Slava

04.2010

process book

THESIS RESEARCH

SEMANTIC PARADIGM

ABSTRACT

I am exploring the possibility of the implementation of an interactive, three dimensional language domain for possible application to Middle School students in North America, for the purpose of learning Language Arts.

PURPOSE OF THE STUDY

The goal of this study is to develop a new learning environment, which would be more suitable for the generation growing up with all the current technology that is available to them, and who have in turn developed different thinking patterns from those of the previous generations.

The proposed environment would serve as an educational tool for the study of Language Arts. It would be an independent semantic exploration within the language itself, which would allow students to engage their intuition, empathy, logic and curiosity.

The stimulating semantic realm would keep students engaged with the material presented to them by an instructor, as an alternative to the traditional forms of learning Language Arts.

STUDY BACKGROUND

While working for the past 10 years as a Graphic Designer in the motion picture industry, I'd noticed a tendency in regards to how typography was utilized in the design process. When designing a film, the standard and the aesthetic of typography often needed to be compromised, in order for the end result to appear realistic, which raised questions for me about what today's standards actually were, what the aesthetic actually was, and how they were relevant in the design process in this current day and age.

This was part of what had led me to the subject that I initially wanted to pursue for my thesis research project. I wished to study the relevance of typography in our cultural framework, and how the standards of typography, and our perception of it, were impacted by our society through our media, the digital world and our everyday lives.

However, after some primary research,

I became more interested in the relationship between language and modern technology, in particular, digital technology, such as the Internet.

I began the study researching the technological impact of our current lifestyle on the English language, as well as its effect on people's everyday communication. As the way we communicate is encountering major technological modifications, so to is the English language encountering major modification, in order to make it work with our current communicative technology.

The written form of language, which is still today's prevalent form of communication, has been evolving into a different kind of communication, not only typographically, but also symbolically and linguistically.

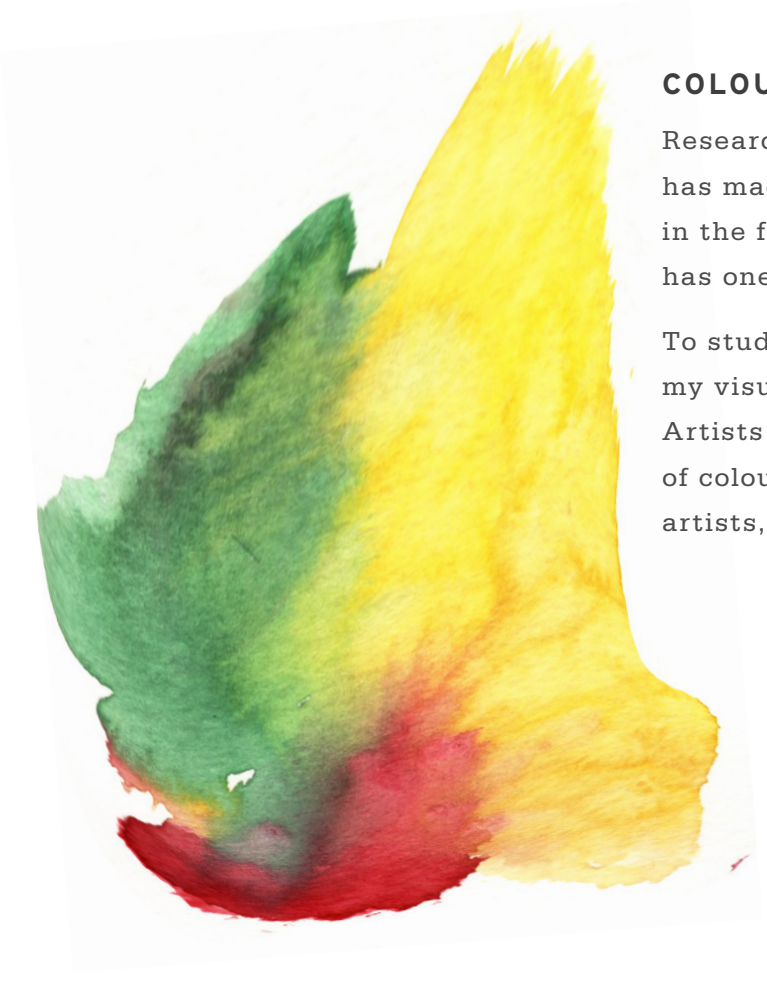
I researched people's current methods of communication, correlated to life style and to linguistics. I also analyzed technology as a historical means to advance people's connectivity, researching as far back as 1130 BCE

In this process book, which begins with the definition of communicative issues occurring within the digital domain as a result of a constant exposure to a technologically dominant environment, I showcased my ideation process.

This process shaped my original idea of investigating the relevance of typography in our cultural framework, into the hypothesis of a semantic domain creation with its application to a language arts class.

I began my first semester Master Thesis Research by studying digital technology and its effect on people's communicative habits.

Introduction

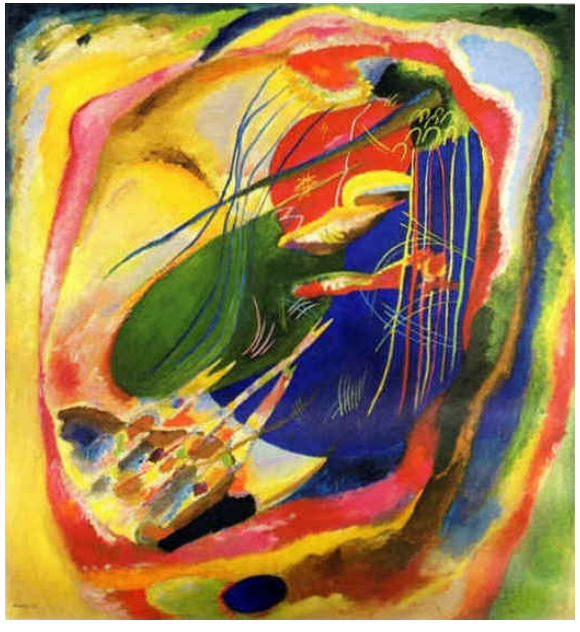


COLOUR

Researching digital technology and its effect on people's communicative habits, has made me realize that despite numerous advantages, digital media, in the form of electronic messages, emails, and social networking in general, has one major deficiency – it is missing the paralingual factor of speech.

To study emotions, and their application to digital technology, I have commenced my visual explorations by examining colour. I analyzed specific work, by Artists who are known for their colour expressions. I examined their application of colour to communicate an emotional aspect of a narrative. One of the main artists, whose work I focused on, was Wassily Kandinsky.

WASSILY KANDINSKY



F1. Painting with Three Spots

F2. Red Spot II

Visual References

COLOURITEXT

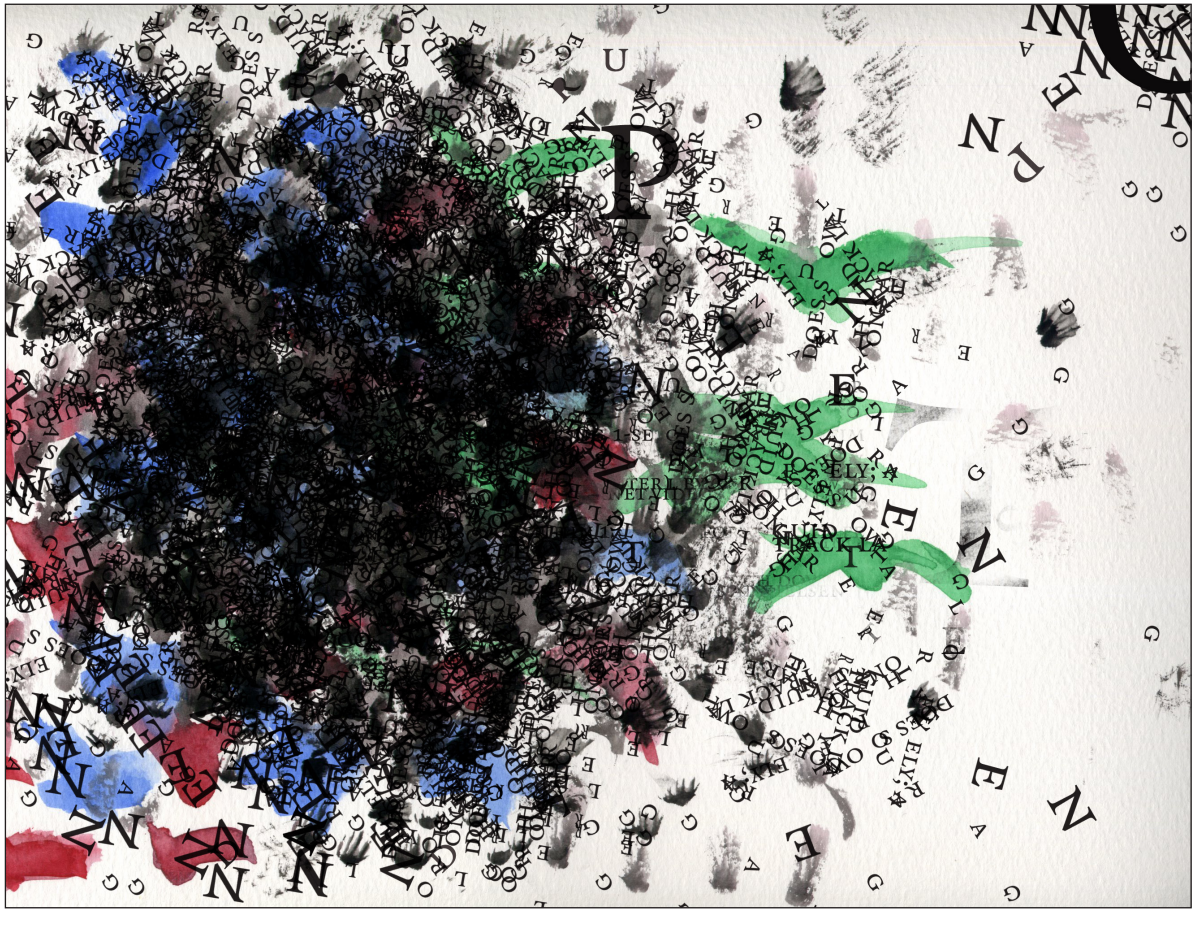
Colour is complex. Colour is always evolving and is in constant motion. It is emotional and endless. Colour becomes even more expressive with the application of random text.

Even if letters do not spell a specific word, they can still say a lot. They speak with emotion.

COLOUR|TEXT|TEXTURE

While exploring, I used colour, variations in letter sizes and different type faces to create complex emotional textures.

The question that I came across during the process of exploration, was the actual application of this emotional complexity into the digital world.



COLOUR|TEXT|COMPLEXITY

In recent years, our environment has become incredibly complex, due to the overwhelming dominance of technology. People, in their daily lives, experience a tremendous cognitive load.

In this particular visual analysis, I have attempted to isolate meaning by putting it on three different levels: text, color and density. I tried to navigate through these levels to understand which one is more prominent, and why.

COGNITIVE LOAD

F3. Zappos

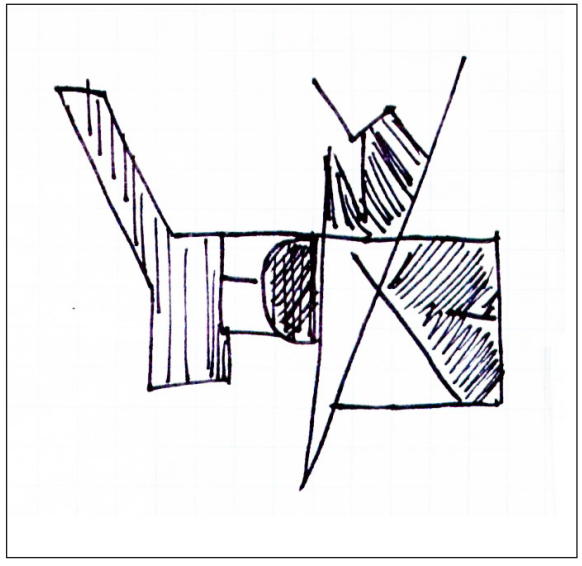
F4. Heaven Works

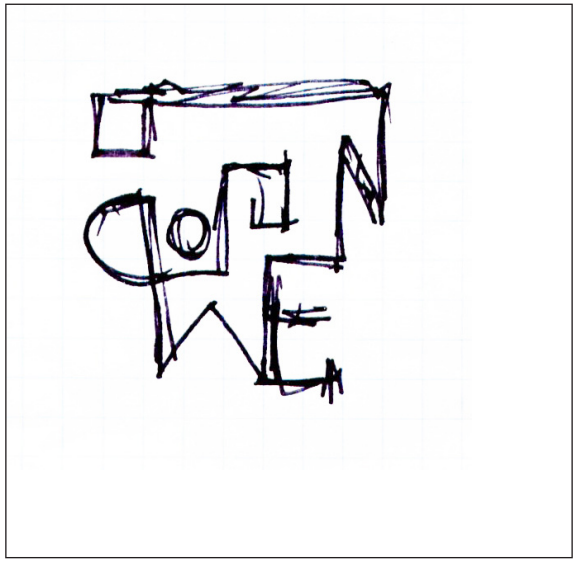
Visual References

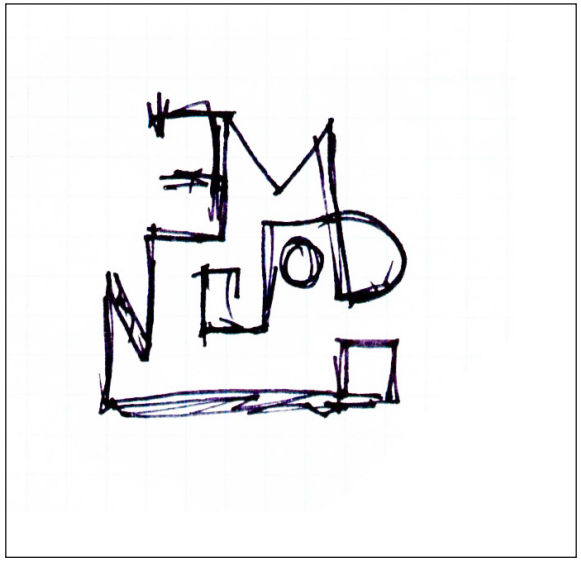
COLOR, TEXTURE AND COMPLEXITY

F5. Textures for Inspiration

Visual References

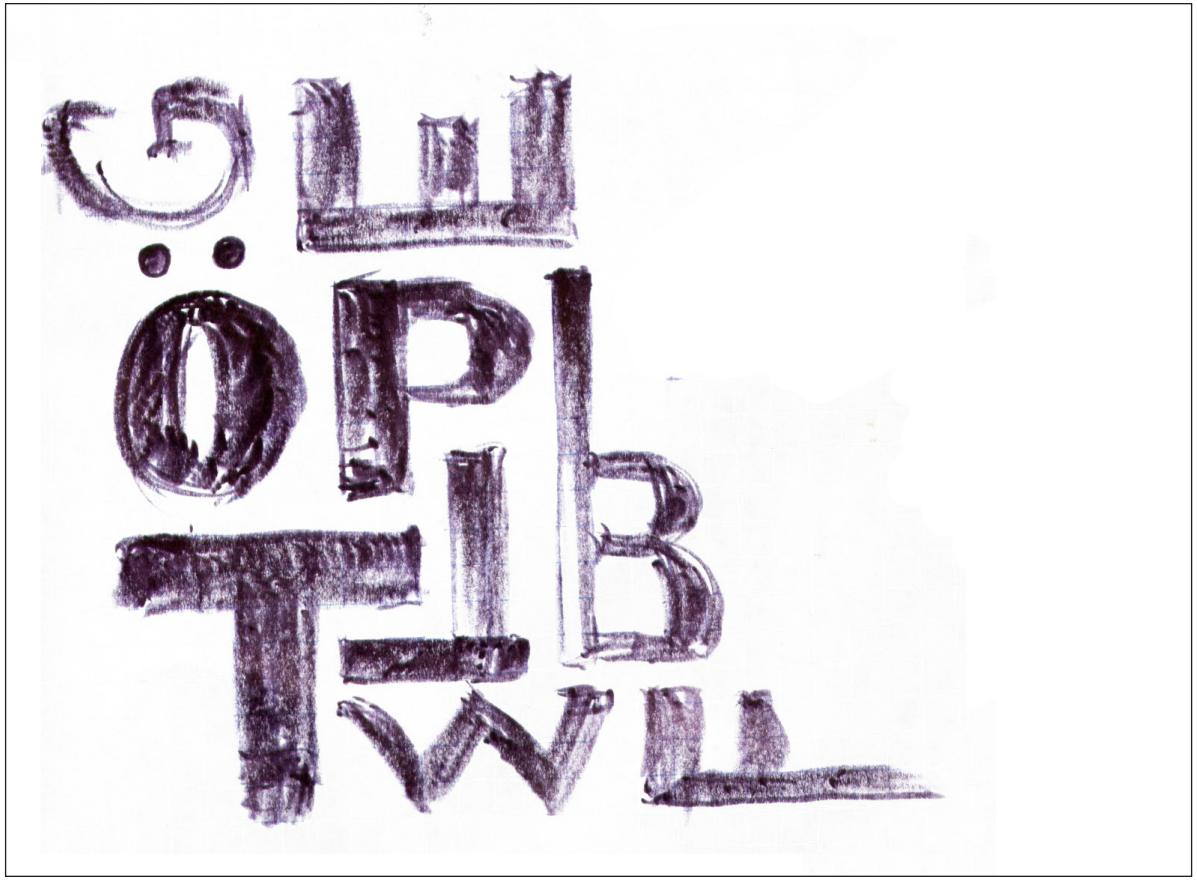






REBUSES|LOGOGRAM|IDEOGRAM

First introduced through mobile devices, and later, through the Internet application Twitter, short, coded and heavily abbreviated messages became a very popular method of fast communication.



I feel that this method, along with other text based applications and electronic messaging systems, is altering the fundamentals of written communication, such as form, structure, grammar, and spelling, by allowing people to express complex meaning in a short and fast form.

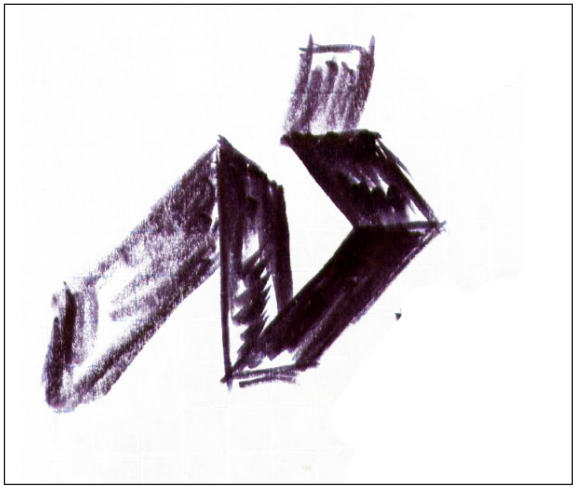
Striving to detect whether or not a writing system could be designed to sustain complex meaning in a short form without affecting fundamentals of written communication, I have discovered that writing, being a graphical form of speech and representation of language, is a system that can only mature within a culture prepared to sustain it.

Does this mean that our culture is prepared to sustain a new writing system heavily based on abbreviated forms of spoken language?

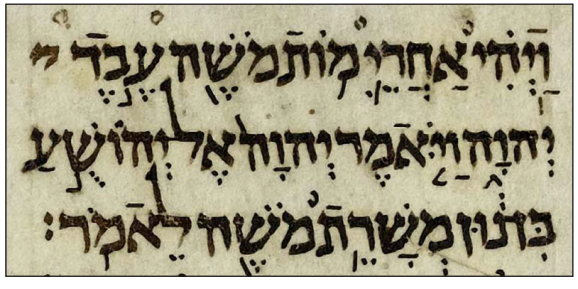
To answer this question, I began to look at ancient written forms such as early pictographs, ideograms, logograms, and early rebuses (Egyptian hieroglyphs).

I also spent quality time studying ligatures, experimenting with Devanagari, Hebrew and Arabic writing systems, all of which are consonant based scripts.

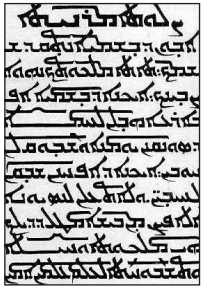
The visual explorations that derived from this research appeared static at first, but then acquired kinetic properties, as I decided to fold meaning (electronic messages) into logograms, ideograms and rebuses.



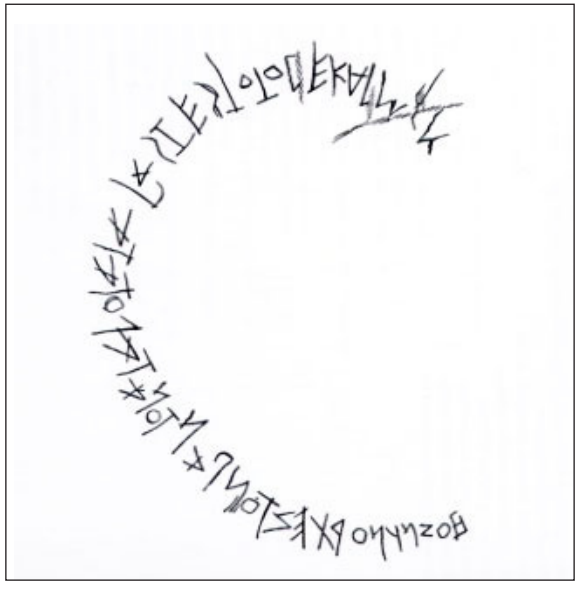
EARLY WRITING



F6. Hebrew Script



F7, 8. Devanagari and Aramaic Scripts



F9. Dipylon Vase

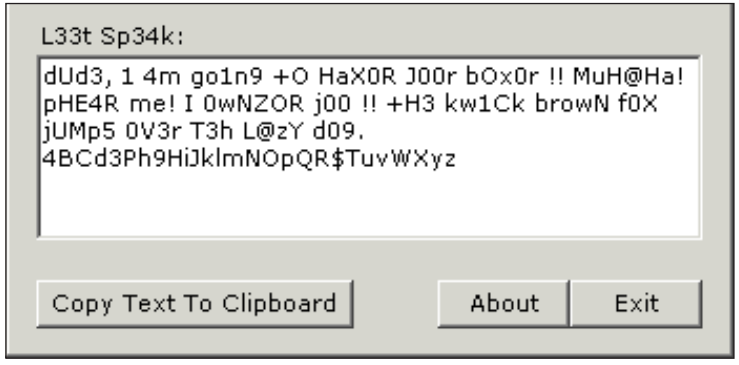
F10. Inscriptions from 3rd Century BCE

F11. Development of Alphabet

NEW FORMS OF "LANGUAGE"

Almond Bread: boil 8T grnd almond/c cream. Cool;+t yeast; 2c flour/2T sug/egg/t salt. Knead+8T flour. Rise~h; +h in grsd tin. 25m@375F/190C.

F12. Twitter Abbreviations



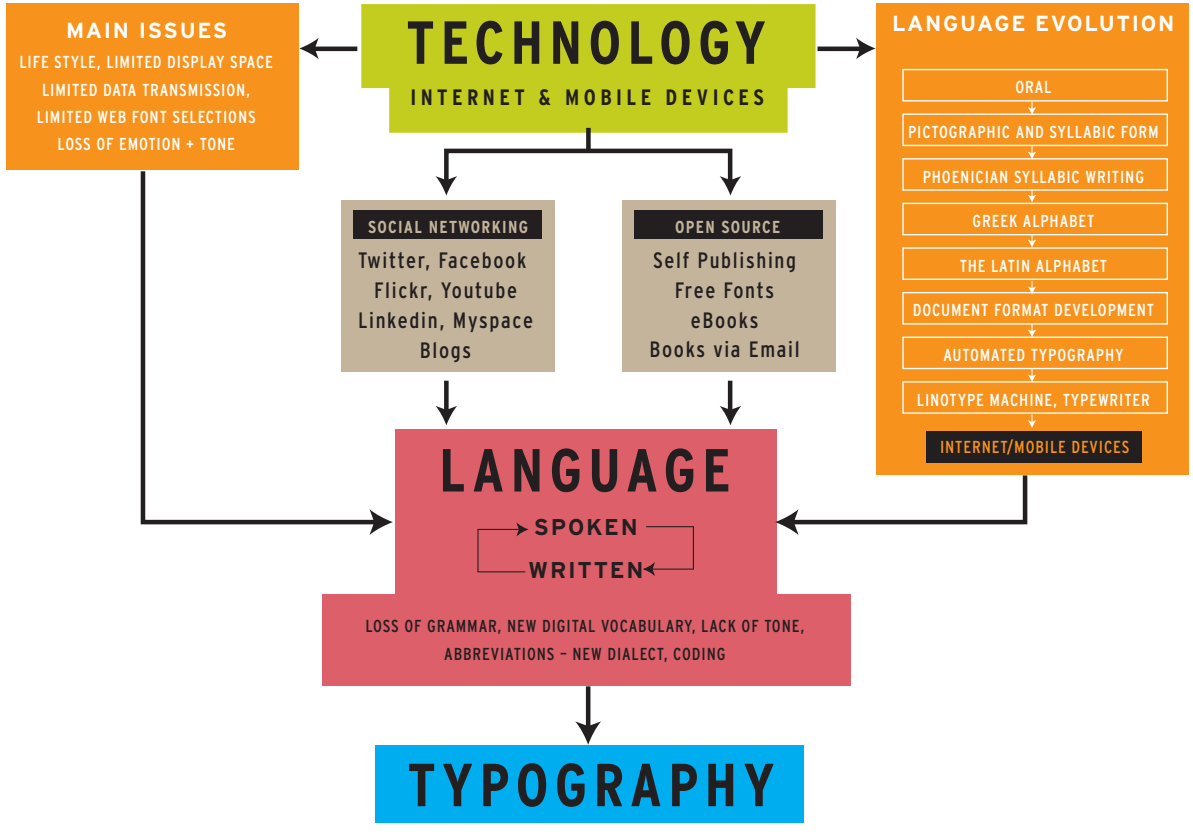
F13. Leet Speak

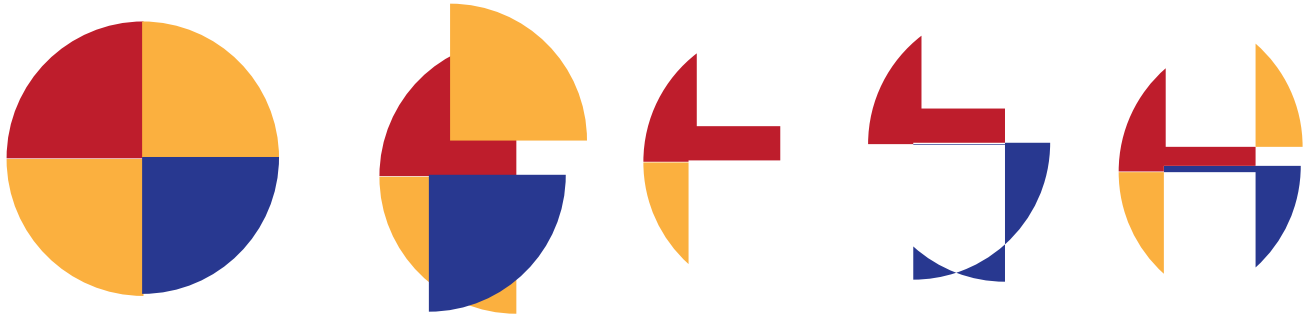
Visual References

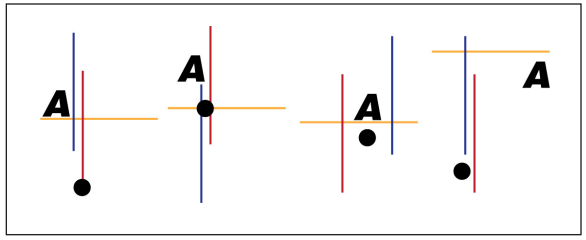
SCHEMATIC "A"

To better understand this technological impact on our society and its connection to language and typography, I created a diagram.

In this diagram, I displayed language development and factors contributing to its changes. This diagram shows the basis for my preliminary research.







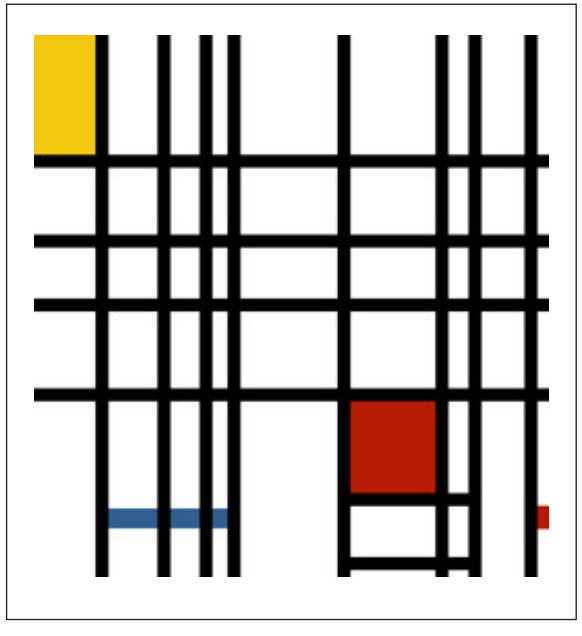
VARIATIONS - THE ELEMENTS OF EUCLID

This study took a different approach after experimenting with the illustrating principle of Oliver Byrne's The Elements Of Euclid, which describes complex information with color.

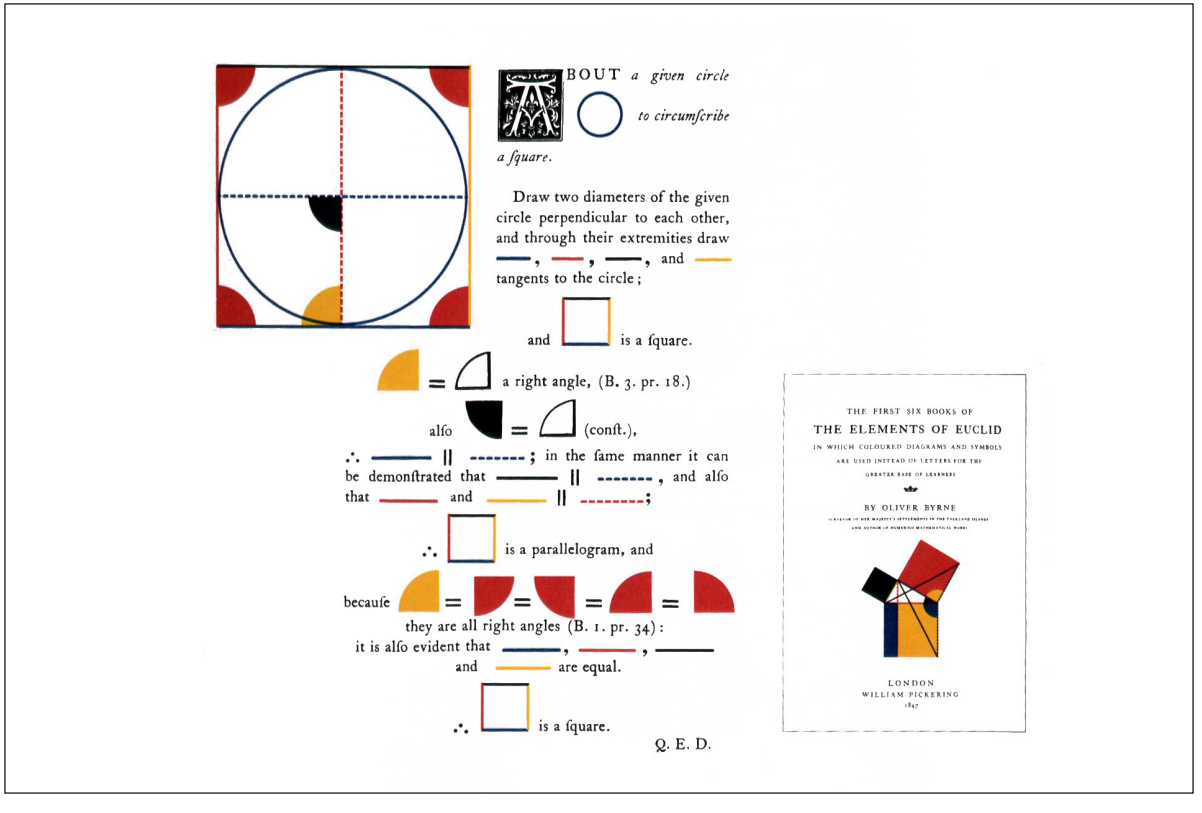
First, I intended to analyze how many different combinations could be derived from a segmented simple form by using different color and arrangement. Then, I applied a deducting approach, in which each combination self deducts, becoming a new form, more complex than the previous one.

I tried to apply this approach to the idea of communicating complex information by using a simple rule.

VARIATIONS

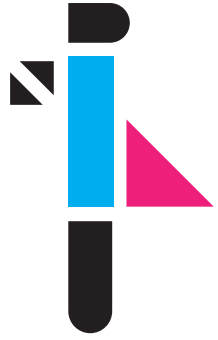


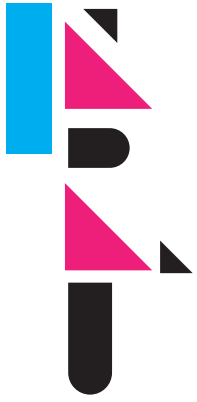
F14. Piet Mondrian, *Composition with Yellow, Blue, and Red*, 1921

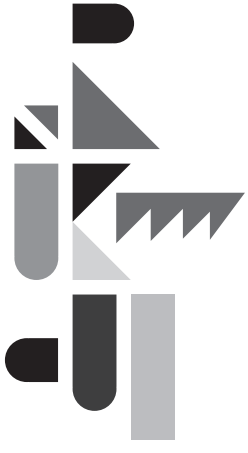


F15. Redrawn from Oliver Byrne, *The First Six Books Of The Elements Of Euclid*

Visual References

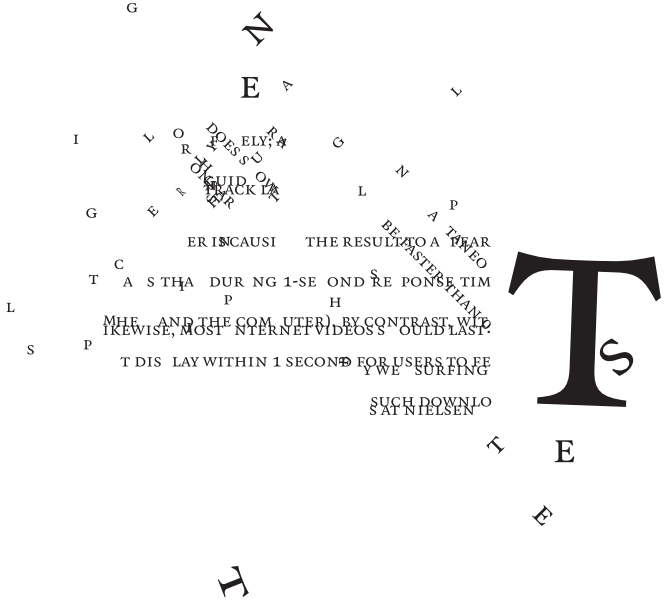


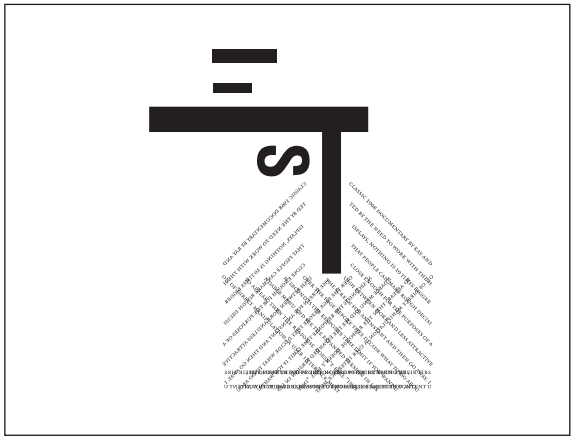


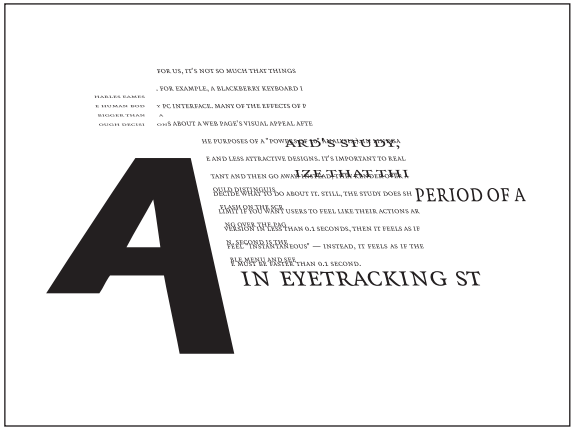


COMPLEXITY|SIMPLICITY

My Oliver Byrne's
The Elements Of Euclid based
examinations eventually led
me to Stephen Wolfram's theories of
complex patterns derived from a
simple rule. How can one create
a visual code by applying a
simple approach, which could be
easily decoded?



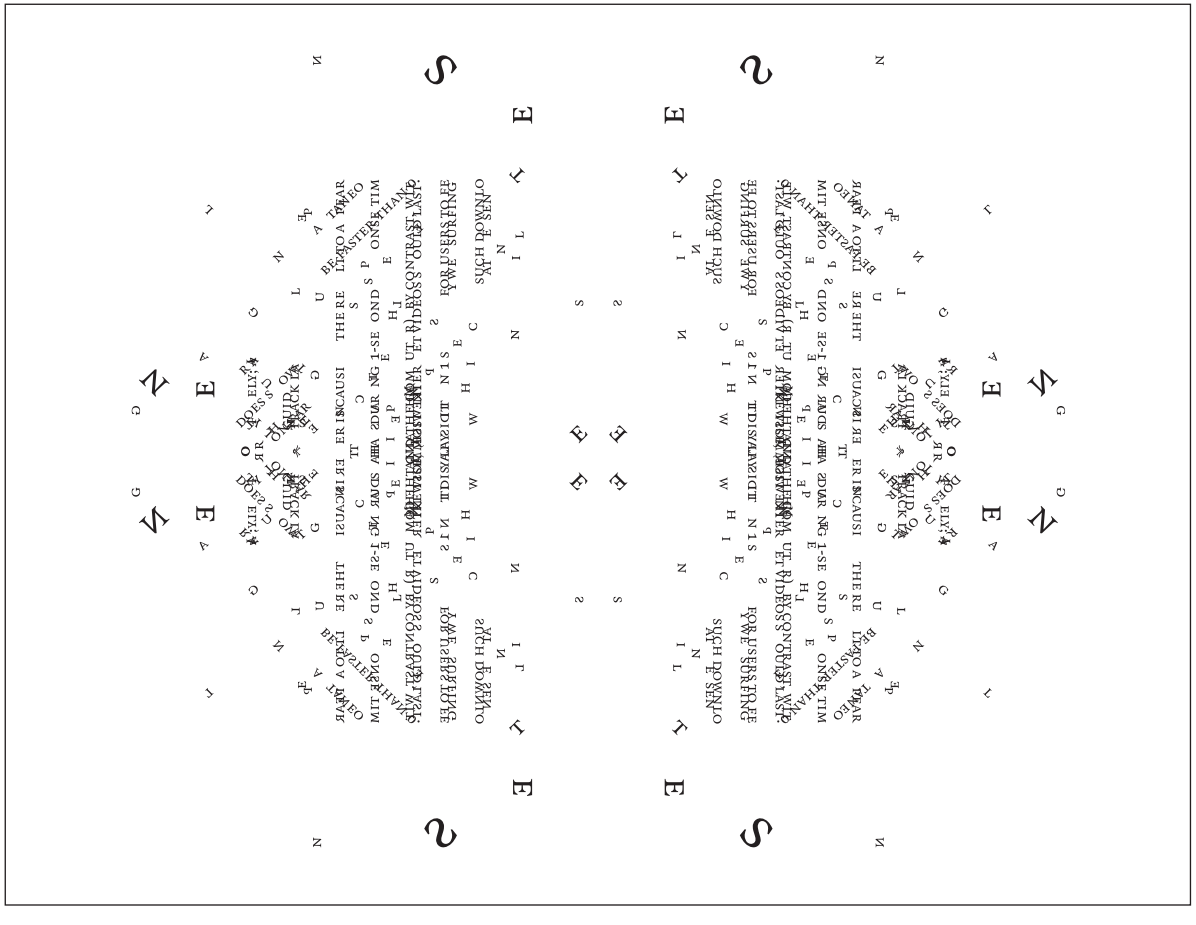




COGNITIVE LOAD

My next set of visual explorations led to the analysis of cognitive load that people experience within the digital domain on a regular basis. I became interested in navigating text, as well as navigating within text.

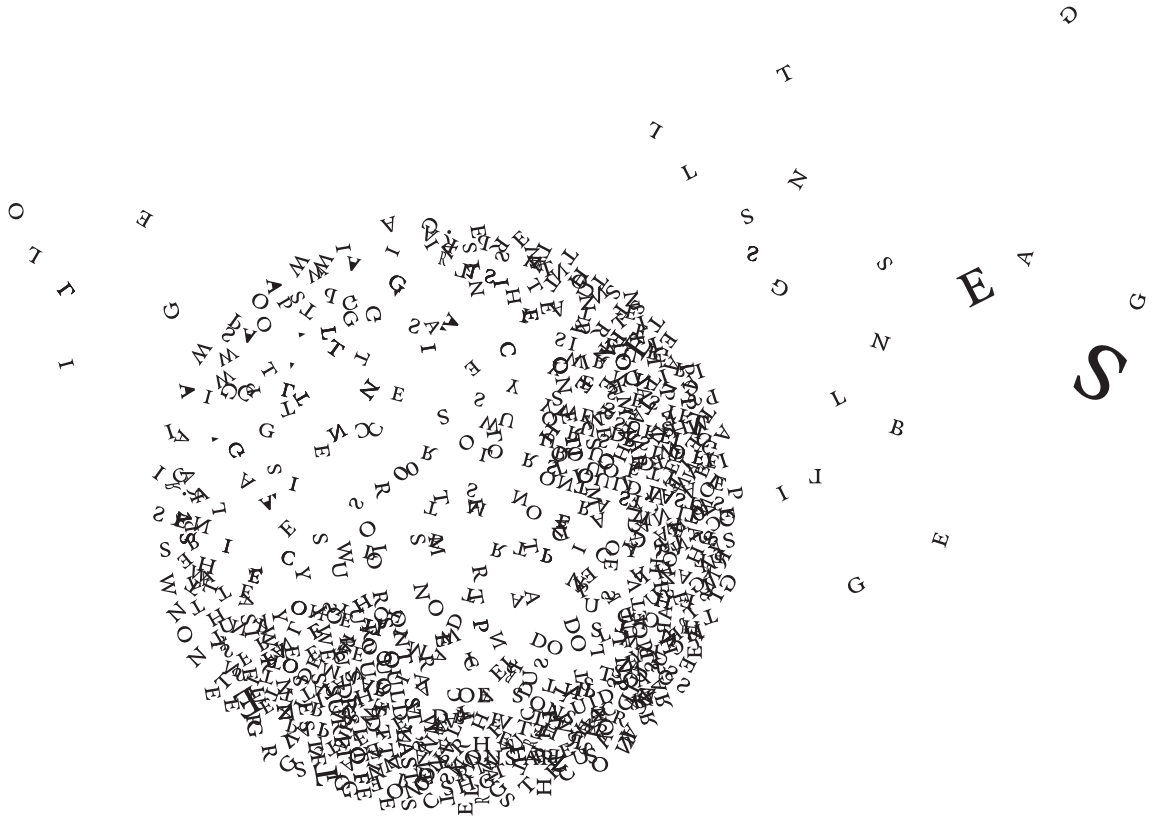
To support my idea of motion as a solution for simplifying navigation through complex cognitive load, I studied complex static compositions of text and their evolution into a kinetic state.

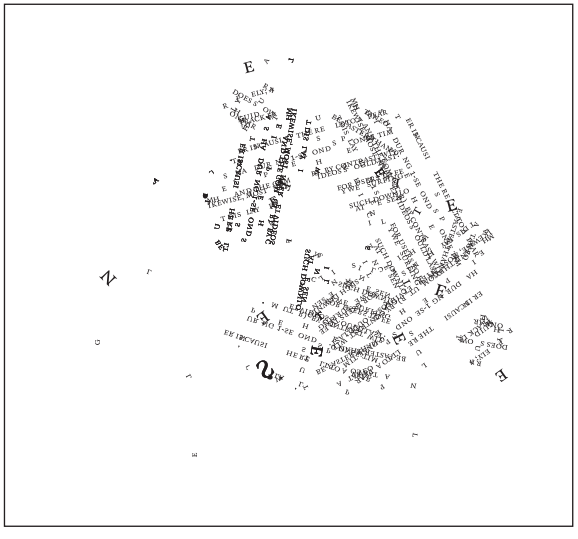


COGNITIVE LOAD|PATTERNS

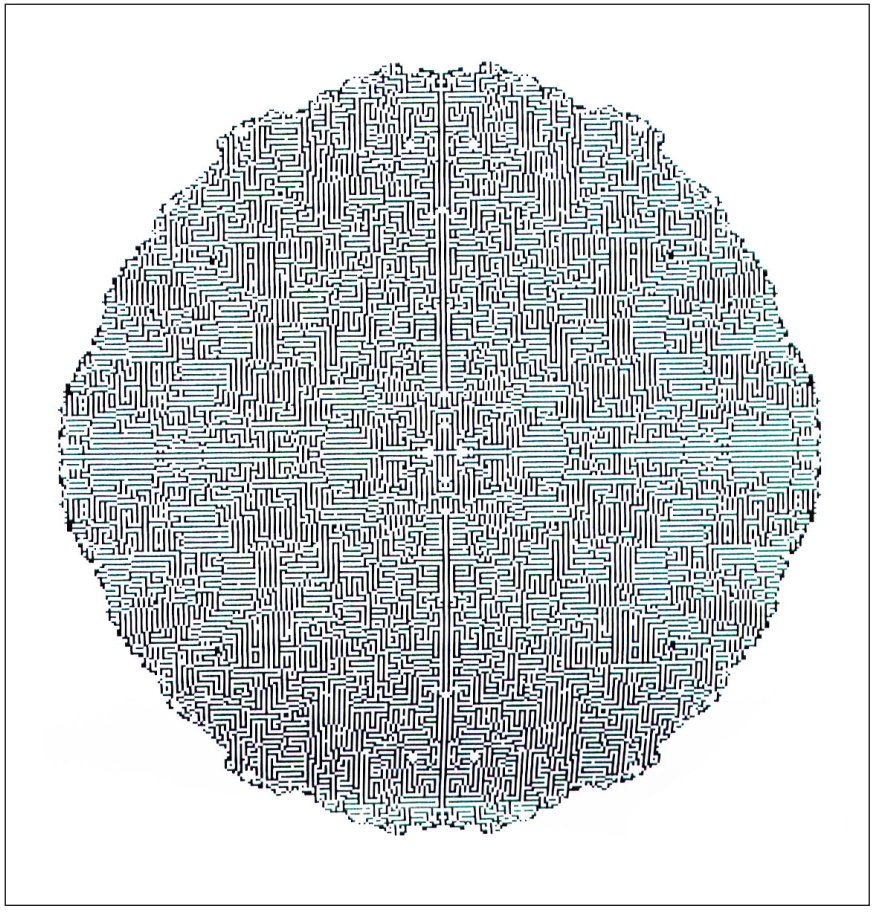
To find a visual solution for navigation through cognitive load, I looked into patterns, applied to text.

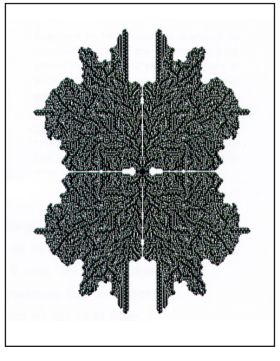
I explored the idea of chaos preceding order, which echoed my ideas of simplicity and complexity and theories of simple rule by Stephen Wolfram.



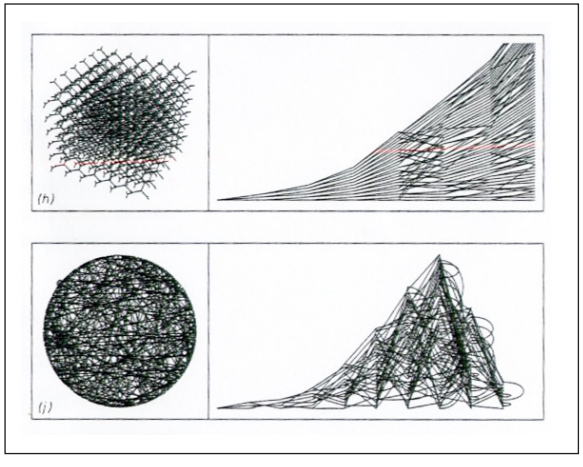


The result of these visual studies on ideas of complexity and simplicity, led me to my next exploration – the study of applying kinetic elements to text.





COGNITIVE LOAD AND GEOMETRIC PATTERNS



F16. Patterns from Stephen Wolfram's *A New Kind of Science* book

COGNITIVE LOAD AND PATTERNS

F17. Ants

F18. Textures for Inspiration

Visual References

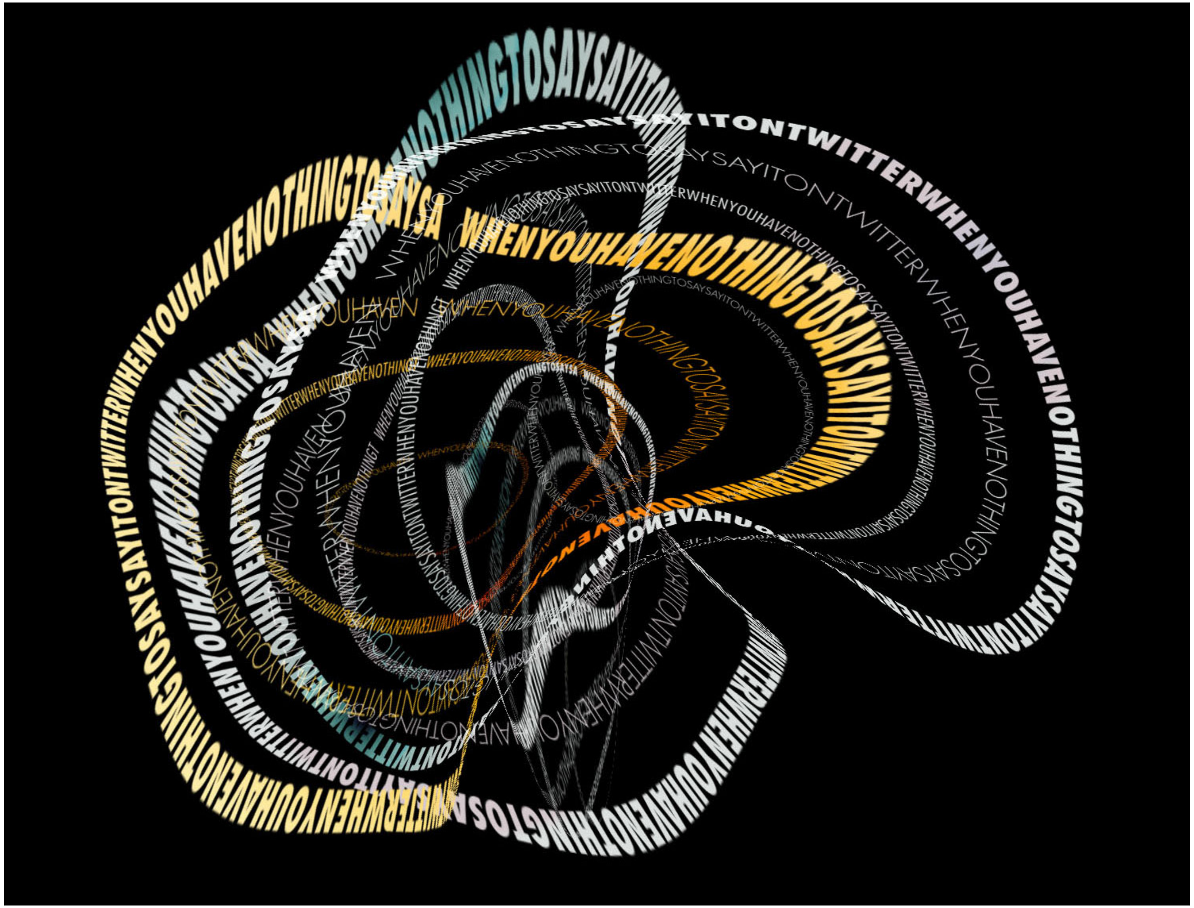
KINETIC TEXT

In non-verbal communication, the absence of emotional indication, within plain text, transmitted back and forth through the digital domain, has resulted in the emergence of a solution known as emoticons, that have in fact, added even more abstruseness into an already complex codified and abbreviated language.

To me, this suggests that despite its many communicative advantages, modern technology does not excel in sustaining the fundamentals of written communication, possibly due to its linear and two dimensional treatment of text.

Through my exploration and with the help of kinetic typography, I was planning to find a solution to convey emotions, bring simplicity and open up new communicative possibilities within electronic messages.

I began to gradually introduce kinetic elements to static text.



The following portion of research was aimed at developing a way to convey meaning by “folding” signified (message) into a signifier (word, symbol) as a moving, three dimensional form, carried over the digital communicative system as a message.

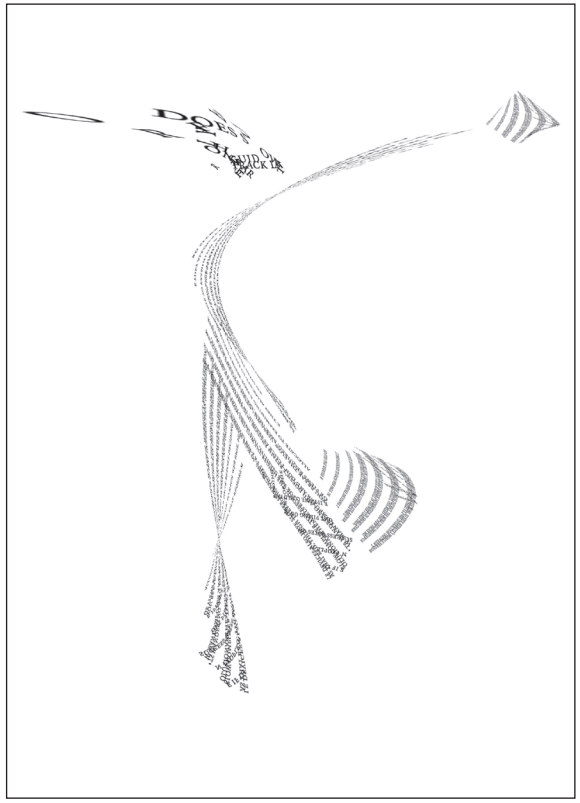
I also wanted the user, by kinetic application of a concept into a symbol or word, to be capable of constructing his or her own visual identity, which would reflect feelings, intentions and emotions.

I was examining whether or not kinetic typography was the correct direction to take for improving the missing paralingual factor of oral speech within instant messaging.

I questioned how the traditional elements of typography can be utilized, by employing user controlled text within digital communicative systems, to help deliver complex meaning in a condensed form.

Can we utilize kinetic typography to create a personalized visual identity, which could be used within social networking & instant messaging technologies?

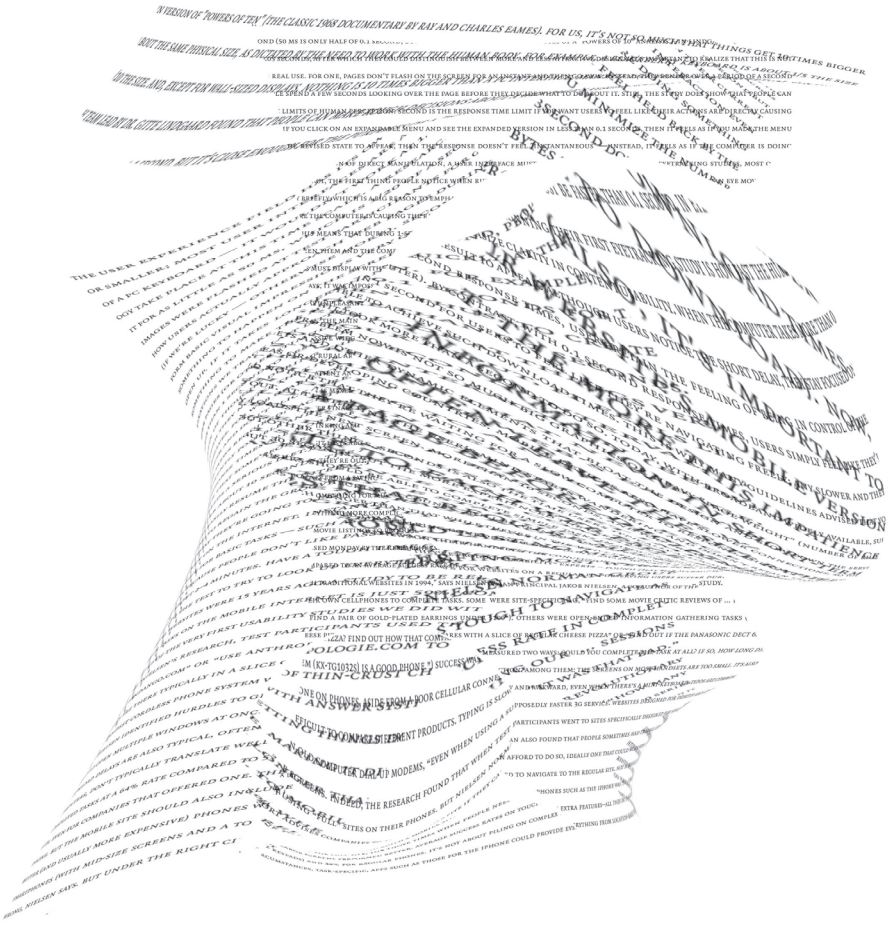
Would the development of new kinetic typographic characters aid visual communicative expression in electronic messages by providing consistency and clarity, which therefore would allow the ability to extract meaning quickly from symbolic representations of language?



KINETIC TEXT|POTENTIAL BENEFITS

One potential benefit of the proposed concept of kinetic symbols, is the solution that it could provide for the hearing impaired community, as an aid to overcome the linguistic barrier that they often encounter.

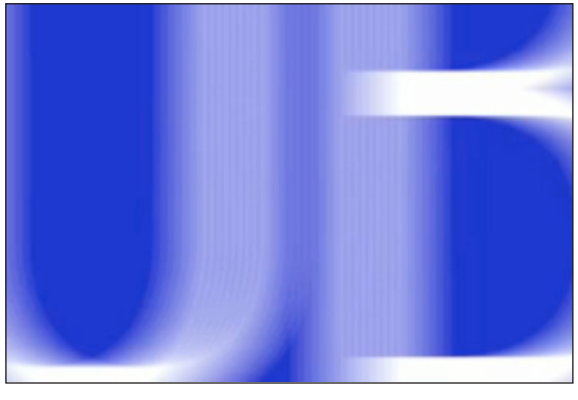
Since text messaging has, to some degree, liberated this community from being limited to the use of a telecommunications device and has helped provide them with more of a feeling of independence, I saw an opportunity to help them communicate with others on a much deeper emotional level by visually communicating an otherwise lacking paralingual factor of oral speech.



I was researching various work by artists such as John Maeda, kinetic projects from Carnegie Mellon University, Russian Constructivism, Wassily Kandinsky and various animated movie titles.

The question I was constantly asking myself was, what is the reason behind animating text. I agreed that animation was providing an emotional factor and could possibly open up some new communicative possibilities, yet, I was not convinced whether this kinetic approach was the right way to bring clarity to electronic communication.

KINETIC TEXT



F19. CM University, *Generation and Application of Affective, Animated Text*

F20. Roy Lichtenstein, *Sweet Dreams Baby*

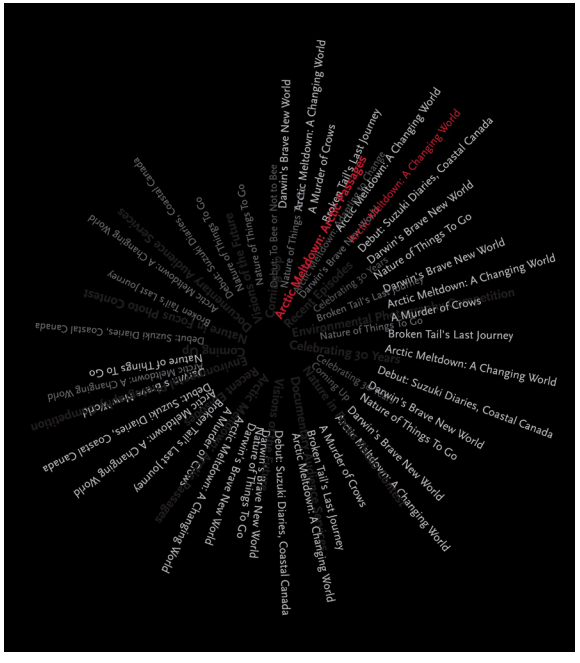
F21. Emoticons

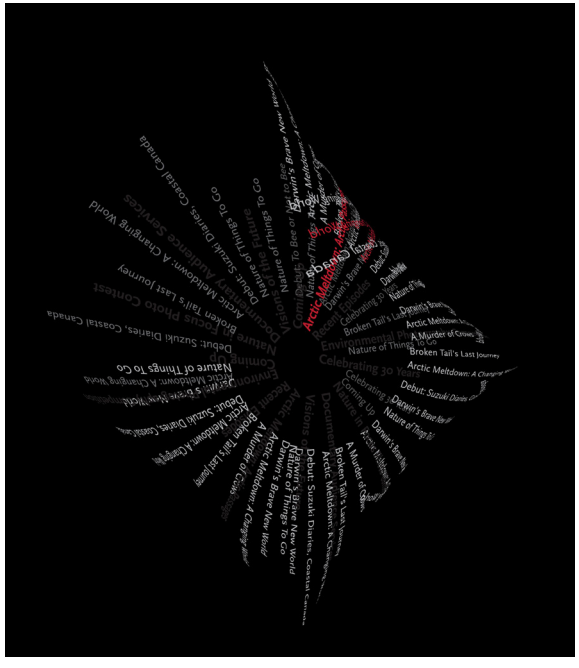
Visual References

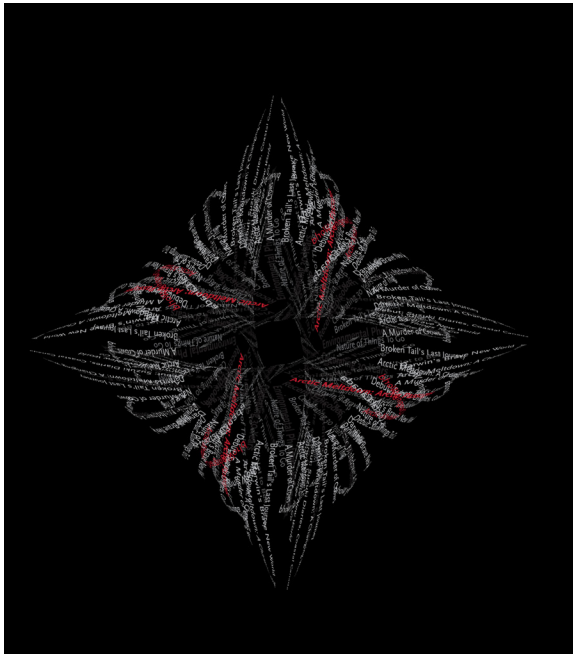
KINETIC TEXT

F22. Vladimir Mayakovsky, *For The Voice*

Visual References





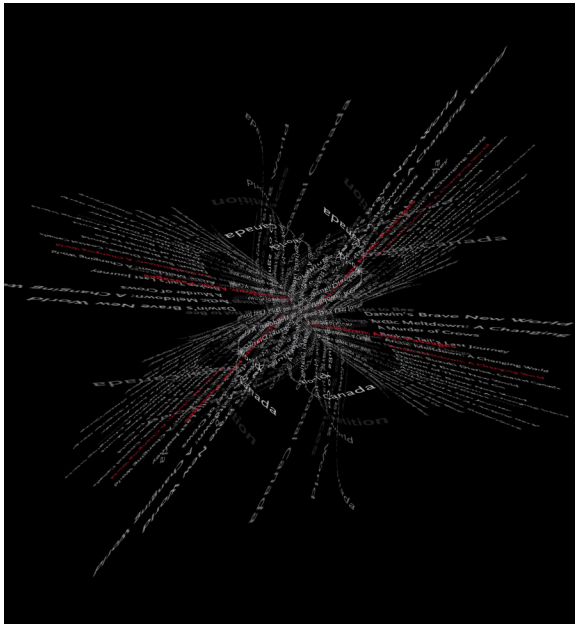


MOTION|STORYBOARDS

In the next phase of my research, I wanted to continue exploring kinetic properties of text, but I wanted to delve deeper into my original idea of combining linguistics with typography.

Secondary Explorations

VISUAL CONTENT



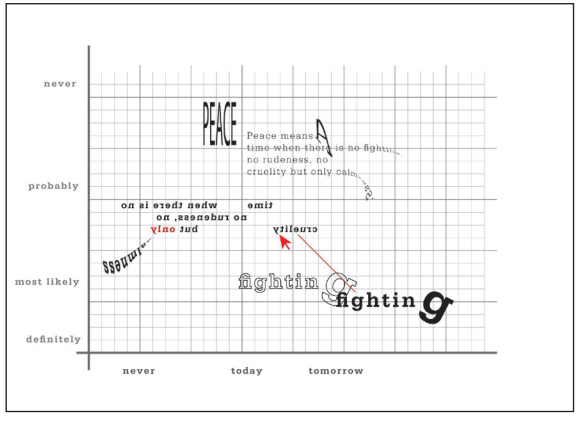
Note:
These are selected steps from the storyboard.

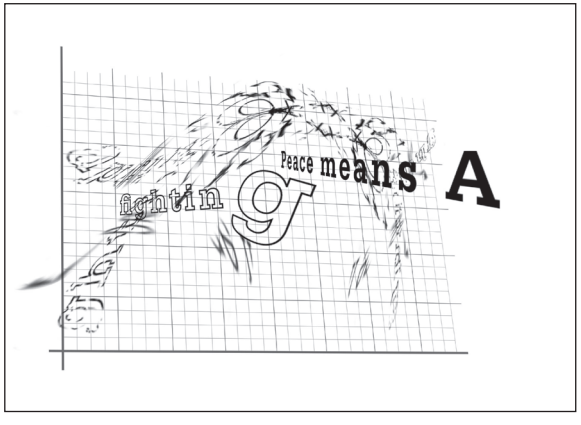
I began to research people's internet habits to see how they read and relate to language in our technologically dominant environment.

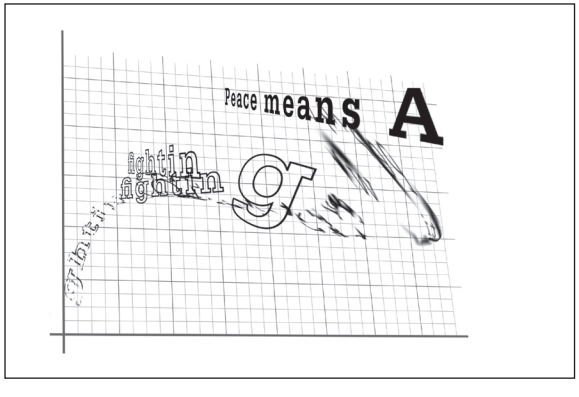
I created storyboards to understand at what point legibility is compromised by moving text. I wanted to try and navigate through text.

Secondary Explorations

VISUAL CONTENT



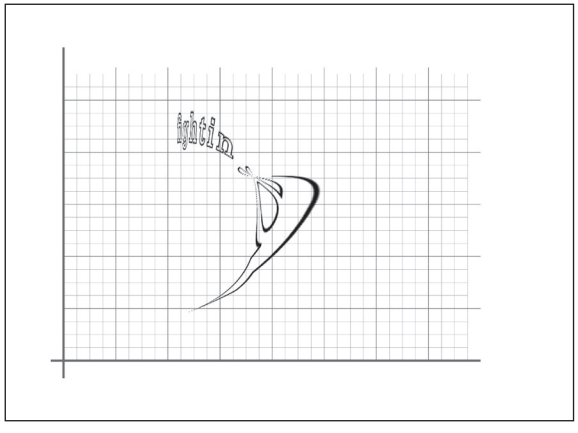


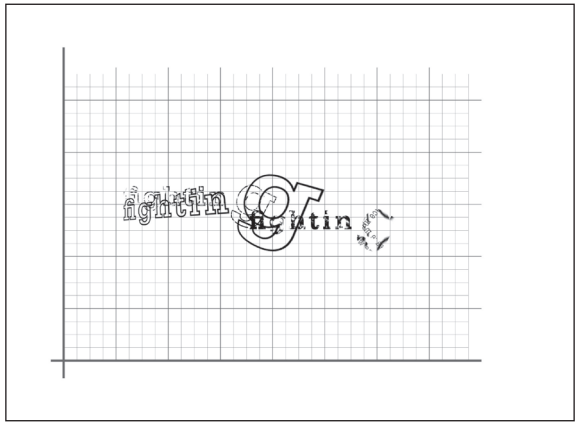


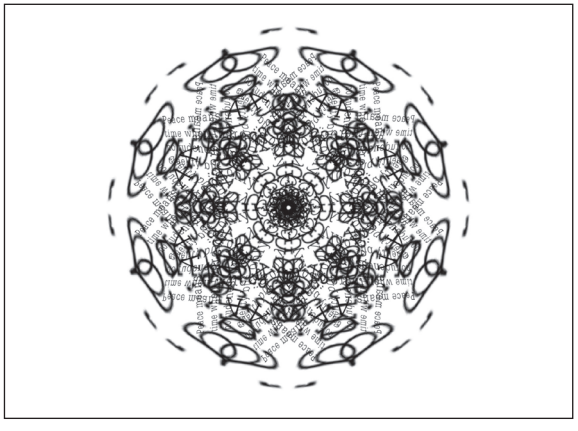
INFORMATION|STORYBOARDS

While reading various writings about people's internet habits, I discovered that due to the universality of text on the Internet, and the prominence of text-messaging on cell phones, people are reading more today than they did in the past, but it is a different kind of reading.

Internet users's communicative habits suggest some difficulty to comprehend or write long paragraphs, as well as the development of quick text "scanning" tendencies (rapidly moving from one source to another and rarely returning to







any source they had previously visited), “bouncing”, and “flicking” activities.

I developed storyboards for informational graphics, that would potentially help to navigate through a large volume of text.

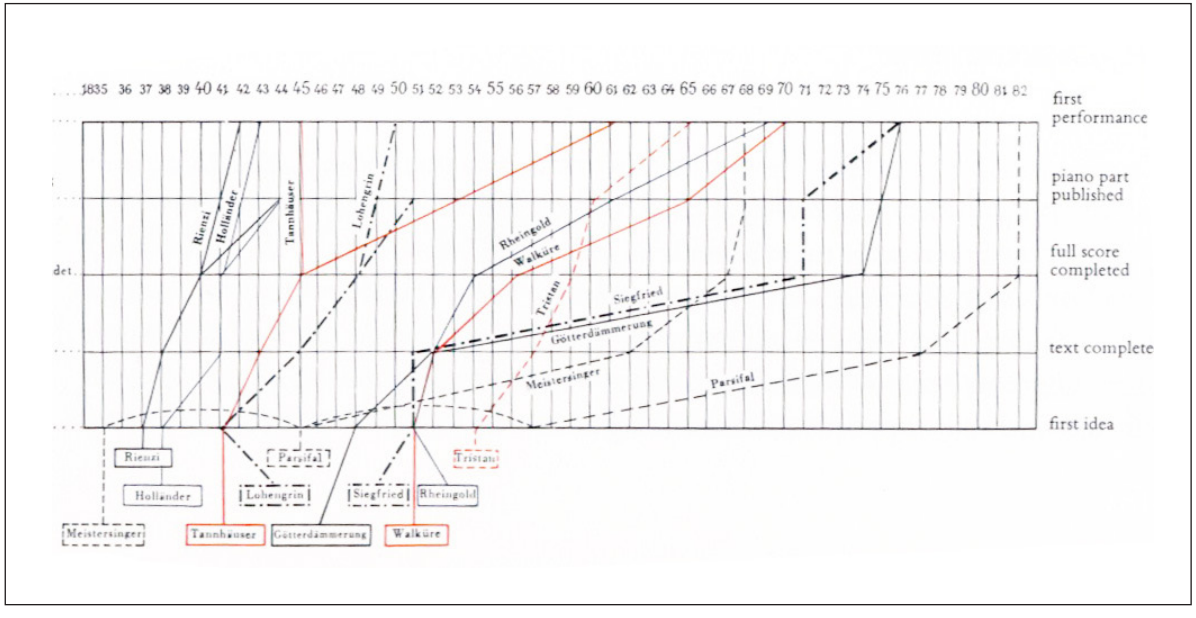
I tried several variations to see if a solution could be found, in which only the desired selective information could be retrieved from a large and complex text.

This approach, abstractly, was intended to prevent a user from having to view pages that do not have the desired relevant content for that particular user, which would therefore eliminate “scanning”, “bouncing”, and “flicking” activities, during which no information is properly comprehended or processed.

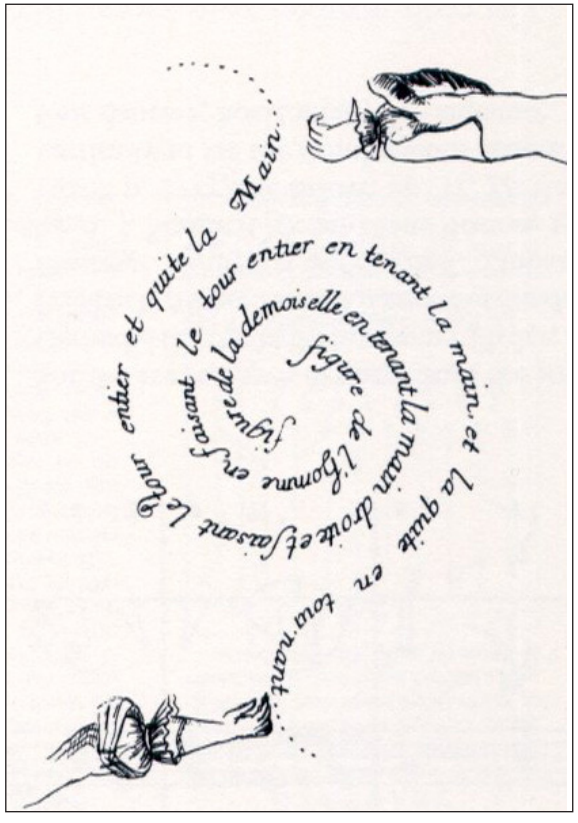
Secondary Explorations

VISUAL CONTENT

INFORMATION, TIME AND SPACE



F23.Ludwig Strecker, *Richars Wagner als Verlagsgefährte*

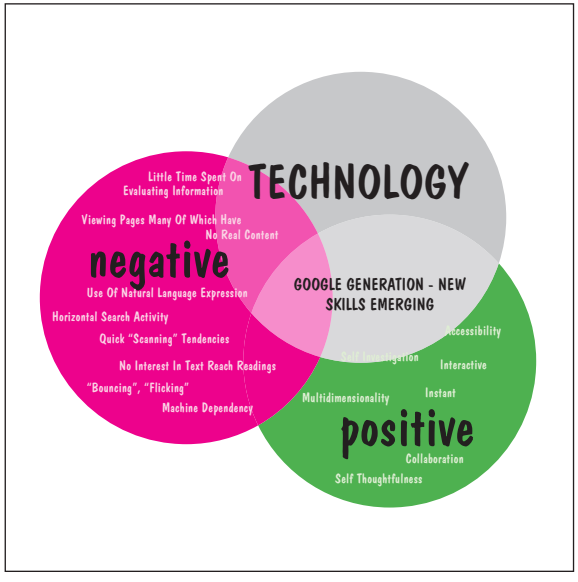


F24. Pierre Rameau, *Le Matre à Danser*

Visual References

SCHEMATICS "B" AND "C"

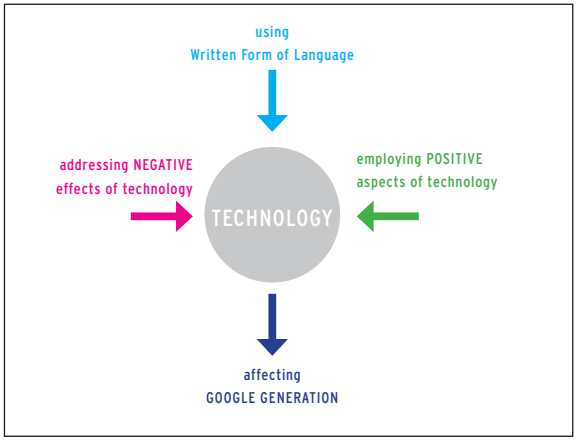
Investigating how technology has changed people's behavior, I came to the conclusion that despite the fact that everyone is affected by technology, it is in fact children, ages 10 to 12, who were born after 1993 and growing up in a world where the Internet is fully established, who are the ones most susceptible to its negative effects.



Studies show that children's developing cognitive skills are being compromised due to a constant exposure to technology.

Studies also suggest that children are developing new skills from this exposure, which could be used to benefit their cognitive development.

This figure shows both positive and negative attributes of technology as well as its effect on children's cognitive abilities.



PARADIGM

Research shows that as a generation that grew up in a complex and interactive environment, the Google Generation (children born after 1993, aka GG) is a versatile generation that is in need of a new learning methodology, which would sustain its unique characteristics, like multidimensional visual-spatial skills, learning “on-the-go” (learning while exploring an unfamiliar environment) and fast response to stimulation.

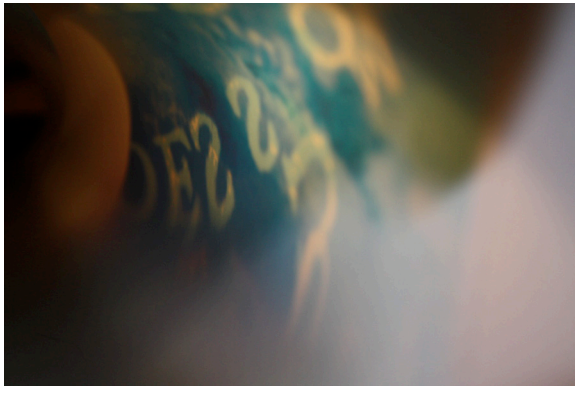
However, left on their own and not properly developed, these characteristics could end up having a more negative impact on a child’s development, like difficulty concentrating, slowing down the learning process.

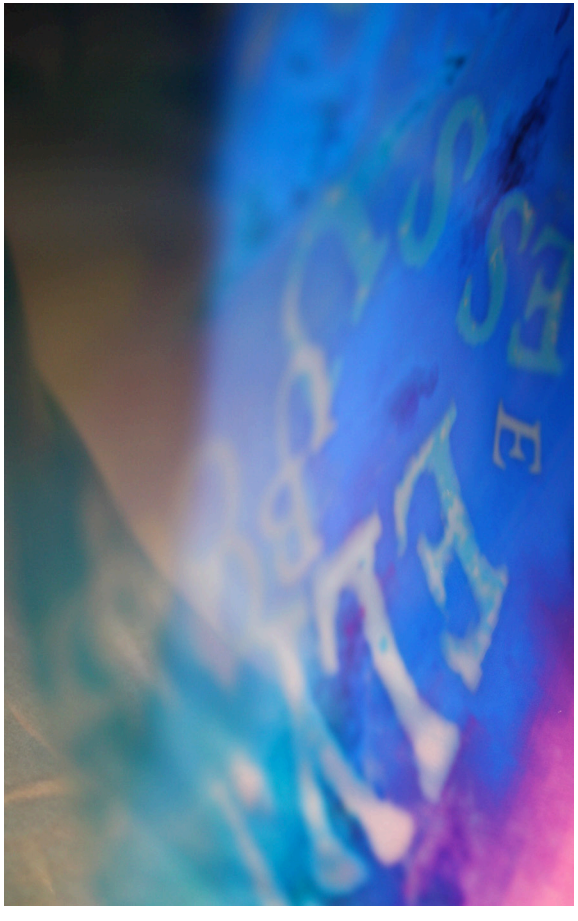
Research also indicates that North American students in the traditional educational system are experiencing a significant decline in their GPA’s because the system does not take into account the technologically dominant environment these students are subjected to. This environment has altered the GG’s cognitive development, which has resulted in students’ inability to be engaged with an outdated learning system.

There are studies, which suggest that students are not the same kind of students our traditional educational system was designed for. Today’s students understand and process information differently from their predecessors, for whom the current educational system was originally developed.

I came across different learning theories that point to the value of gaming principles implemented into teaching methods as a solution for GG’s versatile intellect, since the traditional learning system is not as engaging for them any more.

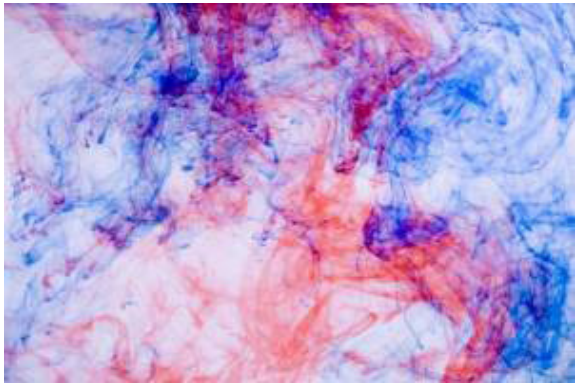
Thus, I have decided to create an interactive environment, which would serve as a tool for an independent semantic exploration within language. It would allow students to engage their intuition, empathy, logic and curiosity and help to sustain their unique characteristics while learning language.

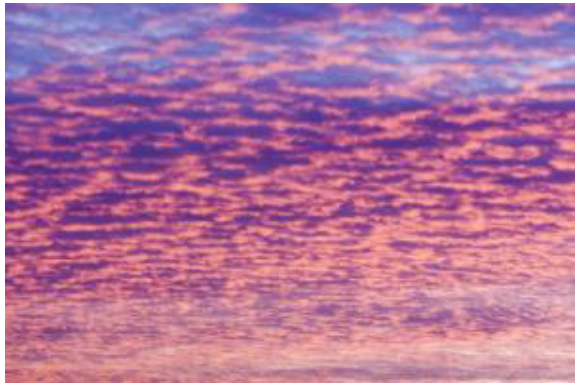


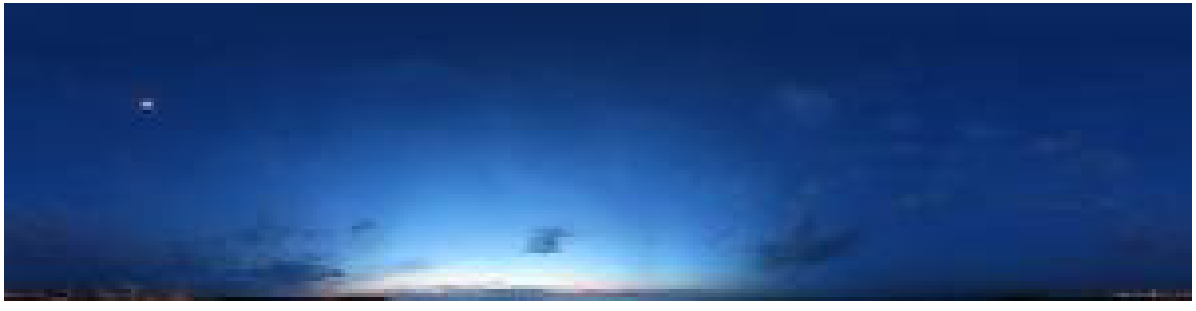


The following explorations were intended to develop a visually ambiguous, inviting and interactive environment.

This particular work was aimed at evoking curiosity and was meant to visually stimulate students, while leading them into a semantic exploration.

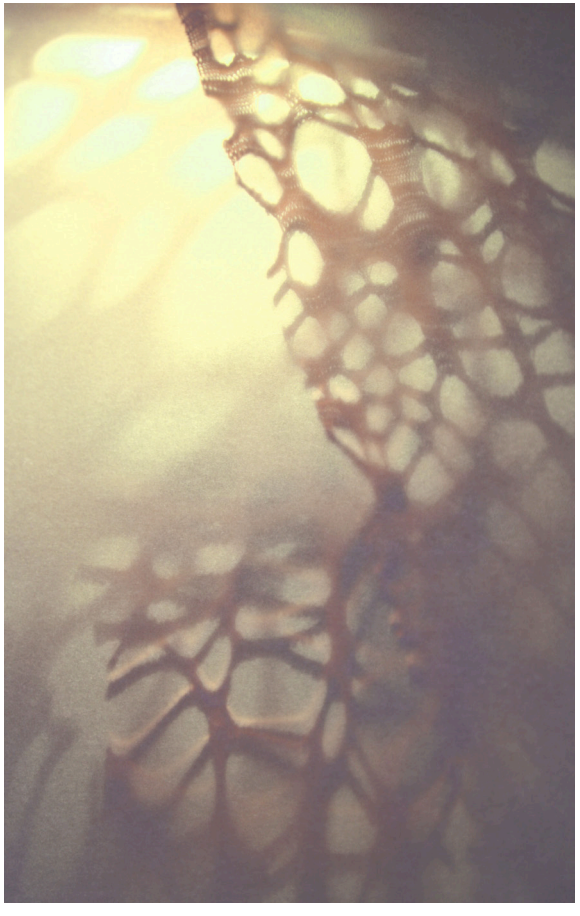


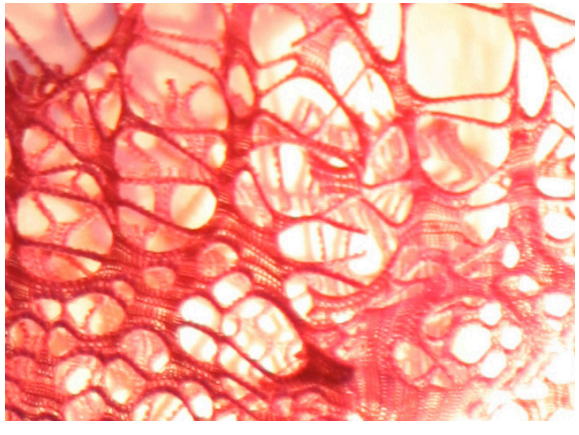




F25. Textures for Inspiration

Visual References

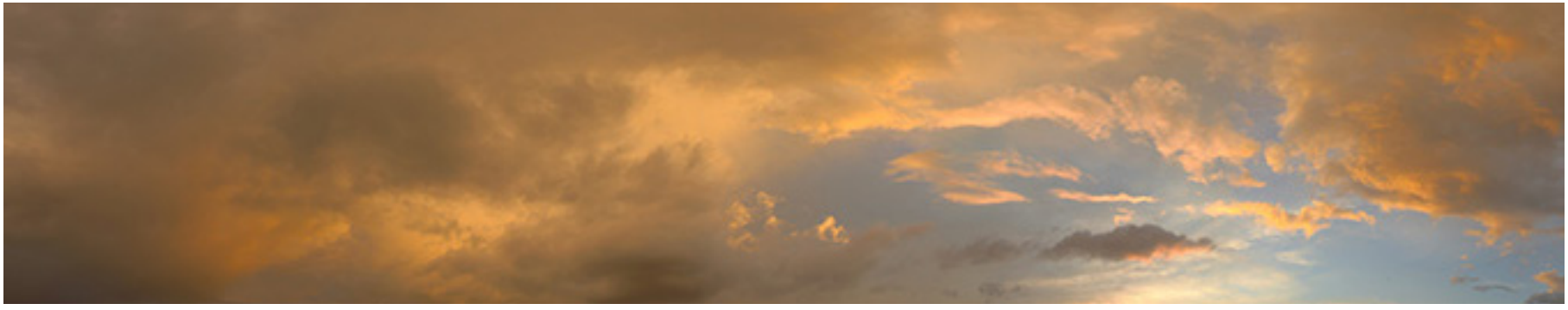




CELLS|UNDERWATER

By creating a cell structure within an underwater environment, I have attempted to evoke students' intuition and spatial navigation skills. This exploration was partially inspired by Char Davies' *Osmose* interactive installation, in which a participant uses principles of diving, like using breathing techniques to ascend or descend in water. The way Char Davies merges a "body" with computer code and virtual reality, was also of interest to me.

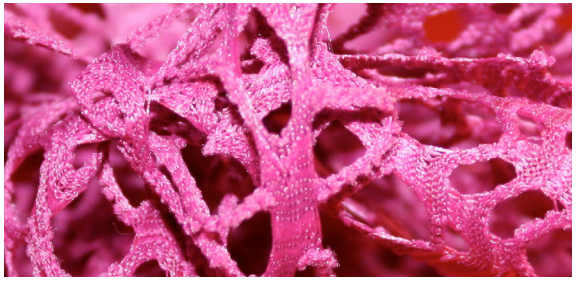
I was trying to determine what elements students would like to explore? How would typography fit in this realm?



F26. Textures for Inspiration

F27. Textures for Inspiration

F28. Charlotte Davies, *Osmose*



F29. Cells Pattern

CELLS AND UNDERWATER

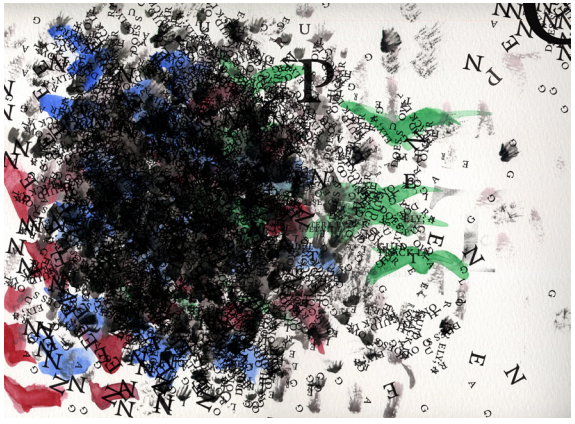
PARADIGM|TEXT

Other explorations focused on implementing text into the paradigm to evoke different feelings.

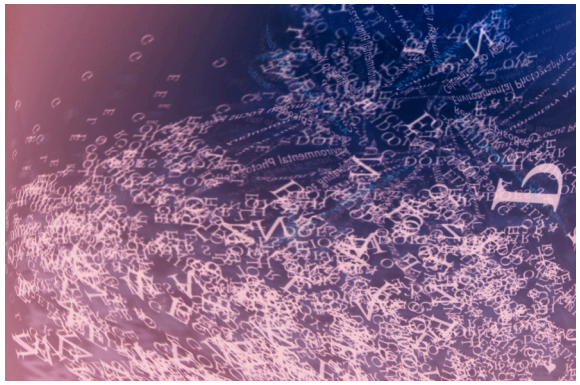
PARADIGM|TEXT|COMPLEXITY

This particular exploration was investigating text as the inhibitor of a realm. Legibility was an aspect of my inquiry.

For more ideas, I went back to my preliminary sketches and revisited some of the early probes that I had done. I started by revising this particular sketch:

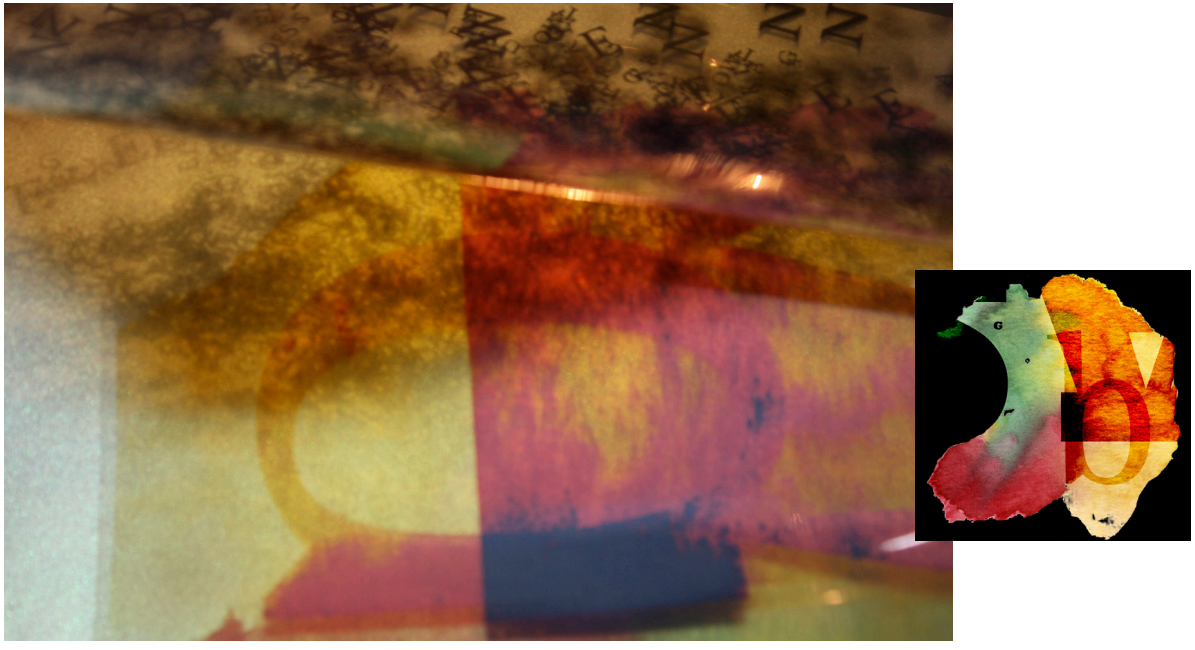


Which led to these series:



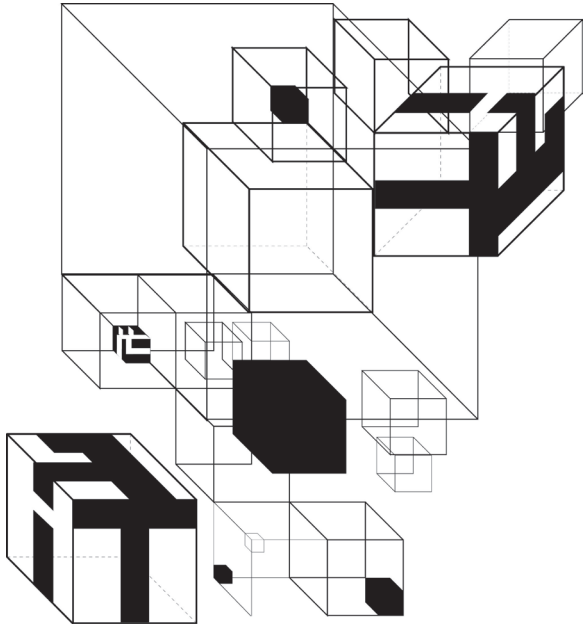
Secondary Explorations

VISUAL CONTENT



Although I was quite content with the end result after revisiting my old material, I strongly felt that something important was missing from all this newly produced visual analysis.

What was missing was the method, or the mechanics, for which one would actually learn language in this semantic realm. I had to decide how to improve the language learning process by using the language itself, as the subject of an interactive environment.



LANGUAGE|MODULES|
RUBIK CUBE

The next phase of my thesis research exploration was to find a method for creating an interactive domain, by employing typographic elements to communicate fundamentals of language.

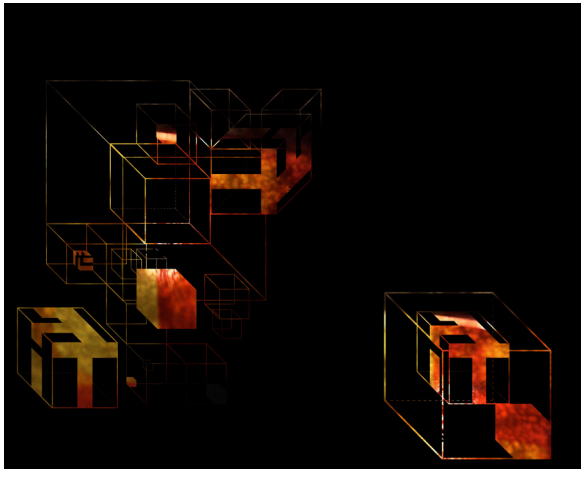
I was having difficulty combining the domain with the process of language exploration. I could not envision the mechanics of how it would work.

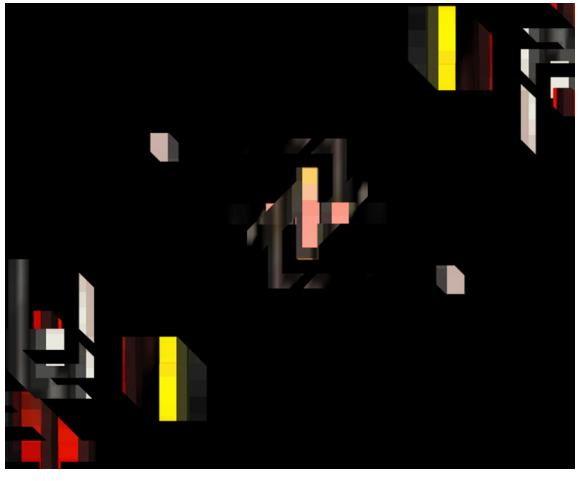
I created some probes, aimed at developing interactive features of typographic elements. To help myself move forward, I compiled compositions, theoretically navigating which one can access different language related activities.

Using modules, and the principle of a rubik cube, I wanted the user to be able to move within the space by arranging different elements together in a logical pattern.

The question that arose, was how to integrate this probe with the visuals that I have already created and wished to employ for my project.

One way of integrating these ideas, was blending this method with more colorful environments, like stained glass and mosaic artworks. This led me to discover the absence of another key element that was missing in both my visual and theoretical researches.





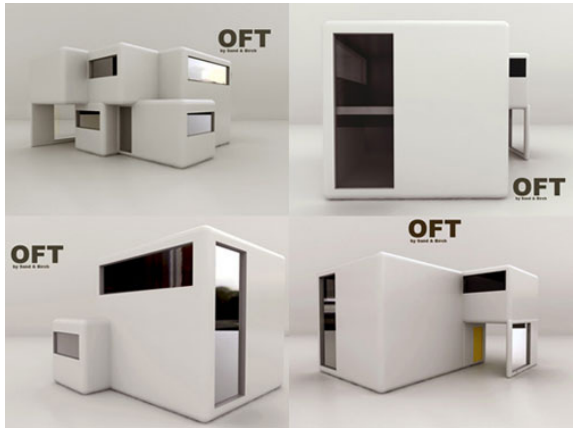
BODY|CONTENT

At this stage, I decided to divide the visual components of my domain into two parts: the “body” – the host of the language activity, and the “content” – the language activity itself.

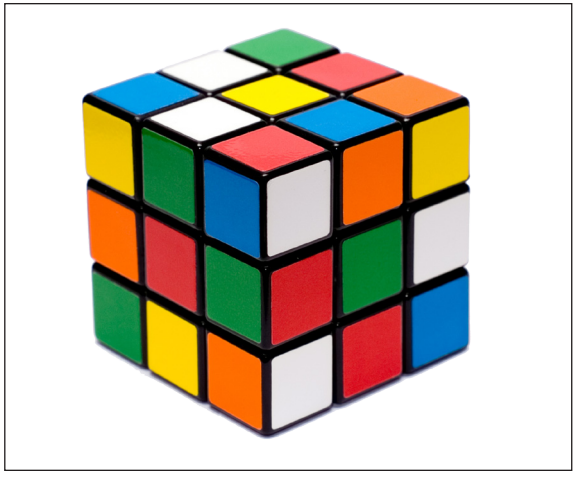
I was not clear on whether both components should be interactive, or if only the “content” part should be.

I brainstormed as much ideas as I could, through “hits” and “misses”, in order to achieve a more solid and clear understanding of how to create the interactive language domain I envisioned.

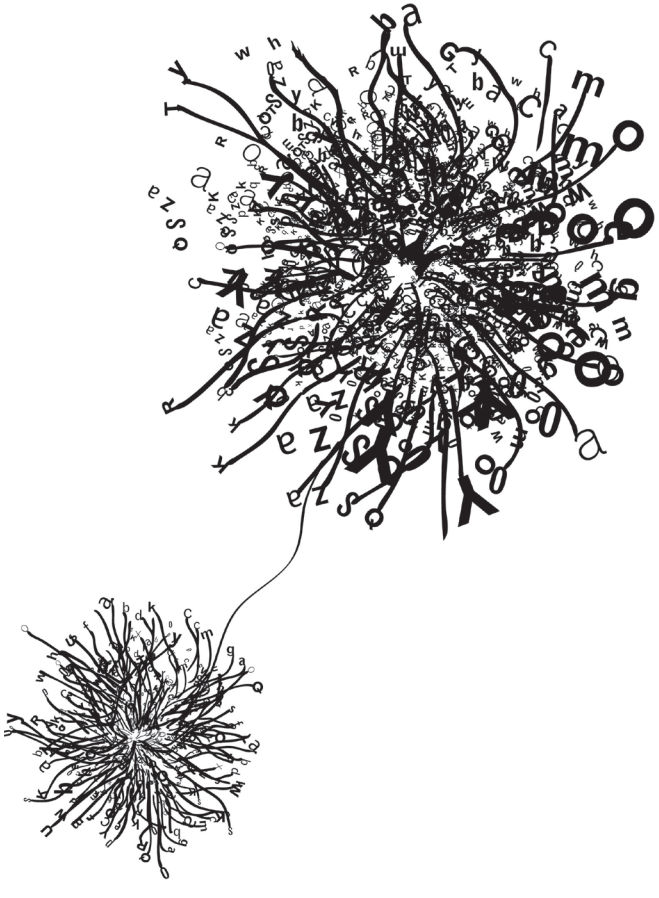
MODULES, RUBIK CUBE

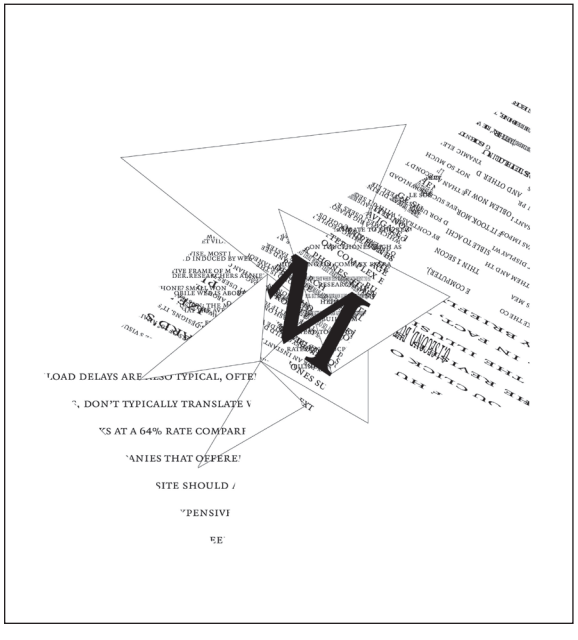


F30. Cells Pattern



F31. Rubik Cube





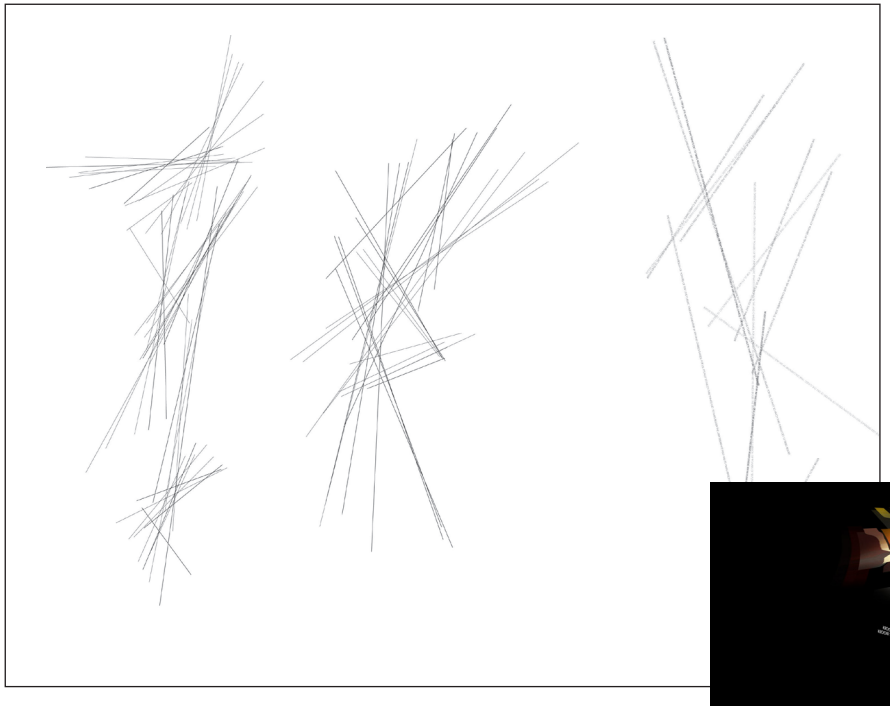
LANGUAGE|TRIANGLES|ORGANISM

More visual investigation resulted in informational triangles containing text and unfolding as if the user was moving each triangle sideways.

I also played with this same idea by creating an organic looking “organism”. This organic text exploration posed some potential for further study.

Most Recent Explorations

VISUAL CONTENT



LANGUAGE|TREE|
DIGITAL PARADIGM

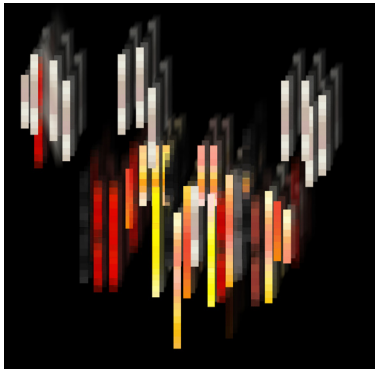
The organic text formations evolved into something that looked “tree-like”, with multiple “branches”. Theoretically, each “branch”, upon being touched, would create more “branches”, ultimately resulting in the growth of more text.

Still speculating about the idea of paradigm division, I concluded that a “tree” could only serve as part of the “content”, and I had to find the appropriate “body”.

The experiments with the “body” have resulted in a digital looking paradigm.

After this result, I now felt that none of these explorations had been

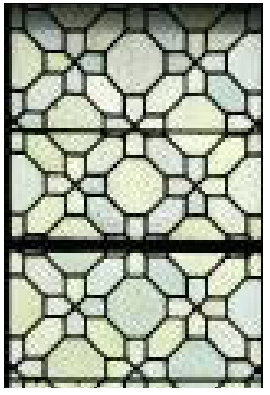
representing my target audience, who were children. These explorations would appeal more to a mature audience, not middle school students.

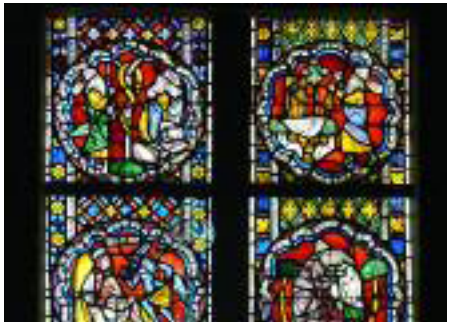


Most Recent Explorations

VISUAL CONTENT

MOSAIC, STAINED GLASS



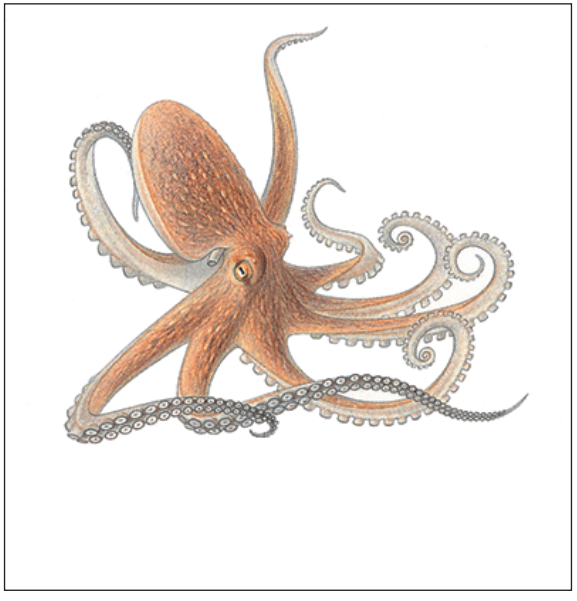


F32. Textures for Inspiration

Visual References

ORGANIC

F33. Textures for Inspiration



F34. Octopus

F35. Tree Branches

Visual References

LANGUAGE|ORGANISM

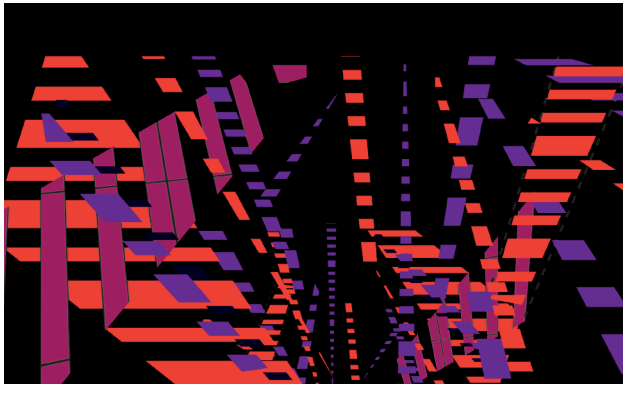
After completing all of these explorations, I realized that I needed to learn more about children's visual preferences for interactive interfaces.

This is where I would direct my research next.

ORGANISM

F36. Textures for Inspiration

Visual References



Side A

Side B

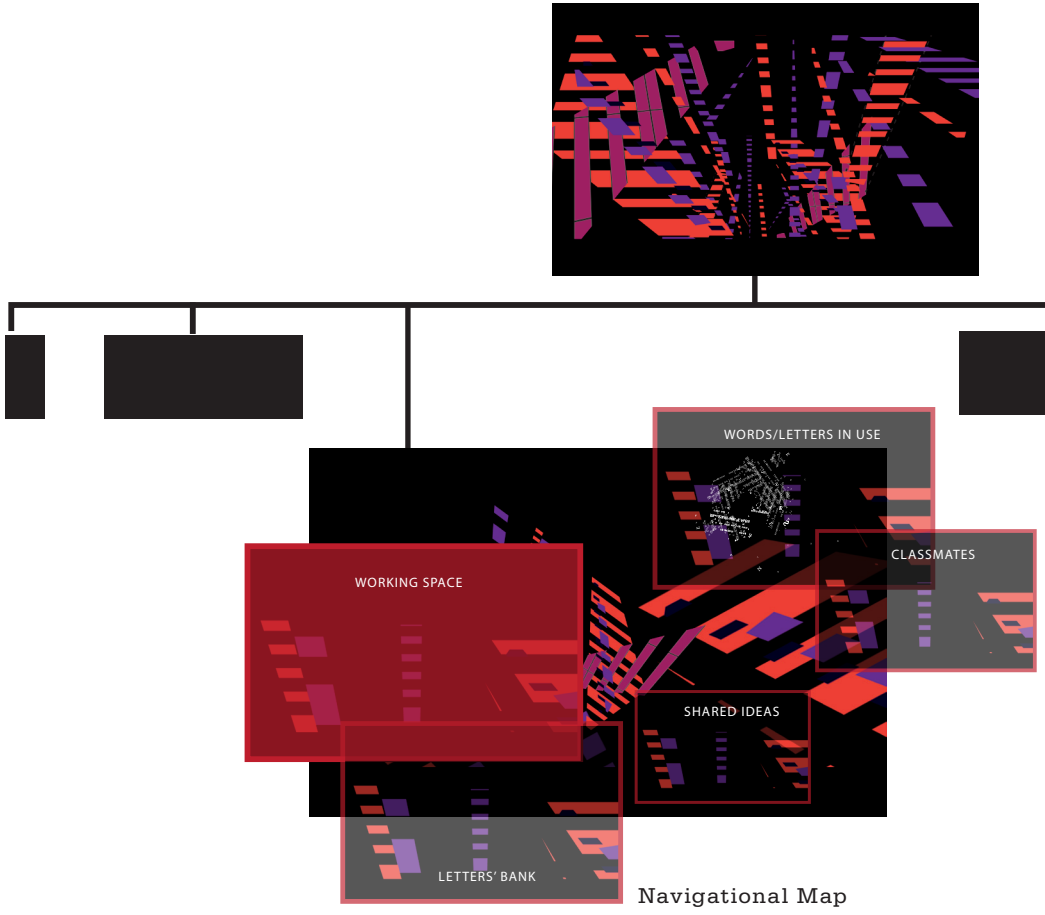
Side C

INTERACTIVE INTERFACES

I began to work on the Interactive Interface of the domain. At this stage, I decided to keep the kinetic part of the domain to a minimum, to eliminate unnecessary visual stimulation and readability issues.

In this exploration, I used colored bars to act as placeholders for future text. Students would be able to rotate the whole structure, in multiple directions. Each view will represent a different language learning activity.

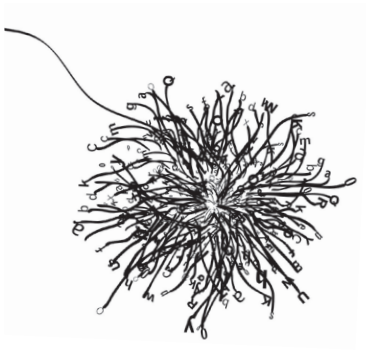
After researching different cognitive theories, a language acquisition

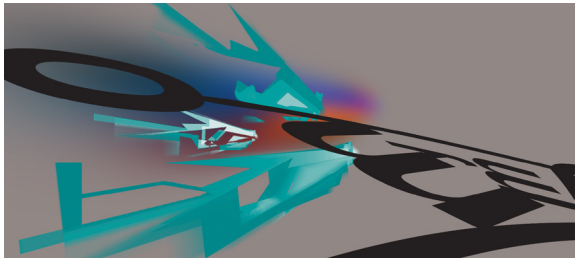


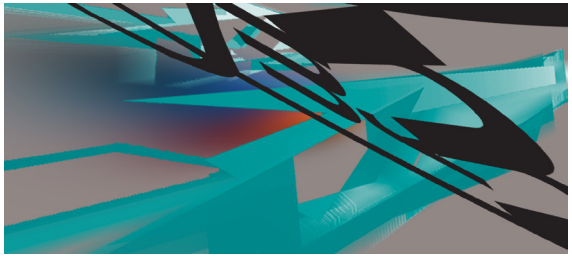
Navigational Map

theory, and looking at grades 4–6 school curriculum material, I came up with 3 language activities, one of which would most likely be employed in the domain. I concentrated on the following topics: Exploring Language With A Narrative, Exploring Language by Learning New Words and Exploring Language with Grammar.

I also worked on the navigational map to help visualize the logistics of the domain and integrate all of the elements into one working unit.



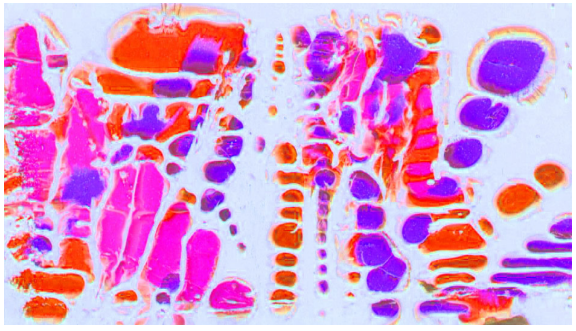


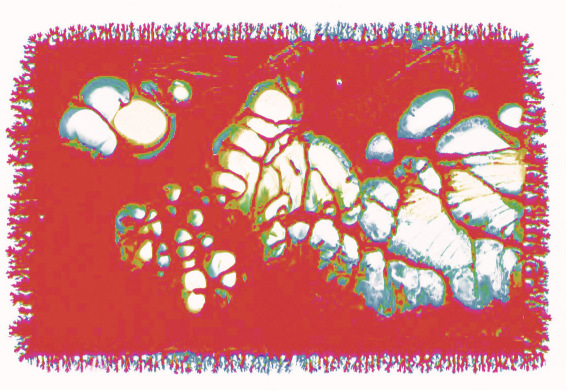


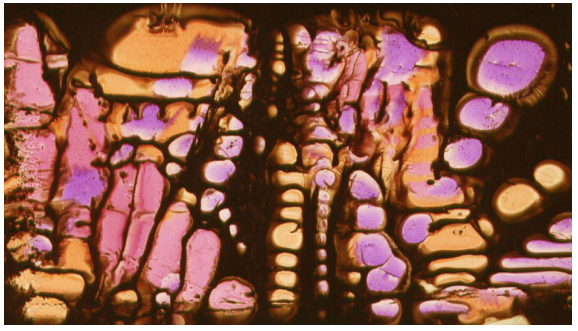
This is another visual and navigational exploration, which combines the previously designed “organism” element for moving letters.

I also experimented with the 3D rotation aspect and legibility of text.

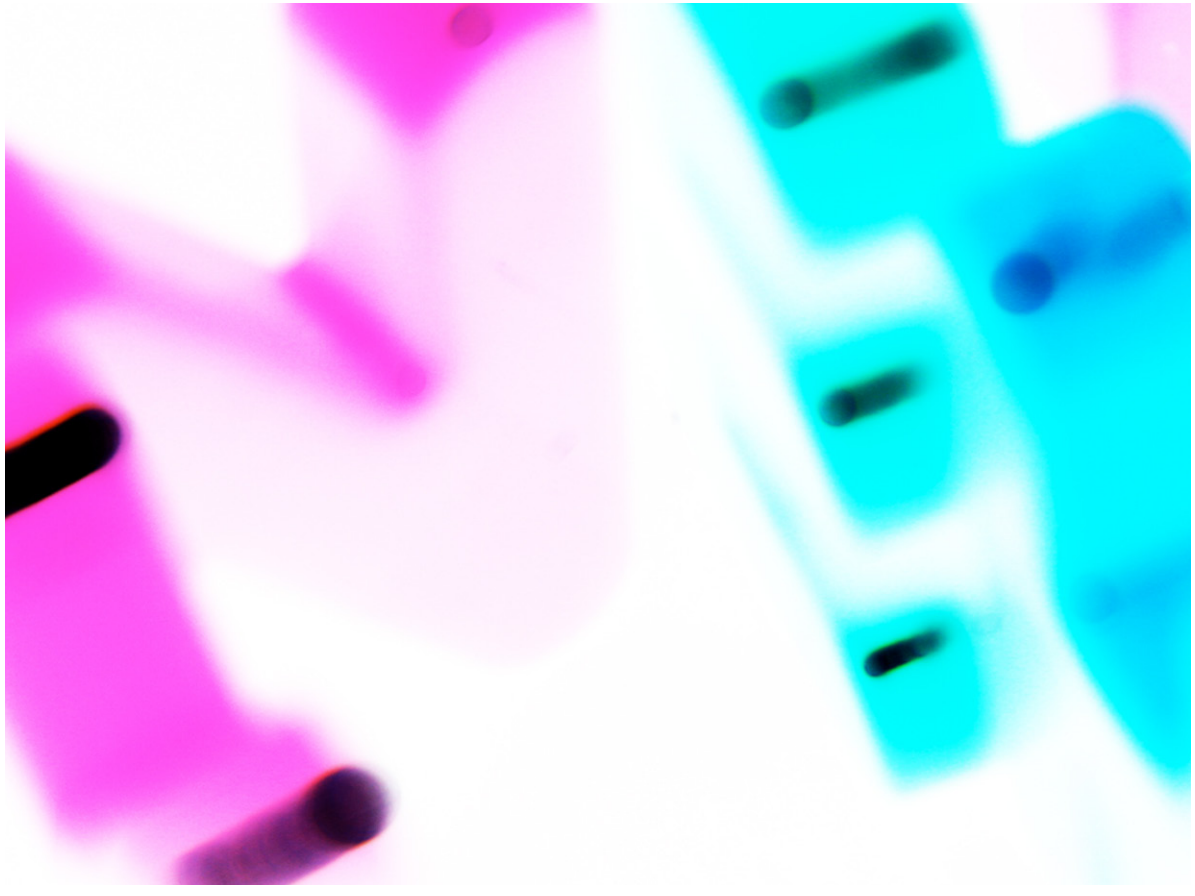
LANGUAGE ACTIVITY AND MECHANICS







F37. Patterns



CHILDREN'S INTERFACE DESIGN

These explorations arrived after researching children's preferences in interface design and web portals.

Studies indicate that elementary school children possess strong preferences towards bright colors, clear representative icons, simple instructions, and a non-overwhelming kinetic approach.

It also suggests that students within the range of grades 5–6 are particular in regards to type face, with legibility being most important.

Most Recent Explorations

VISUAL CONTENT

F38. Letters

In conclusion, I believe that my first year of Master Thesis Research has been a success. After a long journey, I feel that I now have a solid ideation of my primary thesis question, which is:

Would a visually stimulating and interactive goal-oriented environment that could produce instant outcomes and feedback, aid a profound and motivated language learning experience for the Google Generation?

ENVISIONED CREATIVE OUTCOME

My research will result in a creative outcome in the form of interactive, typography-based, English language explorations.

My conclusions will manifest in the semantic paradigm, which would engage the Google Generation with an alternative English language learning process, and provide a visual example to support my research findings.

Aimed at providing a new learning environment, which is more suitable for the generation growing up with technology and who have developed different thinking patterns from those of previous generations, the final designed product would serve as a model of a new educational approach for Language Arts study.

The successful outcome will not only have the potential to improve students' unique cognitive abilities, but also constitute their understanding of language as a method of communication, and most importantly, a reflection of cultural and historical heritage, therefore resulting in proper language use and its preservation.

Wassily Kandinsky

F1 “Painting with Three Spots”. 1914 year
Oil on canvas, 120x111 cm
Madrid. Collection Thyssen-Bornemisza
F2 “Red spot II”. 1921 year
Oil on canvas
131x181 cm
Munich, Stadtische Galerie, Germany

Cognitive Load

F3 Site – www.zappos.ca
F4 Site – www.heavenworks.com

Complexity

F5 Textures – www.cgtextures.com/

Early Writing

Drucker, Johanna, McVarish, Emily.
Graphic Design History: A Critical Guide
Prentice Hall. 2008
F6 Hebrew Script – www.michaellanglois.fr
F7,8 Devanagari and Aramaic Scripts – www.linotype.com, www. catholicapologetics.org
F9 Dipylon vase, 730–720 BCE. Greek inscription
F10 Inscriptions from the Temple of Minevra at Prienne, third century bce
F11 Development of alphabetic letterforms

New Forms Of “Language”

F12 Twitter Abbreviations - www. twitter.com
F13 Leet Speak – www. virtu-software.com

Variations

F14 Piet Mondrian, Composition with Yellow, Blue, and Red, 1921, oil on canvas, 72.5 x 69 cm, Tate Gallery. London. http://www.ibiblio.org/wm/paint/auth/mondrian/ryb.jpg
F15 Tufte, Edward R. *Envisioning Information*. Graphics Press. 1990. Redrawn from Oliver Byrne, *The First Six Books Of The Elements Of Euclid*

Cognitive Load And Geometric Patterns

F16 Wolfram, Stephen. A *New Kind of Science* Wolfram Media. 2002.
F17 Ants – http://www.utexas.edu/features/archive/2004/graphics/ants1.jpg
F18 Textures – http://www.cgtextures.com/

Kinetic Text

F20 CM University, Generation and Application of Affective, Animated Text Samples, http://www.cs.cmu.edu/~johnny/kt/
F21 Roy Lichtenstein, Sweet Dreams Baby, 90.4x65 cm, http://www.artnet.com/artwork/425945309/496/roy-lichtenstein-sweet-dreams-baby.html
F22 Vladimir Mayakovsky, For The Voice, 1923
F23 Emoticons – www.knowyourmeme.com

Narratives Of Time And Space

Tufte, Edward R. *Envisioning Information*. Graphics Press. 1990. Redrawn from Oliver Byrne, *The First Six Books Of The Elements Of Euclid*
F24 Ludwig Strecker, Richars Wagner als Verlagsgefährte, 1951, Mainz
F25 Pierre Rameau, Le Matre à danser, 1734, Paris, illustration 84

Paradigm

F26, 27 www.cgtextures.com/

Credits

F28 Grau, Oliver. *Charlotte Davies: Osmose.* In "Virtual Art, From Illusion to Immersion" Cambridge, Massachusetts: MIT Press. 2003
F29 Cells. Photo by Slava

Modules, Rubik Cube
30 OFT Transformable House and plans. http://www.neublack.com/modern-home/oft-transformable-house/
31 Rubik Cube –http://upload.wikimedia.org/wikipedia/commons/3/30/Rubik_cube.png

Mosaic, Stained Glass
F32 Textures – www.cgtextures.com/

Organic
F33 Textures –www.cgtextures.com/
F34 Octopus, http://static.howstuffworks.com/gif/willow/octopus-info1.gif
F35 Dry Branches, http://img1.eyefetch.com/p/qe/938617-79253025-a324-41f9-bd69-aabdd6b0914bl.jpg

Organism
F36 Textures – www.cgtextures.com/

Patterns
F37. Patterns. Photo by Slava

Interface Design And Children
F38. Letters. Photo by Slava

Credits