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The Shape of Poetry: A Typographic Exploration of Poetry and Synesthesia

Boliang Chen

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The Shape of Poetry

A Typographic Exploration of Poetry and Synesthesia

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Fine Arts in Graphic Design

School of Design
College of Imaging Arts & Sciences
Rochester Institute of Technology

Boliang Chen
Thesis Candidate
May 2015
**Thesis Approvals**

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<th>Department</th>
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<tbody>
<tr>
<td>Chief Advisor</td>
<td>Nancy Ciolek</td>
<td>Associate Professor</td>
<td>Visual Communication Design</td>
<td>School of Design</td>
</tr>
<tr>
<td>Associate Advisor</td>
<td>Bruce Ian Meader</td>
<td>Professor</td>
<td>Visual Communication Design</td>
<td>School of Design</td>
</tr>
<tr>
<td>Associate Advisor</td>
<td>Chris Jackson</td>
<td>Professor</td>
<td>Visual Communication Design</td>
<td>School of Design</td>
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<tr>
<td>Administrative Chair</td>
<td>Peter Byrne</td>
<td>Professor</td>
<td>School of Design</td>
<td>College of Imaging Arts and Sciences</td>
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Professor Chris Jackson

Rochester Institute of Technology
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Abstract
Abstract

The Shape of Poetry is a thesis which explores the relationships of synesthesia, typography and poetry.

Synesthesia is a neurologically-based condition in which stimulation of one sensory or cognitive pathway leads to automatic, involuntary experiences in a second sensory or cognitive pathway. This phenomenon is common in poetry as a rhetorical device. In graphic design, we use typography and other visual elements to make cross-sensory metaphors as well. The similarity among these three provides a new field of research possibilities.

The goal of the thesis is to visualize poetry by exploring typographic variations and implementing synesthesia findings. The final result is a campaign to promote William Shakespeare’s sonnets, in both print and digital applications.

Overall the findings of this thesis aim at giving designers another angle when designing for multi-media platforms, and inspire those who have the similar interests in the relationship of sensory perception and design.

Keywords

Synesthesia, Typography, Graphic Design, Poetry, William Shakespeare, Sonnets
01: Introduction
1.1 Situation Analysis

Almost our entire understanding of the world is experienced through our senses. However, these senses are not on separate tracks. The senses of sight, hearing, touch, smell and taste usually can link with each other to break the limitation of sensory organs. Therefore, color could have temperature, sounds could have images, touch could have weight, smell could have taste.

These situations are usually referred to as synesthesia, a neurological disorder that one sensory stimulus from one sense is mixed up with another. This unusual experience provides neurological researcher materials to discover the profound complexity of how our brain works and how senses interact with each other.

However, synesthesia is never a new concept for most of us. We can easily find examples in our daily life language, like “cool picture”, “warm colors”, “frozen silence” etc. We associate two different senses at the same time to express our feelings in certain circumstance. And most importantly, these sense-combined words can be universally understood. It is so effective that art, especially literary, figuratively used to express a linkage between senses. This rises a question if synesthesia could be used as a metaphorical tool in graphic design.

1.2 Problem Statements

Sight is the most important sense of all. According to a research by Treicher, an experimental psychologist, we receive about 83% of the information from our sight.

However, people today are bombarded with a great amount of unnecessary information. We receive up to 3,000 marketing messages per day (David Shenk, Data Smog: Surviving the Information Glut). People become visually sophisticated and know that what we see is not always what we get. Therefore, creating effective visual communication becomes the major challenge for graphic designers.
The way of communication evolves with the development of technology. Today the information delivery is changing from traditional 2D print media to multiple dimensional cross-media communication. The new challenge requires new graphic design insights.

This thesis attempts to visualize poetry in a typographic language that would visually related to synesthesia and the other senses.

1.3 Mission & Goals

The thesis is a collaborative research and exploration of synesthesia and typography to provide another thought on poetry visualization.

**Thesis goals**

- To give another thought on traditional lyrics publication and sound-typography visualization.

- To develop graphic design research abilities and organization methods of cross-field theories.

- To define synesthesia, especially grapheme color synesthesia and sound color synesthesia, and explore how they could possibly used in visualizing poetry.

- To define typographic hierarchy, and explore its possibility of visual representation of sound and meaning.

- To explore the typographic solutions that might be helpful for language learning, reading and understanding.

- To share research findings with graphic designers and educators who have the similar interests in these areas.
1.4 Precedents

“Auditory perception refers to cross-sensory attributes. Thus, multi-sensory arrangements for art events as well as for product design must be based on qualitative references between the senses. Conscious concepts have often been used to provide a basis for visualizations of music. The results, however, need to be verified with respect to features which can intuitively be understood by the recipients. Music visualizations by Michal Levy and Johannes Deutsch are appropriate examples for that finding.”

### 1.5 Mind Mapping

#### Synesthesia
- What is synesthesia? What are the different types of synesthesia and how does they affect people?
- What is the benefits of synesthesia? How could these benefits be used in helping people reading and understanding poetry?
- How could synesthetic metaphors be used in graphic design?

#### Poetry
- What is the medium of poetry and what can this medium do for poetry?
- How people read and understand poetry?
- What is the shortages of current poetry design?
- What are the sound and musical aspects of poetry and what their influence in poetry design and layout?
- What are the reading theories?
- How does the perception of visual forms translate into sound and vice verse?

#### Typography
- What can typographic design add to the process of reading?
- How can typography improve the process of reading?
- Can the perception and principles of synesthesia be employed in typographic layout?
- Do graphic design principles apply to synesthetic typographic layout?
- What are the typographic variables that can be used in visualizing poetry?
1.6 Survey of Literature

Senses/Synesthesia

*A Natural History of the Sense*
–*Diane Ackerman*
Vintage (1991)

Ackerman investigates the five senses both physiologically and philosophically. The book exams how different senses work and how different culture stimulate the senses. Essays explore synesthesia, food taboos, kissing and diversity of music. This book in total is full of intimate detail of the world.

*Synesthesia: A Union of the Senses*
–*Richard E. Cytowic*
The MIT Press (2002)

Richard’s research demonstrates that synesthesia is brain-based rather than mind-based. He also dives deep into the brain development and neural plasticity, questioning whether everyone is unconsciously synesthetic. The book provides valuable new knowledge of how our brain work and develop.

*Shapes for sounds*
–*Timothy Donaldson*
Mark Batty Publisher (2008)

This book provides an interesting insight of how the letters come into their forms by examining the relationship between sounds and writing.

Graphic Design/Typography

*Feel This: Graphic Design that Feels Good*
–*Scott Witham*
Rockport Publishers (2005)

This is an cookbook of “touch-friendly” design. It provides the examples of how to use different materials including x-ray films, heat sensitive inks, carpet samples and ceramic tiles besides plain paper. Witham tries to show designers the possibilities of unconventional design material and pushing graphic design to a higher level.
Meggs’ History of Graphic Design
–Philip B. Meggs

The book illustrates the comprehensive history of Graphic Design from the invention of writing and alphabets to the current design trends as the technology dramatically changed the landscape of graphic design. The book covers how different graphic design style forms under the specific social background and notable designer across different culture and countries in the history.

The Elements of Typographic Style
–Robert Bringhurst

This book covers almost every aspects of typography, from the individual character design to the entire alphabets, as well as page layouts, footnotes, margins, tables and other typographical elements. Bringhurst writes about how to use the correct typefaces for the projects, how important rhythm, proportion and harmony in designing a good typefaces. He also provides suggestions on how to improve legibility and readability.

Designing with Type: The Essential Guide to Typography (5 edition)
–James Craig, William Bevington, Irene Korol Scala
Watson-Guptill (2006)

As a typographical classic, Designing with Type is a valuable tool for anyone interested in learning about typography. The book starts with the introduction of the written language history, and then investigates five classic typefaces by examining the subtle typographic detail, including letter shapes, spacing and their influence on readability and meaning.

Thinking with Type
–Ellen Lupton

The book demonstrates typography theory with a lot of particle examples of do’s and don’ts. Lupton showcases the very best example of how to correctly use of type, to achieve maximum readability and elegance.
Visual Poetry

**Modern Visual Poetry**

*Willard Bohn*

University of Delaware Press (2001)

The book covers the full range of visual poetry from Futurists to Concrete poets and the Lettrist movement. It presents the fascination work of the Campos brothers, Emmet Williams, Dick Higgins and poets around the world, and shows a vital current in both the art and literature of the twentieth century.


*Crag Hill, Nico Vassilakis*

Fantagraphics (2012)

This book is a great collection of visual poetry around the world from 1998 to 2008. It highlights the interaction of art and language. By examining the latest Vispo work, the book provides materials for poets who interested in this new form of art.

UX/UI

**Observing the User Experience: A Practitioner's Guide to User Research**

*Mike Kuniavsky*

Morgan Kaufmann (2003)

The book provides a clear guide to evaluating user behavior and use patterns and then gives insight on balancing what users do and what site owners would like them to do. This book deepened the understanding of how to evaluate the way sites—or really anything—is used and interpreted and offers practical methods on attaining and measuring data to tweak and refine the work.

**Emotional Design: Why We Love (or Hate) Everyday Things**

*Donald A. Norman*

Basic Books (2005)

The book illustrates how the role emotion plays in consumer purchases. According to Norman, human decision-making is dependent on both conscious cognition and affect (conscious or subconscious emotion). Human reaction to design exists on three levels: visceral (appearance), behavioral (how the item performs) and reflective. The reflective dimension is what the product evokes in the user in terms of self-image or individual satisfaction. Norman’s analysis of the design elements in products such as automobiles, watches and computers will pique the interest of many readers, not just those in the design or technology fields.
02: Research
2.1 Synesthesia Overview

Synesthesia is a neurologically-based condition in which one sense is simultaneously perceived by one or more additional senses. For example, certain alphabets may appeared to be certain colors in the mind; whereas a particular texture may stimulate tastes in the mouth.

Although commonly referred to as a neurological condition, psychologists and neuroscientists study synesthesia not only for its inherent interest, but also hope that it will offer insights to understand the cognitive and perceptual processes that occur in all people. For example, people report synesthetic experiences after taking drugs like Mescaline and LSD. The study of synesthesia has the potential to teach us more about the perceptual systems in general, and furthermore, to understand the consciousness itself.

In relation to art and design, the findings of synesthesia have sparked many remarkable projects in all forms of arts, sound visualization, interactive installations and human interfaces.

Fig 1: Synesthesia Experience
The panel on the left is how a non-synesthete perceives the matrix, while a given synesthete might perceive it like the panel on the right.
2.1.1 Synesthesia Definition & Criteria

The word synesthesia comes from Ancient Greek: syn (together) and aesthesis (sensation), which means a linkage of sensation.

Neurologist Richard Cytowic identifies the diagnostic criteria of synesthesia based on a number of case studies since 1980s:

1. Synesthesia is effortless.
2. Synesthesia is experienced in an external space. They often have a definite location.
3. Synesthesia is simple. The synesthesia perceptions are generic and consistent. They do not go beyond base perceptions.
4. Synesthesia is highly memorable. The synesthetic experiences tend to be stable over the years.
5. Synesthesia is laden with affect.

2.1.2 History of Research

In 1812, George Sachs in his dissertation he first describes his own synesthesia. However, it didn’t rise the attention of the scientific community until Francis Galton, the cousin of Charles Darwin, reported about synesthetes in the 1880s. Following these initial observations, the study of synesthesia preceded quickly. Researchers from England, France, Germany and the United States are all investigating the phenomenon. Mary Calkins, the US scientist, was the one who introduce the term “Synesthesia” at the late 19th century. However, around 1930 the rise of behaviorism gained importance in psychology, which assumed that internal experiences are not measurable. The study of synesthesia was not fit into the scientific approach and gradually waned during the past decades.

In the 1980s, thanks to the study of consciousness and the cognitive revolution, scientists began to exam this fascinating phenomenon once again. Richard Cytowic was the first who began to dedicate with synesthesia research by exploring the reality, consistency, and the frequency. Synesthesia gained more and more importance and interest at the end of the last millennium as other scientists followed with the research. In 2006, the journal Cortex published a special issue, composed of 26 articles on synesthesia. Nowadays, there is a lot of empirical research, such as gathering information of experiment with synesthete and non-synesthete. Synesthesia has also become the topic of numerous scientific books, as well as novels and short films.
2.1.3 Forms of Synesthesia

There are many types of synesthesia depending on the combination of senses. As a one-way projection between any two senses, the x to y notation, where x is the trigger and y is the concurrent, is adopted by the researchers. While nearly every logically possible combination of experience can occur, a ranking of sense combination to be evoked most frequently. Over 40% of individuals combine multiple senses.

There are two most common forms of synesthesia: grapheme color synesthesia (86%, including colored graphemes and colored time units), and sound color synesthesia (14.5%). This thesis will focus on these two types of synesthesia.

2.1.4 Grapheme Color Synesthesia

Grapheme color synesthesia is one of the most common forms of synesthesia in which an individual’s perception of numbers and letters is associated with the experience of colors.

Individuals with grapheme color synesthesia report useful effects in some cases, such as aid in memory or spelling of difficult words. These experiences have led to the development of technologies intended to improve the retention and memory of graphemes by individuals without synesthesia.

Fig 2: Grapheme Color Perception
Grapheme color that people with grapheme color synesthesia might perceive
2.1.5 Sound Color Synesthesia

In sound color synesthesia, individuals experience colors as a response to music and sounds. There are two categories of sound color synesthesia, “Narrow band” and “Board band” sound color synesthesia, which address separately on music and general sounds.

Color changes in response to different aspects of sound stimuli may involve more than just the hue of the color. Any dimension of color experience can vary.

![Fig 3: Composition VIII (Part)](image)

Artwork by Wassily Kandinsky, who is believed to be a sound color synesthete.

2.1.6 How does synesthesia happen in the brain?

In order to understand what happens in the brain during synesthesia, we need to know how the brain processes visual information. When the light reflected from a scene hits the cones, our eye focuses an image on the retina, transforming the stimulus to neuronal signals which are transmitted to area 17, the primary visual cortex located in the occipital lobe at the back of the brain. The image information was then broken down into simple features like color, motion, form and depth, and processed further to other regions in the temporal and parietal lobes.

Take color for example, the information are transmitted to area V4 in the fusiform gyrus of the temporal lobe, and from there to other color processing areas called TPO (for the junction of the temporal, parietal and occipital lobes).

The signal processing for letters and numbers also took place in the fusiform gyrus at early stage, and then processed by the angular gyrus, a part of TPO that is concerned with numerical concepts such as sequence and quantity.
2.2 Metaphors, Artists, and Poets

The neurological basis of synesthesia could help explain some of the creativity of painters, poets and novelists. One study indicates that synesthesia is seven times as common in creative people as in the general population.

Many creative people possess the skill of using metaphor: “And your very flesh shall be a great poem. – Walt Whitman”. A great poem and your body – It seems their brains are making linkage between two unrelated different domains. The seemingly arbitrary links happens in synesthesia where synesthete relates colors to numbers, which we think would be completely isolated realms. As many high-level concepts are anchored in specific brain regions, perhaps this is not just a coincidence.

“If you think about it, there is nothing more abstract than a number, and yet it is represented, as we have seen, in a relatively small brain region, the angular gyrus”, says Ramachandran, “Let us say that the mutation we believe brings about synesthesia causes excess communication among different brain maps—small patches of cortex that represent specific perceptual entities, such as sharpness or curviness of shapes or, in the case of color maps, hues. Depending on where and how widely in the brain the trait was expressed, it could lead to both synesthesia and to a propensity toward linking seemingly unrelated concepts and ideas—in short, creativity.” This may help explaining why the seemingly useless synesthesia gene is still existing in the population.

The research also indicates that we all might have some capacity for synesthesia besides certain artists and this might have set the stage for the evolution of abstraction—an ability at which humans excel. The TPO (and the angular gyrus within it) is normally involved in cross modal synthesis, which plays a part in synesthesia. Our high-level perceptions of senses are constructed in the same brain region.
2.2.1 The Bouba Kiki Effect

Below shows two drawings, originally designed by psychologist Wolfgang Köhler. One looks like an ink spread on paper, and the other, a spiky sharp angled star. When people are asked “Which of the two is a ‘bouba,’ and which is a ‘kiki’?” Data suggested a strong preference to pair the jagged shape with “kiki” and the rounded shape with “bouba”. This phenomenon is also known as phonaesthesia, which unlike synesthesia, is a condition most people have.

The gentle curve of the round shaped figure metaphorically mimic the gentle sound of “bouba”, while the sound of “kiki” and the sharp star matched perfectly to represent visually as a jagged shape. This experiment suggests that the human brain is somehow able to extract abstract properties from the shapes and sounds. We do not know how exactly our brain does the job of linking the sound with the shape, but once the ability to engage in cross modal abstraction emerged, it might have paved the way for more complex types of abstraction.

Fig 4: The Bouba Kiki Effect
98% of people pick the inkblot as a bouba and the other one as a kiki.
03: Process
3.1 Sounding the Visual

The origins of poetry may well reside in sound and song. But the transmission history of poetry depends upon visual forms. One approach to the study of graphic codes within the space of reading can be structured according to the seven graphic variables identified by Jacques Bertin, a French seismologist of cartography.

These variables are:
- Size and/or scale
- Shape
- Value (Gray scale or tonal)
- Color
- Pattern
- Orientation (Directional orientation with respect to the page or frame)
- Placement (Grouping and other relations)

All of these variables may be put at the service of creating a score, trying to produce a visual image of sound effects, or otherwise working through analogy to connect visual and verbal dimensions.

3.2 Visual Variables Analysis

- **Size/Scale**

  The distinction between a title and a poem's body is often marked by a change in size and/or use of capitals/small capitals.

<table>
<thead>
<tr>
<th>Capitals</th>
<th>SONNET 1</th>
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<td>From fairest creatures we desire increase, ...</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Small Capitals</th>
<th>SONNET 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>From fairest creatures we desire increase, ...</td>
</tr>
</tbody>
</table>
• **Shape**

Changes in font or type are immediately striking to the eye.

**SONNET 1**
From fairest creatures we desire increase,
That thereby beauty’s rose might never die,
But as the riper should by time decease, …

• **Value**

A change in gray scale values might be communicated through tone of voice or volume.

**SONNET 5**
...  
To hideous winter and confounds him there,
Sap checked with frost and lusty leaves quite gone, …

• **Color**

Color is rarely used in printing poetry texts, for it seems tricky and decorative. However, color can be an effective to evoke responses tempered by the experience of viewers.

**SONNET 2**
...  
Proving his beauty by succession thine.
This were to be new made when thou art old,
And see thy blood warm when thou feel’st it cold ...
**Pattern**

The textured, patterned letter forms cannot be conceived to derive in any way from sound patterns, but it could possibly help indicating the meaning when used properly.

SONNET 18

...  
Sometime too **hot** the eye of heaven shines,  
And often is his gold complexion dimmed; ...  

**Orientation**

Orientation is another graphic code that does not derive from or lend itself to vocal rendering. But vocal analogy maps onto the visualization does not simply impose an arbitrary relation of sound to sight.

SONNET 12

...  
And die as fast as they see others grow,  
And nothing **time's scythe can make defence**  
Save breed to brave him when he takes thee hence ...  

**Placement**

The placement and grouping also rely on graphic conventions that register to the eye without necessarily having an impact on the sound pattern or structure. Such codes can be rendered in sound values.

SONNET 9

...  
The world will be thy **widow**  
and still weep,  
That thou no form of thee hast **left**
3.3 The Process of Reading

Three types of reading models exist in the scientific literature:

- **Word Shape.**
  The pattern of ascending and descending strokes forms a word boundary. The word is identified by this outline and the context in which it appears. While this model of reading is still popular with some typographers, it is generally considered outdated by most researchers.

- **The serial letter recognition model.**
  A model where words are read from left to right, letter by letter in a serial fashion. This was proposed as a simplified model of reading. The process is similar to a word lookup in a dictionary; one locates the first letter and then proceeds to successive letters until the word is located. This model of reading is considered primitive and outdated by most reading researchers.

- **The parallel letter recognition model.**
  This is the most modern model of reading. The parallel model of reading, which has the most scientific support by modern researchers, suggests that we do not read left to right in a letter-by-letter serial fashion. Rather, we look at a chunk of text in a single eye fixation, and each letter in that text is recognized in parallel at the same time until the word or words in the text are fully labeled by the brain. For the slower reader, this process of decoding the words and then associating meaning takes considerable time and effort. This results in reduced speed and comprehension.

Text retrieved from:
rocketreader.com/whitepaper/Process_of_Reading.php
### 3.4 Progression of Education in Typography

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**Fig 5: Progression of Typographic Education**

3.5 Typographic Variables

Analysis

Typography is the “symbolic” representation of language in its mechanical (or digital) form.

Among different elements of graphic design, typography is an important one, which the designers usually take for granted. Typography in terms of graphic design means to choose the kind of font type that completely blends with the design and speaks for itself as a part of that design.

• **Typeface**

  A typeface is a design for a set of printer or display fonts, each for a set of characters, in a number of specific sizes.

  - Baskerville
  - Bodoni
  - Univers
  - Futura

• **Type Size**

  The font attribute that specifies the height of the characters.

  - 12 pt
  - 18 pt
  - 24 pt
  - 30 pt
• **Type Weight**

Type weight could be used to create punctuation and increase text readability.

- **Light**
- **Regular**
- **Bold**
- **Heavy**

• **Spacing**

Space between letters and word influences the perception of the word and readability.

- **-50**
- **0**
- **50**
- **100**
- **200**

• **Leading**

Leading refers to the distance between the baselines of successive lines of type.

- **12 pt**
- **18 pt**
- **24 pt**
• **Upper and Lower Case**

The word outline affects the memory of the word and increase readability.

Upper

![TYPOGRAPHY](#)

Lower

![Typography](#)

• **Line Width**

The line width affects the readability depending on the typeface, type size and spacing.

48 pt

**Typography is the foundation of the broader study of graphic design. It is also the visual presentation of language.**

24 pt

**Typography is the foundation of the broader study of graphic design. It is also the visual presentation of language.**
• Sense Break

Good sense break of the sentences could increase the legibility of reading.

Typography is the foundation of the broader study of graphic design. It is also the visual presentation of language.

• Thresholds

Thresholds can be useful to indicate meaning changes or introduce new ideas.

Typography is the foundation of the broader study of graphic design. It is also the visual presentation of language. Type glyphs are created and modified using a variety of illustration techniques.
04: Applications
4.1 Sonnet Exploration

William Shakespeare’s Sonnets were chosen as subject matter for the design application, because this thesis is all about synesthesia, poetry and typography. The vivid metaphors and imagery Shakespeare used in these sonnets are both challenges and opportunities for typographical experiment.

Based on the research and process on Chapter 2–3, the numbered findings in each category were summarized and at least one element combined from each category were used to typographically visualize Shakespeare’s sonnets.

<table>
<thead>
<tr>
<th>Synesthesia</th>
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<tbody>
<tr>
<td>Bouba Kiki Effect</td>
<td>1</td>
</tr>
<tr>
<td>Grapheme Color Synesthesia</td>
<td>2</td>
</tr>
<tr>
<td>Sound Color Synesthesia</td>
<td>3</td>
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</table>

<table>
<thead>
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<tr>
<td>Size/Scale</td>
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<tr>
<td>Orientation</td>
<td>6</td>
</tr>
<tr>
<td>Placement</td>
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</table>

<table>
<thead>
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<th>Typography</th>
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<tr>
<td>Type Weight</td>
<td>4</td>
</tr>
<tr>
<td>Spacing</td>
<td>5</td>
</tr>
<tr>
<td>Sense Break</td>
<td>6</td>
</tr>
<tr>
<td>Leading</td>
<td>7</td>
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<tr>
<td>Upper/Lower Case</td>
<td>8</td>
</tr>
<tr>
<td>Thresholds</td>
<td>9</td>
</tr>
</tbody>
</table>
Fig 6: Shakespeare's Sonnets
Combination

1 Bouba Kiki Effect  1 Typeface
2 Shape  4 Type Weight

Poetry
Sonnet 116

Analysis
According to Bouba Kiki Effect, the sound can imply how the shape should look like. In this poetry experiment, a round shaped typeface for the words that sounds softer, and sharper typeface for sharp sounds.

Application
The shape of the typeface is determined by Bouba Kiki Effect.

The typeface Futura is used in the solution for its geometric shape.

Use Futura Bold for a thicker strokes and better visualization.
Let me not to the marriage of true minds
Admit impediments. Love is not love
Which alters when it alteration finds,
Or bends with the remover to remove:
O, no! it is an ever-fix\`ed mark,
That looks on tempests and is never shaken;
It is the star to every wand\'ring bark,
Whose worth\'s unknown, although his heighth be taken.
Love\'s not Time\'s fool, though rosy lips and cheeks
Within his bending sickle\'s compass come;
Love alters not with his brief hours and weeks,
But bears it out even to the edge of doom:
If this be error and upon me proved,
I never writ, nor no man ever loved.
The structure of a musical score is employed in the work to indicate the sound pattern of the poetry. The first letter is set in black to help readers locate the word. The rest is set in neutral gray. The position of letters are placed according to the pitch value. The ligature are used to identify the sound pattern. The elegance of Bodoni Book Italic add a great musical feeling to the poetry.
Sonnets

8

Musick to heare, where heare sthou musick sadly?

Sweetest with sweetest wars not joy dehts in joy.

Why lovest thou that which thou receiv'st not gladly,

Or else receiv'st with pleasure thine annoy?

If the true sound of well-tuned sounds,

By unisons married, do offend thine ear,

They do but sweetly chide thee, who confounds

In singleness the partes that thou shouldst bear.

Mark how one string, sweeter string to another,

Strike each in each by mutual ordering;

Resembling sire, and child and happy mother,

Who all in one pleasing note do sing;

Whose speechless song, being many, seeming one,

Sing this to thee: "Thou single wilt prove none."
Sonnet 60

According to sound color synesthesia, loud tones are brighter than soft tones and the lower tones are darker than higher tones. (The fluctuation of tones are decided by the reading from an audio book of sonnets)

Use 5 value of blue to indicate the variation of pitch. The higher the pitch, the lighter the blue.

The blue is chosen to imply the key words of the poetry.

Reduced leading to create a closer visual connection between the color and tones.
Like as the waves make towards the pebbled shore, So do our minutes hasten to their end, Each changing place with that which goes before, In sequent toil all forwards do contend. Nativity once in the main of light, Crawls to maturity, wherewith being crowned, Crooked eclipses 'gainst his glory fight, And Time that gave, doth now his gift confound. Time doth transfix the flourish set on youth, And the parallels in beauty's brow, Feeds on the rarities of nature's truth, And nothing stands but for his scythe to mow. And yet to times in hope, my verse shall stand. Praising thy worth, despite his cruel hand.
Combination  
2 Grapheme Color Synesthesia  4 Color  
5 Pattern  1 Typeface

Poetry  
Sonnet 1

Analysis  
In the poetry, the phenomenon of Grapheme color synesthesia is applied by embedding the color pattern inside the words. It aims to build a possible relationship between image and sound.

Application  
A typical red rose is chosen for the word *rose*.

The flame pattern is embedded inside the letters for the word *flame*.

Helvetica is used in the poster because of its neutrality.
From fairest creatures we desire increase, That thereby beauty’s rose might never die, But as the riper should by time decease, His tender heir might bear his memory: But thou contracted to thine own bright eyes, Feed’st thy light’s flame with self-substantial fuel, Making a famine where abundance lies, Thy self thy foe, to thy sweet self too cruel: Thou that art now the world’s fresh ornament, And only herald to the gaudy spring, Within thine own bud buriest thy content, And tender churl mak’st waste in niggarding: Pity the world, or else this glutton be, To eat the world’s due, by the grave and thee.
Sonnet 46

The space between words are even. But when we are reading poetry, the pause is not even. Although space are non soundable elements, it might be helpful to identify the structure of the poetry.

The placement of the words are decided by the sound.

Increase/reduce white space between the words to indicate the pause.

Increase/reduce leading depends on the pause between sentences.

Use upper/lower case to keep the readability of the words.
Mine eye And heart are at a mortal war,  
How to divide the conquest of thy sight,

Mine eye, my heart thy picture's sight would bar,  
My heart, mine eye the freedom of that right,  
My heart doth plead that thou in him dost lie,  
(ACloset never pierced with crystal eyes)  
But the defendant doth that plea deny,  
And says in him thy fair appearance lies.

To side this title is impanelled  
A quest of thoughts, all tenants to the heart,  
And by their verdict is determined  
The clear eye's moiety, and the dear heart's part.

As thus, mine eye's due is thy outward part,  
And my heart's right,  
thy inward love of heart.
Sonnet 51

The sound color synesthesia gives another possibility on the visualization of the poetry. Louder tone tends to be more important, and thus appears bigger in visual. The arrangement of the texts are inspired by the typographic motion graphics.

Scale the type size to imply the fluctuation of tones.

The placement of the type are arranged according to the sound value.

Use bigger type size for louder tones while smaller type size for weak tones.

Increase/reduce the word spacing by the meaning and rhythm.

The leading between the sentences are decided by the pause of the reading.

The thresholds are employed in the poetry layout to indicate the meaning changes.
Thus can my love excuse the slow offence, Of my dull beare, when from thee I speed,
From where thou art, why should I haste me thence?
Till I return of posting is no need.

what excuse will my poor beast then find,
When swift extremity can seem but slow?

Then should I spur
though mounted on the wind, In winged speed no motion shall I know,
Then can no horse with my desire keep pace,
Therefore desire (of perfect’st love being made)
Shall neigh (no dull flesh) in his fiery race,

But love, love, thus shall excuse my jade,
Since from thee going, he went wilful slow,
Towards thee I’ll run, and give him leave to go.
Combination

3. Sound Color Synesthesia
1. Typeface
8. Upper/Lower Case

Poetry
Sonnet 45

Analysis
Use sound color synesthesia to indicate the word inside the original words. It’s an interesting way to alienate the original poetry, and discover new meanings.

Application
Use two strong contrast color—black and yellow.

Use the typeface Dynamoe in the design for its even letter form.

Isolate the sentences by increasing the leading.

Capital letters are harder to read than the upper and lower cases words. However, it creates an effective pause of reading between two words.
THE OTHER TWO, SLIGHT AIR, AND PURGING FIRE,
ARE BOTH WITH THEE, WHEREVER I ABIDE,
THE FIRST MY THOUGHT, THE OTHER MY DESIRE,
THESE PRESENT-ABSENT WITH SWIFT MOTION SLIDE.
FOR WHEN THESE QUICKER ELEMENTS ARE GONE
IN TENDER EMBASSY OF LOVE TO THEE,
MY LIFE BEING MADE OF FOUR, WITH TWO ALONE,
SINKS DOWN TO DEATH, OPPRESSED WITH MELANCHOLY.
UNTIL LIFE’S COMPOSITION BE RECURED,
BY THOSE SWIFT MESSENGERS RETURNED FROM THEE,
WHO EVEN BUT NOW COME BACK AGAIN ASSURED,
OF THY FAIR HEALTH, RECOUNTING IT TO ME.
THIS TOLD, I JOY, BUT THEN NO LONGER GLAD,
I SEND THEM BACK AGAIN AND STRAIGHT GROW SAD.
According to sound color synesthesia, it could be helpful for people to visually aware of the sound rhythm of the poetry by assigning certain color to similar sound.

Different sounds are assigned with different colors.

Increase leading to separate the colors.
Shall I compare thee to a summer's day?
Thou art more lovely and more temperate:
Rough winds do shake the daring buds of May,
And summer's lease hath all too short a date;
Sometime too hot the eye of heaven shines,
And often is his gold complexion dimmed;
And every fair from fair sometime declines,
By chance or nature's changing course untrimmed;
But thy eternal summer shall not fade,
Nor shall death brag thou wand'rest in his shade,
When in eternal lines to time thou grow'st.
So long as men can breathe or eyes can see,
So long lives this, and this gives life to thee.
4.2 Sonnet Campaign

The sonnet campaign is another exploration of how to implement the findings in a more pragmatic way. It aims to let more people learn about Shakespeare’s achievement in sonnets besides his classic novels.

The book promotion campaign includes two part: print and digital. The print campaign will be a series of printed posters while the digital will be a web page and an interaction station for people to play with.

4.2.1 Posters


Poster 1 - Sonnet 60

3 Sound Color Synesthesia  3 Value
4 Color  7 Leading

• Based on the experiment above, the principles of sound color synesthesia are used to visualize the poetry. The main idea is to make a connection between Shakespeare and his work.

• Use five shade of blue to indicate the pitch variation. The higher the pitch, the lighter the blue.

• The blue is chosen to set a moody tone for the poetry.

• The word is placed according to the order appears. The poetry is repeated five times and only the words in certain tone will appear.
Shakespeare's Sonnets
BY WILLIAM SHAKESPEARE

Poster 1

Poster 1 details.
Two typefaces are created based on a customized grid (one is rounder and the other is sharper) to visualize the poetry. Use Bouba Kiki Effect to determine the shape of the typeface. The round shaped typeface is used for the words that sounds softer, while the sharper sound words are represented in an angular typeface. Typefaces used in the poster are based on two basic shapes—square and circle.
LET ME NOT TO THE MARRIAGE
OF TRUE MINDS
ADMIT IMPEDIMENTS
LOVE IS NOT LOVE WHICH
ALTERS WHEN IT ALTERATION
FINDS, OR BENDS WITH THE
REMOVER TO REMOVE:
O NO! IT IS AN EVER-FIXED
MARK THAT LOOKS ON
TEMPESTS AND IS NEVER
SHAKEN: IT IS THE STAR TO
EVERY WANDERING BARK,
WHOSE WORTH’S UNKNOWN,
ALTHOUGH HIS HEIGHT BE
TAKEN. LOVE’S NOT TIME’S
FOOL THOUGH ROSY LIPS AND
CHEEKS WITHIN HIS BENDING
SICKLE’S COMPASS COME:
LOVE ALTERS NOT WITH HIS
BRIEF HOURS AND WEEKS,
BUT BEARS IT OUT EVEN TO
THE EDGE OF DOOM.
IF THIS BE ERROR AND UPON
ME PROVED,
I NEVER WROTE, NOR NO MAN
EVER LOVED.

Shakespeare's Sonnets
By William Shakespeare

Poster 2
Poster 2 details.
LET ME NOT TO THE MARRIAGE OF TRUE MINDS ADMIT IMPEDIMENTS
LOVE IS NOT LOVE WHICH ALTERS WHEN IT ALTERATION FINDS, OR BENDS WITH THE REMOVER TO REMOVE:
O NO! IT IS AN EVER-FIXED MARK THAT LOOKS ON TEMPESTS AND IS NEVER SHAKEN; IT IS THE STAR TO EVERY WANDERING BARK, WHOSE WORTH’S UNKNOWN, ALTHOUGH HIS HEIGHT BE

Shakespeare’s Sonnets
by William Shakespeare

Subway Ad
4.2.2 Web Page

Design a web page to promote William Shakespeare’s book: Shakespeare’s Sonnets.
4.2.3 Digital Idea

Develop an digital idea to let people interact with poetry.

Interactive application

The idea is to show the real time animations when the user reads a sonnet. In this case, when the user reads "rose might never die", the roses appear and start blooming. Image revised based on www.flong.com/projects/remark/
05: Usability Testing
5.1 Usability Testing Overview

This thesis is a typographic exploration of poetry that uses an experimental visual language for the layout. However, readability and legibility are still the major concern because the spectators should be able to read and enjoy the poetry. Some layouts are very expressive and require additional time to read. Some use colors or even images to enhance the reading experience. While defining the parameters that could work for the design, it is critical to know what element works for the target audience, and what needs to be improved.

The survey is separated into two parts. The first part asked people how they feel about the design in general, and how it affects the way they read and understand poetry. The second part asked more about the design details. A twenty-minutes interview is also given to some individuals to ask their opinions about the design.

This survey collects specific feedback and invaluable insight from professional and spectators that provides useful measurements to reach the thesis goals.
5.1.1 Target Audience

The target audience for this thesis are generally everyone who can read and write and would appreciate the beauty of poetry. However, in order to get more valuable feedback from the user testing, the target audience are preferably the following:

- Writers
- Poets
- Graphic Designers
- College Students
- Literature Lovers
- Marketing Professionals

Graphic Designers and College Students who have a curious mind and have an interest in design will most likely be interested in the new design of poetry. Writers, poets, and literature lovers will probably care more about the work than how it looks. It would be interesting to see their feedback when presenting them a more expressive poetry design solution.

5.1.2 Testing Goals

The poetry visualization is more expressive with an experimental spirit, therefore, it becomes a challenge to actually test and measure how people will react to it and how I want to find out through the testing. Below are the goals for this survey:

- Understand the overall shortage and strength of the current design.
- Develop a new design language that can be used to visualize poetry.
- Identify the most important design elements that I could use in visualizing poetry.
- Success in achieving a consistent and effective campaign.
- Push the poetry design boundary to a more emotional and personal field.
5.2 Survey Forms

Sonnets Visualization Survey

Name: ____________________________

Do you have synesthesia?  ○ Yes. (Please specify which type): ____________________________  ○ No

Instructions
Thank you for participating in this survey. Please download the attached PDF (including 8 poetry visualization design and 2 posters) for reference when you’re completing the survey. This questionnaire should only take you about 5 minutes, and your answers will be used to help improving my thesis. Feel free to contact me at bxc8922@rit.edu if you have any questions.

General Questions

Is the poetry design legible?

Does the sonnets campaign appear consistent across different application?

Does the design appear to work harmoniously?

Does the design make the poetry easier/more interesting/engaging to read? Or does the design make the poetry more difficult/boring/confusing?

Which poetry design is most successful? Which one is less successful? Why?

Would you be more motivated to learn more about Shakespeare’s Sonnets based on the design?

Would you be more willingly to read Shakespeare’s Sonnets designed like this?

Any other comments?
### Design Details
How helpful are the following elements when reading and understanding a poetry?

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<th>Element</th>
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<th>Somewhat</th>
<th>Very</th>
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<tr>
<td>Other:</td>
<td></td>
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</tbody>
</table>
5.3 Survey Results

Based on the survey answers received from email responses and face-to-face interviews, the survey results are summarized. The results provide a clear direction of where the design should move. It helps to improve the design that doesn’t work so well, and inspires better solutions during the design process. Below is an overview of some common respondents’ comments and responses:

The poetry design is legible to most people.

Each individual design has its unique personality but they appears to be consistent and work together as a system.

In terms of favorite (most successful) poetry design, people seems to have different opinions. The sonnets 1, 60 and 46 are the top three choices. One respondent say she love the design of sonnets 46 because she thought the words without spacing are wired but it turns out to be very easy to read.

The least successful poetry design is towards sonnets 51. Respondents had a hard time reading the poetry.

Designs are very expressive, fun and engaging.

You keep the spirit of the poetry, but give it a nice twist. Your approach is creative and fresh.

The typography is very unique and interesting. While some thinks it might be too much for poetry.

The form helps in understanding the poetry.

Respondents enjoy the design and they want their next poetry book designed using the similar visual languages.

Respondents express their interest in learning more about Shakespeare’s sonnets based on the design.

Hierarchy, type sizes and color are the top three elements respondents pick.
06: Conclusion
6.1 Conclusion

Emotional design is always an interesting topic to me. Why people laugh or cry by just seeing an image? How does an old photo trigger our thoughts and memories? This thesis tries to find out the reasons by studying synesthesia, the concept of sense linkage, and use this concept to develop a visual language for poetry.

The whole thesis process is a great learning experience. From researching the definition of synesthesia to William Shakespeare’s Sonnets, the thesis explores areas in synesthesia, typography, and poetry to provide new ways of poetry visualization and show an example of how to turn the experimental typographic exercise into a campaign.

Even though poetry visualization is not a new concept, and idea of combining synesthesia as a key element is an approach that rarely explored. The mechanism how synesthesia happens still remains unknown. However, the close relationship between synesthesia and visual arts provides endless possibilities for design research and inspirations.

In the future more research and explorations need to be done to implement synesthesia in general graphic design besides typography. With the development of technology, the study of synesthesia could eventually enable a digital solutions to serve for educational purpose, to help children with dyslexia, and help ease the difficulty of teaching literacy.
07: Appendix
7.1 Original Thesis Proposal

Synesthetic Implementation in Graphic Design
<table>
<thead>
<tr>
<th>Title</th>
<th>Synesthetic Implementation in Graphic Design</th>
</tr>
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</table>
| Submitted by | Boliang Chen  
MFA Graphic Design  
School of Design  
Rochester Institute of Technology |
| Committee Approval |  
**Chief Adviser**  
Professor Nancy A. Ciolek  
Graphic Design  
School of Design  
Date  
**Associate Adviser**  
Professor Bruce Ian Meader  
Graphic Design  
School of Design  
Date  
**Associate Adviser**  
Professor Chris Jackson  
Computer Graphics Design  
School of Design  
Date  
**Administrative Advisor**  
Professor Patti Lachance  
School of Design  
Date |
Traditionally, there are five senses: sight, hearing, touch, smell and taste. Each of the senses consists of specialized cells that have receptors for specific stimuli. The brain takes these signals and makes sense of them, creating our interpretation of the world. Human senses are of utmost importance, for they connect our brain to the outside world.

Almost our entire understanding of the world is experienced through our senses. Our senses are links to memory that can trap right into emotion. Our memory library begins accumulating materials from at least five tracks—images: sight, sound, smell, taste, and touch since we are born. These five tracks contain valuable data that directly affect our emotions. For example, a familiar sound or music might recall one’s past memory, which might trigger certain emotion like happiness, sadness, painfulness, anger etc. This awareness of sensory information called perception is a process based on our experience and knowledge.

However, the senses are not on separate tracks. The senses of sight, hearing, touch, smell and taste usually can link with each other that the limitation of sensory organs can be broken. Therefore, color could have temperature, sounds could have images, touch could have weight, smell could have taste.

These common experiences in human beings can be referred to as synesthesia, a sensation produced in one modality when a stimulus is applied to another modality. For example, a piece of cake has the properties of shape, color, smell and taste etc. Whatever any one of the properties is addressed could bring the imagination of the others. All the senses together evoke people’s potential hunger and stimulate the desire of the cake. In literature, synesthesia is a legitimate rhetorical device, which attempt to express a linkage between the senses. However, it can be used as a powerful tool in graphic design process because of the similarity in both thinking patterns and psychological mechanism.
Sight is the most important sense of all. According to a research by Treicher, an experimental psychologist, we receive about 83% of the information from our sight, and about 30% of information we saw can be remembered.

However, people today are bombarded with a great amount of unnecessary information. We receive up to 3,000 marketing messages per day (David Shenk, Data Smog: Surviving the Information Glut). People become visually sophisticated and know that what we see is not always what we get. Therefore, creating effective visual communication by incorporating other senses to reach people emotionally becomes the major challenge of graphic designers.

The elements used in graphic design are called visual language, which was described from the aspects of visual communication. Larry A. Samovar in his book Communication between cultures indicates that language is a subjective and inaccurate symbol system, therefore the meaning of words is affected and limited by different ways of explanation. In fact, the meaning of the word depends on people, rather than the word itself. It is true that the variation in cultures, countries, experiences, and emotions etc. could inevitably affect the way people understanding certain word, however, the sensory experience of certain visual patterns within certain group of people is relatively common and stable.

The way of communication evolves with the development of technology. Today the information delivery is changing from the traditional two dimensional print media to a multiple dimensional cross-media communication. Graphic designers begin to seek the way of cooperating with the new technology. 3D installation, new materials, interaction, motion graphics, sound, odor, and so forth are increasingly used in the creation of graphic design pieces in order to communicate with audience in an emotional way by stimulating the sensory organs. The trend of communication towards the experience of human senses gives designers both opportunities and challenges to translate the sensory stimulation to visual languages properly and effectively.
3 Survey of Literature

Senses/synesthesia

**Brand Sense:**
*Building powerful brands through touch, taste, smell, sight, and sound*
Martin Lindstrom
Free Press (2005)

**Review**
The book explains the author’s innovative six-step brand building program. Drawing on countless examples of both product creation and retail experience, Lindstrom shows how to establish a marketing approach that appeals to all the senses, not simply the conventional reliance on sight and sound. Research shows that a full 75 percent of our emotions are in fact generated by what we smell, and the author explains how to capitalize on that insight. Included are innovative tools for evaluating a brand’s place on the sensory scale, analyzing its future sensory potential, and enhancing its appeal to reach the broadest base of consumers.

**A Natural History of the Sense**
Diane Ackerman
Vintage (1991)

**Review**
Physiology and philosophy mesh in this poetic investigation of the five senses; essays explore synesthesia, food taboos, kissing and the power and diversity of music. This book in total is full of intimate detail of the world.

**Synesthesia: A Union of the Senses**
Richard E. Cytowic
The MIT Press (2002)

The book reflects the recent flood of interest in synesthesia and new knowledge of human brain function and development.
Decoding Design: Understanding and Using Symbols in Visual Communication
Maggie Macnab
How (2008)

**Review**
The relevance of shapes, numbers and symbols in communication is timeless. The book integrates design with other disciplines and genres, such as philosophy, math and physics, for a holistic and worldly presentation of ideas. Our complex world is comprised of a handful of some very simple patterns. Patterns are made of basic shapes. These shapes have found their way into human design since the beginning of our time because they tell an eternal tale in a glimpse and their structure instructs our connection to the universe.

Communication Between Cultures
Larry A. Samovar, Richard E. Porter, Edwin R. McDaniel

**Review**
Communication between cultures gives readers an understanding and appreciation of different cultures and helps them develop practical skills for improving their communication with people from other cultures. It’s renowned for being the only text on the market to consistently emphasize religion and history as key variables in intercultural communication. Packed with the latest research and filled with numerous, compelling examples that force students to examine their own assumptions and cultural biases, this book helps readers understand the subtle and profound ways culture affects communication.

Feel This: Graphic Design that Feels Good
Scott Witham
Rockport Publishers (2005)

**Review**
The book provides examples of “touch-friendly” design. It features intriguing projects that incorporate a gamut of “you can’t print on that” materials, including pleated, Issey Miyake-type forms and razor thin metal business cards; x-ray film; heat sensitive inks; ceramic tiles; and carpet samples. In short, there are design solutions in this book that use any and everything except plain paper.
Observing the User Experience: A Practitioner’s Guide to User Research
Mike Kuniavsky
Morgan Kaufmann (2003)

Review
The book provides a clear guide to evaluating user behavior and use patterns and then gives insight on balancing what users do and what site owners would like them to do. The subtext is a clear passion for creating scenarios that leave users confident and creators satisfied. That leads to successful interactions, be they commerce or information driven. This book deepened the understanding of how to evaluate the way sites—or really anything—is used and interpreted and offers practical methods on attaining and measuring data to tweak and refine the work.

Emotional Design: Why We Love (or Hate) Everyday Things
Donald A. Norman
Basic Books (2005)

Review
The book illustrates how the role emotion plays in consumer purchases. According to Norman, human decision-making is dependent on both conscious cognition and affect (conscious or subconscious emotion). Human reaction to design exists on three levels: visceral (appearance), behavioral (how the item performs) and reflective. The reflective dimension is what the product evokes in the user in terms of self-image or individual satisfaction. Norman’s analysis of the design elements in products such as automobiles, watches and computers will pique the interest of many readers, not just those in the design or technology fields.
The synesthetic implementation could be used in many graphic design areas, such as branding, package design, and information design. One possible design application that really interests me is the visualization of literature, especially the novels created by the writers of the stream of consciousness. In literary criticism, stream of consciousness is a narrative mode that seeks to portray an individual’s point of view by giving the written equivalent of the character’s thought processes.

I pick a short novel *the Mark on the Wall* by Virginia Woolf. It is a novel without main characters and storyline but thoughts and related or unrelated scenes and imaginations towards a black mark on the wall. The visualization of the novel is possible because the author uses a lot of synesthetic rhetorics and vivid imaginations.

Unlike the traditional book design, I would like to focus on the content itself and provide my understanding of the book through synesthetic implementation. The sense of sight will be primary addressed through the book while the other senses, like touch, sound, smell and taste will be directly addressed or implied through the use of physical materials like texture, substrates, or visual elements like images, rhythm, balance, contrast etc.

The thesis project will also include an online website as an additional component of the physical book. The website is needed because people today react more to motion graphics and interactions rather than static images. Besides, the sense of hearing can be easily cooperated into the website, which is nearly impossible in the physical books.
5 Methodological Design

**Graphic Design**

Basically, it will be a book design project. Images will be created in either reality or abstract forms by photographs or illustrations to provide readers a visual way of looking at the contents.

Various substrates and printing methods will be considered using in the book as well, like embossing, foil stamping, etc. Unlike the traditional book which read from the front to the end, this book will provide readers multiple ways of reading.

**Interaction Design**

A virtual world will be created in the website according to the imagination of the author for readers to better experience the content. Some information of the book will be presented in QR Code so that readers can interact with the physical book through camera or other input devices. Augment reality will also be considered in the project when appropriate.

Also, I would like to provide online interaction for the readers. Readers can unload their own interpretation of the possibilities to the mark on the wall.
In order to finish the thesis project, the following tools will be needed.

**Hardware**
MacBook Pro and/or PC
Camera and/or Mobile Phone

**Software**
Adobe Creative Suite 5

**Other Materials/Techniques**
Special Paper/Substrates
Special Printing techniques (Embossing, Foil Stamping, etc.)

---

The main cost of the project would be printing and promotional cost. The budget is listed below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotion</td>
<td>$50</td>
</tr>
<tr>
<td>Printing Cost for Documentation</td>
<td>$50</td>
</tr>
<tr>
<td>Purchasing Domain</td>
<td>$50</td>
</tr>
<tr>
<td>Purchasing Web Hosting Service</td>
<td>$100</td>
</tr>
<tr>
<td>Printing Cost for exhibition boards</td>
<td>$50</td>
</tr>
<tr>
<td>Cost for the other items</td>
<td>$200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$500</strong></td>
</tr>
</tbody>
</table>

---
8 Dissemination

To promote the thesis project, I will upload it to my blog, my domain, and design forums. Besides, I will post the video on YouTube and Vimeo. I will also submit my finished project to design competitions. Below is the information of the competitions.

**American Design Award:** Student Annual Design Contest

**ID Magazine Annual Design Review**

TBA

TBA

9 Evaluation Plan

To evaluate my thesis project, I will upload the finished project to my blog and my domain. The thesis project will also be exhibited in the Bevier Gallery at May to get feedback from the other students and faculties.

I will also send out questionnaires related to the thesis research to get feedback from the public.
# Timeline

**Title:** Synesthetic Implementation in Graphic Design  
*by Boliang Chen*

<table>
<thead>
<tr>
<th>2011</th>
<th>February</th>
<th>March</th>
</tr>
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<tr>
<td>2/3  - 3/16</td>
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<td>Research</td>
</tr>
<tr>
<td>2/6  - 3/13</td>
<td></td>
<td>Sketches and Drafts</td>
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<tr>
<td>3/13 - 3/21</td>
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<td>4/11 - 4/18</td>
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<td>2/24 - 3/5</td>
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<td>3/16 - 3/25</td>
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<td>4/10 - 4/16</td>
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<td>4/21 - 5/4</td>
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<tr>
<td>5/21</td>
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</tbody>
</table>
### April

- **Document Thesis**

### May

- **Drafts**
  - Intermediate Sketches
  - Advanced Layout
  - Final Layout

- **Testing and Feedback**

- **Third Committee Meeting**

- **Fourth Committee Meeting**

- **Final Committee Meeting**

### June

- **Prepare for Thesis in the Gallery**

- **Prepare for Thesis Defense**

- **Thesis Report**

- **Graduation**


## 7.2 Senses Communication Chart

<table>
<thead>
<tr>
<th>Messages</th>
<th>Senses</th>
<th>Aspects</th>
<th>Implied senses</th>
<th>Emotional Design Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sight</td>
<td>layout</td>
<td>sound</td>
<td>sight/smell/taste/smell</td>
<td></td>
</tr>
<tr>
<td></td>
<td>colors</td>
<td>sound</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>images</td>
<td>sound/touch/taste/smell</td>
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<tr>
<td></td>
<td>styles</td>
<td>sound</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>shapes</td>
<td>sound/touch/taste/smell</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>balance</td>
<td>sound</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>repetition</td>
<td>sound</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>texture</td>
<td>sound/touch/taste/smell</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>contrast</td>
<td>sound</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>alignment</td>
<td>sound</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>proximity</td>
<td>sound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Touch</td>
<td>substrate</td>
<td>sight/</td>
<td>sight/smell/taste/taste</td>
<td></td>
</tr>
<tr>
<td></td>
<td>texture</td>
<td>sight</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>embossing</td>
<td>sight</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>foil stamping</td>
<td>sight</td>
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<td>sight</td>
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<tr>
<td>Smell</td>
<td>fragrance</td>
<td>touch/sight</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>food</td>
<td>taste/sight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taste</td>
<td>food</td>
<td>sight/smell</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7.3 Survey of Existing Materials

This survey takes a close look at some examples of music albums and food packaging. It aims to break down the design and try to find out how the design helps in hinting another sense.

7.3.1 Music Albums

**Music Style**
Alternative Rock/Indie

**Basic Elements Used**
- Line–Doodle lines
- Shapes– Abstract
- Texture–Line drawing
- Color–Black and white

**Design Principles**
- Balance–Radical
- White Space– Luxury white spaces around the shape

**Emotions**
Surprise/Anger

**Sensory Model**
- Sight
- Taste
- Sound
- Touch
- Smell
Music Style
Lyrics

Basic Elements Used
Line–Curve lines, rugged
Shapes–Rough
Texture–Painting
Color–Black and Red

Sensory Model

Design Principles
Balance–Symmetrical/radial
Proximity–Connected with same style
Contrast–Color
Repetition–4 times

Emotions
Surprise/Fear

---

Music Style
Alternative Rock

Basic Elements Used
Line–Clean curve lines
Shapes–Geometric
Color–Shades of blue

Sensory Model

Design Principles
Alignment–Left
Contrast–Mass
Repetition–Big and small

Emotions
Sadness
Music Style
Heavy Metal

Basic Elements Used
Shapes—Abstract
Mass—Heavy
Texture—Handwriting
Color—Black and orange

Design Principles
Contrast—Color
Repetition—Big and small

Emotions
Surprise/Anger

Music Style
Heavy Metal

Basic Elements Used
Line—Scientific curve lines
Shapes—Geometric/organic
Texture—Rough
Color—Grey

Design Principles
Balance—Symmetric/radical
Alignment—Center
Contrast—Texture/Shape

Emotions
Fear
7.3.2 Food Packaging

Brand
Infuzions Juice

Object
Natural/Freshness

Basic Elements Used
Texture–Fruit
Color–Gradient

Design Principles
Balance–Radical
Alignment – Horizontal Center

Emotions
Joy/Surprise

Sensory Model

- Sight
- Touch
- Sound
- Smell
- Taste
**Brand**  
100% Chocolate Cafe  

**Object**  
Playful, tasty  

**Basic Elements Used**  
Shapes–Big Type  
Mass–Different font sizes  
Color–Bright Color  

**Design Principles**  
Alignment–Left  
Proximity–Same style across  
Contrast–Color/font sizes  

**Emotions**  
Joy  

---  

**Brand**  
Original bircher muesli yoghurt  

**Object**  
Natural  

**Basic Elements Used**  
Line–Scientific curve lines  
Shapes–Geometric  
Color–White and bright color  

**Design Principles**  
Contrast–Color/shape  
Use white space  

**Emotions**  
Joy
**Brand**
Jooze Juice

**Object**
Fresh, tasty

**Basic Elements Used**
Shapes—Food shape
Color—Flat bright color

**Design Principles**
Balance—Symmetrical
Proximity—Connected with same style
Contrast—Color/shape

**Emotions**
Joy/Surprise

---

**Brand**
Special Winter Soup

**Object**
Heat Resistance

**Basic Elements Used**
Shapes—Geometric
Texture—Wool
Color—Natural wool color

**Design Principles**
Balance—Symmetrical
Alignment—Center
Contrast—Texture

**Emotions**
Joy/Surprise
7.4 Design Theory & Methods

References

**Design Theory & Methods Seminar**
Professor Deborah Beardslee
Office 3420  Extension 5-2664
deborah.beardslee@rit.edu

**Communication Theory**
Source: *Type & Typography*
Phil Baines, Andrew Haslam

Theories of communication in relation to language only really began to be defined and formalized in the mid-twentieth century. However it is clear that from early Greek times philosophers contemplated the nature of words and the relationship between speech, writing and reading. Literature holds many examples of the power of language and the nature of words, but they exist within the context of a narrative and do not stand along as theories. The first model of communication theory was put forward by the engineers Claude Elwood Shannon and Warren Weaver in 1948.

**Shannon and Weaver’s Model**

<table>
<thead>
<tr>
<th>Information Source</th>
<th>Transmitter signal</th>
<th>Noise source</th>
<th>Received signal</th>
<th>Receiver</th>
<th>Destination</th>
</tr>
</thead>
</table>

The model reflected the technology of the day – telephone, radio and radar – and identified the conceptual structure that lay behind it. (Shannon and Weaver’s original work was based on the telephone system, hence the inclusion of noise source or interference.) The technology-based model was amended slightly to reflect human communication. The adaptation of the model for human speech and writing was merely to envelop both transmitter and receiver within a common subculture. However, while there is a commonality between the way machines and humans communicate, Shannon and Weaver’s theory only examines the conduit: sound waves, created by speech, are encoded into electrical pulses within the mouthpiece of a telephone and decoded and amplified through a vibrating membrane in the earpiece, whence they reappear as speech.

The receiving of the signal that happens in our ear does loosely resemble the telephone’s vibrating membrane, but our decoding of the message involves our cognition or interpretation of meaning – something not accounted for by Shannon and Weaver. A telephone converts speech into code and code into speech, but has no understanding of what language means. George Gerbner proposed a model not adapted from machines but based on human analysis. This model, together with others by David Berlo, placed far greater emphasis on perception, shared cultural context and the form of the signal not merely in phonetic terms, as perceived by the ear, but also in terms of gesture and facial expression, as perceived by the eye.

**Gerbner’s Model**

<table>
<thead>
<tr>
<th>Subculture</th>
<th>Information Source</th>
<th>Transmitter signal</th>
<th>Noise</th>
<th>Receiver</th>
<th>Subculture</th>
<th>Destination</th>
</tr>
</thead>
</table>
Design Awareness

Design is intrinsically human.
Design is graphics, places, products, and systems created to satisfy a need.
Design is moving from the existing to the preferred.
Design – when it works – is capable of improving your life.
Design is frustrating when it doesn’t work.
Design is a political process.
Design is natural.
Design is a tangible way to show how our society changes through time.
Design is creative thinking, not necessarily making something new.
Design is capable of pleasing your senses.
Design is most successful when the problem is fully analyzed.
Design is affected by the decisions of many people.
Design is an expression of cultural values.
Design is making responsible choices.
Design is a plan and a process.
Design is often a source of conflict.

How do you decide which designs you need and which you desire?
How does the design of your neighborhood meet community needs?
How successfully do components work as a system?
How can forms suggest a response to different needs?
How can listening to inanimate objects tell us something about our needs?
How does the designed environment work for people with special needs?
How well do objects fit your needs physically?
What would your perfect world be like?

How does your learning style affect your perception?
How does culture affect our understanding of symbols?
How does our reliance on sight influence the designed environment?
How can using all your senses affect the quality of an experience?
How do diverse personalities affect communication?

How can design influence the quality of our lives?
How do communication needs affect typeface selection?
How does design make your hometown special?
How do colors affect each other?
How can you affect an experience by changing spatial relationships?
How do choices of color, scale, and material affect your perception?
How do your design choices affect the earth?
How do the laws of nature affect design?
How do natural systems affect design systems?
How do natural disasters affect community design?
How do emotion and memory affect your attitude toward design?
What influences your attitudes toward design?
How has the environment shaped American houses?
What influences our transportation choices?

Are you solving the right problem?
How can stating the problem make it easier to solve?
What defines a successful solution?
How can you expand your thinking?
How can feedback improve your solutions?
Did you do what you needed to do?

(excerpts from Why Design? Activities and Projects from the National Building Museum by Slafer and Cahill)
7.5 Survey Results

Sonnets Visualization Survey

Name: Fan Liang

Do you have synesthesia?  Yes (Please specify which type): No

Instructions Thank you for participating in this survey. Please download the attached PDF (including 8 poetry visualization design and 2 posters) for reference when you’re completing the survey. This questionnaire should only take you about 5 minutes, and your answers will be used to help improving my thesis. Feel free to contact me at bxc8922@rit.edu if you have any questions.

General Questions

Is the poetry design legible? Yes

Does the sonnets campaign appear consistent across different application? Yes

Does the design appear to work harmoniously? Yes

Does the design make the poetry easier/more interesting/engaging to read? Or does the design make the poetry more difficult/boring/confusing?

The design layouts are very modern and visually interesting. It def make the poetry interesting to read.

Which poetry design is most successful? Which one is less successful? Why?

Successful: Sonnets 1. Most interesting. I like the use of color and image.

Less Successful: Sonnets 51. A bit hard to read.

Would you be more motivated to learn more about Shakespeare’s Sonnets based on the design?

Yes!

Would you be more willingly to read Shakespeare’s Sonnets designed like this?

Yes.

Any other comments?

It’s a very interesting project. And nice designed.
## Design Details

How helpful are the following elements when reading and understanding a poetry?

<table>
<thead>
<tr>
<th>Element</th>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hierarchy</td>
<td></td>
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<tr>
<td>Typeface</td>
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<td>Type Sizes</td>
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<tr>
<td>Letter Spacing</td>
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<tr>
<td>Word Spacing</td>
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<td>Alignment</td>
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<tr>
<td>Other: paper</td>
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</tbody>
</table>
Sonnets Visualization Survey

Name: Joe

Do you have synesthesia?  ○ Yes (Please specify which type): ○ No

Instructions Thank you for participating in this survey. Please download the attached PDF (including 8 poetry visualization design and 2 posters) for reference when you're completing the survey. This questionnaire should only take you about 5 minutes, and your answers will be used to help improving my thesis. Feel free to contact me at bxc8922@rit.edu if you have any questions.

General Questions

Is the poetry design legible?

Yes

Does the sonnets campaign appear consistent across different application?

Yes

Does the design appear to work harmoniously?

Yes.

Does the design make the poetry easier/more interesting/engaging to read? Or does the design make the poetry more difficult/boring/confusing?

I think it's very fun to read.

Which poetry design is most successful? Which one is less successful? Why?

I like the blue one. The gradient is very beautiful. They all seems to work. Maybe Sonnets 5.

Would you be more motivated to learn more about Shakespeare' Sonnets based on the design?

Yes.

Would you be more willingly to read Shakespeare' Sonnets designed like this?

Absolutely.

Any other comments?
Design Details
How helpful are the following elements when reading and understanding a poetry?

<table>
<thead>
<tr>
<th>Element</th>
<th>Not at all</th>
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<td>Hierarchy</td>
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<td>Type Sizes</td>
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<td>Other: _______</td>
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</tbody>
</table>
Sonnets Visualization Survey

Name: Zhenzhen Xie

Do you have synesthesia?  □ Yes (Please specify which type):  □ No

Instructions Thank you for participating in this survey. Please download the attached PDF (including 8 poetry visualization design and 2 posters) for reference when you’re completing the survey. This questionnaire should only take you about 5 minutes, and your answers will be used to help improving my thesis. Feel free to contact me at bxc8922@rit.edu if you have any questions.

General Questions

Is the poetry design legible?  yes

Does the sonnets campaign appear consistent across different application?  yes

Does the design appear to work harmoniously?  yes

Does the design make the poetry easier/more interesting/engaging to read? Or does the design make the poetry more difficult/boring/confusing? easier/more interesting/engaging

Which poetry design is most successful? Which one is less successful? Why?

Sonnets 1 16

I like the images inside the font! Sonnets 116

It’s too plain.

Would you be more motivated to learn more about Shakespeare Sonnets based on the design? yes. I want to read the poetry right now.

Would you be more willingly to read Shakespeare Sonnets designed like this? yes please!

Any other comments? I like the design. Can I have a copy?
# Design Details

How helpful are the following elements when reading and understanding a poetry?

<table>
<thead>
<tr>
<th>Element</th>
<th>Not at all</th>
<th>Somewhat</th>
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<td>Typeface</td>
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Sonnet Visualization Survey

Name: Nick

Do you have synesthesia?  
☐ Yes (Please specify which type): 
☐ No

Instructions Thank you for participating in this survey. Please download the attached PDF (including 8 poetry visualization design and 2 posters) for reference when you’re completing the survey. This questionnaire should only take you about 5 minutes, and your answers will be used to help improving my thesis. Feel free to contact me at bxc8922@rit.edu if you have any questions.

General Questions

Is the poetry design legible?

Yes.

Does the sonnets campaign appear consistent across different application?

Yes.

Does the design appear to work harmoniously?

Yes.

Does the design make the poetry easier/more interesting/engaging to read? Or does the design make the poetry more difficult/boring/confusing?

Yes. I can read the poetry pretty easily.

Which poetry design is most successful? Which one is less successful? Why?

Sonnets 1 and 60 are my favorites. Very smart way of using images and colors. Sonnets 51 might need some work to make it clear.

Would you be more motivated to learn more about Shakespeare’s Sonnets based on the design?

Yes.

Would you be more willingly to read Shakespeare’s Sonnets designed like this?

Yes.

Any other comments?

I think some designs could go even bolder.
## Design Details

How helpful are the following elements when reading and understanding a poetry?

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Sonnet's Visualization Survey

Name: Melissa

Do you have synesthesia?  
○ Yes (Please specify which type):  
○ No

Instructions  
Thank you for participating in this survey. Please download the attached PDF (including 8 poetry visualization design and 2 posters) for reference when you're completing the survey. This questionnaire should only take you about 5 minutes and your answers will be used to help improving my thesis. Feel free to contact me at bxc8922@rit.edu if you have any questions.

General Questions

Is the poetry design legible?

Yes

Does the sonnets campaign appear consistent across different application?

Yes

Does the design appear to work harmoniously?

I think so.

Does the design make the poetry easier/more interesting/engaging to read? Or does the design make the poetry more difficult/boring/confusing?

Yes. They are interesting and nice designed.

One of them is a bit confusing.

Which poetry design is most successful? Which one is less successful? Why?

Sonnets 116.

Sonnets 46. Line spacing a bit weird.

Would you be more motivated to learn more about Shakespeare's Sonnets based on the design?

Yes. I think so.

Would you be more willingly to read Shakespeare's Sonnets designed like this?

Yes.

Any other comments?

Great job!
**Design Details**

How helpful are the following elements when reading and understanding a poetry?

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7.6 Image Copyrights

All the following images used in the thesis are in the public domain or copyright free under certain circumstance.


08: Bibliography
Synesthesia/Senses


Timothy Donaldson. *Shapes for sounds*. Mark Batty Publisher, 2008


Graphic Design/Visual Communication


**Typography**


**Poetry**


**UI/UX**


We don’t read and write poetry because it’s cute. We read and write poetry because we are members of the human race. And the human race is filled with passion. And medicine, law, business, engineering, these are noble pursuits and necessary to sustain life. But poetry, beauty, romance, love, these are what we stay alive for.