1). I started with a long list of words that I ultimately pared down to 119. The final word selection is based upon philosophy, institutional art, my graduate school experience, and a few that have personal resonance. Some of the words are in different languages because, to my thinking, they reflect the meaning more accurately, while others have personal connections to me, after having lived and studied in Germany. For example, "Treppen" is the German word for stairs (Fig. 2). I have a strong memory of ascending the stairs to my language school in Vienna, Austria, that includes the reverberating sounds of the stone and concrete surfaces. The idea of stairs, or

steps, also metaphorically represents the idea humans have of making cultural, societal, and scientific progress. The two Chinese characters represent “man” and “beast.” I find their fluid forms to be beautiful and captivating. Their foreignness to the Western eye also reflects the differentiations we place between humanity and animals. Some of the words are represented by icons, which directly reflect the word itself and, in the case of the “eye” and “bee,” are a respectful nod to the history of graphic design with Paul Rand’s “eye” and “bee” from his IBM posters.

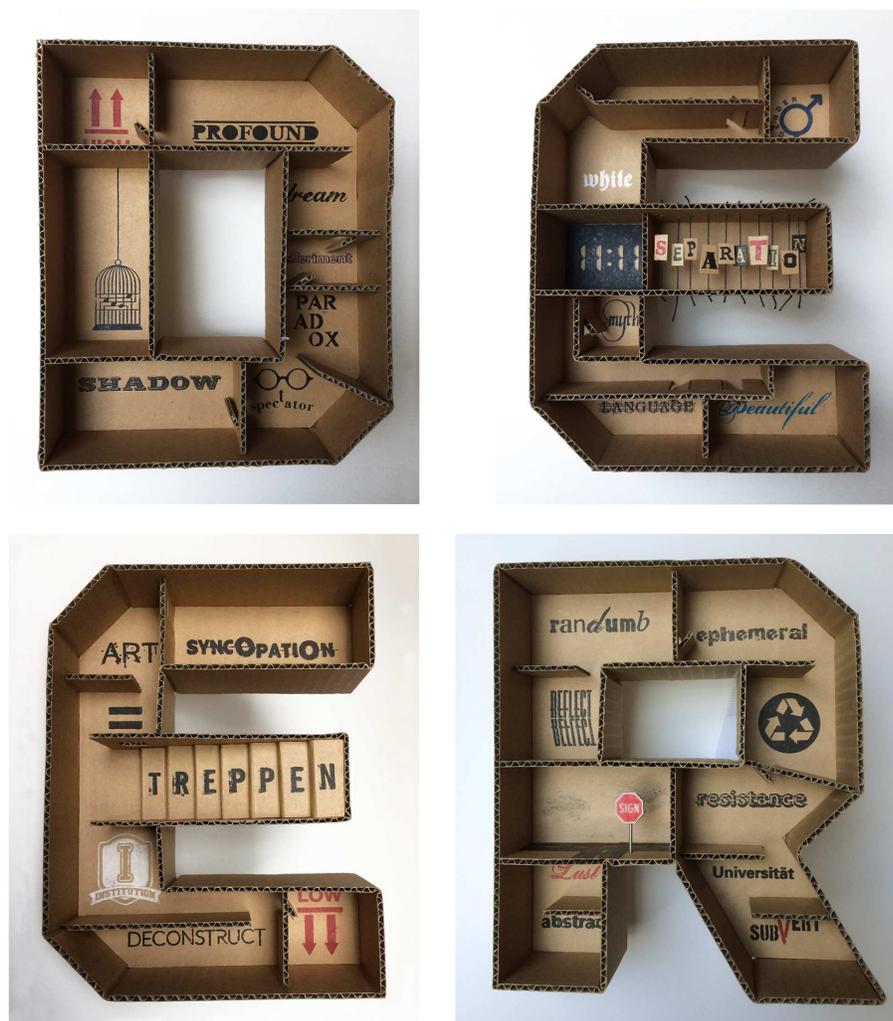


Figure 2. Tim Schwartz, WORDS ARE BOXES (detail), 2016, woodblock prints on craft paper, cardboard, individual letter size: 11” x 9.5 ”,

I designed the layout using Adobe Illustrator. I chose a blocky, boxy font named *Outage* for the shapes of the box letters. It mirrors the idea of boxes as well creating the letters with straight angles, rather than curves, which made forming the three dimensional part of the design easier and more boxlike. Each word was designed individually as a visual representation and interpretation of their meanings through typography. The backs of the cardboard letters were laser cut out of cardboard. The words and icons were then all laser-etched into Baltic birch plywood. They became the woodblock printing plates I used to print them. All of the words were printed onto craft paper that matches the cardboard (Fig. 3). Some of the prints required multiple woodblocks and passes through the press because of the number of colors used, while others needed just one pass. The prints were then glued to the cardboard laser cut letters and carefully cut out. The cardboard walls were then cut, assembled and glued to create the boxes. The walls create a floor plan for each letter and allow the viewer to navigate through the words and boxes as one moves through a building or maze. The floor plan and architectural model “look” of the boxes is a direct reference and homage to my undergraduate studies in architecture. Some of the words are completely walled off, mainly when what they represent warrants total separation. The printed word, “death,” is one example that fits that situation. A few of the words are treated in three dimensional ways that interpret their meaning and also add some depth and variation to the overall composition. Light enters each box in unique ways creating shadows visually enhancing the dimensional space. WORDS ARE BOXES packages the idea that words can limit thought, while new ideas for the packaging of music can broaden its traditional forms.



Figure 3. Tim Schwartz, WORDS ARE BOXES (detail), 2016, laser-etched woodblocks, and ink prints on craft paper, 24" x 12" and 12" x 12".

STATE OF THE MUSIC BUSINESS 1: VINYL AND MUSIC PACKAGING

Music and art both express and convey different human ideas that we can experience sonically and visually; both are pre-lingual. Music is a unique expression of human creativity, order, disorder, thought, and emotion. It is primal and has been with us from the dawn of civilization. Dr. Brian Moon, musicologist at the University of Arizona, explains that, “Music is organized sound in culture, and it is everywhere. Every culture produces something that can be labeled as music.”⁴ Music has the ability to connect without language. French philosopher Denis Diderot suggests that while music has a powerful emotional appeal for humans, an even more impressive aspect of it is that it can do so, “without needing the help of narratives or depictions of any kind.”⁵ Our appreciation of music also creates powerful emotional responses. French writer, Mme de Staël describes music as, “delightful reverie in which it immerses us, annihilates all thoughts that can be express in words, at the same time awakening in us feelings of infinity.”⁶ Not only is music emotional, it also provides us with positive feedback. “People consistently rank music among the top 10 things that bring the most pleasure, usually ranking it above money, food or visual art,” reports David H. Zald, Professor of Psychology and Psychiatry at Vanderbilt University.⁷ Music, when combined with visual stimuli, appeals to multiple senses.

Art and graphic design have the ability to visually express and enhance a participant’s encounter with music. Composers, musicians, and artists have been influenced by one another for centuries. Richard Wagner, Paul Klee, Wassily Kandinsky, Piet Mondrain, John Cage, David Bowie, David Byrne, and many others have cited music and the visual arts as powerful

⁴ Brian Moon. *How Rock Rolled: A History of American Popular Music*. (Dubuque, Iowa: Great River Learning, 2012), accessed March 28, 2017. <http://colorstate.grtep.com/index.cfm/arizonarockroll/page/ch1textpg2>

⁵ Peter Virgo, *The Music of Painting: Music, Modernism and the Visual Arts from the Romantics to John Cage* (London: Phaidon Press, 2010), 9.

⁶ *Ibid.*, 8.

⁷ Douglas Main. “Music Produces Pleasure in Similar Way as Drugs, Sex,” *Newsweek.com*, February 8, 2017, accessed March 28, 2017. <http://www.newsweek.com/music-produces-pleasure-similarly-drugs-and-sex-553946>

influences upon their creative process. The digital music revolution is rapidly changing music and the music industry in both positive and negative ways. Technology has vastly increased accessibility to music, and provides a convenient and swift conduit between fans and musicians. Listeners now have the ability to discover new music on a scale that is far beyond what anyone could have imagined twenty years ago. Digital music is convenient and portable. Sound quality is often poor, however, and the disconnect between the music, prominent artwork, and a physical object is leading some to return to older formats or seek alternative forms of interaction. Music has become so ubiquitous and ethereal that it often lacks the weight, importance, or permanence it once carried for individuals, society and culture. The greatly diminished role of visual art in the current digital music age leave many wanting more. Songs and albums have largely been detached from visual and physical elements.

The artwork and graphic design that used to play an important role in the packaging and experience of music has been greatly diminished. Interestingly, over the last decade there has been an explosion in the sales of vinyl records. There are some who prefer the sound of vinyl over any and all digital formats, claiming a wider frequency range and warmth that digital formats lack. Many also have a romantic connection to the pops and sounds frequently associated with vinyl playback. There are those from older generations who prefer the 12-inch square record. The sensory experiences included physically placing the record on a turntable connected to a system that delivers quality sound; exploring the cover art, and band photos; reading the sleeve, liner notes, and lyrics; and taking the time to listen to a brand new record from their favorite band or an old favorite yet again. The larger scale cover and liner art is the focal point of record packaging and creates a powerful visual connection to the music. Is this just nostalgia or pastiche? Is it a longing for or an imitation of the past? It appears to be more than that. This shift reveals a new generation of listeners who want the music, art, and design and a physical object in order to have the full multi-sensory experience. Author Marco Storai

describes, "Album covers are waiting rooms to the sound-settings they represent."⁸ From an early age, engaging with albums was a profound, almost 'mystical' experience for me.

Musicians, the music business, and fans are ready to engage with a full album in new ways. With CD sales and downloads declining, streaming and vinyl sales on the rise, and innovations in format and delivery being continually introduced, the music industry is in a constant state of flux. Just as there are multiple approaches to the packaging and delivery of digital and analog music, there are additional options that fit between the existing models and reunite the music with art. Innovation allows for the possibility of creating new approaches to music delivery directly from artists and record companies to their fans. Some bands are releasing deluxe vinyl record packaging that includes high quality art prints in books, but they largely remain in the box on a shelf. My aim is to create work that encourages an interactive experience and reestablishes, redefines, and reconnects the relationship between musicians, their music and corresponding visual art, and the fans.

⁸ Marco Storai, "Björk. The Cover Art," in *Sound & Vision*. ed. Luca Beatrice (Italy: Grafiche Damiani s.r.l., 2007), 49.

LSWRTH

Music is an outward manifestation of human inventiveness, and it is an alluring mode of self-reflection. Listeners appreciate and respond to what music captures and represents on many levels. LSWRTH explores the intersection of art and graphic design with music, with the intent of enhancing a participant's encounter with the collection. The abstract nature of music is expressive without the use of language. It embodies emotion and time unlike other artistic pursuits and inspires visual artists to translate those characteristics into form and color. Thoughtful graphic design also has the potential to communicate beyond typography and words. It can set a mood with color, movement, and other visual forms and references that harmonize with what is being expressed. LSWRTH is music packaging that is a work of art that exists both as integral to, and yet independent of, the music: it is semi-autonomous, and is meant to be hung upon a wall. The colored vinyl records are part of the composition. This work can be listened to and can be physically and visually interacted with. This intent of this project is the manifestation of art, graphic design, and music coming together and acting as a whole.

Visually, I was inspired by the abstract, minimalistic, Hard-edge Color Field works of Ellsworth Kelly. Kelly's use of both natural and everyday forms reduced to their essential shapes and his experimentation with figure-ground through his bold use of color informed my choices (Fig. 4). Dallas Museum of Art Curator Charles Wylie describes Kelly, stating, "Taking on the traditional idea of painting and pushing its visual properties as far as he could, Kelly forged a new strategy: dispensing with the idea of background and foreground altogether, he opened up the space of his art both literally and metaphorically."⁹ Kelly developed his unique approach while living in Paris, away from the American Abstract Expressionists. Kelly described his own work, "I have worked to free shape from its ground, and then to work the shape so that it has a

⁹ Wylie, Charles., Yve Alain. Bois, Robert. Storr, Wood. Roberdeau, and Ellsworth Kelly, eds, *Ellsworth Kelly in Dallas* (New Haven: Yale University Press, 2004), 18.



Figure 4. Ellsworth Kelly, Red/Blue (Untitled), 1964, screenprint on paper, 22" x 18".

definite relationship to the space around it; so that it has a clarity and a measure within itself of its own parts (angles, curves, edges, and mass); and so that, with color and tonality, the shape finds its own space and always demands its freedom and separateness."¹⁰ Kelly's works activated the surface employing different and interesting approaches. Art critic Dave Hickey explains, "Kelly abutted fields of different color, whose shapes invite completion beyond the rectangle and whose equal value confounds our ability to read either as figure or as ground, creating nervous visual anomalies along their lines of intersection (Fig. 5)."¹¹

¹⁰ Grynstejn, Madeleine, "Clear-Cut: The Art of Ellsworth Kelly" in *Ellsworth Kelly in San Francisco*. ed. Madeleine Grynstejn, Ellsworth Kelly, Julian Myers (Berkeley: University of California Press, 2002), 9.

¹¹ Dave Hickey, "The Literal Prophecies of Ellsworth Kelly," in *Ellsworth Kelly: Red Green Blue Paintings and Studies, 1958-1965*, edited by Julie Dunn (New York: Distributed Art Publishers, 2002), 30.

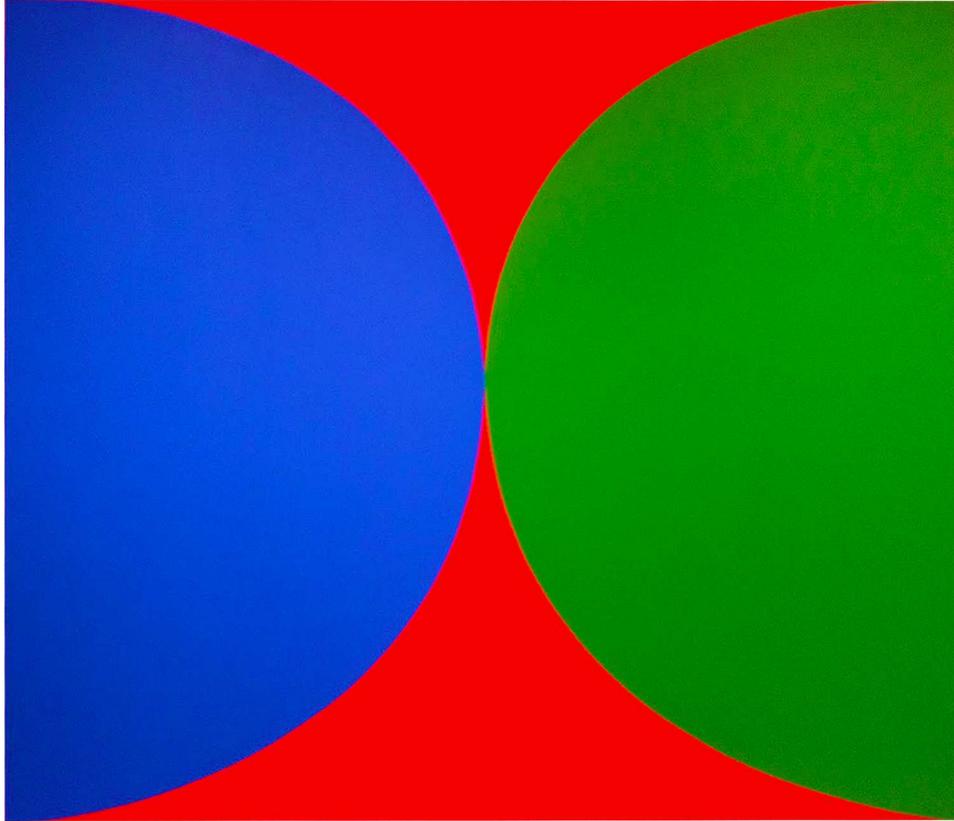


Figure 5. Ellsworth Kelly, Blue Green Red II, 1965, oil on canvas, 88" x 102".

The minimal yet lush music for dance by composer and multi-instrumentalist Fred Frith, entitled *Allies*, served as a model and inspiration for LSWRTH. The hard edges and subtle but complex rhythmic and harmonic relationships helped to inform the visual design. Music critic James Taylor describes *Allies*: “The album is laden with highly rhythmic and oddly timed melodies that are deconstructed and reconstructed, cut and spliced into new patterns.”¹²

I used typographic characters as my forms in place of Kelly’s abstracted natural and found forms. Kelly did multiple series using his versions of the primary colors (Fig. 6). I followed his lead and also used the off-white color of the bamboo paper. Some of Kelly’s paintings were

¹² James Taylor, “Fred Frith: Allies,” *AllAboutJazz.com*, March 10, 2005, accessed March 28, 2017. <https://www.allaboutjazz.com/allies-fred-frith-rer-megacorp-review-by-james-taylor.php>



Figure 6. Ellsworth Kelly, Blue Yellow Red, 1990, lithograph on paper, 37" x 36".

composed based upon chance determined by a set of rules. In a similar way, I limited the colors to 5 colors (including the color of the paper) and employed a system to change and balance the colors of the forms and the vinyl records across the three individual pieces of the overall composition. I utilized the artist's practice of shapes that extend beyond the edge of the surface and encourage the viewer to imagine their completion off the canvas. I have experimented with this by allowing typographic forms to expand off the paper, with connections of the forms that are made from the front to the back of the designs. Kelly also played with depth and the separation of colors and forms by using raised panels (Fig. 7).



Figure 7. Ellsworth Kelly, Curves on White (Four Panels), 2011, oil on canvas, two joined panels. Pictured: Blue Curve on White, 60" x 60" x 2.75", Yellow Curve on White, 70" x 44.25" x 2.75".

Kelly elaborates on his experiments with space: "The joined panels became a form, and thereby transferred the ground from the surface of the canvas to the wall. The result was a painting whose interest is not only in itself, but also in its relationship to things outside it."¹³ I explored these ideas in LSWRTH by giving the packaging dimension with the raised sleeve that receives the record, as well as the dimension, shape, and color of the records (Fig. 8).

I designed the three vinyl record packages in Adobe Illustrator. I did a round of test prints to ensure that the printed colors would work with the colored vinyl records. I used gilcée prints to achieve solid and consistent color fields. Once I received the prints, I carefully put front and back together using spray mount. I then cut the forms out with an X-ACTO knife and folded and glued the packages into their final forms, which includes the sleeves to hold the records. I then hammered the grommets into place to finalize the pieces. I designed the triptych with an order in

¹³ Grynstejn, Madeleine, "Clear-Cut: The Art of Ellsworth Kelly" in *Ellsworth Kelly in San Francisco*, 15.

mind, but also allow that the viewer/listener may want to arrange the elements in their own, unique way.



Figure 8. Tim Schwartz, LSWRTH (three vinyl record packaging units), 2016, giclée prints on paper, grommets, individual unit: 24.5" x 12.25"; overall size: 53" x 40.75".

This project allowed me to create and interpret within a framework of both visual and musical inspiration. I was able to manifest my intent of creating music packaging that is a work of art in and of itself. This model is potentially marketable to musicians and record companies for commercial applications. Exploring the idea of the physical packaging and the records as artwork lead me to think about expanding the idea to the digital world.

STATE OF MUSIC BUSINESS 2: CDs AND DIGITAL

The creation, distribution, and packaging of music is constantly changing and evolving. With multiple established and ever-new digital media services available and growing, consumers are in control of what they listen to, watch, and interact with, as well as when and where they access content. The experience is one of freedom and choice. Music is now an ever-present part of first-world life. The abundance of music, and ease of access to it, is changing the way we interact with, think about, and experience it. Listening to music has largely become a passive activity. The separation of the music from a physical object and from the visual artwork is convenient and portable, but some find the singular experience lacking.

The diminished role of art with the majority of digital music formats, along with the loss of physical packaging, leave many seeking alternative means of interaction. From the 1950s through the 1990s, music, art, and design were so closely associated with one another that it was difficult to imagine them apart. Although there are positive aspects to the digital music revolution, the loss of the connection between art and design is not one of them. Interactive listening, visual experiences, and touch can provide meaningful connections between the music, art, and participant.

Musicians now have the opportunity to create the experience that they want fans to have. No longer bound to record companies, musicians are free to use multiple channels and social media to have their music heard, promoted, and to interact directly with fans. Bob Baker, musician and author, stresses, “For years I’ve talked about ‘artist empowerment’ and how musicians should take their careers into their own hands. That idea is true now more than ever. But what needs to be equally stressed is the huge shift toward ‘music fan empowerment’ and ‘consumer empowerment.’”¹⁴ Listening to music has been released from its traditional anchors

¹⁴ Bob Baker, *Guerilla Music Marketing Handbook* (St. Louis: Spotlight Publications, 2013), 49.

and along with it album art has been set free from the square, no longer restricted to the confines of the printed record and CD cover. It is time for album art to retake its place alongside albums and songs in cutting-edge forms.

There are gaps between the current music experiences for something new. Opportunities exist to create interactive, customized digital and physical listening and visual experiences that can once again provide meaningful connections between the music, art, musician and listener. With CDs and downloading song files declining, and streaming and vinyl sales on the rise, it is possible for new and innovative models to have an impact. Musicians themselves could have the ability to control and add to what is available on an application or site at any time. This allows for direct interaction and sales between content creators and users. Owning a well-designed or a unique hand-made item conveys a sense of value and satisfaction to many. Similarly in the digital world, users could actively engage with the applications and customize their own unique experience while adding a sense of ownership. There are many opportunities for graphic designers and fine artists to forge relationships with musicians and to work together to push the boundaries of what constitutes album art. As Christiane Paul, adjunct curator of new media arts at the Whitney Museum of American Art, observes,

Ultimately, any experience of an artwork is interactive, relying on a complex interplay between contexts and productions of meaning at the recipient's end. Yet, this interaction remains a mental event in the viewer's mind when it comes to experiencing traditional art forms: the physicality of the painting or sculpture does not change in front of his or her eyes. With regard to digital art, however, interactivity allows different forms of navigating, assembling, or contributing to an artwork that go beyond this purely mental event.¹⁵

There are new possibilities for reuniting art and music through digital interactive applications.

¹⁵ Christiane Paul, *Digital Art* (Thames & Hudson: London, 2003), 67.

Digital platforms can lead to new, enhanced experiences with art and music. Media theoretician and art historian Oliver Grau suggests that, “Interactive media are changing our perception and concept of the image in the direction of a space for multi sensory, interactive experience with a temporal dimension.”¹⁶ Multi-sensory engagement through touch, sound, and visuals can even enhance learning. Steven Bleicher, art professor and color theorist, notes, “Scientists have also discovered that people make a better connection to material when more than one sense is involved or stimulated. By combining auditory and visual stimuli, the brain produces more synaptic pathways that create solid links to the material and make it easier to recall when tested.”¹⁷ The addition of touch to the experience of art also changes the relationship between artist and audience. Grau describes the transformation of a viewer to an “active agent.”¹⁸ He continues to think about this new relationship when he states, “Artists working with electronic media increasingly came to think of themselves as providing open-ended contexts that offered audiences infinite possibilities for the production of unpredictable meanings through creative exchanges.”¹⁹ The changing roles of artist and viewer, music and format lend themselves to many new possibilities of meaningful experience.

¹⁶ Oliver Grau, *Media Art Histories*. Leonardo Series (Cambridge, Mass.: MIT Press, 2007), 7.

¹⁷ Steven Bleicher, *Contemporary Color: Theory and Use* (Clifton Park, NY: Thompson Delmar Learning. 2005), 13.

¹⁸ Grau, *Media Art Histories*, 71.

¹⁹ *Ibid.*, 62.

MODES

*In order to justify a kind of painting from which the represented object had largely disappeared, the abstract painter might profitably argue, as others had already done, that colours and forms on their own are capable of affecting us directly like the tones of music.*²⁰

-Peter Vergo

A new platform for experience that I have explored and designed is an application that is a full digital album, MODES. MODES includes the components of physical packaging – the music, art, information, and design – and adds an interactive digital version. This project encourages active user participation on a smartphone or tablet as a new form of album art. This project explores the relationship between sound and color, music and art. The intent is to create a model where the music itself creates the visual art. Sound becomes color.

Words used as descriptors for both color and music have been a part of artists', designers', composers', and musicians' lexicons for a long time. Terms such as harmony, rhythm, tone, and others are used almost interchangeably between these different practices. Charles A. Riley II, Ph.D., curator and professor at the City University of New York, clarifies the different uses of the word color in art and music: "Part of the confusion about what the word *color* means results from the overlap among three similar terms: color, timbre, and orchestration. Timbre and orchestration involve the characteristic quality of the sound produced by an instrument as it can be distinguished from another instrument playing the same pitch."²¹ The distinctions and commonalities between sound and color play a strong role in this experiment.

MODES is built upon the idea that the music's notes and frequencies generate a direct visual manifestation of themselves. The music is literally the visual art. The sound frequencies are directly related to light frequencies and color. The MODES animations model a motion-

²⁰ Virgo, *The Music of Painting: Music, Modernism...*, 175.

²¹ Charles A. Riley II, *Color Codes: Modern Theories of Color in Philosophy, Painting and Architecture, Literature, Music, and Psychology* (Hanover and London: University Press of New England, 1995), 276.

based idea for an application that could be developed that listens to music and generates art based upon the notes and frequencies as it hears them. This is expressed in this project through the original seven modes established by Ancient Greek culture, which have influenced Western music for centuries. The notes of the modes are rendered into their corresponding colors. The modes are the musical foundation that this project is organized around.

The seven modes are based upon the seven different tones of a scale. The seven modes are: Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, and Locrian. Each of these modes behaves slightly differently in the interval steps it takes when it is played from any given starting note. The following chart indicates the whole steps (or tones – indicated by a “W”) and half steps (or semitones – indicated by an “H”) that apply to each mode:

MODE	INTERVAL SEQUENCE						
Ionian	W	W	H	W	W	W	H
Dorian	W	H	W	W	W	H	W
Phrygian	H	W	W	W	H	W	W
Lydian	W	W	W	H	W	W	H
Mixolydian	W	W	H	W	W	H	W
Aeolian	W	H	W	W	H	W	W
Locrian	H	W	W	H	W	W	W

The modes are often described by the perceived moods that they create. Ionian is considered happy and uplifting; Dorian is thought of as melancholic with a bright, jazzy feel; Phrygian is often referred to as the Spanish, Gypsy, or Flamenco mode; Lydian is happy and dreamy; Mixolydian adds some mystery to otherwise happy tunes; Aeolian is somber; and Locrian is thought of as dark and sinister.

For the purpose of MODES, I chose starting notes for each mode based upon their corresponding colors in order to have a visual variety and sonic for the both the physical

packaging and digital application. This chart shows the starting notes and sequence for each mode:

modes	INTERVAL SEQUENCE						
C Ionian	C	D	E	F	G	A	B
C# Dorian	C#	D#	E	F#	G#	A#	B
E _b Phrygian	E _b	F _b	G _b	A _b	B _b	C _b	D _b
F Lydian	F	G	A	B	C	D	E
G Mixolydian	G	A	B	C	D	E	F
A _b Aeolian	A _b	B _b	C _b	D _b	E _b	F _b	G _b
A# Locrian	A#	B	C#	D#	E	F#	G#

The colors that I used to represent the individual modes based upon the relationship between color and sound frequencies. Leon Gunther, professor of physics and astronomy at Tufts University explains, “Essentially, music and color are subjective manifestations of the corresponding objective physical phenomena – sound and light, respectively. Both sound and light are examples of wave phenomena.”²² There are multiple models for translating sound to light frequencies. For the purposes of selecting colors for this project I referred to the chart created by Nicolas Melendez (Fig. 9). Calculations showing the relationship between color and sound frequencies have been compiled by Clint Goss and are described as follows:

A direct relationship between the continuous spectrum of frequencies of electromagnetic energy in the band of visible light and the pitches of sound in a continuous frequency spectrum of sound that are 40 octaves (a factor of $2^{40} = 1,099,511,627,776$) below the frequencies of visible light.

Converting the frequency of sound to a frequency of light by doubling the sound frequency (going up one octave each time) until it reaches a frequency in the range of 400–800 THz (400,000,000,000,000 – 800,000,000,000,000 Hz). That frequency is then converted into a wavelength of light, using the formula:

$$\text{wavelength} = \text{speed of light} / \text{frequency}^{23}$$

²² Leon Gunther, *The Physics of Music and Color* (New York, NY: Springer, 2012), 11.

²³ Clint Goss, “The Color of Sound,” *Flutopedia.com*, August 11, 2016, accessed March 28, 2017. http://www.flutopedia.com/sound_color.htm

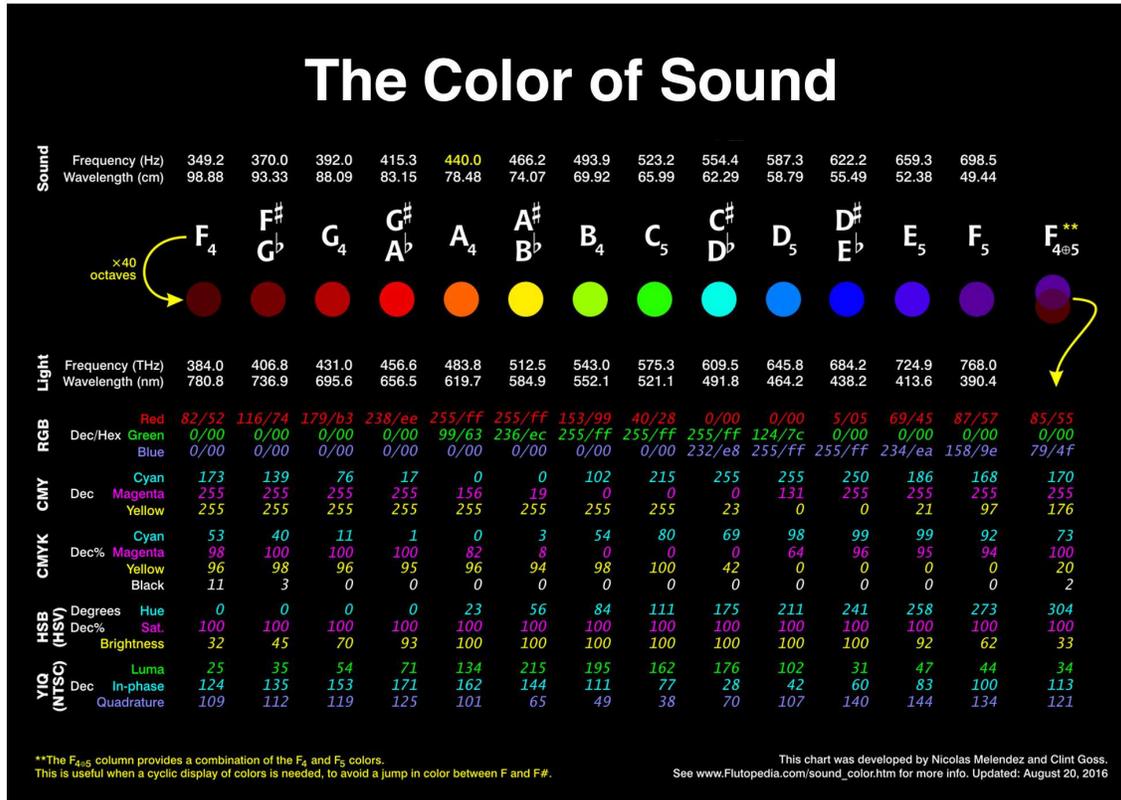


Figure 9. Clint Goss, *The Color of Sound*, 2016, screenshot, *Flutopedia.com*

The next step is the conversion of color frequencies to usable RGB colors. Physicist, astronomer, and engineer Dan Bruton, Ph.D. at Stephen F. Austin State University, wrote a FORTRAN Code that generates the spectrum using approximate RGB values for visible wavelengths between 380 nm and 780 nm.²⁴

I designed the physical elements for modes in Adobe Illustrator. The CD packaging consists of multiple layers of thick, bright-white paper. I used paper drills and a club hammer to punch holes through the layers of paper. I designed templates that were laser cut out of acrylic for consistency. The holes are largest on the outside layer and get smaller on the inside layer to create some depth and to highlight and frame the colors on the CDs. Pockets were cut out of

²⁴ Dan Bruton, Ph.D., "Approximate RGB Values for Visible Wavelengths," *Physics.SFASU.edu*. accessed March 28, 2017. <http://www.physics.sfasu.edu/astro/color/spectra.html>

white matte board to accept the discs and booklet. Grommets were secured in each corner so that the four units could be displayed as art on a wall.

I composed the music based upon the notes and modes in the modes chart. I used a midi keyboard to play the music and Logic Pro X to record and sequence it. The individual mode compositions first play all of the notes of one octave from low to high and then feature a melody that showcases the overall mood of each mode. The modes medley is a continuous song that flows from one mode to the next in order for the user to compare and contrast the seven modes. The musical score for the songs written for the Ionian mode can be seen on the screen shot in Fig. 10.:

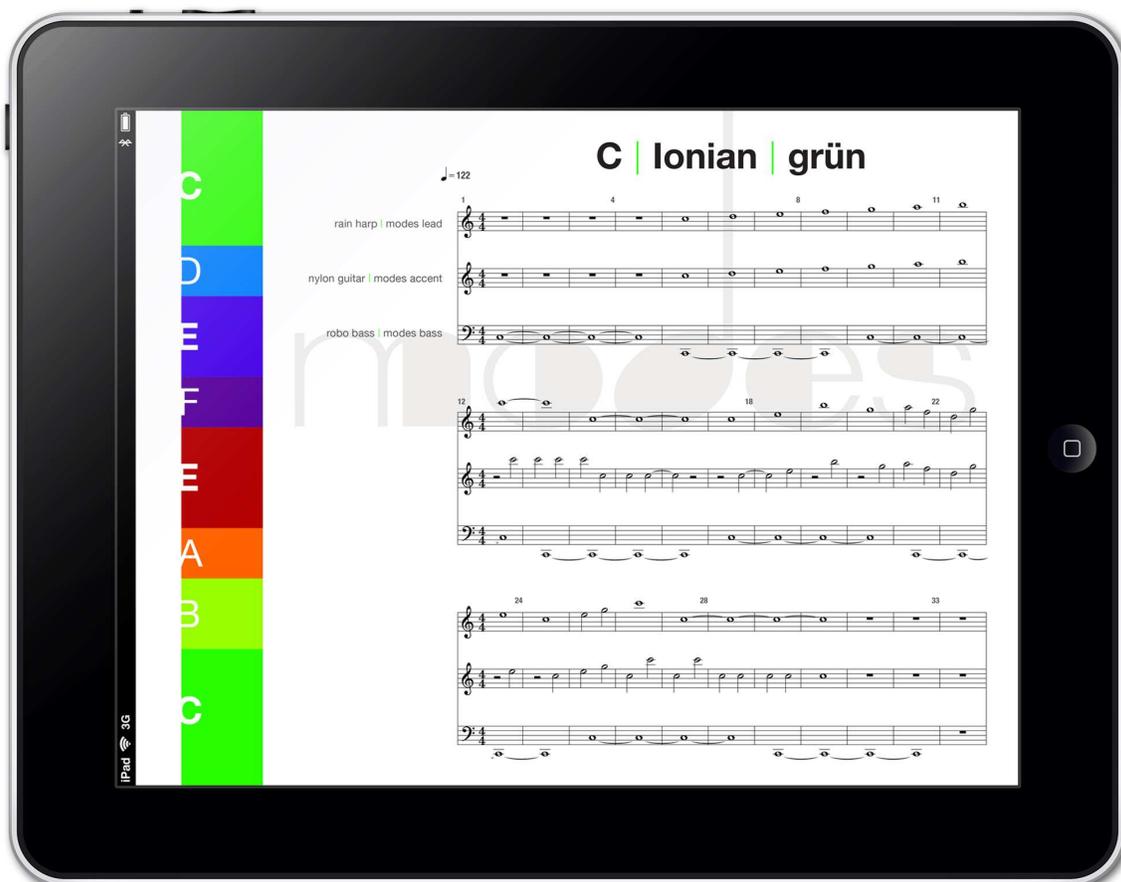


Figure 10. Tim Schwartz, MODES (digital application), 2017, Ionian score tablet screenshot.

The digital version of MODES was organized and designed in Illustrator. The layouts were transferred to Adobe Animate, which is where the application navigation and animations were created. The digital album contains additional information about modes and features the music and animations that model the idea and an application that creates art from the notes that are heard. Formally, the animations feature what appear to be elongated digital brushstrokes that move across the screen in response to the notes of the music. The thickness of the strokes relate to their importance in the scale. For example, the first, or lowest note and the top note, which is an octave above, are the thickest. The third, fifth, and seventh notes follow in smaller sizes, but are bigger than the remaining notes because of their importance in making chords in any given mode. The subsequent notes also appear on different positions on the screen depending upon their place in the mode. The lengths of the brush strokes correspond to the duration of the sound of the notes (Fig. 11).



Figure 11. Tim Schwartz, MODES (digital application), 2017, Ionian score tablet screenshots.

MODES combines art and music in new and unique ways that encourage multi-sensory engagement. The participant now plays an active role in shaping the meaning and experience for themselves through their engagement with this piece. As distinctions between creator and participant continue to blur, the opportunities for new experiences multiply. This project has commercial potential. The digital album and the physical CD packaging could serve as templates that allow minimal modifications for a customized application (Fig. 12). MODES is an idea that has the potential to be expanded and applied to home settings with projections, on screens, and through lighting systems. It could also work with live music on a stage with coordinated lighting and projection systems, and dance club settings. The idea can continue to evolve and adapt to new situations where sound and visuals intersect and create something exciting and new.

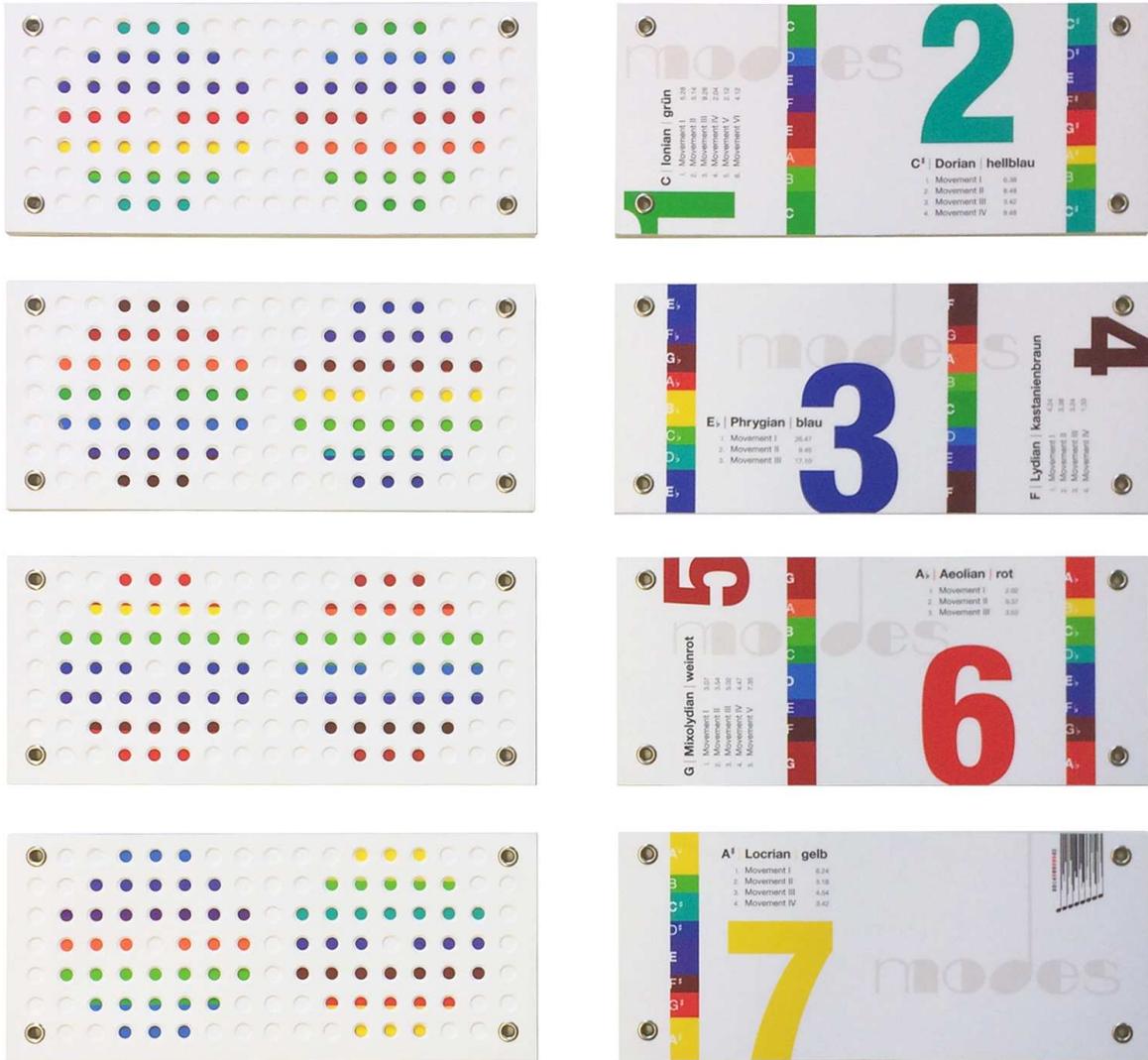


Figure 12. Tim Schwartz, MODES (four Compact Disc packaging units), 2017, giclée prints on paper, paperboard, grommets, individual unit: 12.125" x 5.1875"; overall: 33" x 25.5".

CONCLUSION

These thesis projects explore several forms of human expression. Communication happens inside and outside of language. We experience and take in the world through our senses. WORDS ARE BOXES considers the idea that words can confine thought. This idea is made manifest in a three dimensional and visual creation. Music opens a world that exists outside of language. LSWRTH looks at the meeting of music and art and the notion that the packaging of music can be a work of art. MODES expands this idea by designing a model in which the music creates the art.

Human expression can be beautiful and contributes greatly to our culture and society. Our designed world, designed objects, and graphic designs are part of this world and experience. In our current age, music, design, and art movements come and go at a mind-boggling speed. Ever-changing technologies continue to attempt to make the artificial “real.” Designed works have the ability to give meaning or experience beyond their intended purpose. Graphic design lives in culture, not in museums and galleries. It interacts with and is a part of everyday, contemporary society. It has a dialogue with the masses. Music, art, and design can create a space for contemplation and reflection. My goal has been to explore these possibilities with my work, and in doing so opening new multi-sensory experiences for interaction and contemplation.

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