BRINGING ANALOG INTO THE DIGITAL AGE:

HOW TRADITIONAL FORMATS OF ANALOG DESIGN —SUCH AS LETTERPRESS PRINTING— CAN BE USED AS PEDAGOGICAL TOOLS FOR COLLEGIATE LEVEL ONLINE INSTRUCTION

GABRIEL O. METZGER
MASTER OF FINE ARTS THESIS PROJECT

LIBERTY UNIVERSITY
SCHOOL OF COMMUNICATION & THE ARTS
DEPARTMENT OF STUDIO & DIGITAL ARTS

Written & Designed by: Gabriel O. Metzger

Typeset in:
Livory (body copy)
Brandon Grotesque (headings and subheadings)

For more information, visit: www.gmetzgerdesign.com/mfa-thesis

Final Signatures

Bringing Analog into the Digital Age is a Master of Fine Arts Thesis Project prepared by Gabriel O. Metzger for Liberty University's Department of Studio & Digital Arts in the School of Communication & the Arts under the guidance of:

RACHEL DUGAN, MFA, **CHAIR**

NICOLE KONKLE, MFA, **FIRST READER**

TODD SMITH, MFA, **SECOND READER**

Soli Deo Gloria

To the graphic design students of the digital age: may you discover the wonder of analog design and see its influence in the digital age.

To my wife and children: thank you for your never-ending love and support; without you, this would have only remained a dream.

To my family and friends: thank you for your constant prayers and encouragement throughout graduate school and my thesis project.

To my thesis committee—especially Professor Dugan: thank you for always believing in me and sharing in my excitement for my thesis topic.

Table of Contents

Preface

There are a couple of key terms repeated throughout the entirety of this thesis. In order to ensure these terms are interpreted and understood correctly, the following definitions should provide some clarity.

TRADITIONAL FORMATS OF ANALOG DESIGN

In the simplest of terms, traditional formats of analog design are any of the materials, tools, processes, and/or media used for creating art and design that do not require the use of a computer or digital technology—essentially, anything used prior to the digital age.

DESIGN FUNDAMENTALS

The combination of the elements of design* and the principles of design** that inform the practice of visual composition.

***ELEMENTS OF DESIGN:** The fundamental ideas of design that serve as the foundation and structure of visual composition.

****PRINCIPLES OF DESIGN:** The fundamental ideas of design that are used to tie the elements of design together into a cohesive visual composition.

Abstract

This thesis investigates a strategy for incorporating traditional formats of analog design—such as letterpress printing—into collegiate level online instruction as pedagogical tools, increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals.

While the instruction in design fundamentals is applicable to both analog and digital design formats, there has been a definitive change in how these design fundamentals are perceived and understood by the graphic design students of today's digital age—especially online/remote learners. Prior to the desktop publishing revolution of the 1980s, the curriculum and methods used in the instruction of design fundamentals at the collegiate level had a direct, tangible correlation with the analog technology of the time. Unfortunately, the graphic design students of today's digital age—especially online/remote learners—have a disadvantage when it comes to their perception and understanding of design fundamentals as the correlation between design fundamentals and digital technology is less tangible than it had been with analog technology.

Since collegiate level online instruction is digitally based and lacking in analog engagement, online/remote learners are at a greater disadvantage than residential students without access to physical studio spaces, labs, and the materials and tools necessary for engaging in *hands-on* experiences with traditional formats of analog design—such as letterpress printing. As a result, online/remote learners are not able to see the correlation between design fundamentals and digital technology as easily without opportunities for *hands-on* experiences.

The objective of this thesis is to improve the perception and understanding of design fundamentals by online/remote learners through opportunities for *hands-on* experiences with traditional formats of analog design—such as letterpress printing. As a result, online/remote learners will gain a better understanding of the tangible correlation between traditional formats of analog design and design fundamentals and how this additional knowledge can be incorporated into the digital age.

CHAPTER 1:

THE PROBLEM

Introduction

For those of us born after the desktop publishing revolution of the 1980s, we have only known the practice (and profession) of graphic design as an entirely digital, on-screen process—often having grown up using personal computers and design-related software programs ourselves. I was personally exposed to the pioneering technology of the Apple Macintosh at an early age. Having been born only seven years after the introduction of the first Macintosh and the start of the desktop publishing revolution, my family's first experience owning a personal computer and printer came in the form of Apple's Macintosh LC and Apple StyleWriter printer. I fondly remember "playing" with some of Apple's earliest software applications including *MacWrite*, *MacDraw*, and *MacPaint* in addition to *Aldus Pagemaker*—a third-party desktop publishing software used by many designers of the late '80s and early '90s. While these software applications may have been a little advanced for my young age, I greatly enjoyed the experience of being able to "create" on screen—combining graphics and text together in real time—and, after "clicking print," seeing my creations take form as they were printed on a physical piece of paper. While I was not aware at the time, this early exposure to the Macintosh and desktop publishing software was my first introduction to graphic design and is likely responsible for my interest in design and eventual pursuit of a degree in the field of graphic design.

As a graphic design student of the digital age, my experience with design has mostly been a digital, on-screen process. Since most of my undergraduate studies were focused on mastering Adobe's Creative Suite for designers, I never had the privilege of learning from traditional formats of analog design and other manual crafts. The extent of my *hands-on* experience with graphic design came in the form of a computer's keyboard and mouse. Without the opportunity for *hands-on* experiences with traditional formats of analog design—such as letterpress printing—there always seemed to be a disconnect between my perception and understanding of design fundamentals and their correlation to digital technology. When I began studying the history of graphic design, I began to see connections between the tools and processes of modern graphic design software and the traditional tools and processes used during the early years of graphic design. I was finding that there was a much larger history to graphic design prior to the desktop publishing revolution that had a direct impact on the workflow of the modern graphic designer. I soon realized that as a graphic design student of the digital age, I was at a disadvantage when it came to my perception and understanding of design fundamentals as the correlation between design fundamentals and digital technology is less tangible than it had been with analog technology.

When I began my graduate studies in graphic design, I became interested in further exploring

the "maker's movement" and the resurgence of traditional formats of analog design—such as letterpress printing. I desired to learn more about the materials, tools, and processes of graphic design before the desktop publishing revolution of the 1980s in order to improve my perception and understanding of design fundamentals as well as my workflow as a graphic designer of the digital age. As part of the requirements for my graduate studies, I had to complete a practicum experience. I chose to complete my practicum at a working letterpress print shop and studio where I would have the opportunity to learn and practice the intricacies of typography and visual composition through *hands-on* experiences with letterpress printing and movable type. What I experienced firsthand reaffirmed what I had already suspected—that through the use of manual crafts, I could more easily see the tangible correlation between design fundamentals and traditional formats of analog design and how this knowledge applies in the digital age. By stepping away from the computer screen, I was able to learn directly from the tools and processes found only through *hands-on* experiences in traditional formats of analog design—such as letterpress printing.

This thesis investigates a strategy for incorporating traditional formats of analog design—such as letterpress printing—into collegiate level online instruction as pedagogical tools, increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals. Although there are many different formats of analog design, this thesis seeks to focus on only one such example: letterpress printing. As the main form of printing for nearly 500 years, the art of letterpress printing served a significant role in advancing the practice (and profession) of graphic design to where it is today. Many of the digital tools and processes of modern design software come directly from the tools and processes found in the manual craft of letterpress printing. As such, an in-depth study of letterpress printing may further support the case for incorporating traditional formats of analog design into collegiate level online instruction as pedagogical tools, increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals.

While the instruction in design fundamentals is applicable to both analog and digital design formats, there has been a definitive change in how these design fundamentals are perceived and understood by the graphic design students of today's digital age—especially online/remote learners. Prior to the desktop publishing revolution of the 1980s, the curriculum and methods used in the instruction of design fundamentals at the collegiate level had a direct, tangible correlation with the analog technology of the time. That is, the *hands-on* experiences involved in the instruction of design fundamentals prior to the desktop publishing revolution of the

1980s utilized the same formats of analog design that were used in the practice (and profession) of graphic design at the time. As graphic design students transitioned from the classroom into the workforce, they could easily see the direct correlation between the design fundamentals they were taught in their collegiate graphic design programs and the materials, tools, and processes (or workflow) of the graphic design profession.

A study of the use of letterpress printing in collegiate graphic design programs reveals that prior to the digital age, letterpress printing and manual typesetting were often required coursework experiences for graphic design students. The exposure to letterpress printing allowed students to learn and practice the intricacies of typography and visual composition through *hands-on* experiences working with movable type. In addition, these same *hands-on* experiences revealed a direct, tangible correlation between letterpress printing and design fundamentals as the materials, tools, and processes necessary for engaging in letterpress printing and manual typesetting allowed students to experience the physicality of design fundamentals firsthand. Without digital tools such as the Macintosh and desktop publishing, students were forced to make intentional design decisions with their hands instead of relying on a computer and software to make similar design decisions for them. After the invention of the Apple Macintosh computer and desktop publishing during the 1980s, the practice (and profession) of graphic design saw a shift from analog to digital—significantly changing the workflow of the modern graphic designer as well as the curriculum and methods of graphic design education.

Once the Macintosh and desktop publishing became an integral part of the designer's workflow in the late '80s and early '90s, the use of traditional formats of analog design—such as letterpress printing—decreased substantially. With a completely new way of designing, the introduction of the Macintosh and desktop publishing lead to a significant decline in the use of manual craft for teaching graphic design in the digital age. As such, the graphic design students of today's digital age—especially online/remote learners—have a disadvantage when it comes to their perception and understanding of design fundamentals as the correlation between design fundamentals and digital technology is less tangible than it had been with analog technology. Instead of focusing on the use of manual craft for teaching graphic design, the introduction of digital technology made graphic design curriculum more technical, and as a result, students saw less of a tangible correlation between the new technology and the instruction of design fundamentals.

Traditional formats of analog design—such as letterpress printing—are not being included to the fullest extent in the curriculum and methods

of today's collegiate graphic design programs. The main emphasis of graphic design education in the digital age continues to revolve around students' technical expertise in learning the newest technologies and software, resulting in less opportunities to incorporate traditional formats of analog design and other manual crafts. While collegiate graphic design programs and educators alike strive to find the perfect balance between the technical aspects of digital technology and the instruction of design fundamentals, traditional formats of analog design—such as letterpress printing—could serve as the missing link connecting digital technology and design fundamentals.

Since collegiate level online instruction is digitally based and lacking in analog engagement, online/remote learners are at a greater disadvantage than residential students without access to physical studio spaces, labs, and the materials and tools necessary for engaging in *hands-on* experiences with traditional formats of analog design—such as letterpress printing. As a result, online/remote learners are not able to see the correlation between design fundamentals and digital technology as easily without opportunities for *hands-on* experiences. Although collegiate educators are continuously exploring new ways to adapt traditional, in-person classroom experiences for the online/remote learning environment, the common consensus by academics in higher education seems to support the use of kits as an effective solution for bringing *hands-on* experiences to online/remote learners.

As such, the visual solution for this thesis uses a kit to serve as a *hands-on* educational resource for use by educators and students alike in collegiate level online instruction in design fundamentals. The kit is specifically designed as a pedagogical tool to help improve the perception and understanding of design fundamentals by online/remote learners through opportunities for *hands-on* experiences with traditional formats of analog design. While the use of the kit could eventually be tailored to also include the traditional, in-person classroom, it is initially being designed as an educational resource to meet the needs of collegiate level online/remote learners and educators—ultimately increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals in the online/remote learning environment.

The objective of this thesis remains to improve the perception and understanding of design fundamentals by online/remote learners through opportunities for *hands-on* experiences with traditional formats of analog design—such as letterpress printing. As a result, online/remote learners will gain a better understanding of the tangible correlation between traditional formats of analog design and design fundamentals and how this additional knowledge can be incorporated into the digital age.

CHAPTER 2:

RESEARCH

Research Problem & Research Statement

RESEARCH PROBLEM:

Prior to the desktop publishing revolution of the 1980s, the curriculum and methods used in the instruction of design fundamentals at the collegiate level had a direct, tangible correlation with the analog technology of the time. Unfortunately, the graphic design students of today's digital age—especially online/remote learners—have a disadvantage when it comes to their perception and understanding of design fundamentals as the correlation between design fundamentals and digital technology is less tangible than it had been with analog technology.

RESEARCH STATEMENT:

This thesis investigates a strategy for incorporating traditional formats of analog design—such as letterpress printing—into collegiate level online instruction as pedagogical tools, increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals. The objective of this thesis is to improve the perception and understanding of design fundamentals by online/remote learners through opportunities for *hands-on* experiences with traditional formats of analog design—such as letterpress printing. As a result, online/remote learners will gain a better understanding of the tangible correlation between traditional formats of analog design and design fundamentals and how this additional knowledge can be incorporated into the digital age.

Research Questions & Sub-Questions

- **How can traditional formats of analog design—such as letterpress printing—be used as pedagogical tools for increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals?**
  - *How can traditional formats of analog design—such as letterpress printing—be incorporated into the curriculum and methods of collegiate level online instruction for teaching design fundamentals?*
  - *How can **hands-on** experiences with traditional formats of analog design—such as letterpress printing—be used to improve the perception and understanding of design fundamentals by the graphic design students of today's digital age—especially online/remote learners?*
- **How has the curriculum and methods used in the instruction of design fundamentals changed since the desktop publishing revolution of the 1980s?**
  - *What types of pedagogical strategies can be implemented by graphic design educators at the collegiate level to bridge the gap between analog and digital design formats?*
  - *How are traditional formats of analog design—such as letterpress printing—currently being incorporated into the online/remote learning environment?*
- **What tangible correlations can be made between traditional formats of analog design and design fundamentals?**
  - *How can traditional formats of analog design be used to establish a definitive list of the elements and principles of design fundamentals?*
  - *How can traditional formats of analog design be used to bridge the gap between design fundamentals and their correlation to digital design formats?*
- **What can be learned about the field of graphic design from a historical perspective—especially as it pertains to modern teaching methods?**
  - *How can a historical analysis of graphic design provide a modern framework for understanding the potential impact of incorporating traditional formats of analog design—such as letterpress printing—into collegiate level online instruction as pedagogical tools?*
  - *How can the study of graphic design history better inform the understanding of both analog and digital design formats and their relationship to design fundamentals?*
- **How can the understanding of design theories from the past and/or present help to inform the current state of graphic design education and the field as a whole?**
  - *What are the current theories and educational methods behind graphic design education at the collegiate level?*
  - *What theories and educational methods were previously employed in formal graphic design programs at the collegiate level?*

Research

Introduction

The following research provides a summary of the role of traditional formats of analog design —such as letterpress printing—in the curriculum and methods used in the instruction of design fundamentals. Beginning with a historical analysis, the research traces the development of graphic design from practice, to profession, and eventually, to the creation of formal graphic design programs at the collegiate level. With a further analysis of design theories and the introduction of new technologies during the Digital Revolution, the research tracks the tangible correlation between traditional formats of analog design and design fundamentals and how this additional knowledge is relevant in today's digital age.

Graphic Design: Practice vs. Profession

While the profession of graphic design is relatively young, the practice of graphic design has a much older history. Although the historical timeline for graphic design often begins with cave paintings (much like the study of art history), for the purposes of this research, the beginning of graphic design as a practice can most easily be traced to the Middle Ages when "today's design fields began as *trades*, rather than *professions*" (Davis, *Teaching Design* 3). The idea of graphic design as a *trade* is a direct result of early designers being taught specific skills through apprenticeships. In this manner, designers were educated in the technological advancements and styles of the time such as the formal layout and set of conventions of the codex, medieval manuscripts, printing press, and movable type. These early technological advancements and styles had a direct impact on the practice of graphic design and ultimately lead to the creation of today's design profession.

Fig. 2.1

"The typefounder is depicted pouring the melted lead into the type mold to cast a character" (Meggs 78).

Fig. 2.2

"One printer is shown removing a newly printed sheet from the press while the other one inks the type" (Meggs 78).

Fig. 2.3

"The illuminator, who originally applied gold leaf and color to manuscripts, continued his craft on the typographically printed page" (Meggs 78).

The Codex/Medieval Manuscripts

Though often overlooked as a significant contributor to the practice of graphic design, the use of the codex and manuscripts during the Middle Ages provided a solid foundation for promoting the practice of graphic design. As stated in *Graphic Design History: A Critical Guide*:

> "As the technology of the codex (individual pages of uniform size, bound in sequence) replaced the scroll, graphic conventions for the layout and organization of books developed. The textual structure of manuscripts laid the formal and functional foundation for the conventions of later print culture" (Drucker and McVarish 51).

The codex provided a formal layout and set of conventions for "designing" with image and text, while the manuscripts of the time provided the opportunity for scribes from this period to demonstrate the use of these conventions firsthand. While the codex served to systematically group together multiple "pages" of manuscripts, the manuscripts themselves exhibited the beginnings of typographic conventions. As noted by Patrick Cramsie, "our word spacing, punctuation, use of headings, margins, borders and annotations all became established during the making of the medieval manuscript" (47). As the early practice of graphic design began to grow out of the codex and medieval manuscripts during the Middle Ages, another change in the practice of graphic design was on the horizon—the advent of the printing press and movable type.

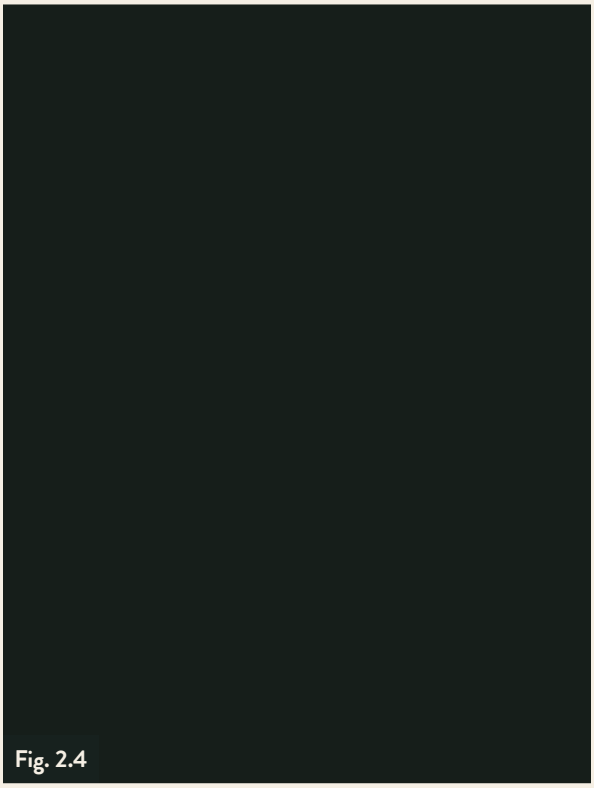


Fig. 2.4

"Book structure, late twelfth century" (Drucker and McVarish 52).

Fig. 2.5

"A monk at work on a large manuscript page" (Drucker and McVarish 44).

The Printing Press/Movable Type

The invention of the printing press and movable type is most often associated with Johannes Gutenberg during the Renaissance period following the end of the Middle Ages. This technological advancement proved critical to advancing the practice of graphic design and would ultimately serve a significant role in the graphic design profession for over 500 years in the form of letterpress printing. The printing press incorporated previously-existing technologies and processes as the design process of the printing press "emulated the conventions of calligraphic writing on vellum; typography was modeled on the penmanship of scriptorium; [and] images and color embellishment continued to be added to the printed page by hand, emulating the methods of the monastery" (Armstrong, *Digital Design Theory* 64-65). The significance of the codex and medieval manuscripts was also still evident during the Renaissance as "medieval letterforms and layout conventions served as the first models for Renaissance typography and book design" and "the proportions of manuscript pages were carried over as the foundation of harmonious compositions for print" (Drucker and McVarish 71). As a result, the previously-established formal layout and conventions of the codex and medieval manuscripts became an integral part of the design process of the printing press, and by extension, the practice of graphic design.

Fig. 2.6

Gutenberg's printing press in use alongside compositors setting type at type cases (*Printing Press*, History.com).

Fig. 2.7

"Gutenberg Bible, Mainz, c. 1455" (Cramsie 73).

Fig. 2.8

"Gutenberg taking an impression" (*Printing Press*, Wikipedia).

The History of Graphic Design Education in the United States

The practice of graphic design did not fully transition into a profession until the creation of formal graphic design programs at the collegiate level. As Meredith Davis discusses in *Teaching Design*:

> "The history of design practice, therefore, is one of transition from trades to professions; from purely instrumental know-how gained through employment to academic preparation that includes study of the discipline as well as the practice—that is, the theories, perspectives, and discourse that underpin professional decision-making" (5).

A quick study of the history of graphic design education reveals that like many areas within the field of art and design, the creation of collegiate design programs can be traced back to the influence of the Bauhaus school in Germany. Although many factors contributed to the collegiate study of graphic design, the following summary of the history of graphic design education in the United States is meant to showcase the direct influence of the Bauhaus and its foundation course on the creation and implementation of formal graphic design programs at the collegiate level.

The Bauhaus

To better understand the role of the Bauhaus and its influence on graphic design education in the United States, a review of the Bauhaus' history should first be undertaken. In the simplest of terms, the Bauhaus was a German art school that sought to unify the arts under one roof. Open from 1919 to 1933, "Bauhaus designers sought an expressive visual language to promote the industrial prowess of Germany at a time when the country needed to rebuild its economy" (Davis, *Graphic Design Theory* 153). As a result, the emphasis of the school's curriculum focused on combining craft and industrialization, calling to mind "the medieval guilds of craftsmen that served as an inspiration for the school at the time of its founding" (Eskilson 216). Today, the Bauhaus is recognized as both an influential art school in Germany as well as a stylistic movement in art and design's history. To better understand the impact of the Bauhaus on art and design today, Patrick Cramsie eloquently writes:

> "Of the many varied styles of graphic design to emerge during the twentieth century, none was as influential as the Bauhaus. Nearly all subsequent styles were built on the foundations it laid or else developed in direct opposition to it. Few could ignore it. The dominant Modernist graphic designers of the twentieth century incorporated its main characteristics into their work, and many designers today continue to do so, whether they are conscious of it or not" (Cramsie 189).

Of the most influential aspects of the Bauhaus, the preliminary foundation course taken by all Bauhaus students had the greatest impact on art and design and continues to be an influence upon graphic design education today.

The Bauhaus Foundation Course

The use of a foundation course for the instruction of design fundamentals is at the heart of most—if not all—formal graphic design programs at the collegiate level today. Although the idea of a preliminary foundation course of this nature was not exclusive to the Bauhaus, the foundation course, or *vorkurs* in German, became the hallmark of the Bauhaus with its emphasis on "principles of composition, construction, and appreciation of materials" (Drucker and McVarish 202). As Meredith Davis writes:

> "The Vorkurs was—and still is in many colleges and universities—the model for the foundation year of art and design study. So strong is the Bauhaus impact on first-year curricula that many schools still resist any challenge by alternative approaches arguably better suited to contemporary times. Under this application of Bauhaus projects, there is an assumption that design study begins with abstraction and that any design problem can be resolved through form alone" (Teaching Design 30).

A review of graphic design education's history reveals that the Bauhaus foundation course also became a hallmark of mid-twentieth century art and design programs in the United States. As Bauhaus educators migrated to the United States from Germany before the start of World War II, they accepted collegiate faculty positions and created new programs in art and design based upon the ideas and fundamentals of the Bauhaus.

Fig. 2.9

Screenshot from *Josef Albers teaching at Yale by John Cohen, c. 1955* (Josef and Anni Albers Foundation, Vimeo.com)

Yale University's Graphic Design Program & Josef Albers

Of the many institutions in the United States impacted by the Bauhaus influence, Yale University saw one of the most direct impacts in the creation of their formal graphic design degree program in 1950 and their appointment of one of the original Bauhaus masters—Josef Albers—as head of the newly-created department of design. Prior to the 1950s, other institutions offered courses in graphic design, but "Yale University was the first in [the United States] to establish a degree program in graphic design" (Kelly, *The Early Years of Graphic Design at Yale University* 3). Similar to the Bauhaus, the curriculum of Yale University's graphic design program sought to unify the arts as "students were expected to perform competently in all the areas of design, typography, printmaking, and photography" (9). By requiring courses in each of these areas, the program was treated as a whole which ultimately "strengthened the interrelationships between the various areas and, combined with team-teaching of sorts, made

graphic design at Yale different from design instruction at the majority of other schools" (9). Albers' influence at Yale was also as equally important as the Bauhaus influence. Josef Albers—who had once been an instructor of the Bauhaus Vorkurs—brought an entirely different pedagogy to the collegiate study of art and design. When students completed one of Albers' courses, they were able to apply what they learned and view their own work, as well as others, in an entirely new way. A common response from Yale graduates who had studied under Albers was, "Albers taught me to see" (Kelly, *Recollections of Josef Albers* 3). His approach to teaching and his use of Bauhaus ideas and fundamentals in the classroom promoted the growth of the graphic design profession and ultimately lead to the creation of other collegiate graphic design programs based on the program at Yale. As Rob Roy Kelly succinctly writes:

> "Seldom has a single school or program had such an immediate and overwhelming impact on any profession as did graphic design at Yale University during the 1950s and 1960s. It had a similar impact on design education. By 1968, graphic design programs were beginning to surpass advertising programs at American art schools and universities" (Kelly, *The Early Years of Graphic Design at Yale University* 14).

Yale's graphic design program and Albers' pedagogy both promoted the professional practice of graphic design and the structure of collegiate graphic design programs to the state in which we know them today.

Graphic Design Theory

As the graphic design profession became more established in the mid-twentieth century through formal collegiate graphic design programs, design education saw an increased interest in design theories. Prior to the creation of formal collegiate graphic design programs, most designers approached the practice of design pragmatically and the profession of graphic design through the lens of William Addison Dwiggins. Most famously, Dwiggins is recognized as having coined the term "graphic design"; however, his written work and lectures helped bridge the gap between the practice of design and design theory as he promoted the idea that "a systematic approach to design depended on rules and elements in combination—the syntax and semantics of graphic design" (Drucker and McVarish 218). As both the practice and profession of graphic design became more established, various design theories were proposed and implemented—especially in design education. At the collegiate level, educators began to look for ways to incorporate theory into the classroom. Although students were still being instructed in design fundamentals and the technologies and styles of the time,

> "academics argued that graphic design was more than the mere study of technique and technology, more than form and function—it was an intellectual pursuit that demanded philosophical fluency" (Bennett 11).

Of the various design theories that have developed over the years, modernism and post-modernism are two of the most well-known and prominent theories in existence. While each of these theories presented different viewpoints and occurred at different times during the twentieth century, "modernist and postmodernist thinking still have relevance today and their influences can be seen in contemporary designs as people seek to make sense of the world around them" (Ambrose and Harris 58). As such, the following review of modernism and postmodernism is not meant to over-simplify the vast topic of design theory, but rather, to emphasize the impact of these two theories on the field of art and design and their significance today.

Modernism

Modernism was one of the most prominent design theories during the mid-twentieth century. Popularized by experimental design schools such as the Bauhaus in Germany, modernism made its way to the United States and became "a codified form language of commercial art" (Bierut et al., *Looking Closer 2* 60). The defining element of modernism was the use of a grid to arrange imagery and text through "ideal, mathematical divisions of the page that controlled the size and placement of elements" (Davis, *Graphic Design Theory* 157). In the simplest of terms, modernism sought to create a universal design language through which designers "embraced an asymmetrical approach to layout with strict adherence to the grid, an emphasis on white space and sans serif typography, and the absence of decoration and embellishment" (Ambrose and Harris 58). Of the numerous movements to result from modernism, one of the most popular movements was the International Typographic Style, also referred to as the Swiss Style, which formalized a design system with exact specifications for how to design with grids and specific typefaces. While the International Typographic Style may have seemed restricting to some designers, the overarching design theory of modernism proved beneficial to providing structure and direction to the practice and profession of graphic design.

Postmodernism

Just as modernism became one of the most prominent design theories during the mid-twentieth century, postmodernism became one of the most prominent design theories of the late twentieth century. In the most obvious of ways, postmodernism came as a counter-reaction to the ideas of modernism and "sought to establish new standards—to break free from the structures of the grid" (Bierut et al., *Looking Closer 2* 3). Designers of the postmodern era sought new ways to approach design without a set of formalized conventions—ironically creating their own individual set of conventions as they explored different ways to push the boundaries of "anti-aesthetic" design. As Jeffery Keedy explains in *Looking Closer 5*, the ideas derived from postmodernism were:

> "more like an attempt to establish new rules, practices, and disciplinarity in place of the 'received wisdom' of modernism. Not just rule breaking, or a discarding of rules, but an exploration, expansion, and redefinition of the boundaries of design as a dynamic self-organizing system of possibilities, instead of a top-down hierarchy of rules" (Bierut et al. 100).

While postmodernism movements, such as deconstruction, saw an increased interest during the 1980s and '90s—especially in progressive design education programs—the new technological advancements in graphic design of the same period allowed designers to push the boundaries of "anti-aesthetic" design even further. As a result, design theory began to have a less prominent role in graphic design education due to the increase in technical instruction required by the new advancements in technology.

The Macintosh & Desktop Publishing

Other than the invention of the printing press and movable type during the Renaissance, no other technological advancement proved as critical to advancing the practice (and profession) of graphic design than the invention of the Apple Macintosh computer and desktop publishing during the 1980s. Recognized as part of the Digital Revolution, the use of these new technologies by graphic designers came as a result of:

> "affordable yet powerful hardware and software created primarily by three companies during the 1980s: Apple Computer developed the Macintosh computer; Adobe Systems invented the PostScript programming language underlying page-layout software and electronically generated typography; and Aldus created PageMaker, an early software application using PostScript to design pages on the computer screen" (Meggs and Purvis 571).

The combined use of Apple's Macintosh computer, PostScript typography, and desktop publishing software allowed designers to control every aspect of a project from start to finish. As Meredith Davis explains in *Graphic Design Theory*:

> "Computer technology collapsed the previously separate activities of typesetting, design, photographic processing, retouching, and, eventually, some printing under the responsibilities of the designer. Instead of passing off to specialists the various mechanical tasks necessary to bring art to print, the designer gained complete authority over the technical and formal creation of published work through design and photographic software" (208).

Furthermore, the Macintosh gave most graphic designers their first introduction to designing

Fig. 2.10

Screenshot from *Steve Jobs introducing the original Macintosh in 1984* (TECHWISE, YouTube.com)

Fig. 2.11

Screenshot from *Steve Jobs introducing the original Macintosh in 1984* highlighting Apple Computer's WYSIWYG raster graphics editor "MacPaint" (TECHWISE, YouTube.com)

Fig. 2.12

Screenshot from *Steve Jobs introducing the original Macintosh in 1984* highlighting Apple Computer's WYSIWYG word processor application "MacWrite" (TECHWISE, YouTube.com)

Fig. 2.13

Screenshot from *Steve Jobs introducing the original Macintosh in 1984* highlighting Apple Computer's range of system fonts (TECHWISE, YouTube.com)

with a graphical user interface (GUI). Through the Macintosh's revolutionary design-related feature of WYSIWYG (What You See Is What You Get), "what was shown on the screen more or less corresponded with what would be printed" (Cramsie 311). Designers now had the ability to make design changes in real time, and "the close correspondence between the screen-based design and the final output, coupled with the ability to manipulate the design through the Macintosh's point and press technology, encouraged designers to create entirely new graphic forms" (311). With a completely new way of designing, the Macintosh and desktop publishing proceeded to change both the practice (and profession) of graphic design as well as the curriculum and methods regarding graphic design education.

The Effects of the Macintosh & Desktop Publishing on Graphic Design Education

The introduction of the Macintosh and desktop publishing lead to a significant decline in the use of manual craft for teaching graphic design. As Steven Heller laments in *The Education of a Typographer:*

> "in the age of the computer, learning to actually draw letters or compose type on a page by hand was deemed unnecessary, so students bypassed basic typographic apprenticeships, where they would have learned the subtleties of composition, and went directly to setting their own type,

> using programs like PageMaker, Quark, or InDesign. Yet, as everyone knows, even with automatic kerning functions, the computer does not allow for the nuances that can be accomplished with handset, or even machine-set, type—this comes from experience, not algorithms" (vii).

The experiences that came from exposure to manual crafts such as calligraphy/hand lettering and letterpress printing provided additional learning opportunities for students that were not as easily attainable through the use of a computer. Prior to the age of the computer, "graphic designers would've been expected to have a decent number of lettering skills even if it were just to work up an initial layout. Then the computer completely removed the need for those skills" (Perry 14). In addition, the computer removed the need for students to learn how to set type by hand. Previously, the act of manual typesetting "taught students the idioms and vocabularies of type. Therefore, most students who lack such experience do not know why certain letterforms are harmonious with different weights or families, or why others are not" (Heller, *The Education of a Typographer* vii-viii). Instead of focusing on the use of manual craft for teaching graphic design, the introduction of digital technology made graphic design curriculum more technical, and as a result, students saw less of a tangible correlation between the new technology and the instruction of design fundamentals.

The State of Graphic Design Education Today

The state of graphic design education today is constantly evolving as advancements in both technology and software continue to be made. Consequently, graphic design curriculum continues to be focused on teaching the technical aspects of digital technology, and the computer "compels us to reexamine how and what we teach each time a new software version is released" and increases the pressure to "eliminate classes in drawing or color theory, or even a third semester of typography, in order to replace them with classes in computer skills" (Heller, *The Education of a Typographer* 95-96). While the instruction of design fundamentals is still incorporated into the curriculum and methods of most collegiate graphic design programs, the main emphasis of graphic design education in the digital age often revolves around students' technical expertise in the newest technology and software. As a result, "the typical graphic design student leaves school with a well-stocked portfolio and a résumé revealing a long list of computer skills, but very little understanding of the fundamental language [of design] and how to make it work" (viii). Furthermore, of the curriculum and methods used in the instruction of design fundamentals, many are "watered down courses modeled from the Bauhaus Foundation courses" (17). While collegiate graphic design programs and educators alike strive to find the perfect balance between the technical

aspects of digital technology and the instruction of design fundamentals, traditional formats of analog design—such as letterpress printing—could serve as the missing link connecting digital technology and design fundamentals.

The Challenges of Collegiate Level Online Instruction

Although the term "collegiate classroom" typically brings to mind the traditional, in-person classroom, consideration should also be given to the increase in collegiate level online instruction. While online/remote learning has seen varying degrees of success over the years, the COVID-19 pandemic brought to light the many challenges resulting from adapting traditional, in-person classroom experiences for the online/remote learning environment. In an article written at the end of the 2019-2020 collegiate academic year, Dr. Russell F. Pinizzotto analyzed how different university programs were affected by the COVID-19 pandemic, sharing how "programs that feature co-ops and internships, lab and studio courses, and practicums" were "affected more profoundly than others" (Pinizzotto). Within the arts, the use of manual crafts are such an intrinsic part of studio art courses that transitioning the *hands-on* approach of such studio art courses to the online/remote learning environment has usually been seen as incredibly difficult if not altogether impossible. Since collegiate level online instruction is digitally based and lacking in analog engagement, online/remote learners lack the ability to access physical studio spaces, labs, and the materials and tools necessary for creating specific types of art. Now, in the wake of the COVID-19 pandemic, collegiate educators of studio art courses are exploring creative ways in which they can implement some semblance of *hands-on* experiences for these online/remote learners. Recognizing the difficulties in bringing the *hands-on* approach of studio art courses to the online/remote learning environment, Kyle Dancewicz remarks how "there is still the fundamental problem concerning what kinds of art (and art instruction) a computer screen can do justice to [*sic*]" (Dancewicz). This brings to light the idea that the graphic design students of today's digital age—especially online/remote learners—have a disadvantage when it comes to their perception and understanding of design fundamentals as the correlation between design fundamentals and digital technology is less tangible than it had been with analog technology. Furthermore, a case can (and should be made) for incorporating traditional formats of analog design into collegiate level online instruction as online/remote learners are at a greater disadvantage than residential students without access to physical studio spaces, labs, and the materials and tools necessary for engaging in *hands-on* experiences with traditional formats of analog design—such as letterpress printing.

The challenges resulting from adapting the *hands-on* approach of studio art courses to

the online/remote learning environment as a result of the COVID-19 pandemic have further reinforced the need for finding ways in which to incorporate traditional formats of analog design into collegiate level online instruction as pedagogical tools. John Oppenheimer, an instructional designer/technologist at the University of Wisconsin-Madison, suggests a specific solution for incorporating *hands-on* experiences in programs that feature lab components, writing:

> "'Labs are certainly tough to do in an online course, but they're not impossible....you might be able to find kits your students can buy and have shipped to their location. A less likely option but one to consider is to build your own kit to send to students'" (Hibel).

Even though other approaches may need to be explored as collegiate educators look for new ways to adapt traditional, in-person classroom experiences for the online/remote learning environment, the common consensus by academics in higher education seems to support the use of kits as an effective solution for bringing *hands-on* experiences to online/remote learners. Professor Peter Decherney and Dr. Caroline Levander echo a similar sentiment with their observations of how collegiate educators approached the challenges of online/remote learning during the spring 2020 semester of the COVID-19 pandemic. Sharing examples of how educators adapted to the online/remote learning environment, Decherney and Levander write:

> "Can there be virtual lab work, fieldwork, clinical training or studio art? We have seen many creative examples...faculty are assembling kits of paints or circuit boards or lists of chemical compounds that can be sent to students who are learning at home" (Decherney and Levander).

While the state of graphic design education today is constantly evolving as advancements in both technology and software continue to be made, the new attention given to the increase in collegiate level online instruction as a result of the COVID-19 pandemic may help to further improve the ways in which graphic design educators at the collegiate level approach their curriculum and methods. Reflecting on the challenges of adapting traditional, in-person classroom experiences for the online/remote learning environment during the COVID-19 pandemic, Dr. Russell F. Pinizzotto writes:

> "Some of the innovative steps taken with co-ops, labs, and practicums may well remain after we return to 'normal.' If there is a silver lining to be had during this harrowing time, it may be in the innovative and positive improvements to our ways of learning and teaching" (Pinizzotto).

Now that collegiate graphic design programs have returned to a more "normal" state of pre-pandemic instruction, perhaps more attention will continue to be given to transitioning the

hands-on approach of studio art courses to the online/remote learning environment in order to improve the curriculum and methods of collegiate level online instruction. As a result, traditional formats of analog design could see an increased presence in online/remote learning as graphic design programs and educators look to improve the perception and understanding of design fundamentals and their correlation to digital technology for graphic design students of today's digital age.

The Challenges of Remote Learning Within the Field of Art & Design

Just as collegiate educators of studio art courses are exploring creative ways in which they can implement some semblance of *hands-on* experiences for online/remote learners, many different art and design studios and centers around the country are also looking for ways to adapt their in-person events to the online/remote learning environment. While many of these studios and centers are still primarily offering in-person workshops and presentations, they have also begun to offer online/remote learning opportunities through Zoom and other video conferencing applications. The website for the *Book Arts Guild* based in Seattle, WA has a specific webpage where they have compiled a list of book arts centers around the country with online offerings. Their website credits the COVID-19 pandemic with the increase in online workshops and presentations being offered:

> "One of the very few silver linings to a worldwide pandemic is that many arts organizations moved their workshops and presentations online. This means you could watch a studio tour in San Francisco, bind a book in Santa Fe and learn pop-ups in Kalamazoo, all without leaving your house. There are many free and pay-what-you-can events in addition to one-day and multi-day paid workshops" (*Book Arts Guild*).

The current listing on their website includes over ten different book arts centers across the U.S. providing some type of online offering. As more artists and designers continue to see the added value provided through these online offerings, this may further support the case for improving the curriculum and methods of collegiate level online instruction through opportunities for *hands-on* experiences with traditional formats of analog design—such as letterpress printing. While some of the online offerings do not require any advance preparation or specific supplies to participate, many of the coursework experiences do require kits for participation in the workshops and presentations. Some of the online offerings provide ready-made kits containing all of the necessary materials, tools, and supplies for engaging in the specific workshop or presentation, while other online offerings simply require the participant to build their own kit from a supplies list through Amazon or other individual retailers. In either scenario, the use of kits seems to be the most effective solution for bringing *hands-on* experiences to online/remote learners.

The Current Use of Letterpress Kits by Online/Remote Learners

The availability to letterpress printing was significantly impacted by the COVID-19 pandemic. Without access to letterpress printing studios, labs, and workshops, students, educators, and designers were unable to engage in letterpress printing. Since that time, various letterpress printers and designers have explored creative ways in which to make the *hands-on* experience of letterpress printing and manual typesetting a more portable option. Some of the examples currently available are listed as follows:

F-Press

Tom Boulton—known as *Type Tom Dot Com* on his website and Instagram—is a UK-based letterpress printer, typographic designer, educator, and the creator of the *F-Press*. Boulton designed the *F-Press* during the COVID-19 pandemic "as a way to continue his practice and look to the future of letterpress" (*Type Tom Dot Com*). The *F-Press* is meant to be used as a home hobby printing press to help people more easily gain access to the manual craft of printing. Searching for a way to have a lighter press that could easily be carried around, Boulton used "a mixture of 3D printing, CNC cutting, and traditional hand crafting/woodworking" (*Type Tom Dot Com*). The *F-Press* is available for purchase from www.typetom.com and is designed to be easy to build and easy to use for both letterpress printing and linocut. Boulton admits the *F-Press* is "not designed or built to compete/replace industrial presses like a Vandercook or a Farley" (*Type Tom Dot Com*). Rather, the *F-Press* is simply another creative option for making the *hands-on* experience of letterpress printing and manual typesetting available to everyone.

Fig. 2.14

An overhead view of the *F Press* (*www.typetom.com*).

Fig. 2.15

An example of the print quality of the *F Press* using a woodcut (*www.typetom.com*).

Fig. 2.16

Many of the individual pieces needed for constructing the *F Press* (*www.typetom.com*).

Provisional Press

Steve Garst is a US-based artist, educator, and the designer/owner of the *Provisional Press*. Similar to the *F-Press*, the *Provisional Press* was created as an affordable tabletop proof press that "can act as a transitional press to enable students to make prints when they may not have access to a *[sic]* large steel presses" (*Provisional Press*). Garst created the *Provisional Press* in response to the COVID-19 pandemic in order to provide an inexpensive way for students to virtually learn the *hands-on* experience of letterpress printing and manual typesetting. Originally created as a DIY press, Garst provided open-source files for students and educators to build a *Provisional Press* using only a laser cutter and wood. Eventually, "universities started asking if [Garst] could produce kits to meet the needs of classes forced to deal with social distancing" (*Provisional Press*). As a result, the *Provisional Press* has now been expanded into a kit containing all of the necessary pieces for constructing an affordable letterpress available for purchase from www.provisionalpress.com. The *Provisional Press* has seen long-term success in the US as it continues to be used by students for remote studio classes and by studios and organizations for demonstrations and workshops.

Fig. 2.17

Many of the individual pieces needed for constructing the *Provisional Press* (*www.provisionalpress.com*).

Fig. 2.18

A frontal view of the *Provisional Press* (*www.provisionalpress.com*).

Fig. 2.19

An overhead view of the *Provisional Press* (*www.provisionalpress.com*).

Partners in Print: "Long Distance Letterpress" & Letterpress "Print Kit"

One of the organizations using the *Provisional Press* is the non-profit organization *Partners in Print*. Created out of Seattle's School of Visual Concepts (SVC) letterpress program, the mission of *Partners in Print* is to "[bring] people together by using old printing presses to amplify new voices, share knowledge, and spark creativity" (*Partners in Print*). As a result of the COVID-19 pandemic, the original SVC letterpress program created "Long-Distance Letterpress"—a way to offer classes over Zoom to learn from respected printers all over the world through live demonstrations and interactive Q&A sessions. *Partners in Print* still continues to offer these virtual classes and events today often using the *Provisional Press* as part of their instruction. In addition, *Partners in Print* created the "Print Kit" as a "portable letterpress print shop in a box for organizations, educators, and libraries" (*Partners in Print*). *Partners in Print* includes a *Provisional Press* within their "Print Kit" to help bring the *hands-on* experience of letterpress printing and manual typesetting to a wider audience. The "Print Kit" also contains other materials and supplies necessary for engaging in the manual craft of letterpress printing; however, the portability of the "Print Kit" is somewhat difficult as it is contained within a large plastic storage tote.

Fig. 2.20

The use of a *Provisional Press* as part of the *Partners in Print* "Print Kit" (*www.partnersinprint.org*).

Fig. 2.21

The *Partners in Print* "Print Kit"contained within a large plastic storage tote (*www.partnersinprint.org*).

While there are some variations of letterpress kits currently on the market, none of these examples are specifically designed to be used as pedagogical tools in collegiate level online instruction for increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals. Although some of the letterpress kits currently on the market could (and are) being used by collegiate educators and students alike, most of these kits are simply designed to provide all of the

necessary components for building a portable letterpress—they are not necessarily designed to be a comprehensive pedagogical tool including learning objectives and step-by-step instructions. As such, a strong case can be made for the creation of a letterpress kit containing all of the necessary materials, tools, and supplies for engaging in letterpress printing and manual typesetting that can be used to improve the perception and understanding of design fundamentals by online/remote learners.

A Case for Incorporating Traditional Formats of Analog Design into Collegiate Level Online Instruction

Traditional formats of analog design—such as letterpress printing—are not being included to the fullest extent in the curriculum and methods of today's collegiate graphic design programs. The main emphasis of graphic design education in the digital age continues to revolve around students' technical expertise in learning the newest technologies and software, resulting in less opportunities to incorporate traditional formats of analog design and other manual crafts. Sherry Freyermuth recognizes this phenomenon, writing: "as the field of graphic design becomes more technologically advanced, it becomes difficult to find time in the curriculum to slow down and utilize more tactile learning experiences in order to promote a new style of learning" (Freyermuth). Nevertheless, some collegiate graphic design programs have once again begun incorporating coursework experiences in traditional formats of analog design—such as letterpress printing—in order to improve the perception and understanding of design fundamentals for students of today's digital age. While "a superficial analysis might suggest that handcraft descended into irrelevance when the desktop publishing market exploded in 1985, a closer consideration shows that it continued to percolate" (Ings 182). Over the last decade, the practice (and profession) of graphic design has seen an increased interest in traditional formats of analog design prompting many students and educators alike to "actively engage with letterpress, serigraphy, model making, bookbinding and analogue photography" (181). Through the use of manual crafts, students are better able to see the tangible correlation between design fundamentals and traditional formats of analog design and how this knowledge applies in the digital age. Traditional formats of analog design also introduce students to *hands-on* experiences with design fundamentals as "tactility, weight, scale, texture, grain, smell and viscosity become new dimensions for many whose introduction to and immersion in graphic design has largely been as digital natives" (181). Since collegiate level online instruction is digitally based and lacking in analog engagement, online/remote learners are at a greater disadvantage than residential students without access to physical studio spaces, labs, and the materials and tools necessary for engaging in *hands-on* experiences with traditional formats of

analog design—such as letterpress printing. As a result, online/remote learners are not able to see the correlation between design fundamentals and digital technology as easily without opportunities for *hands-on* experiences. As such, a strong case can be made for incorporating traditional formats of analog design—such as letterpress printing—into collegiate level online instruction in order to improve the perception and understanding of design fundamentals by online/remote learners. In today's digital age, the use of manual craft for teaching graphic design may seem archaic; however, the benefit of incorporating traditional formats of analog design into collegiate level online instruction can best be seen as "a way of informing and better understanding aspects of current practice" (Heller, *The Education of a Typographer* 48). Although there are many different formats of analog design, this thesis seeks to focus on only one such example: letterpress printing. An in-depth study of letterpress printing may further support the case for incorporating traditional formats of analog design into collegiate level online instruction as pedagogical tools, increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals.

Letterpress Printing

As the main form of printing for nearly 500 years, the art of letterpress printing served a significant role in advancing the practice (and profession) of graphic design to where it is today. Many of the digital tools and processes of modern design software come directly from the tools and processes found in the manual craft of letterpress printing. Prior to the introduction of the Macintosh and desktop publishing, collegiate graphic design programs often required coursework experiences in letterpress printing and manual typesetting. Through these coursework experiences, students would learn and practice the intricacies of typography and visual composition through *hands-on* experiences working with movable type. Some collegiate graphic design programs have once again begun incorporating coursework experiences in letterpress printing and manual typesetting as they recognize the added value provided for students' understanding of design fundamentals:

> "By actually getting their hands dirty and realizing the arduous task of setting just a short phrase, they gain a better appreciation for the craft. Additionally, students learn hands on about vocabulary such as leading by actually using pieces of lead to create more space between their lines of text. The slower pace of the letterpress process helps reinforce the content that is typically set in the fast-paced digital world" (Freyermuth).

While modern design software's ability to automatically set type yields sufficient results, the attention to detail required by manual typesetting provides invaluable experience for learning and practicing the intricacies of typography and visual composition. In the book, *For the Love of Letterpress*, written by two of the instructors at the School of the Art Institute of Chicago's letterpress studio,

the specific benefits of working with movable type are explained:

> "Because they are invisible both in computer typesetting (referred to in Adobe InDesign software as "hidden characters") and in the final printed piece, spacing material and leading are a revelation to students....the invisible and hidden becomes visible to them, as solid matter filling the space between words and lines" (Ruggie-Saunders and Chiplis 35).

Steve Rigley, Head of Graphic Design at Glasgow School of Art, also recognizes the positive outcomes from including *hands-on* experiences with letterpress printing and movable type within their graphic design program. Rigley shares how "'default settings on the Mac stop students from really looking and making genuine design decisions. The actual restrictions of letterpress can be really liberating'" (Cooper et al. 56). Due to the positive outcomes from including coursework experiences in letterpress printing and manual typesetting within collegiate graphic design programs, many educators have begun to advocate for the inclusion of letterpress printing within their own programs.

Even students and designers who have taken coursework experiences in letterpress printing recognize the benefits of *hands-on* experiences with letterpress printing and movable type. One such designer, Laurie Szujewska, shares how working directly with a printing press introduced her to "the idiosyncrasies of hot typesetting, as well as to the origins of typesetting terminology" and provided her with "a visceral experience of letterforms as shapes and sculpture moving in space" (Heller, *The Education of a Typographer* 31). Designer and educator Robert L. Kelemen also describes his first experience with letterpress printing in a similar fashion:

> "suddenly, I was forced to consider the space between my modular blocks—the negative space—as true physical space" and "the seeing, and holding, of physical negative space in my hands drove this principle home in a way that all the years of talking about grid structure and manipulating imaginary 'whitespace' had not" (Kelemen 6-7).

While there are many benefits to learning letterpress printing and manual typesetting, the need to include physical spacing material between words and lines of text seems to continually rank as one of the most significant benefits amongst students and designers alike. Students from the School of Graphic Design at the London College of Printing agree, reporting how their exposure to letterpress printing and the physical act of manual typesetting:

> "1) aids in their understanding of the derivation of typographic terminology; 2) develops their appreciation of typographic form; and 3) helps them learn the system of spacing inherent in traditional and digital forms of setting. This system of spacing introduces them to the notion of grid structures, which has currency within the digital domain" (Heller, *The Education of a Typographer* 44).

While most sources typically promote the use of letterpress printing within the traditional, in-person classroom, the online/remote learning environment might benefit most from the use of letterpress printing as a pedagogical tool.

Since collegiate level online instruction is digitally based and lacking in analog engagement, online/remote learners are at a greater disadvantage than residential students without access to physical studio spaces, labs, and the materials and tools necessary for engaging in *hands-on* experiences with traditional formats of analog design—such as letterpress printing. As a result, online/remote learners are not able to see the correlation between design fundamentals and digital technology as easily without opportunities for *hands-on* experiences. In the article "Letterpress: Looking Backward to Look Forward," the authors recognize the benefits of including coursework experiences in letterpress printing and manual typesetting alongside computer-based coursework experiences in digital design formats, writing:

> "The benefits of teaching letterpress to graphic design students as a way of improving their understanding of typography are well documented. There is an argument for preserving 'craft' subjects including letterpress within the curriculum, as they foster immersive learning. The letterpress process is a significant teaching tool that complements, and can act in conjunction with, computer-based design education" (Cooper et al. 53).

Through the use of manual crafts, students are better able to see the tangible correlation between design fundamentals and traditional formats of analog design and how this knowledge applies in the digital age. By including coursework experiences in letterpress printing and manual typesetting alongside the technical instruction in the newest technologies and modern design

Fig. 2.22

Screenshot from *Letterpress Printing Vocational Film (1947)* showing a hand compositor selecting movable type (Dolce Press, YouTube.com).

Fig. 2.23

Screenshot from *Learning Typesetting* showing a hand compositor setting a line of type by hand in a composing stick (William Alexander, YouTube.com).

Fig. 2.24

Screenshot from *Letterpress Printing Vocational Film (1947)* showing a printer operating a platen printing press (Dolce Press, YouTube.com).

software, students are forced to step away from the computer screen and learn directly from the tools and processes found only through *hands-on* experiences in traditional formats of analog design. Many graphic design educators at the collegiate level, including Sherry Freyermuth, recognize the disadvantages of solely using the computer for teaching graphic design students of today's digital age:

> "It seems that the computer lab can be a place where students feel restricted and need to branch out from *[sic]* in order to explore the wide variety of approaches to graphic design knowledge and skills. New opportunities for tactile learning experiences are being explored in order to provide graphic design students in all computer based courses the opportunity to 'get [out] of the lab' and approach their work in a new way" (Freyermuth).

By using letterpress printing as a pedagogical tool in collegiate level online instruction, educators can improve the perception and understanding of design fundamentals by online/remote learners. As demonstrated by a number of sources—including collegiate educators and students alike—a strong case can be made for incorporating the use of letterpress printing into collegiate level online instruction in order for graphic design students of today's digital age—especially online/remote learners—to gain a better understanding of the tangible correlation between letterpress printing and design fundamentals and how this additional knowledge can be incorporated into the digital age.

Call for Theory or "Rules"

While the graphic design students of today's digital age are fluent in the newest technologies and software, their perception and understanding of the correlation between design fundamentals and digital technology is lacking. Just as past design theories such as modernism and post-modernism have provided comprehensive approaches to the practice (and profession) of graphic design, a design theory for today's digital age should be proposed for providing the modern designer with a comprehensive approach that strengthens the correlation between design fundamentals and digital technology. Lorraine Wild comments on the role of design theory within the practice of graphic design, acknowledging that:

> "'Theory has opened up a multitude of ways that we can understand our work, but it will not tell anyone how to produce a better or more interesting design. Graphic design will continue to be measured—or seen—through its visual manifestations, in all their variety'" (Heller, *The Education of a Graphic Designer* 179).

With this viewpoint in mind, a new, comprehensive approach to design theory should be implemented, focusing heavily on the intrinsic value of design elements and principles—essentially, the design fundamentals that guide and inform the work of graphic designers.

While past design theories have usually employed the specific definition of "abstract thought," design theory in today's digital age should employ the definition of "general or abstract principles of a body of fact," similar to the use of theory in the field of music as it refers to the structure and composition of a musical score. Audrey Bennett provides an interesting examination of graphic design theory today:

> "The question then is: what are graphic design's theories? It can be argued that the art-based principles of graphic design—including (but not limited to) contrast, hierarchy, repetition, alignment, and color—are in fact theories proven through a long history of successful experimentation in practice. Indeed, graphic designers—through professional practice—have tested and retested to the point where it makes sense to refer to these theories as laws or principles.... Yet within the discipline of graphic design these principles are not regarded as 'proven'" (Bennett 14-15).

In today's digital age, the need for a new, "proven" design theory to direct the actions of graphic designers is evident in the lack of perception and understanding of design fundamentals—especially as they pertain to digital design formats. The tangible correlation between traditional formats of analog design —such as letterpress printing—and design fundamentals may further support a new design theory as design fundamentals become seen as proven elements and principles informing the practice of visual composition.

Conclusion

The research acknowledged that the use of traditional formats of analog design—such as letterpress printing—could increase the effectiveness of the curriculum and methods used in the instruction of design fundamentals at the collegiate level. As a summary, the research began with a historical analysis tracing the development of graphic design from practice, to profession, and eventually, to the creation of formal graphic design programs at the collegiate level. A further analysis of design theories and the introduction of new technologies during the Digital Revolution highlighted the tangible correlation between traditional formats of analog design and design fundamentals and how this additional knowledge is relevant in today's digital age. Finally, a case was made for using letterpress printing as a pedagogical tool in collegiate level online instruction in order to improve the perception and understanding of design fundamentals by online/remote learners since online/remote learners are not able to see the correlation between design fundamentals and digital technology as easily without opportunities for *hands-on* experiences in traditional formats of analog design. Furthermore, through the incorporation of traditional formats of analog design—such as letterpress printing—into collegiate level online instruction, a new design theory may emerge as design fundamentals become seen as proven elements and principles informing the practice of visual composition for graphic design students of today's digital age.

CHAPTER 3:

VISUAL PROCESS

Visit to the Hamilton Wood Type and Printing Museum

When I began my graduate studies in graphic design, I became interested in further exploring the "maker's movement" and the resurgence of traditional formats of analog design—such as letterpress printing. I desired to learn more about the materials, tools, and processes of graphic design before the desktop publishing revolution of the 1980s in order to improve my perception and understanding of design fundamentals as well as my workflow as a graphic designer of the digital age.

As many of the digital tools and processes of modern design software come directly from the tools and processes found in the manual craft of letterpress printing, it seemed that a *hands-on* experience with letterpress printing and manual typesetting could serve as a natural introduction to traditional formats of analog design and their connection to the digital age. Although I had seen videos and imagery of letterpress printing, I never had any *hands-on* experiences with letterpress printing and manual typesetting, so I set out to find opportunities for myself to experience the manual craft of letterpress printing firsthand.

My first *hands-on* experience with letterpress printing occurred at the Hamilton Wood Type and Printing Museum in Two Rivers, Wisconsin. Known for being home to the largest collection of wood type in North America, this working museum provides visitors the opportunity to see their vast collection of wood type, printing presses, and the machines and tools used to manufacture wood type. At the height of the letterpress printing industry, the original Hamilton Manufacturing Company was the largest wood type producer in the United States, so there is much to gain from a visit to today's museum. As a working

museum, there is a press room where visitors can gain *hands-on* experience with letterpress printing using wood type, printing presses, and ink. As such an invaluable resource for typography and the field of graphic design, I knew the Hamilton Wood Type and Printing Museum would be a great introduction to learning the art of letterpress printing; however, what I was not prepared for was how impactful my museum visit would be in improving my perception and understanding of design fundamentals.

Being able to have a *hands-on* experience with letterpress printing allowed me to see the tangible correlation between letterpress printing and design fundamentals. While it sounds a bit cliché, my introduction to letterpress printing was an "a-ha" moment in which I experienced the physicality of design fundamentals firsthand. Whatever disconnect I felt in the past between design fundamentals and their correlation to digital technology was eliminated by my *hands-on* experience with letterpress printing. It was as if having a *hands-on* experience with a traditional format of analog design—in this case, letterpress printing—served as the missing link connecting digital technology and design fundamentals. While my visit to the Hamilton Wood Type and Printing Museum was brief, I had enough exposure to the manual craft of letterpress printing that I knew I wanted to eventually pursue this area of study for my thesis topic.

Fig. 3.1


Fig. 3.2


Fig. 3.3


Fig. 3.4

Fig. 3.5

Fig. 3.1 - The exterior of the Hamilton Wood Type and Printing Museum in Two Rivers, WI.

Fig. 3.2 - An example of a three-color print that required three individual woodcuts for printing each layer.

Fig. 3.3 - Assorted wood type.

Fig. 3.4 - Pulling my first-ever letterpress print on a proof press. You can clearly see the excitement on my face.

Fig. 3.5 - Printing a second color on the first letterpress print.

Practicum Experience at Bayview Printing Co.

After my visit to the Hamilton Wood Type and Printing Museum, I sought out additional opportunities for *hands-on* experiences in letterpress printing and manual typesetting. For the practicum requirement of my graduate studies, I chose to complete my hours at Bay View Printing Co. in Milwaukee, Wisconsin—a working letterpress print shop and design studio—where I would have more time for *hands-on* experiences with letterpress printing. During my practicum, I was taught how to use many of the presses and antique printing/finishing equipment around the shop ranging from Chandler and Price platen presses to cylinder proof presses such as the Vandercook #4 and Challenge Model E. In addition, much of my time during my practicum was spent searching through the wide selection of wood and metal type cabinets for various typefaces needed for both my own practicum project as well as the shop's printing needs. Having little experience in letterpress printing and manual typesetting up to this point, my practicum became one of the greatest opportunities for becoming fully immersed in letterpress printing. By being able to independently operate the letterpress shop's presses and antique printing/finishing equipment, I was transported to a pre-digital era when every design decision required meticulous planning and a great attention to detail.

Although the process of letterpress printing and manual typesetting is pretty straightforward, there is also a lot of "trial and error" in the preparation leading up to producing a final printed piece. While I printed many projects for my practicum on the shop's Vandercook #4 proof press (which contains a self-inking roller), one of the greatest learning opportunities came from using the Challenge Model E Cylinder Proof Press which does not utilize a self-inking

roller or a stationery press bed. Instead, the proof press requires the use of a galley tray that is moved through the press via a movable press bed. This required extra precision as all of the movable type had to be set in a galley tray that moves through the press as opposed to simply being set directly in the bed of the press like a traditional proof press. In addition, the type has to be inked by hand with a rubber brayer as opposed to the cylindrical roller on the press applying the ink to the set type.

While my practicum experience lasted for only one semester, my time in the print shop forever changed my view of graphic design. Just as I had encountered at the Hamilton Wood Type and Printing Museum, I had the opportunity to experience the physicality of design fundamentals firsthand. The need to include physical spacing material between words and lines of text made me focus on the negative space just as much as the set type itself. Additionally, the attention to detail required by manual typesetting made me appreciate the intricacies of typography and visual composition even more. Without the use of design software, the manual craft of letterpress printing and manual typesetting is a very tactile experience—it is literally in the hands of the designer.

Fig. 3.6 - The exterior of Bayview Printing Co. in Milwaukee, WI.

Fig. 3.7 - Fig. 3.8 - The interior of the letterpress print shop located in the basement of the building.

Over the course of my practicum, I had the opportunity to work on three major projects. One of the first projects I was assigned was creating two different 5x7 letterpress prints for the Milwaukee-area Oak Leaf Trail. Each of the prints were two-color prints requiring me to print the background first and the type second. The background of the prints utilized the back-sides of wood type for printing.

Fig. 3.9 - The final versions of the Oak Leaf Trail letterpress prints created using a combination of wood type and lead type.

Fig. 3.10 - Fig. 3.12 - Close-up shots of the Oak Leaf Trail letterpress prints. You can really see the deep impression that letterpress leaves in the paper as well as the textures and imperfections of the back-sides of the wood type.

Fig. 3.6


Fig. 3.7

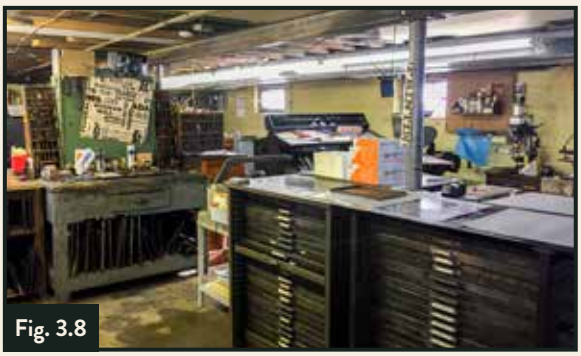


Fig. 3.8

Fig. 3.9


Fig. 3.10

Fig. 3.11

Fig. 3.12


Fig. 3.13


Fig. 3.14

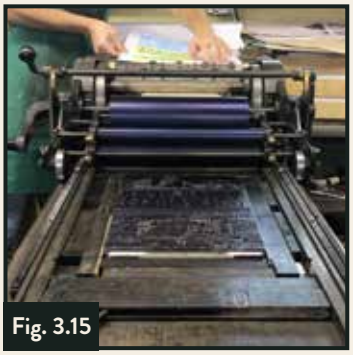


Fig. 3.15


Fig. 3.16

Fig. 3.17

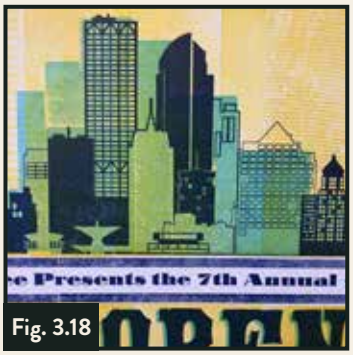


Fig. 3.18

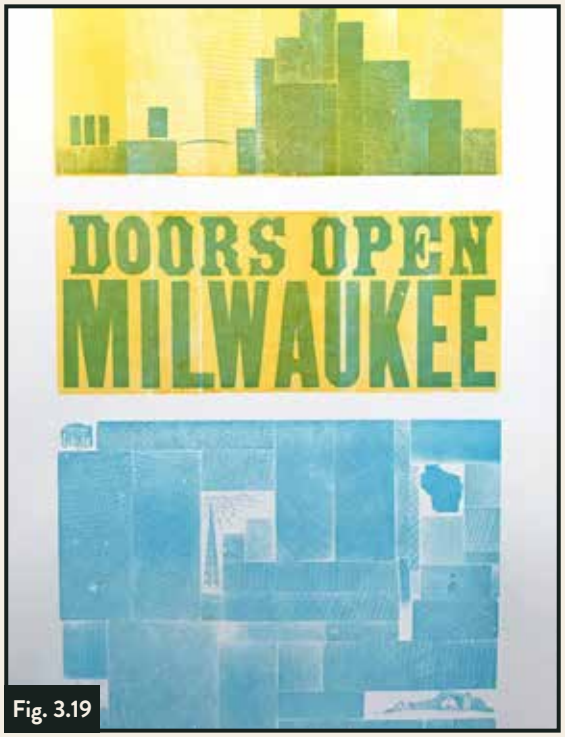


Fig. 3.19

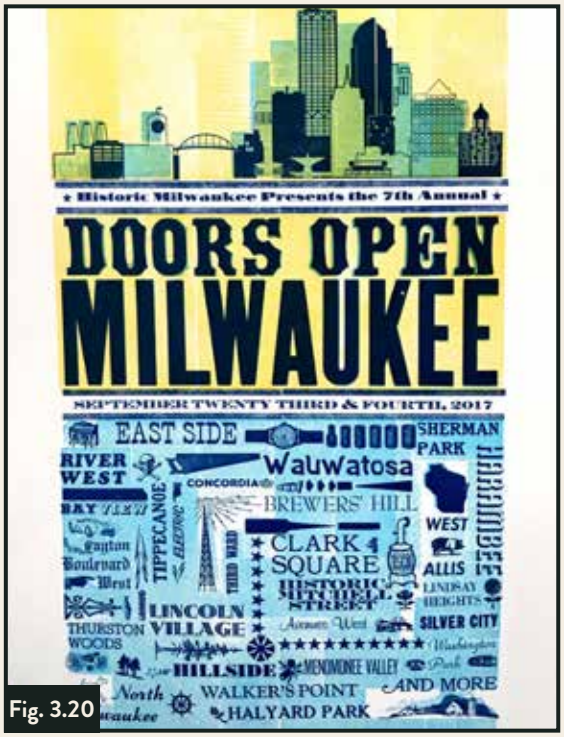


Fig. 3.20

The second major project with which I assisted was printing each layer of the three-color posters for the annual "Doors Open Milwaukee" event. While I cannot take credit for the design of the final layer of set type and imagery, I was responsible for selecting the wood type needed for printing the two background colors. Once again, I utilized the back-sides of wood type for printing the background of these posters. This experience was also valuable for learning about mixing inks and ensuring proper registration while printing the same poster three separate times—one time for each color.

Fig. 3.13 - The set type and imagery for the third and final layer.

Fig. 3.14 - The set type and imagery inked and ready to print.

Fig. 3.15 - Pulling the first of over 200 prints for the final printed layer of the "Doors Open Milwaukee" poster on a Vandercook #4 Proof Press.

Fig. 3.16 - Rows and rows of three-color printed posters.

Fig. 3.17 - Fig. 3.18 - Close-up shots of the final printed poster.

Fig. 3.19 - The "background" of the poster made up of the first two printed layers prior to the third and final layer being printed.

Fig. 3.20 - The final printed poster after the third layer was printed.

My final practicum project required the utmost attention to detail as I created signage for each of the antique presses within the shop. This was a great opportunity for me to use a combination of wood type and metal type for creating a cohesive set of signs that detailed the history of each antique press within the shop. As the final, significant body of creative work for my practicum, I truly learned the art of being a typesetter as I painstakingly hand-set line after line of metal type. After each sign was printed, the type had to be returned back to the type case before beginning the process over again for the next sign.

Fig. 3.21 - A type case containing individual characters of metal type.

Fig. 3.22 - Assorted wood type and metal type inside of a galley tray.

Fig. 3.23 - Fig. 3.24 - Hand-setting line after line of metal type within a composing stick.

Fig. 3.25 - Assorted wood type and metal type set inside of a galley tray and ready to print on a Challenge Model E Cylinder Proof Press.

Fig. 3.26 - Fig. 3.30 - Some of the final versions of the signage created for each of the antique presses within the shop.


Fig. 3.21


Fig. 3.22


Fig. 3.23


Fig. 3.24

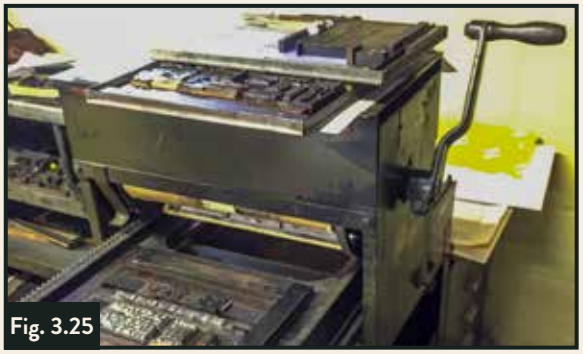


Fig. 3.25

Fig. 3.26

Fig. 3.27

Fig. 3.28

Fig. 3.29

Fig. 3.30

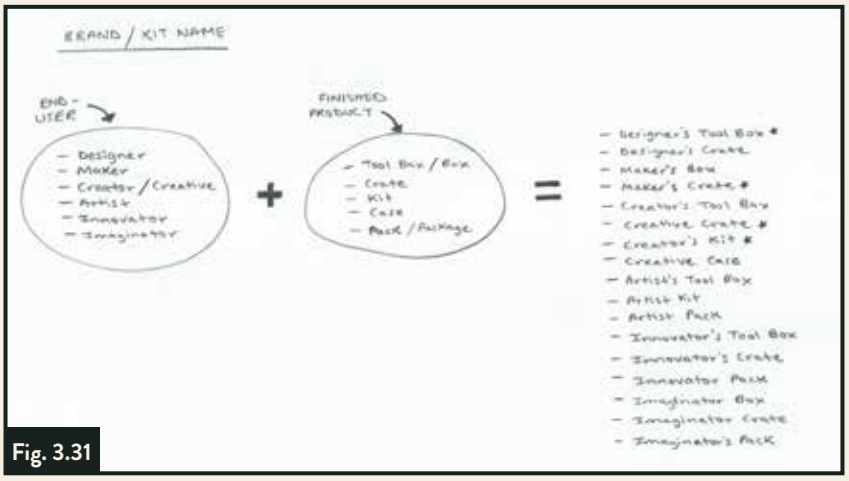


Fig. 3.31

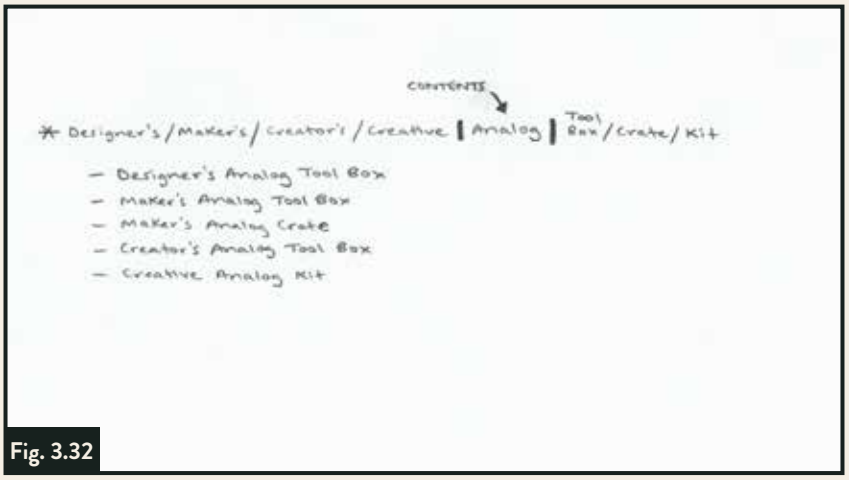


Fig. 3.32

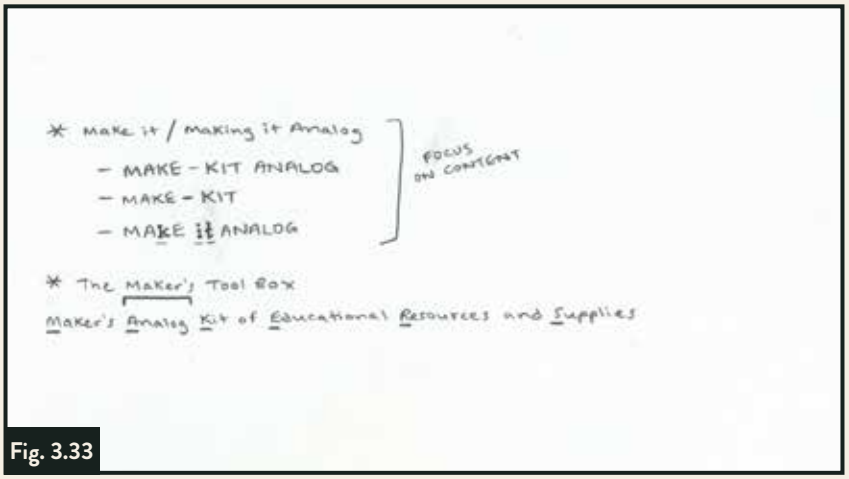


Fig. 3.33

Choosing a Company Name and Logo

Fig. 3.31 - *End-User + Finished Product = Company Name*

In creating a company name for my letterpress kit, I first began by drawing a very elementary mind map. Essentially, I tried to find a way to visually organize my thought process on paper to help brainstorm company name ideas as well as document my thought process for outside observers. By creating a "formula" for my company name, I was confident I could create a name that would highlight both the end-user and the finished product. By coming up with a list of identifiers for both the end-user of the letterpress kit as well as the finished product, I began to combine these two identifiers together to create a list of company names worth pursuing further.

Fig. 3.32 - *End-User + [Analog] + Finished Product = Company Name*

Knowing I could potentially create other kits for additional traditional formats of analog design, I decided to exclude any identifiers pertaining to letterpress printing. As such, I found that my list of company names lacked any sort of appeal and gave no inclination as to the contents inside the kit. As a result, I made the conscious decision to simply include the word "analog" as an identifier of the contents of the kit in between the original usage of an end-user identifier and a finished product identifier. While the addition of the word "analog" proved to help identify the contents within the kit, the list of company names still lacked any sort of appeal and came off sounding rather sterile.

Fig. 3.33 - *Make It / Making It*

At this point, I was reminded of NBC's television show *Making It*, and I was inspired to use a similar phrase as the company name for my kits. While "Making It Analog" kind of worked, "Make It Analog" seemed to sound better.

From there, my creativity took things a step further as I began to see a kind of phonetical pun emerge. Essentially, when using the name "Make It Analog," the word "kit" is phonetically created from the ending sound of the word "make" in combination with the word "it." Instead of my company name being written as "Make It Analog," I decided the company name should be written with the phonetical pun resulting in the stylized spelling of "Make-Kit Analog."

While I was initially sold on the company name being "Make-Kit Analog," I began to think further about rhyming words and what other words sounded similar to "makers." At this point in time, I realized that the familiar term "baker's dozen" could easily translate to "maker's dozen." Although this name was catchy and could potentially serve as a great choice for my company name, I wanted to find 12-13 elements that could be associated with "Maker's Dozen" in order to inject more meaning into the company name.

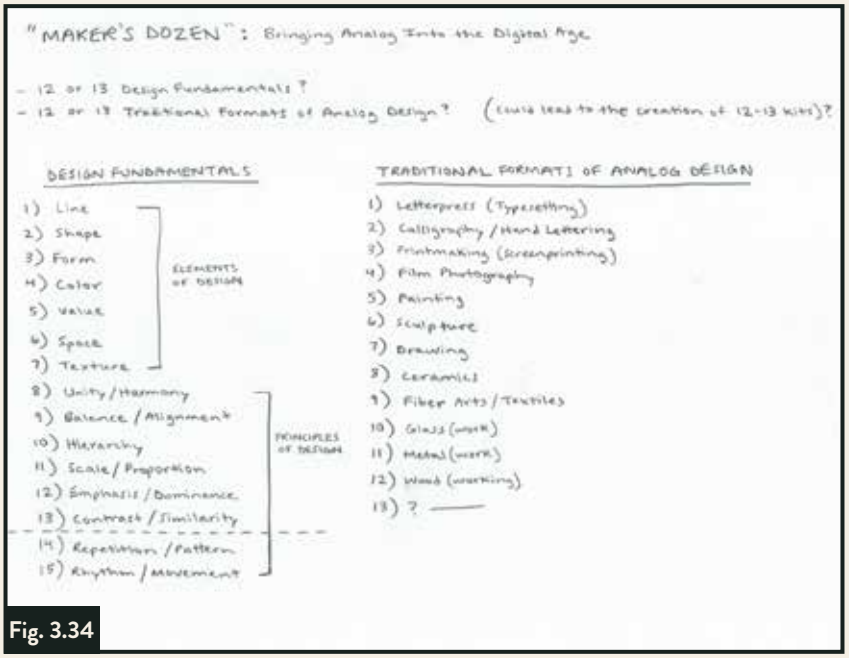


Fig. 3.34

Fig. 3.34 - As the purpose of each kit is to strengthen students' understanding of design fundamentals, I wondered if perhaps I could narrow down a list of design fundamentals to 12 or 13 items; however, as I soon realized, there was no convenient way to limit the number of design fundamentals. Since the purpose of the kit is also to teach traditional formats of analog design, I thought it might be easier to establish a list of 12-13 traditional formats of analog design. Furthermore, this list could prove beneficial as this could lead to the eventual creation of 12-13 different kits. After finding 12 general areas of traditional formats of analog design, I was glad to know this could not only provide meaning for my company name, but could also lead to the creation of other kits and inspire additional design elements to be used as part of my brand identity.

When it came time to begin creating variations of a company logo, I initially thought I wanted to create a graphic of a box from which each of the 12 traditional formats of analog design could be peeking out in the form of icons; however, as I began initial sketches, I realized the large quantity of icons representing each of the 12 traditional formats of analog design resulted in a very cluttered graphic. Striving for simplicity, I decided to explore type-only treatments for the company logo. Drawing upon the choice of typography I had already selected for my thesis documents, I found that the style and weight of the typeface I was using for the headings within my thesis documents was also well suited for being used as a standalone logotype. Additionally, by adding a thinly-stroked box around the logotype, I felt the design was stylistically appropriate as both a standalone logo as well as a part of a larger brand identity *(see below):*

MAKER'S DOZEN

Typographical Treatment

With the company name and logo established, I turned my attention to selecting a specific typographical treatment. Since I had already created the company logo based on the typeface I had chosen for my thesis document, I decided to proceed with the same type family for cohesive usage of typography across the entire brand identity *(shown below.)* Prior to using this type family for the brand identity of the letterpress kit, I had carefully chosen this typeface for use in my thesis document. I was intentional in my use of this typeface as I was looking for a typeface to reflect something that would have been letterpress-printed decades ago. In combination with the use of a "yellowed-paper" color for the background of my thesis document (as opposed to stark white), my goal was to design something that felt like it had just been hand-set by a typesetter in the days of movable type. As such, the choice of typeface for the body copy of my thesis document *(shown below)* was also chosen for this same reason. Since the Brandon Grotesque type family and the Livory typeface paired together so nicely for my thesis document, I am pleased with their combination for the brand identity of my letterpress kits as well.

LOGOTYPE / HEADINGS: BRANDON GROTESQUE, BLACK
SUBHEADINGS: BRANDON GROTESQUE, MEDIUM
PARAGRAPH HEADINGS: BRANDON GROTESQUE, BOLD
BODY COPY: LIVORY, REGULAR

Color Scheme

The choice of a color scheme proved more challenging—especially now that I had created a list of 12 traditional formats of analog design that could each benefit from their own specific color representation. I initially began to pick colors based on their connection to the medium/materials of each traditional format of analog design (i.e. gray for metal, brown for wood, clay-color for ceramics.) Once these colors were chosen, I began building off of these color choices to pick the remaining colors. I wanted to make sure the color choices could both complement each other and work together as a whole as part of the larger brand identity. While some colors were assigned intentionally to specific traditional formats of analog design, other colors were assigned at random.

Design Elements - Initial Sketches

Fig. 3.35 - Since the list of 12 traditional formats of analog design ended up influencing the company name as well as the decision to choose 12 different colors for my brand identity's color scheme, I turned my attention to creating sketches of individual icons to represent each of the 12 traditional formats of analog design. Having originally envisioned these icons as part of the company logo, I already had a general idea of how I wanted them to look. Keeping the logotype in mind, I wanted the icons to feel modern, yet classic. After all, my brand identity should appeal to modern tastes in design—following current aesthetic trends—while simultaneously remaining true to the look and feel of something that would have been letterpress-printed decades ago. Serving as additional design elements to my brand, these icons should be able to be used both on their own as well as in patterns as a part of the larger brand identity.

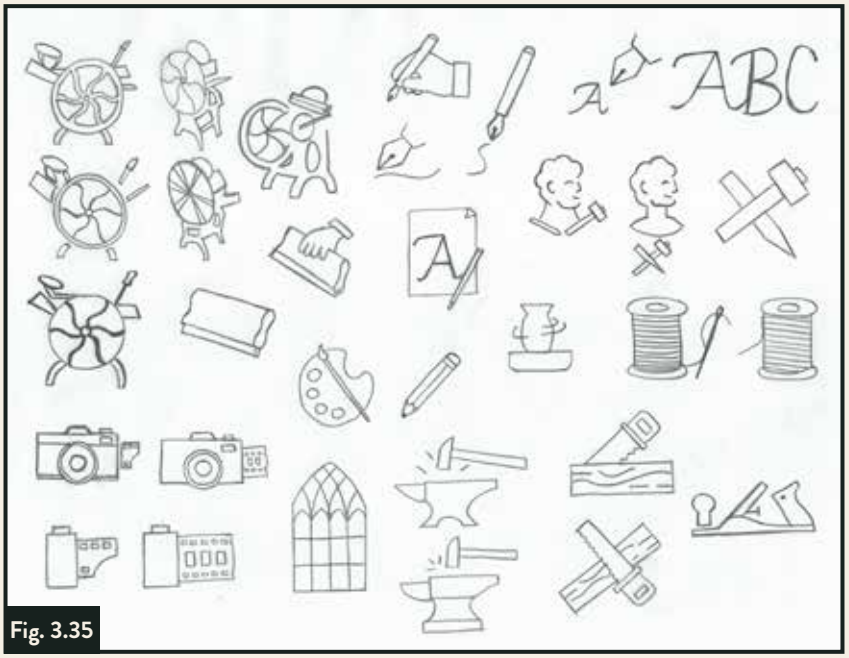
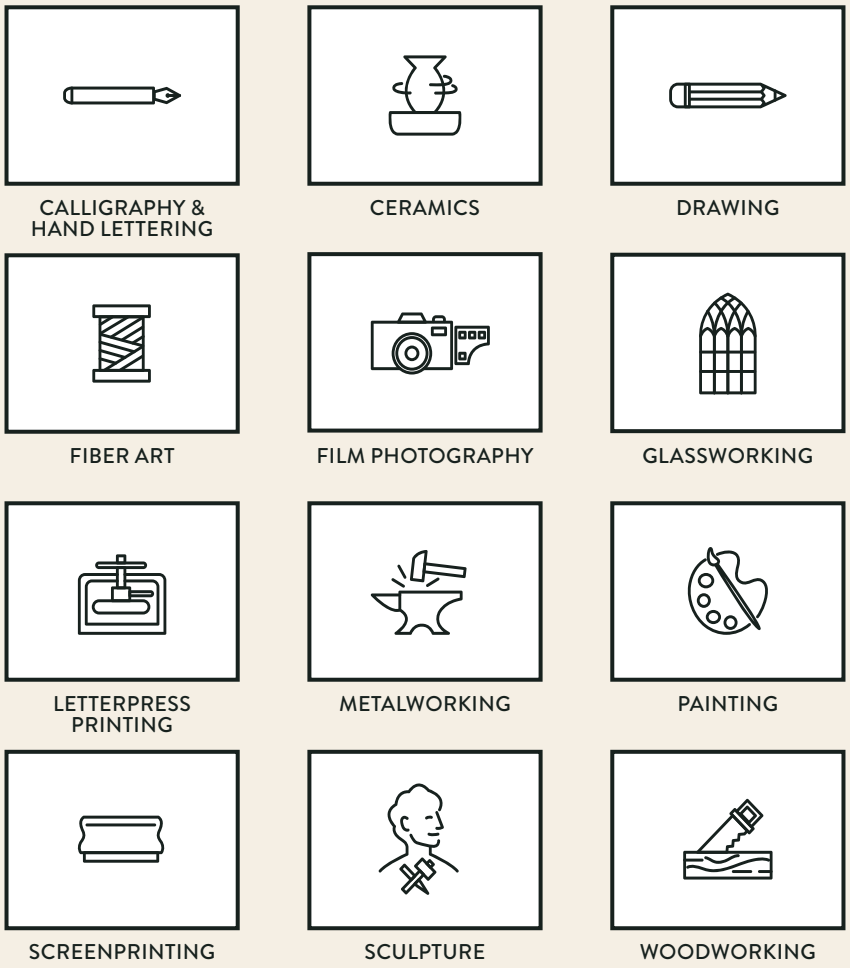


Fig. 3.35

Design Elements - Creating On-Screen Versions of Icons

When it came time to create on-screen versions of the icons from the sketches I had previously created, the process was pretty straightforward. I imported a scanned image of my icon sketches into Adobe Illustrator, and using the pen tool, I carefully traced each of the icons adjusting spacing and straight lines where necessary. Some icons proved more challenging than others, but for the most part, I was able to easily recreate on-screen drafts of the icons from the original sketches. *(Each of the final 12 icons are pictured below):*



Throughout this process, I had been struggling with how to best portray a printing press icon for representing letterpress printing. Since this traditional format of analog design is the main focus of my thesis project, the appearance of this particular icon was of utmost importance to me. I originally created multiple variations of a platen press (with flywheel) as part of my initial sketches; however, I was never happy with any of these variations. When it came time to create an on-screen draft of the printing press icon, I once again was not happy with the overall appearance. As I compared the printing press icon with the many other icons I had already created, I realized that the look and feel of the printing press icon did not match the other icons. All of the icons seemed to share the same characteristics of being simple, uncomplicated designs with flat, 2D appearances. I realized that the sketches I had created of a platen press were all overly-complicated and shown from an angle. With this in mind, I decided to create an entirely different design for the icon representing letterpress printing—focusing instead on the look of a traditional printing press from Gutenberg's era. Since it is much easier to portray the view of a traditional printing press straight on (as opposed to being shown from an angle), this transformation in design *(shown in Fig. 3.36)* proved to be more effective anyway in matching the aesthetic of the other icons' simplicity and flat, 2D appearances. As I began to review the other icon sketches, I realized that the icons representing both fiber art and screen printing were also shown from an angle and appeared slightly more complicated than the other icon designs. As such, I made tweaks to the on-screen versions of these two logos as well *(shown in Fig. 3.37 and Fig. 3.38.)*

Fig. 3.36 - TRANSFORMATION OF LETTERPRESS ICON

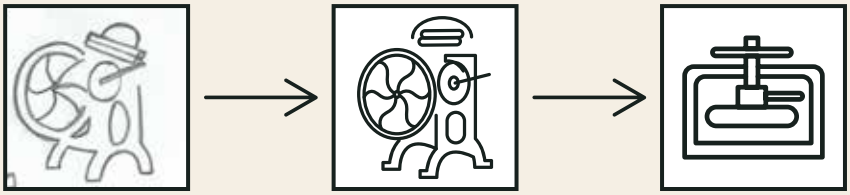


Fig. 3.37 - TRANSFORMATION OF FIBER ART ICON

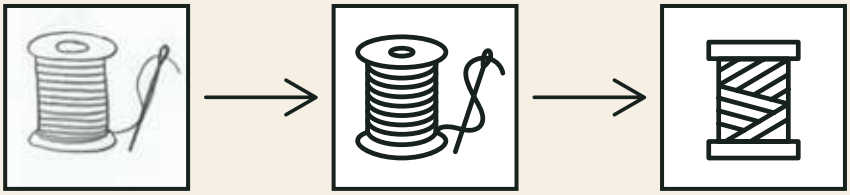
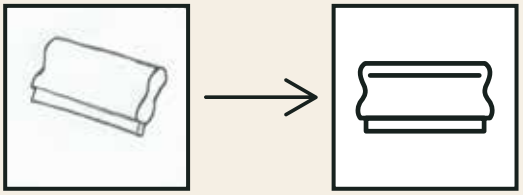


Fig. 3.38 - TRANSFORMATION OF SCREENPRINTING ICON



Creating Patterns

Fig. 3.39 - After creating all of the on-screen versions of the icons, I set out to explore different ways in which these icons could be combined together to form patterns. Since the icons are meant to serve as additional design elements for the overall brand identity, creating a pattern of the icons could prove beneficial for enhancing the interior or exterior of the letterpress kit packaging. With this in mind, I decided to create a pattern of the icons in all black that could easily be printed directly on the kraft (brown) corrugated box used for the packaging of the letterpress kit.

Applying Color to the Pattern

Fig. 3.40 - While this seemed like a viable option, I wanted to employ the use of the color scheme I had previously selected to see if the addition of color could also add an interesting element to the pattern of the icons. While this did add additional interest to the design, some colors stood out more than others, and the overall effect of using 12 colors in a single pattern seemed too busy. Instead, I decided it might be better for each box to use the same pattern on the exterior packaging while utilizing the assigned color that corresponds to the specific traditional format of analog design for which the kit is representing.

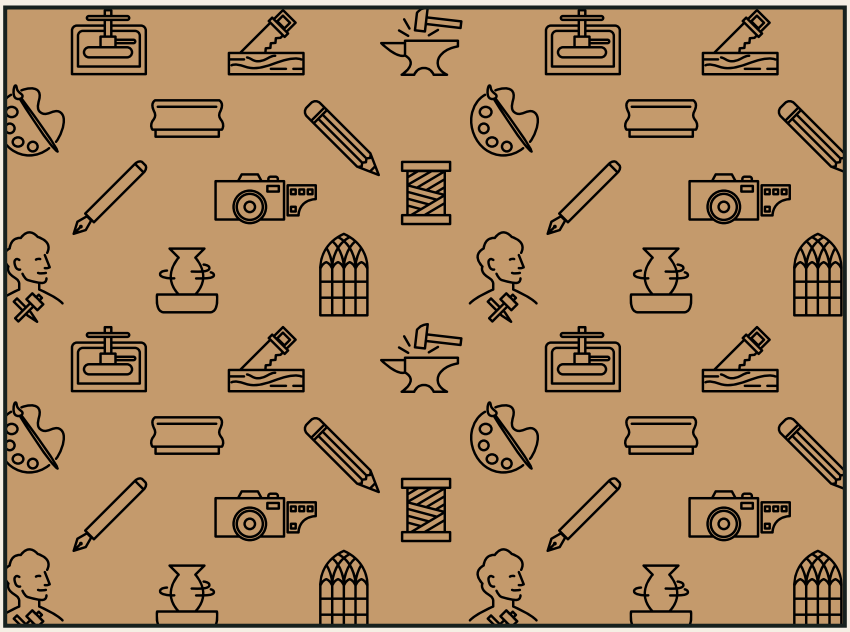


Fig. 3.39 - BLACK PATTERN

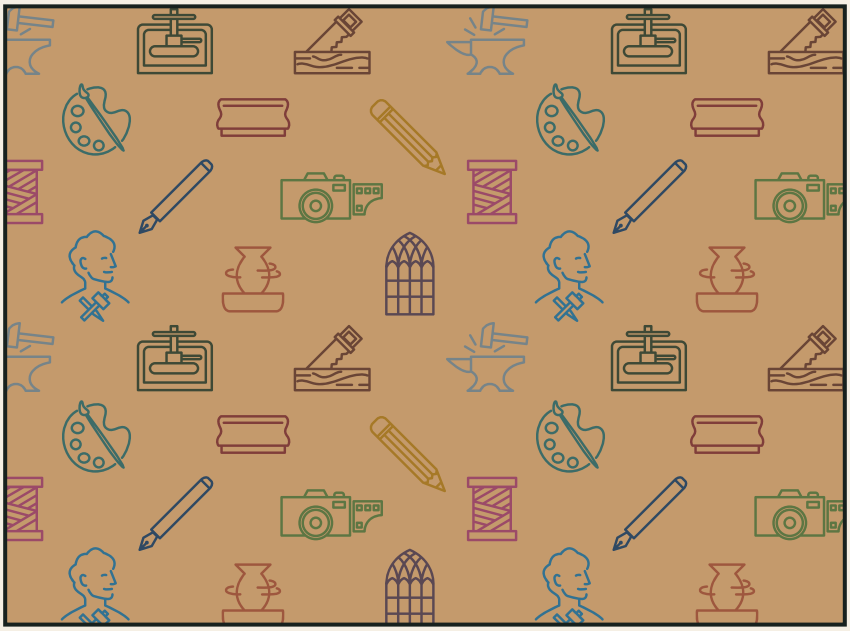


Fig. 3.40 - COLOR PATTERN

Fig. 3.41

Fig. 3.42

Fig. 3.43

Fig. 3.44

Fig. 3.45

Fig. 3.46

Fig. 3.47

Fig. 3.48

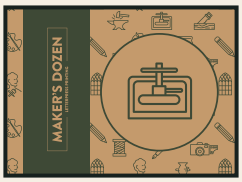
Visual References

When searching for visual references to influence the aesthetic of my letterpress kit, I first conducted a competitor's analysis to see what types of educational kits currently exist for collegiate educators and students of art and design. I soon discovered the type of kit for which I was searching does not exist. While collegiate educators and students of art and design do utilize kits for many of their courses, these "kits" are essentially pre-packaged art supplies containing the necessary materials and tools for use in the traditional, in-person classroom. Furthermore, these types of "kits" usually do not include any instructions explaining what the included materials and tools will be used for or even how to use them as this is reserved for the professor during face-to-face instruction. In order to find some sort of visual reference, I expanded my search to include various subscription boxes/studio art kits that could potentially influence the creation and design of my letterpress kit. While not seen as competitors, the following list of subscription boxes proved beneficial in exemplifying the general look and feel of how the final deliverable should appear:

- KiwiCo "Crates" *(Fig. 3.41 and Fig. 3.42)*
  www.kiwico.com
- We Craft Box *(Fig. 3.43)*
  www.wecraftbox.com/whats_inside
- MakersKit *(Fig. 3.44)*
  www.hellosubscription.com/tag/makerskit-monthly/
- Green Kid Crafts *(Fig. 3.45 and Fig. 3.46)*
  www.greenkidcrafts.com/product/green-kid-special-pack/
- Let's Make Art *(Fig. 3.47 and Fig. 3.48)*
  www.letsmakeart.com/collections/art-box

Packaging Design

While I had always envisioned the possibility of using a pattern alongside my logo on the exterior of the box, I had always planned for the logo and pattern to be printed in color while the background negative space would remain the kraft (brown) cardboard of the box. As such, I began to create a number of on-screen drafts of what the top of the exterior of the box might look like *(see below.)* I wasn't initially sold on any of the on-screen drafts as they seemed too plain. Hoping to find a way to incorporate more color, I looked back at the visual references I had collected of various subscription boxes/studio art kits.



I noticed how the KiwiCo "Crates" used color to fill all of the background negative space. In other words, any text, graphics, logos, etc. remain the kraft (brown) cardboard of the box. By applying this style to my own design, I would be able to incorporate more color onto each box of the traditional formats of analog design kits. In this way, each individual kit could be more easily differentiated from one another based on the prominent color printed on the exterior of the box.

I applied this style to all 12 boxes of the traditional formats of analog design kits *(see below.)* I am happy with this design decision as it not only works aesthetically but functionally as well—providing a visual way to identify one box from another. Not only does the company logo and pattern of the icons compliment each other well, the use of the specific icon above the company logo that corresponds with the traditional format of analog design for which the kit is representing also helps to identify one box from another in addition to the variations in color.

CALLIGRAPHY & HAND LETTERING

CERAMICS

DRAWING

FIBER ART

FILM PHOTOGRAPHY

GLASSWORKING

LETTERPRESS PRINTING

METALWORKING

PAINTING

SCREENPRINTING

SCULPTURE

WOODWORKING

Exploring Materials for a Letterpress and Movable Type

While I had established a company name, logo, and brand, I needed to focus on creating a portable letterpress and set of movable type capable of being easily replicated and contained within a reasonably-sized box. Reflecting on my own *hands-on* experiences in letterpress printing and manual typesetting, I set out to find a way to bring those same experiences to my final visual solution. When I began exploring different types of materials that could be used for replicating the process of letterpress printing, many options came to mind. I wanted to find something that would be cost-effective and easily replicable for the feasibility of producing multiple kits for distribution. At the same time, I also wanted to find a material that was effective in imitating the quality and appearance of true letterpress printing. Additionally, understanding that the kit would need to be mailed, I knew that the size and weight of the kit would also be one of the major factors in determining the final type of materials used in the creation of a letterpress kit.

Before I even conceived what I could use for a portable letterpress, I wanted to find a solution for how to include a set of movable type within the kit. An obvious choice would have been to include a real set of wood or metal movable type. A quick Google search revealed a number of sellers on both eBay and Etsy who were selling both sets of wood and metal movable type; however, this option would have proved costly and would also have added a significant amount of weight to the letterpress kit. Additionally, besides the cost and weight of wood and metal movable type, it is often difficult to find complete sets.

Wanting to find a material that could be both easily replicated and effective in imitating the quality and appearance of true letterpress printing, I began exploring the possibility of using modern technology to replicate an entire set of movable type by using either a laser cutter or 3D-printer. Both options have been used by various artists and designers for creating movable type to varying degrees of success. Having not used either a laser cutter or 3D-printer before, I knew there would be a learning curve; however, I knew the more difficult part would be figuring out how to "design" an entire set of movable type that could be produced by either a laser cutter or 3D-printer.

I also gave consideration to finding a way to somehow use photo-polymer plates for printing. In the digital age, most artists and designers who engage in letterpress printing utilize photo-polymer plates for some or all of their letterpress printing needs. The advantage of using photo-polymer plates is that they can be created from any digital design file such as a PDF, EPS, or Adobe Illustrator file. In addition, the final photo-polymer plate is durable enough to be reused over and over again, and the final printed result is a clear rendering of the design that leaves a deep impression in the paper on which it is printed. Essentially, the use of photo-polymer plates is the best substitute for replacing traditional wood type and metal type. The only disadvantage to using photo-polymer plates for my thesis project is the issue that they are plates—not movable type. In order for the letterpress kit to be effective, I wanted to make sure the *hands-on* experience of manual typesetting was one of the components of the kit.

In addition to needing to find a material for producing a set of movable type, I also needed to find a way to create a portable letterpress capable of operating like a traditional letterpress. As mentioned at the end of my research chapter, there have been a few designers in the last few years who have started creating portable presses capable of handling traditional wood type and metal type; however the examples I found, such as the *F-Press* and *Provisional Press*, were made mostly of wood and were larger in size. I needed to either create a similar, scaled-down version or create something entirely new.

Fig. 3.49 - Fig. 3.51 - At this point in time, I was introduced to the *Open Press Project* created by Martin Schneider and Dominik Schmitz—two designers from Cologne, Germany. The *Open Press Project* is a 3D-printed etching press designed to make intaglio printmaking accessible to everyone. While you can order a 3D-printed press directly from www.openpressproject.com, they also offer free, open-source files to download from Thingiverse to print your own.

Fig. 3.52 - Fig. 3.54 - While the size (and purpose) of the *Open Press Project* was not exactly what I needed for my own letterpress kit, I found additional open-source files to download from Thingiverse that converted the *Open Press Project* into a movable type relief press. Created by Isaac Johnson and Matthew Nelson, the changes made to the original *Open Press Project* 3D-printer files included extensions allowing the press to print up to 8.5" x 5.5". The open-source files also included 3D-printed movable type and physical spacing material to fit inside a recessed press bed. Just like the Challenge Model E Cylinder Proof Press I used during my practicum, the recessed press bed almost acts like a galley tray that moves through the press creating a letterpress print.

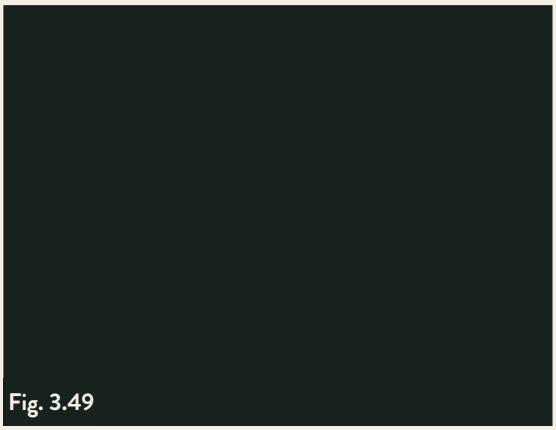


Fig. 3.49

A technical drawing showing how to construct the 3D-printed etching press known as the *Open Press Project* (*www.thingiverse.com/thing:2841592*).

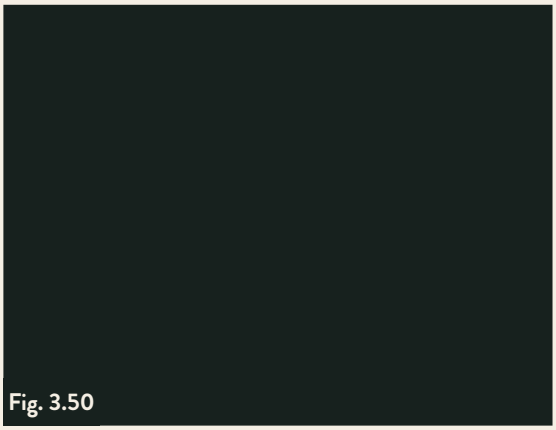


Fig. 3.50

The assembled 3D-printed etching press known as the *Open Press Project* (*www.thingiverse.com/thing:2841592*).

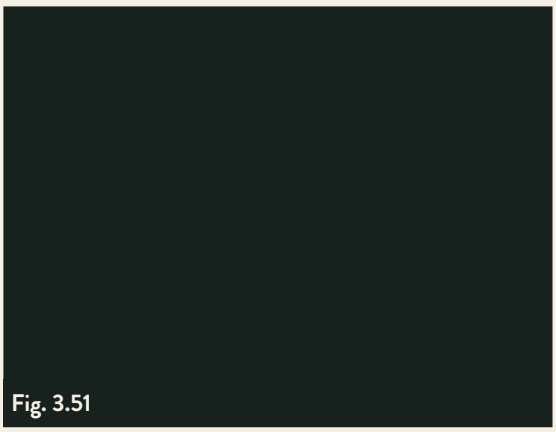


Fig. 3.51

The assembled 3D-printed etching press known as the *Open Press Project* (*www.thingiverse.com/thing:2841592*).

Fig. 3.52

Many of the individual 3D-printed pieces needed for constructing the modified *Open Press Project* (*www.thingiverse.com/thing:4564985*).

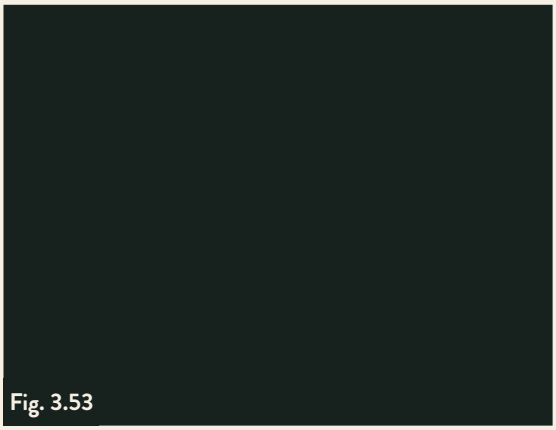


Fig. 3.53

The assembled letterpress and press bed from the modified *Open Press Project* files (*www.thingiverse.com/thing:4564985*).

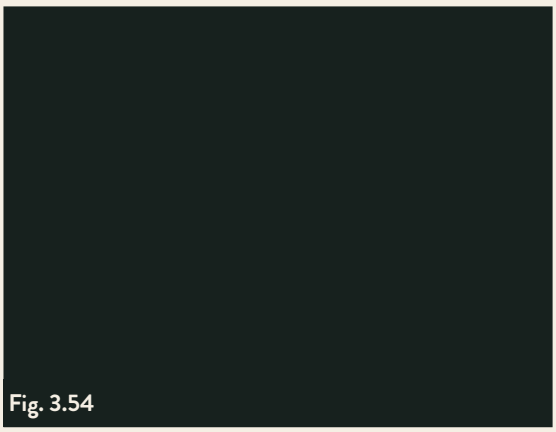


Fig. 3.54

The assembled letterpress and press bed with 3D-printed movable type from the modified *Open Press Project* (*www.thingiverse.com/thing:4564985*).

Finalizing Materials for a Letterpress and Movable Type

While I liked the idea of using the converted open-source files for the *Open Press Project* to 3D-print a movable type relief press, I was not sold on using the included files for creating 3D-printed movable type. Having previously seen examples of letterpress prints created with 3D-printed movable type, I was already aware that the print quality is not as clean or crisp as the print quality achieved from using wood or metal movable type. Thinking back to my original thought of finding a way to utilize photo-polymer plates, I decided to create 3D-printed "bases" to which I could attach individual pieces of photo-polymer plates. In this way, I could easily produce a set of "bases" for the movable type with the 3D-printer without sacrificing the final print quality by utilizing the photo-polymer plates for the actual printing.

In order to avoid the challenges encountered when using a variable-width typeface (i.e. needing to adjust the width of each character), I decided to use a monospaced typeface instead due to the uniform widths of each character. This way, each piece of movable type could be a uniform square allowing for easy calculations when needing to ensure the appropriate amount of physical spacing material is used between the individual characters of set type. I chose "Courier" as the typeface for the set of movable type for the previously-mentioned reasons *(shown below.)* With this plan in motion, I now needed to create press-ready files to submit to Boxcar Press for printing a KF152 photo-polymer plate of all of the individual characters of movable type I would need for my letterpress kit.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

0 1 2 3 4 5 6 7 8 9

Finalizing Plans for Movable Type

In order to determine the number of individual characters to include in my set of movable type for my letterpress kit, I needed to first find out how often each letter of the alphabet is used in the English language. A quick Google search revealed a Wikipedia entry for "Letter frequency" *(https://en.wikipedia.org/wiki/Letter_frequency)* that contained a table listing percentages of the relative frequency of letters in written texts in the English language. Using this information, I created the following formula to determine how many pieces of movable type I should create for each letter in the alphabet *(reflected in the chart on the right)*:

- Any percentages less than 1%..... 3 ct
- Any percentages 1% - 7%..... 6 ct
- Any percentages 7% - 12%..... 9 ct
- Any percentages greater than 12%..... 12 ct

I also wanted to include numbers in my set of movable type, so I decided to include 4 pieces of movable type for each number as well. With this count in mind, I would need to create a total of 196 pieces of movable type—156 letters (reflected in the chart on the right) and 40 numbers (4 ct for each number 0-9.) With this information, I then set out to finalize the sizing of the movable type "bases" and physical spacing material.

A	8.2%	9 ct
B	1.5%	6 ct
C	2.8%	6 ct
D	4.3%	6 ct
E	12.7%	12 ct
F	2.2%	6 ct
G	2.0%	6 ct
H	6.1%	6 ct
I	7.0%	9 ct
J	0.15%	3 ct
K	0.77%	3 ct
L	4.0%	6 ct
M	2.4%	6 ct
N	6.7%	6 ct
O	7.5%	9 ct
P	1.9%	6 ct
Q	0.095%	3 ct
R	6.0%	6 ct
S	6.3%	6 ct
T	9.1%	9 ct
U	2.8%	6 ct
V	0.98%	3 ct
W	2.4%	6 ct
X	0.15%	3 ct
Y	2.0%	6 ct
Z	0.074%	3 ct

Sizing and Number of Pieces of 3D-Printed Movable Type "Bases" & Spacing Material

MOVABLE TYPE "BASES"
TOTAL: 196 PIECES

LENGTH: 10 MM
WIDTH: 10 MM
HEIGHT: 3.36 MM

EN QUADS
TOTAL: 100 PIECES

LENGTH: 10 MM
WIDTH: 5 MM
HEIGHT: 2.5 MM

EM QUADS
TOTAL: 260 PIECES

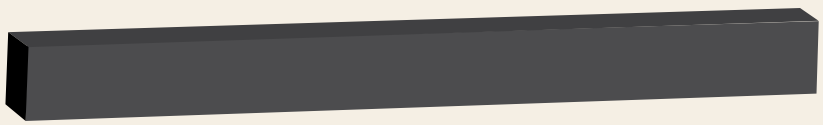
LENGTH: 10 MM
WIDTH: 10 MM
HEIGHT: 2.5 MM

Based on the final size of the 3D-printed press bed (130mm x 202mm), I sized all of the movable type "bases" and physical spacing accordingly (i.e. 13 (10mm x 10mm) pieces of movable type would fit the length of the press bed while 20 (10mm x 10mm) pieces of movable type would fit the height of the press bed.) This would still leave 2mm remaining which will be filled in with 2 filler pieces of "leading" at the top and bottom of the press bed. For easy calculations, I chose to make the leading 130mm x 10mm, the em quads 10mm x 10mm, and the en quads 5mm x 10mm. Since the original files for the 3D-printed movable type that came with the converted open-source files for the *Open Press Project* were 4.3mm in height, I used that amount for calculating the height for my own movable type bases using the following formula:

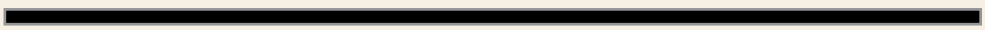
4.3mm - 0.9398mm *(the height of a Boxcar Press KF152 photo-polymer plate)* = 3.36mm

LEADING
TOTAL: 19 PIECES

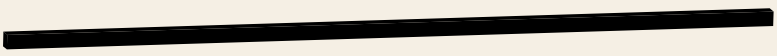
LENGTH: 130 MM
WIDTH: 10 MM
HEIGHT: 2.5 MM



PRESS BED FILLER PIECE
TOTAL: 2 PIECES



LENGTH: 130 MM
WIDTH: 1 MM
HEIGHT: 2.5 MM



Finalizing Letterpress Kit Contents

As previously identified in the packaging section, each kit will be contained within a kraft (brown) corrugated cardboard mailing box. Not only will the box be suitable for mailing to online/remote learners, the box itself will serve as an organizational device containing the following materials, tools, and supplies for engaging with letterpress printing and manual typesetting:

- 3D-printed letterpress with press bed
- 3D-printed typeface (or selection of letters)
- 3D-printed physical spacing material
  (leading, em quads, en quads)
- Letterpress ink
- Palette knife
- Glass artist palette (for mixing and rolling ink)
- Rubber brayer
- Cotton paper
- Cleaning materials (mineral spirits/rags/shop towels)

After reviewing the common contents found within the subscription boxes/studio art kits I had used as visual references, I was also able to make another list of possible collateral materials I should consider incorporating into my own kit:

- Individually labeled supplies/packaging
- Supplies List
- Step-by-step instructions with photos
  (booklet or individual cards if there are multiple steps)
- Story component
  (explaining brand/mission and/or the contents in the box)
- Educational materials correlating to project/materials

Finalizing Plans for Collateral Materials

Finalizing the plans for the collateral materials for the letterpress kit proved a little more challenging as there was a lot of information I wanted to include within these materials for making connections between letterpress printing and design fundamentals. Based on the previously-created list of possible collateral materials I had made from the common contents found within the subscription boxes/studio art kits, I finalized my collateral materials into the following four pieces (with headings, "slogans," and sizes for each):

- List of learning objectives: **"CONNECT THE DOTS"**
  "MAKING CONNECTIONS TO DESIGN FUNDAMENTALS"
  8" x 10"

- Step-by-step instructional booklet: **"NEED TO KNOW"**
  "STEP-BY-STEP INSTRUCTIONS"
  8" x 8.5"

- Supplies list: **"ALL THE GOODS"**
  "SUPPLIES LIST"
  8" x 7"

- "Story" component: **"WELCOME TO THE WORLD OF ANALOG"**
  "WHAT IS LETTERPRESS PRINTING?"
  8" x 5.5"

Knowing that I wanted to create a pocket folder to contain all of the collateral materials together, I mocked up an on-screen version of what the final piece could look like *(shown on the right.)*

Now that I had finished finalizing the plans for the collateral materials for the letterpress kit, I needed to start creating the content for the inside of the collateral materials. Besides the step-by-step instructions, one of the most important elements of the collateral materials is the list of learning objectives that make connections between letterpress printing and design fundamentals; however, in order to start this process, I needed to begin by first establishing a definitive list of design fundamentals.

Establishing a Definitive List of Design Fundamentals

In order to establish a definitive list of design fundamentals to reference when making tangible correlations to traditional formats of analog design, I began by looking through various collegiate level textbooks used for teaching design fundamentals. My goal was to find a common theme in the learning objectives, terminology, etc. Ultimately, I sought to establish a definitive list of design fundamentals based on the frequency of usage of terms within the textbooks. I referenced the following six textbooks:

- Brainard, Shirl. *A Design Manual*. Fourth ed., Pearson Prentice Hall, 2006.
- Davis, Meredith, and Jamer Hunt. *Visual Communication Design: An Introduction to Design Concepts in Everyday Experience*. Bloomsbury Visual Arts, 2017.
- Landa, Robin. *Graphic Design Solutions*. Fourth ed., Wadsworth, 2011.
- Lupton, Ellen, and Jennifer Cole Phillips. *Graphic Design the New Basics*. Princeton Architectural Press, 2008.
- Pentak, Stephen, and David A. Lauer. *Design Basics*. Ninth ed., Cengage Learning, 2016.
- Stewart, Mary. *Launching the Imagination: A Comprehensive Guide to Basic Design*. Second ed., McGraw-Hill, 2006.

Since these textbooks are all geared towards art and design students, they did not discuss any type of identifiable learning objectives. Nevertheless, I was able to better see the similarities between each of the textbooks' approaches to the lists of the elements of design and the principles of design. As a result, I was able to assemble my own definitive list of design fundamentals *(listed on the opposite page.)* The percentages next to each element/principle of design reflect the frequency of usage across the six textbooks.

Elements of Design:

- Line (83%)
- Shape (66%)
- Form (16%)
- Color (100%)
- Value (50%)
- Space (50%)
- Texture (83%)

Principles of Design:

- Unity/Harmony (66%)
- Balance/Alignment (83%)
- Hierarchy (33%)
- Scale/Proportion (83%)
- Emphasis/Dominance (66%)
- Contrast/Similarity (16%)
- Repetition/Pattern (50%)
- Rhythm/Movement (83%)

Establishing Tangible Correlations to Letterpress Printing

Using my research from chapter 2, I focused on making connections between the materials, tools, and processes of letterpress printing and the definitive list of design fundamentals I had just established. While some sources in my research chapter proved more beneficial than others, many of the sources conveyed the benefits of engaging with letterpress printing in the collegiate classroom and revealed various methods by which the materials, tools, and processes of letterpress printing can be directly applied to specific design fundamentals. From there, I created a list of "learning objectives" detailing the many tangible correlations between letterpress printing and design fundamentals *(listed on the following two pages.)*

Elements of Design:

LINE
- setting a "line" of type
- using leading between lines of type and observing the negative space "lines" created

SHAPE
- observing each letterform/word as individual shapes when setting type by hand
- setting type to fit the shape of the press bed

FORM
- seeing the individual letterforms of movable type as three-dimensional forms
- creating "form" by setting type by hand as opposed to watching type "form" on screen

COLOR
- adapting to limited use of colors for cost effectiveness/easier print registration
- observing the act of mixing color inks by hand

VALUE
- understanding the order in which ink colors need to be applied (lightest to darkest values)
- studying the differing tonal values between dark ink and light ink as they are printed on white paper

SPACE
- physically understanding kerning, tracking, and leading with spacing material
- understanding the negative space between each word/line is as equally important as the positive space of the letterforms/words themselves when setting type by hand

TEXTURE
- seeing the texture of set type once it is printed
- feeling the texture of the debossed impression created from the pressure of letterpress printing

Principles of Design:

UNITY/ HARMONY	• using consistent spacing/justification • repeating a specific color scheme consistently
BALANCE/ ALIGNMENT	• setting lines of type symmetrically or asymmetrically • observing the grid stucture created by the set type
HIERARCHY	• varying the placement and spacing of the set type • choosing a specific color scheme of varying contrast
SCALE/ PROPORTION	• exaggerating the scale/proportion of the set type in relation to the size of paper used • setting type "to scale" based on the space available in the press bed
EMPHASIS/ DOMINANCE	• varying the location of a body of set type on the final printed page • using color to create a focal point
CONTRAST/ SIMILARITY	• choosing a specific color scheme of varying contrast or complementary colors • using the transparency of letterpress ink to create visual contrast
REPETITION/ PATTERN	• repeating the use of a single letter or number in a "step and repeat" pattern • printing the same line of type/body of set type with alternating colors • using the transparency of letterpress ink to create intentional patterns
RHYTHM/ MOVEMENT	• organizing elements in a recurring fashion • using letterforms to create visual movement

Creating the Letterpress & Movable Type Bases

Fig. 3.55 - Fig. 3.56 - Preparing to 3D-print from the open-source files.

Fig. 3.57 - Preparing the 3D-printers for printing.

Fig. 3.58 - The spools of PLA 3D-Printer Filament ready for printing.

Fig. 3.59 - Fig. 3.62 - 3D-printing the press bed of the letterpress. The entire printing time for this single piece took over 17 hours due to its size.

Fig. 3.63 - Fig. 3.66 - 3D-printing the side pieces of the letterpress.

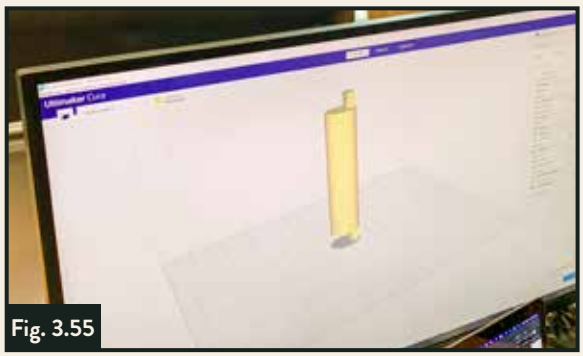


Fig. 3.55

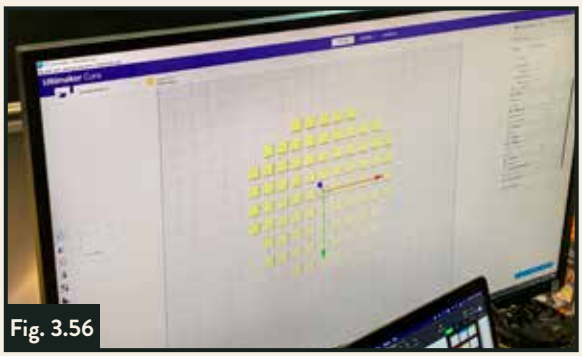


Fig. 3.56


Fig. 3.57


Fig. 3.58

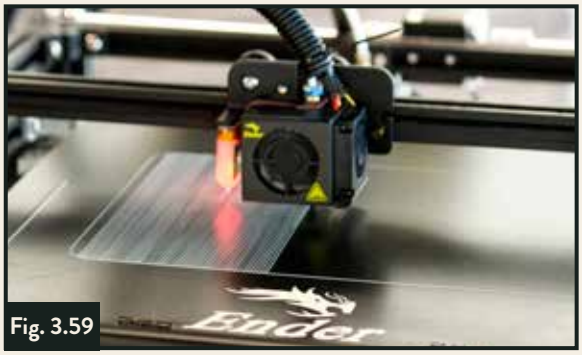


Fig. 3.59

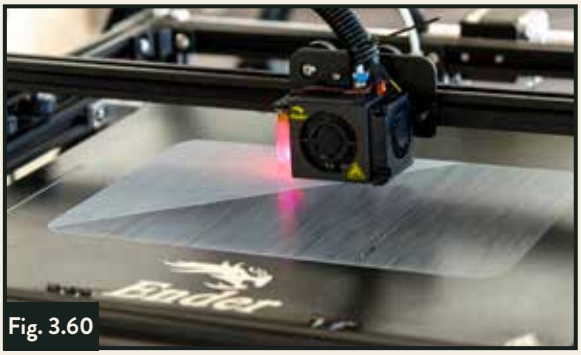


Fig. 3.60

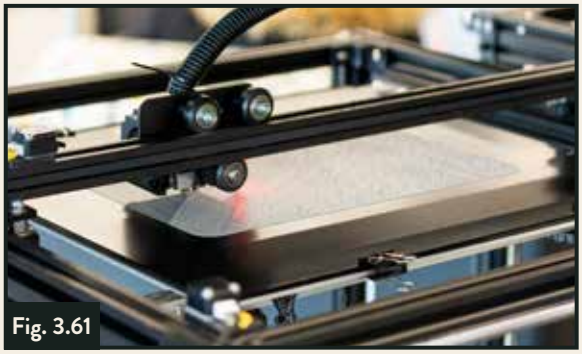


Fig. 3.61

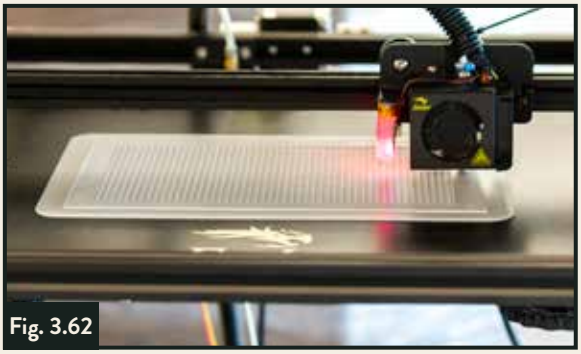


Fig. 3.62

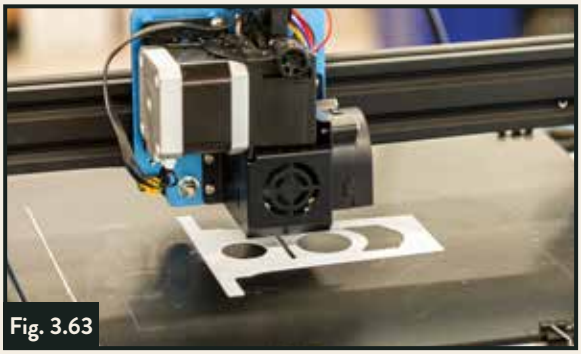


Fig. 3.63

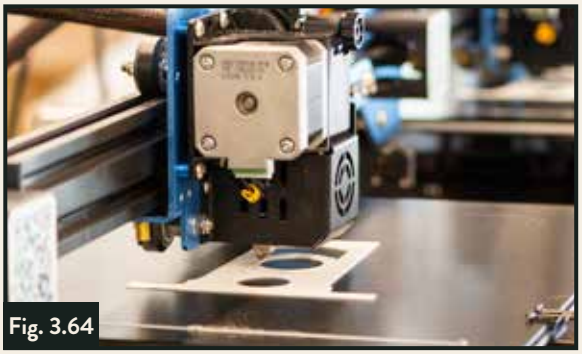


Fig. 3.64


Fig. 3.65

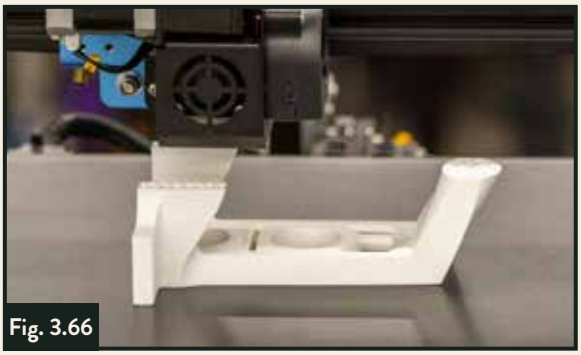


Fig. 3.66

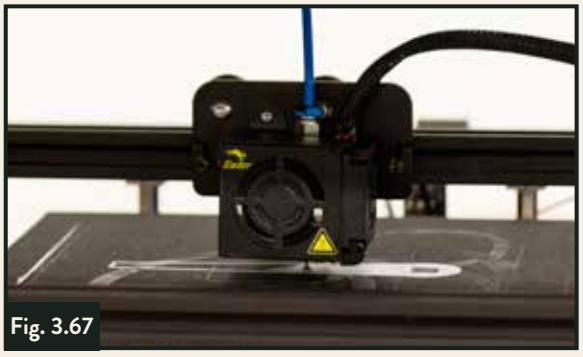


Fig. 3.67


Fig. 3.68

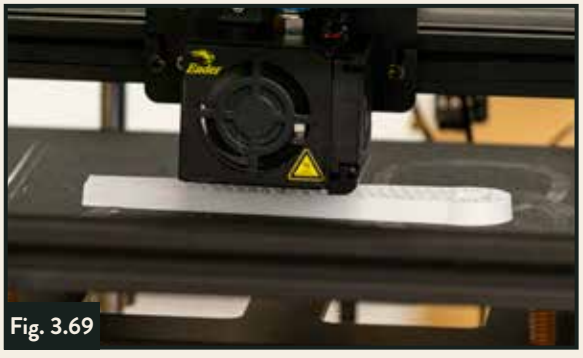


Fig. 3.69

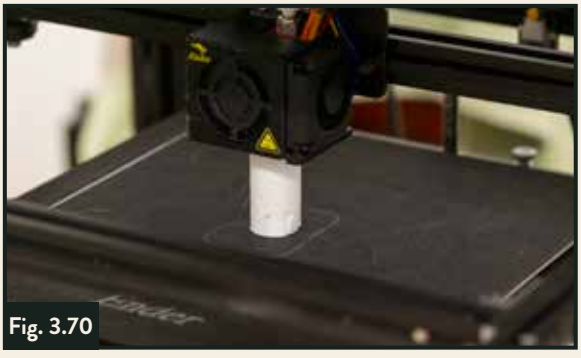


Fig. 3.70

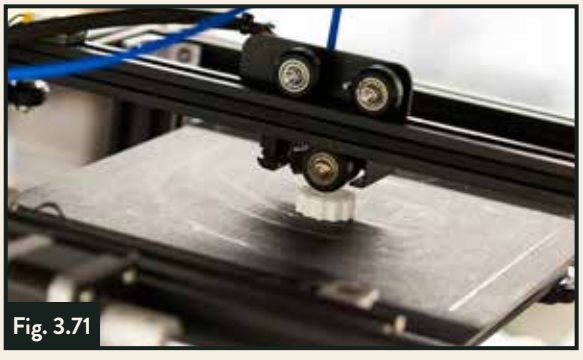


Fig. 3.71

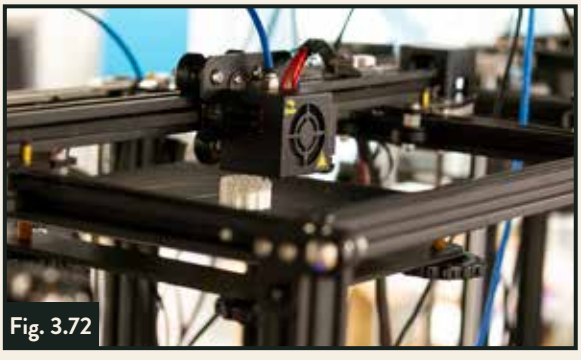


Fig. 3.72


Fig. 3.73

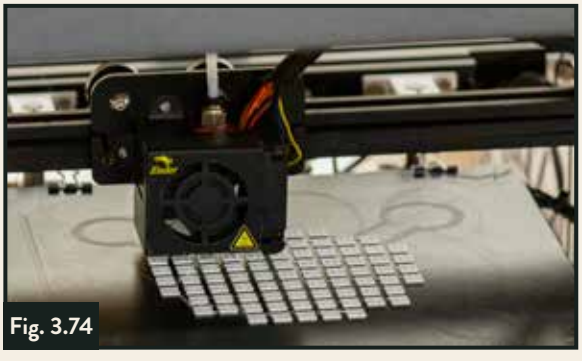


Fig. 3.74

Fig. 3.67 - Fig. 3.69 - 3D-printing the handle of the letterpress.

Fig. 3.70 - 3D-printing the top connector piece of the letterpress.

Fig. 3.71 - Fig. 3.73 - 3D-printing the bottom roller of the letterpress. The grooves on the roller match up with the grooves on the press bed.

Fig. 3.74 - 3D-printing the movable type "bases." (This was the first printing of these pieces.) Having never worked in 3D-printing prior to this project, I did not realize that the material used in 3D-printing slightly expands during printing. As such, when it came time to line up all of the movable type and spacing material within the press bed, it did not fully match up with the dimensions I had previously (and carefully) calculated. As a result, I had to adjust the sizing of the movable type and spacing material ever so slightly through trial and error until the final printed size more accurately matched my previous calculations. During the final printing of the movable type "bases," I also made the decision to print them in a different color (magenta) instead of white so that I could more easily differentiate the movable type "bases" from the "em quads" spacing material since they are the same length and width. The only difference in their sizing is a slight variation in height.

Creating the Movable Type

Fig. 3.75 - Fig. 3.76 - The final Boxcar Press KF152 photo-polymer plate.

Fig. 3.77 - I first prepared a workspace on which to cut all of the characters from the photo-polymer plate on a cutting mat.

Fig. 3.78 - Next, I taped down a piece of paper containing a grid structure of "cut lines" to use underneath the photo-polymer plate.

Fig. 3.79 - Fig. 3.80 - Then, I taped the cutting mat to the work surface to prevent the cutting mat from sliding around. I also taped the photo-polymer plate on top of the piece of paper of "cut lines."

Fig. 3.81 - I first attempted to cut the photo-polymer plate using an X-Acto knife; however, the knife was not sharp enough.

Fig. 3.82 - Fig. 3.84 - I ended up using a utility knife to cut the photo-polymer plate instead. While the utility knife initially worked well for making the horizontal cuts, when it came time for making the vertical cuts, the previously-cut horizontal pieces of the photo-polymer plate began to move. As such, I knew I would have to make all of the remaining cuts using only a pair of scissors.

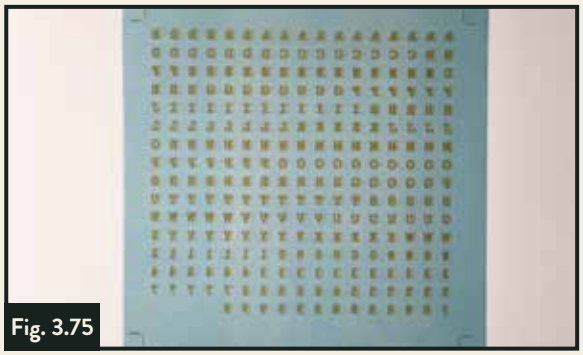


Fig. 3.75

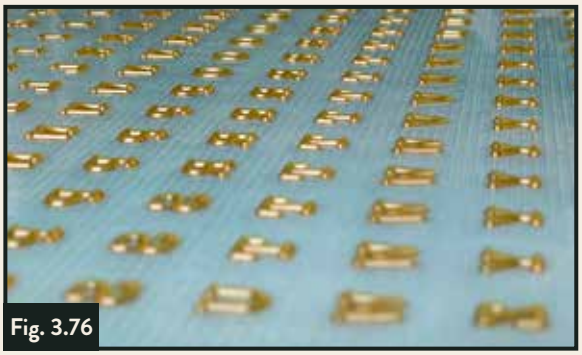


Fig. 3.76

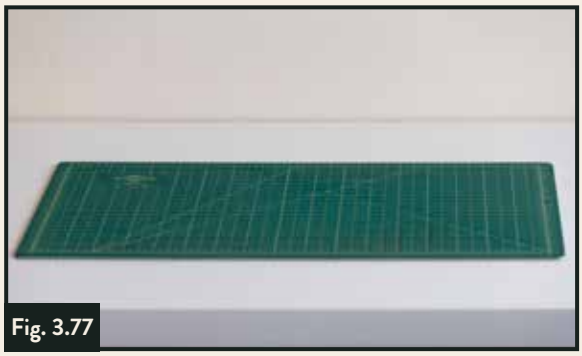


Fig. 3.77

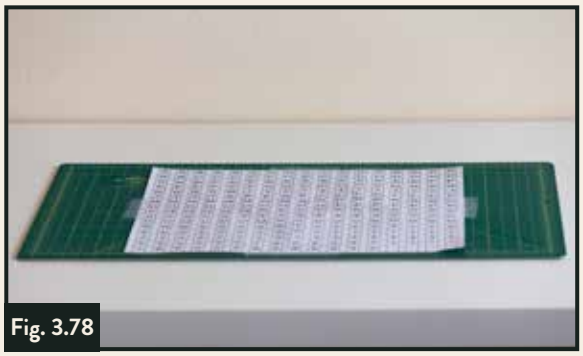


Fig. 3.78

Fig. 3.79

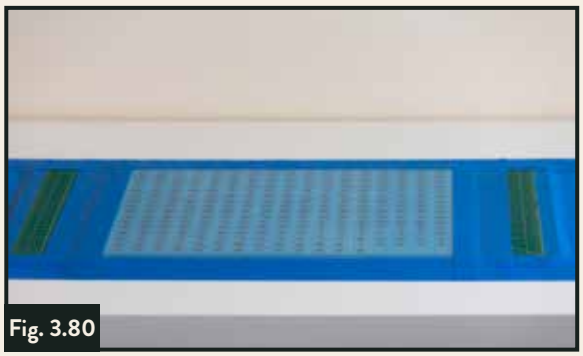


Fig. 3.80

Fig. 3.81

Fig. 3.82

Fig. 3.83

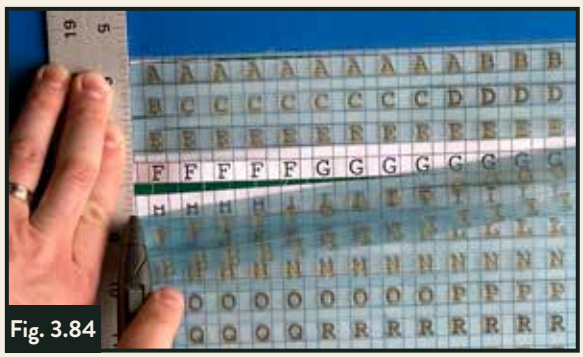


Fig. 3.84

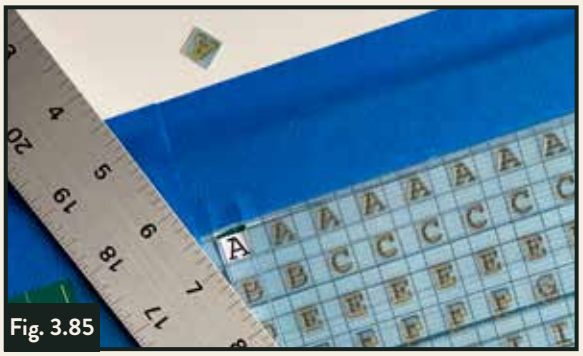


Fig. 3.85

Fig. 3.86


Fig. 3.87


Fig. 3.88


Fig. 3.89


Fig. 3.90

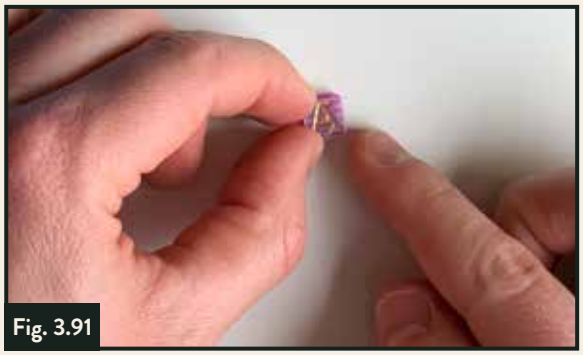


Fig. 3.91


Fig. 3.92

Fig. 3.85 - Fig. 3.86 - The first character cut from the photo-polymer plate. Each character had to be cut to approximately 10mm x 10mm in order to fit on the 3D-printed base.

Fig. 3.87 - Fig. 3.88 - Cutting more characters from the photo-polymer plate using only scissors at this point.

Fig. 3.89 - Making a final trim to the edges of the character to fit correctly on the 3D-printed base.

Fig. 3.90 - A side-by-side view of the 10mm x 10mm 3D-printed base and the character cut from the photo-polymer plate.

Fig. 3.91 - Lining up the character cut from the photo-polymer plate to the 3D-printed base to ensure it will fit correctly.

Fig. 3.92 - Peeling off the adhesive backing from the photo-polymer plate.

Fig. 3.93 - Applying super glue to the 3D-printed base.

Fig. 3.94 - Super-gluing the character cut from the photo-polymer plate to the 3D-printed base.


Fig. 3.93

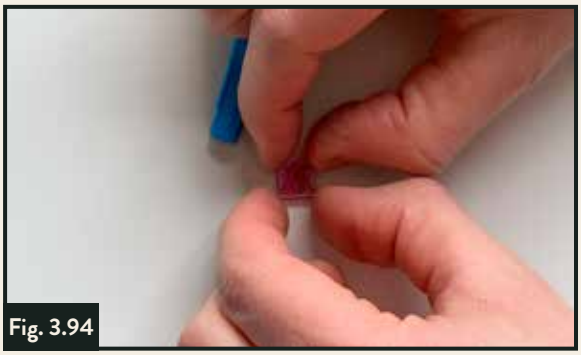


Fig. 3.94

Product Testing

Initial Print Test with the Letterpress and Movable Type

Once I had finished creating the set of movable type, I was eager to try printing with the letterpress. Using the movable type and spacing material, I typeset the phrase “do unto others as you would have them do unto you” within the press bed.

Fig. 3.95 - Fig. 3.96 - I rolled ink onto the rubber brayer and started applying the ink to the movable type. Unfortunately, the movable type started sticking to the rubber brayer as it moved across the set type. As such, I knew I would need to find a way for the movable type to “stick” to the press bed to further prevent this issue.

Fig. 3.97 - Fig. 3.98 - Since I knew Cricut cutting machines use adhesive mats for cutting, I explored the option of using a piece of one of their adhesive mats for the recessed layer of the press bed. Using one of their “StrongGrip” mats, I cut a piece of adhesive material the same size as the recessed layer of the press bed.

Fig. 3.99 - With the adhesive mat in place, I once again began the process of setting type within the press bed. The adhesive mat worked perfectly in helping to hold the movable type and spacing material in place without leaving a sticky residue behind. Additionally, it was easy to remove the movable type and spacing material as needed. The use of the Cricut mat turned out to be a great solution as the adhesive mat is reusable and can be a permanent part of the press bed for assisting in the process of setting type.

Fig. 3.100 - Fig. 3.101 - The letterpress and press bed with movable type and spacing material inked and ready to print.

Fig. 3.102 - The final printed piece from my initial print test.

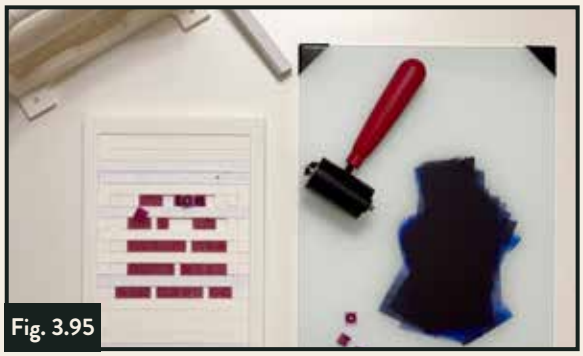


Fig. 3.95

Fig. 3.96

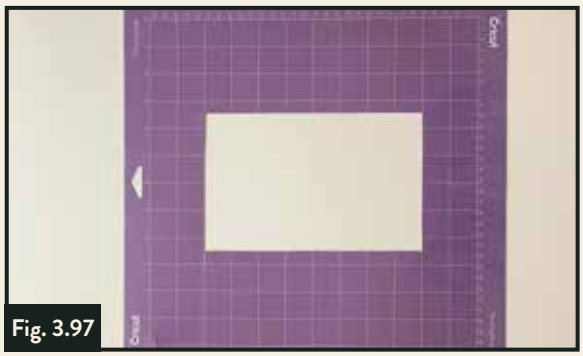


Fig. 3.97

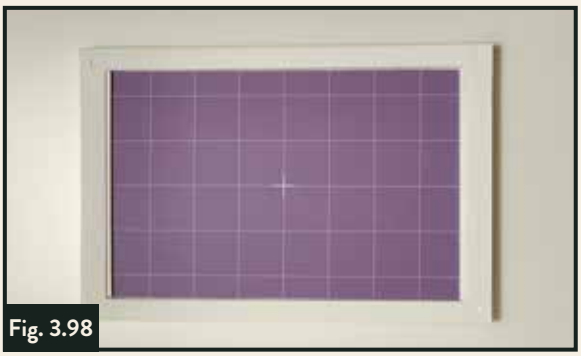


Fig. 3.98

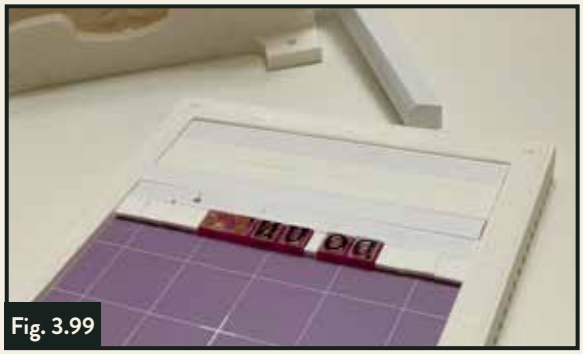


Fig. 3.99

Fig. 3.100

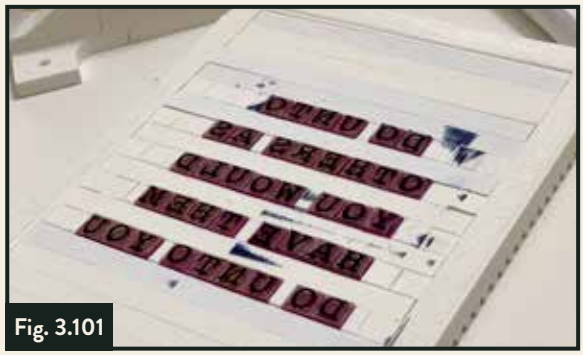


Fig. 3.101

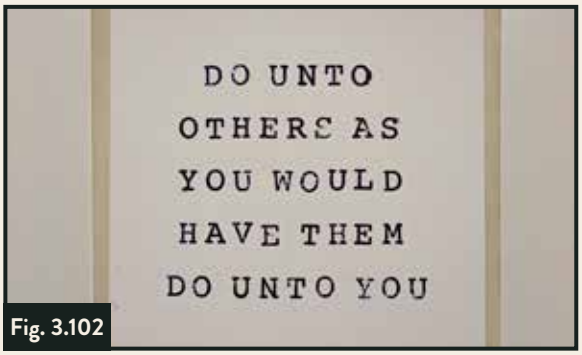


Fig. 3.102

Additional Print Tests with the Letterpress and Movable Type

After the initial print testing with the letterpress and movable type revealed the need for an adhesive mat to help hold the movable type in place when printing, I conducted a few additional print tests to determine the best method for consistently creating a clean, crisp print.

Fig. 3.103 - For my first print test, I used clear plastic clips to hold the paper in place while moving through the press.

Fig. 3.104 - Unfortunately, when the press bed moved through the press, the roller caught on the paper causing the paper to lift up from the press bed.

Fig. 3.105 - As a result of the paper lifting up during printing, most of the letters ended up being printed twice causing a blurred effect.

Fig. 3.106 - For my next print test, I used pieces of chip board taped to the top of the press bed as clips to help hold the paper in place and guide the paper through the press during printing.

Fig. 3.107 - Fig. 3.108 - The pieces of chip board clips worked well for the top third of the print (as is clearly seen in the printed piece); however, as the press bed moved through the press, the roller caught on the paper causing the paper to separate from the clips.

Fig. 3.109 - Fig. 3.111 - In order to ensure the paper did not shift on the press bed, I applied drafting tape to all four sides of the paper. While there were no major issues with the final printed piece, I felt the pressure should somehow be increased for creating a clean, crisp print. As such, I decided to try adding a craft foam sheet to the top of the paper for my final print test in order to apply additional pressure.

Fig. 3.103

Fig. 3.104

Fig. 3.105

Fig. 3.106

Fig. 3.107

Fig. 3.108

Fig. 3.109

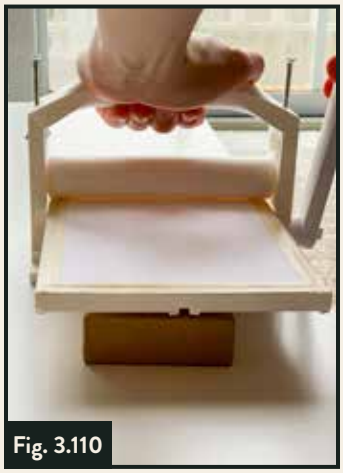


Fig. 3.110

Fig. 3.111

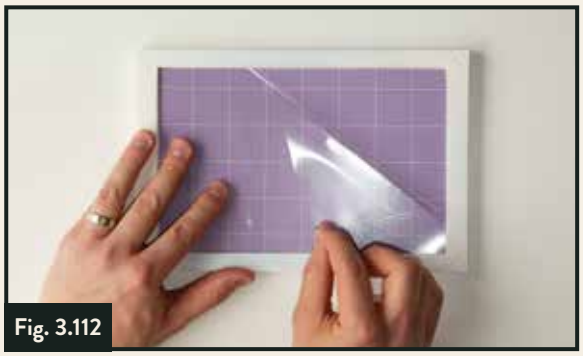


Fig. 3.112

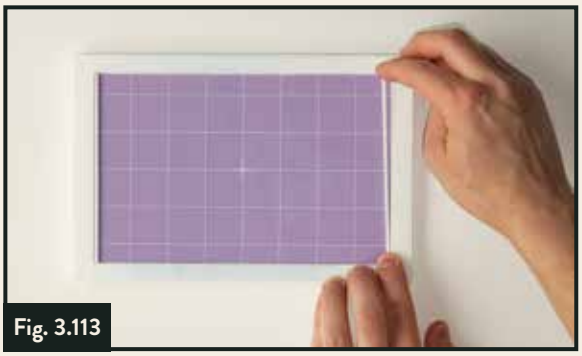


Fig. 3.113

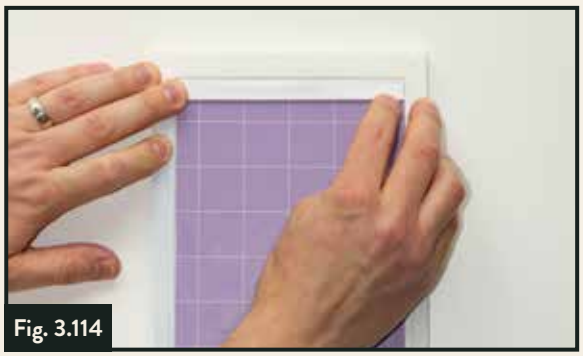


Fig. 3.114

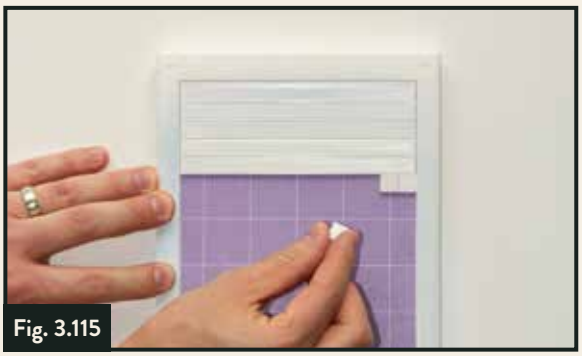


Fig. 3.115

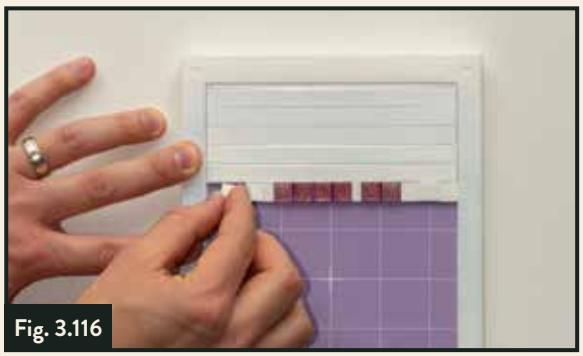


Fig. 3.116

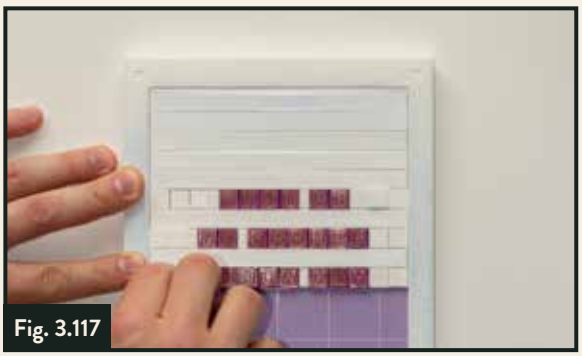


Fig. 3.117

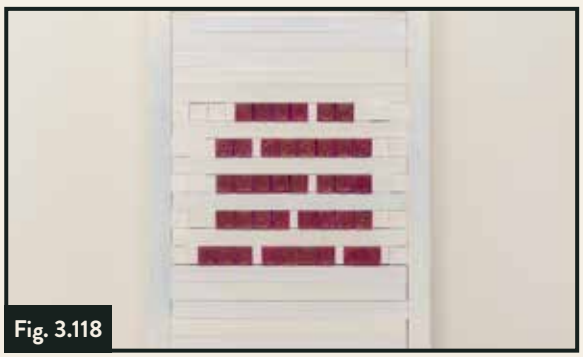


Fig. 3.118


Fig. 3.119

Final Print Test with the Letterpress and Movable Type

Fig. 3.112 - Preparing the press bed for setting type by removing the clear plastic protective sheet from the purple adhesive mat.

Fig. 3.113 - Placing the two smallest pieces of "leading" at the top and bottom of the press bed.

Fig. 3.114 - Fig. 3.117 - Setting type within the press bed using a combination of various spacing material *(leading, em quads, en quads)* for filling all of the negative space surrounding each character/word.

Fig. 3.118 - The press bed fully set with the movable type and spacing material waiting to be inked.

Fig. 3.119 - Applying letterpress ink to the glass palette in preparation for inking the movable type.

Fig. 3.120 - Evenly spreading the letterpress ink in a thin layer across the glass palette using a palette knife.

Fig. 3.121 - Rolling the rubber brayer through the letterpress ink.

Fig. 3.122 - Carefully applying the ink from the brayer onto the movable type—lightly rolling the brayer across each character/word.

Fig. 3.123 - Placing a sheet of cotton paper on top of the inked set type.

Fig. 3.124 - Taping all four sides of the paper to the press bed to ensure the paper does not shift while moving through the press.

Fig. 3.125 - Laying a craft foam sheet on top of the paper to give the roller better traction when the press bed moves through the press.

Fig. 3.126 - Adjusting the tightness of the wing nuts and bolts to control the amount of pressure applied by the press.

Fig. 3.127 - Sending the press bed through the press.

Fig. 3.128 - The final printed piece. The craft foam sheet definitely helped in applying additional pressure.

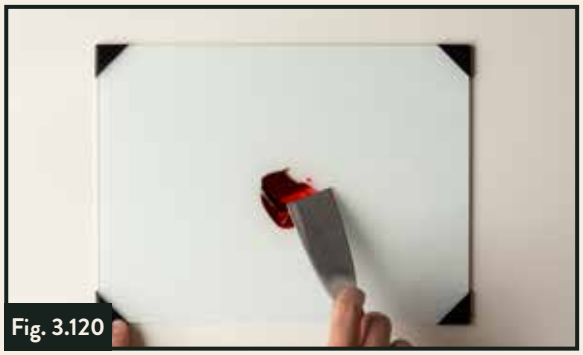


Fig. 3.120

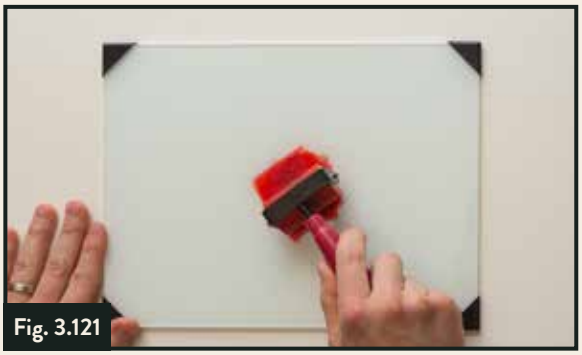


Fig. 3.121

Fig. 3.122

Fig. 3.123

Fig. 3.124

Fig. 3.125

Fig. 3.126

Fig. 3.127

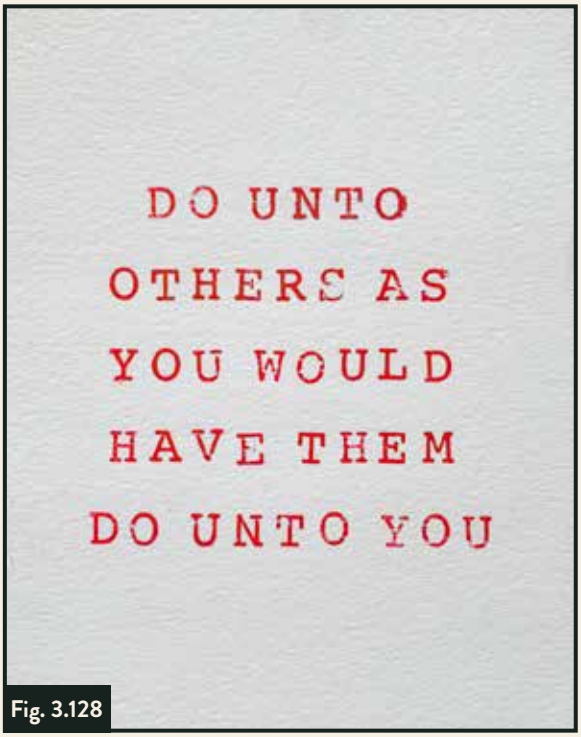


Fig. 3.128

CHAPTER 4:

FINAL SOLUTION

Final Solution

The visual solution for this thesis uses a kit to serve as a *hands-on* educational resource for use by educators and students alike in collegiate level online instruction in design fundamentals. The kit is specifically designed as a pedagogical tool to help improve the perception and understanding of design fundamentals by online/remote learners through opportunities for *hands-on* experiences with traditional formats of analog design. While the use of the kit could eventually be tailored to also include the traditional, in-person classroom, it is initially being designed as an educational resource to meet the needs of collegiate level online/remote learners and educators—ultimately increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals in the online/remote learning environment. Each kit is enclosed within a box containing the necessary materials, tools, and supplies for working with a specific traditional format of analog design—in this case—letterpress printing. Learning objectives further direct educators and students alike to the connections between the materials and tools in the kits and specific design elements and principles.

Fig. 4.1 - Fig. 4.2 - The pattern on the exterior of the kit showcases the 12 different traditional formats of analog design that make up the *Maker's Dozen*. Many of the other items contained within the kit have their own packaging as well that ties into the overall brand identity. The pattern is also used to frame the *Maker's Dozen* logo alongside the icon and name of the kit on the top exterior of the box.

Fig. 4.3 - Upon opening the lid to the kit, the slogan "bringing analog into the digital age..." sits below the *Maker's Dozen* logo eluding to the general usage of the kit. Printed on a piece of cardboard, this extra packaging piece serves as a sort of padding for protecting all of the items contained within the kit and below this layer.

Fig. 4.1

Fig. 4.2

Fig. 4.3

Fig. 4.4

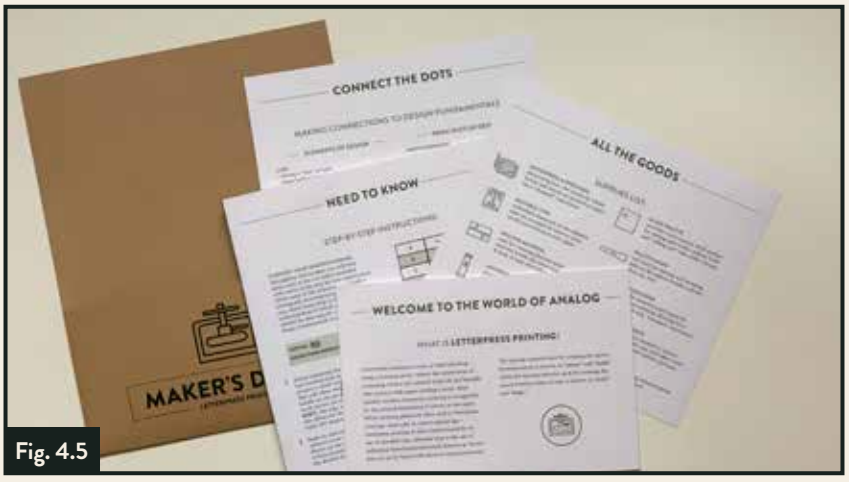


Fig. 4.5

Fig. 4.4 - Fig. 4.5 - Once the piece of cardboard padding is removed, the next visible layer is the folder of collateral materials that further explains the purpose of the kit and the materials, tools, and processes necessary for engaging in a *hands-on* experience with letterpress printing and manual typesetting. Each of the collateral materials has a specific purpose for helping to improve the perception and understanding of design fundamentals by online/remote learners. They also help establish the learning objectives and instructions for how to best utilize the kit as a *hands-on* educational resource.

"CONNECT THE DOTS"

This single-page document serves as the list of learning objectives for the kit highlighting the connections between the materials, tools, and processes of letterpress printing and specific design elements and principles.

"NEED TO KNOW"

This booklet serves as the step-by-step instructional booklet detailing how to use the materials, tools, and supplies contained within the kit. This booklet references the "All the Goods" document by specifically referencing the supplies needed for each given step using their corresponding icons. Additionally, this booklet also refers to the "Connect the Dots" document by referencing the various design fundamentals that may be observed in each given step of the instructional booklet.

"ALL THE GOODS"

This single-page document serves as the supplies list detailing the contents of the kit. Each one of the listed supplies is accompanied by its own icon and description. The icons are also used throughout the "Need to Know" instructional booklet, so this piece is especially important for not only understanding what the included supplies will be used for but also for understanding when they will be used throughout the letterpress printing process.

"WELCOME TO THE WORLD OF ANALOG"

This booklet serves as an introduction to the kit explaining the brand/mission of the *Maker's Dozen* and providing historical context for the specific traditional format of analog design contained within the kit—in this case, letterpress printing.

CONNECT THE DOTS

MAKING CONNECTIONS TO DESIGN FUNDAMENTALS:

ELEMENTS OF DESIGN

LINE
- setting a "line" of type
- using leading between lines of type and observing the negative space "lines" created

SHAPE
- observing each letterform/word as individual shapes when setting type by hand
- setting type to fit the shape of the press bed

FORM
- seeing the individual letterforms of movable type as three-dimensional forms
- creating "form" by setting type by hand as opposed to watching type "form" on screen

COLOR
- adapting to limited use of colors for cost effectiveness/ easier print registration
- observing the act of mixing color inks by hand

VALUE
- understanding the order in which ink colors need to be applied (lightest to darkest values)
- studying the differing tonal values between dark ink and light ink as they are printed on white paper

SPACE
- physically understanding kerning, tracking, and leading with spacing material
- understanding the negative space between each word/line is as equally important as the positive space of the letterforms/words themselves when setting type by hand

TEXTURE
- seeing the texture of set type once it is printed
- feeling the texture of the debossed impression created from the pressure of letterpress printing

PRINCIPLES OF DESIGN

UNITY/HARMONY
- using consistent spacing/justification
- repeating a specific color scheme consistently

BALANCE/ALIGNMENT
- setting lines of type symmetrically or asymmetrically
- observing the grid stucture created by the set type

HIERARCHY
- varying the placement and spacing of the set type
- choosing a specific color scheme of varying contrast

SCALE/PROPORTION
- exaggerating the scale/proportion of the set type in relation to the size of paper used
- setting type "to scale" based on the space available in the press bed

EMPHASIS/DOMINANCE
- varying the location of a body of set type on the final printed page
- using color to create a focal point

CONTRAST/SIMILARITY
- choosing a specific color scheme of varying contrast or complementary colors
- using the transparency of letterpress ink to create visual contrast

REPETITION/PATTERN
- repeating the use of a single letter or number in a "step and repeat" pattern
- printing the same line of type/body of set type with alternating colors
- using the transparency of letterpress ink to create intentional patterns

RHYTHM/MOVEMENT
- organizing elements in a recurring fashion
- using letterforms to create visual movement

Fig. 4.6

Fig. 4.6 - The "Connect the Dots" single-page document listing all of the learning objectives for the kit that were established during the "Visual Process" chapter of my thesis project.

Fig. 4.7 - The "All the Goods" single-page document detailing all of the supplies contained within the kit. Once again, the supplies list was established during the "Visual Process" chapter of my thesis project.

Fig. 4.7

Fig. 4.8 - This seven-page step-by-step instructional booklet details how to use the materials, tools, and supplies contained within the kit. As highlighted on the first page of the booklet, many of the step-by-step instructions are accompanied by a colored box referencing the supplies needed for each given step and the various design fundamentals that may be observed. The "Need to Know" booklet is significant in helping to reveal the direct, tangible correlation between letterpress printing and design fundamentals and how this additional knowledge can be incorporated into the digital age.

As an example, the process of setting type within the press bed (as described in step four of the instructional booklet) reveals the following design fundamentals that can be observed firsthand:

- Line
- Shape
- Form
- Space
- Unity/Harmony
- Balance/Alignment
- Hierarchy
- Scale/Proportion
- Emphasis/Dominance
- Repetition/Pattern
- Rhythm/Movement

Additionally, the mixing of ink (as described in step seven of the instructional booklet) is a lesson in color theory on its own. As letterpress ink is translucent, it allows for layering two colors to create a third color. This must be given consideration when mixing letterpress ink colors together as the value of the ink can change based on the type of surface on which it appears (i.e. glass palette vs. paper.) The process of mixing ink reveals the following design fundamentals that can be observed firsthand:

- Color
- Value

NEED TO KNOW

STEP-BY-STEP INSTRUCTIONS:

FURTHER YOUR UNDERSTANDING
Throughout this booklet you will find boxes such as the one below included with many of the step-by-step instructions. While most of the instructions include a photograph demonstrating each specific step, these boxes help to further your understanding of which supplies are needed for that specific step and which design fundamentals you may observe.

SUPPLIES:

DESIGN FUNDAMENTALS: LINE, SHAPE, SCALE

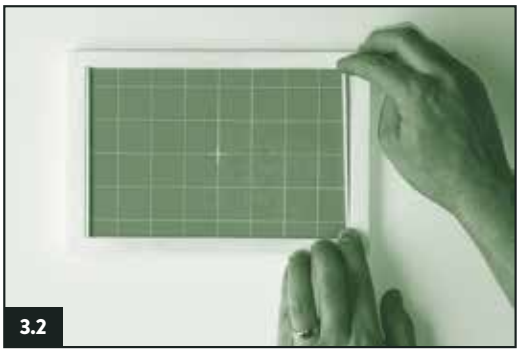
1 Before beginning the process of setting type and creating your first letterpress print, prepare a raised work surface for your press that will allow adequate room to turn the handle on the press without hitting the work surface on which the press is sitting. **HINT:** The edge of a table works best as this allows for the handle of the press to make 360-degree turns.

2 Begin by selecting a short phrase or sentence to set in type. Use the chart shown on the right to determine if there will be enough of each character to create the desired phrase or sentence.

A	9 ct	S	6 ct
B	6 ct	T	9 ct
C	6 ct	U	6 ct
D	6 ct	V	3 ct
E	12 ct	W	6 ct
F	6 ct	X	3 ct
G	6 ct	Y	6 ct
H	6 ct	Z	3 ct
I	9 ct	0	4 ct
J	3 ct	1	4 ct
K	3 ct	2	4 ct
L	6 ct	3	4 ct
M	6 ct	4	4 ct
N	6 ct	5	4 ct
O	9 ct	6	4 ct
P	6 ct	7	4 ct
Q	3 ct	8	4 ct
R	6 ct	9	4 ct

Fig. 4.8

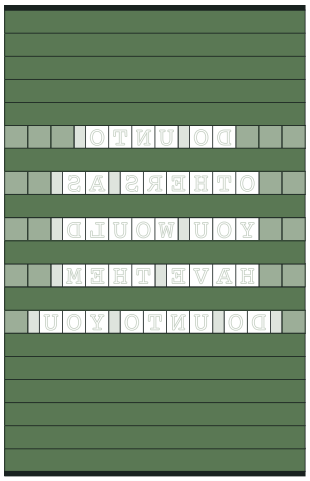
3.1



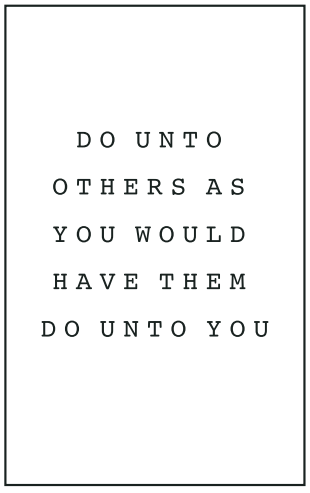
3.2

3 Prepare the press bed for setting type by removing the clear plastic protective sheet from the purple adhesive mat *(image 3.1)* and placing the two smallest pieces of "leading" at the top and bottom of the press bed *(image 3.2)*. Before beginning the process of setting type within the press bed, determine which type of typographic alignment to use: (i.e. flush left, flush right, justified, or centered). **HINT:** It may be helpful to create a diagram in advance to determine the necessary measurements for setting the type within the press bed *(image 3.3)*.

SUPPLIES:



3.3 *example diagram of the movable type and spacing material needed to create the phrase "do unto others as you would have them do unto you" within the press bed*



3.4 *example of how the final printed piece will appear*

4.1

4.2

4 Begin the process of setting type within the press bed. Be sure to use spacing material to fill all of the negative space surrounding each character/word *(image 4.1)*. Take into account the type is backwards and will need to be set backwards (from right to left) in order to print correctly *(image 4.2)*.

SUPPLIES:

DESIGN FUNDAMENTALS: LINE, SHAPE, FORM, SPACE, UNITY/HARMONY, BALANCE/ALIGNMENT, HIERARCHY, SCALE/PROPORTION, EMPHASIS/DOMINANCE, REPETITION/PATTERN, RHYTHM/MOVEMENT

5 Once all of the type has been set within the press bed, it is time to begin the inking process. Choose only one (1) primary color to use for this project (red, yellow, or blue.) In order to observe the effect of mixing colors using various types of ink, you will be tasked with creating five (5) different prints using the following ink combinations using the same primary color for each ink combination:

- *A single primary color*
- *A single primary color + a different primary color*
- *A single primary color + black*
- *A single primary color + translucent white*
- *A single primary color + opaque white*

SUPPLIES:

DESIGN FUNDAMENTALS: COLOR, VALUE

6.1

6 Begin by applying a small amount of letterpress ink to the glass palette *(image 6.1)*. **NOTE:** A little bit of ink goes a long way—especially when working with darker inks.

SUPPLIES:

DESIGN FUNDAMENTALS: COLOR, VALUE

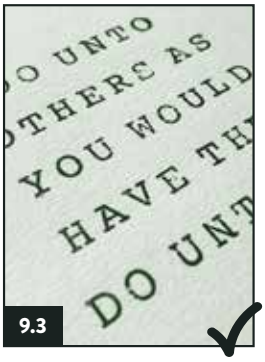
7 Using one of the palette knives, evenly spread the ink in a thin layer across the palette *(image 7.1)*. **HINT:** If mixing two inks, use the palette knife to scrape and "fold" the two inks together until completely combined. Continue adding more of one ink or another until you achieve the desired color.

SUPPLIES:

DESIGN FUNDAMENTALS: COLOR, VALUE

8 Roll the rubber brayer through the letterpress ink ensuring the brayer is evenly coated *(image 8.1)*.

SUPPLIES:



9 Carefully apply the ink from the brayer onto the movable type—lightly rolling the brayer across each character/word *(image 9.1)*. **HINT:** While it is important to evenly coat each character/word with the letterpress ink, be sure not to apply too much ink as this will lead to problems when printing—mainly, distorted characters/words due to the ink spreading *(images 9.2 - 9.3)*.

SUPPLIES:

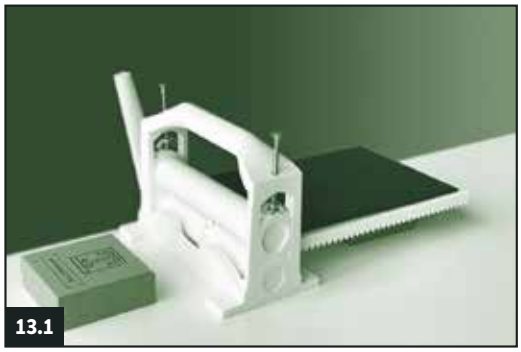
DESIGN FUNDAMENTALS: COLOR, VALUE, UNITY/HARMONY, HIERARCHY, EMPHASIS/DOMINANCE, CONTRAST/SIMILARITY, REPETITION/PATTERN,

10 Once all of the characters/words are evenly coated with the letterpress ink, carefully place a sheet of cotton paper on top of the set type *(image 10.1)*. **HINT:** It often helps to work from one side of the paper to the other side instead of setting the paper down on top of the press bed all at once.

SUPPLIES:

11 To ensure the paper does not shift on the press bed while moving through the press, use the included drafting tape to adhere the paper to the sides of the press bed taping one side of the paper at a time *(image 11.1)*.

12 After the paper has been adhered to the press bed, lay the included craft foam sheet on top of the paper *(image 12.1)*. The craft foam sheet gives the roller better traction and applies additional pressure on the set type resulting in a deeper printed impression.

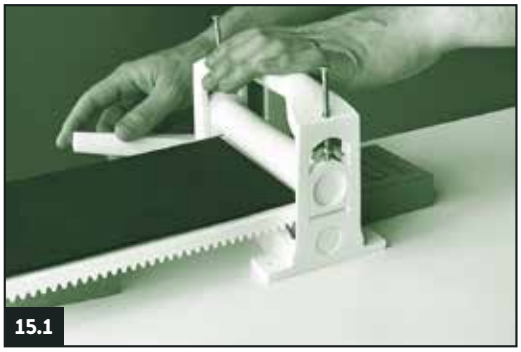


13 Before sending the press bed through the press, place each of the box lids from the *"Movable Type"* and *"Spacing Material: Em Quads"* boxes on either side of the press *(image 13.1)*. This will ensure that the press bed won't wobble when being sent through the press. After the box lids are in place, insert one end of the press bed into the press, resting the other end on one of the box lids for added support.

14.1

14.2

14 Tighten (or loosen) each of the wing nuts and bolts on either end of the press to control the amount of pressure applied by the press. **HINT:** A good rule of thumb is to control the amount of pressure while the press bed is slightly inserted into the press. This way, you can tighten the press until it just "clamps down" onto the press bed. **DO NOT OVERTIGHTEN AS THIS COULD DAMAGE THE PRESS AND/OR PRESS BED**. Once the press bed is inserted into the press and the wing nuts and bolts have been tightened (or loosened), you are ready to create your first letterpress print *(images 14.1 - 14.2)*.



15.1

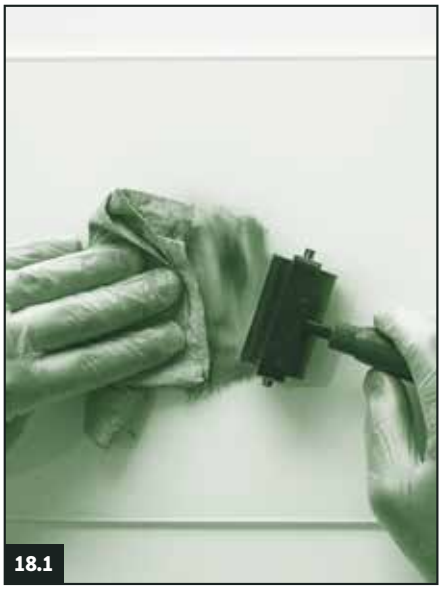
15 Using one hand to hold the top of the press and one hand to turn the handle of the press, rotate the handle of the press clockwise until the press bed has completely moved through the press *(image 15.1)*.

SUPPLIES:

16 Carefully remove the sheet of cotton paper and turn ink-side up to review *(image 16.1)*. While you can immediately remove the drafting tape from all four (4) sides of the paper, you can also wait until after the print has fully dried. (The drafting tape has a low-tack adhesive, so it won't leave a sticky residue behind or tear the paper to which it is applied.) **NOTE:** Letterpress prints made with rubber-based ink can usually be stacked on top of each other immediately; however, it is recommended to lay your prints flat—in a single layer—to dry. Depending on the amount of ink used, some prints may take up to 24 hours to dry.

DESIGN FUNDAMENTALS: COLOR, VALUE, TEXTURE, UNITY/HARMONY, BALANCE/ALIGNMENT, HIERARCHY, EMPHASIS/DOMINANCE, CONTRAST/SIMILARITY, REPETITION/PATTERN, RHYTHM/MOVEMENT

16.1


18.1

17 Letterpress printing usually involves a certain amount of trial and error. After reviewing your print, you may realize you should have applied more or less ink, adjusted the pressure differently, etc. As such, you may want to repeat steps 8-16 until you have a quality print with which you are happy. At this point, you will then need to begin the clean-up process.

18 In order to clean the movable type, press bed, and rubber brayer, you will need to use the included bottle of mineral spirits and one of the cleaning rags. Apply the mineral spirits directly to the cleaning rag and wipe off the ink until all surfaces are clean. **NOTE:** Be aware of the precautions printed on the label on the side of the bottle of mineral spirits, and take extra precautions when handling. Rubber gloves and goggles (not included) are often recommended when handling mineral spirits. **HINT:** You may also choose to use paper shop towels (also not included) to apply the mineral spirits and wipe away some of the excess ink before using the cleaning rag *(image 18.1)*.

SUPPLIES:

19 You may also choose to clean your glass palette and palette knife at this point as well; however, there should be sufficient room on the palette to mix four more inks, and the remaining four (4) palette knives can be used separately for each of the remaining four (4) ink combinations.

20 Repeat steps 6-18 for creating letterpress prints using the remaining four (4) ink combinations. Once finished, clean all surfaces completely using mineral spirits and the cleaning rag.

Fig. 4.9 - This eight-page booklet explains the brand/mission of the *Maker's Dozen* and provides historical context for the manual craft of letterpress printing and manual typesetting.

The first page of the booklet provides a definition of letterpress printing and explains the process of letterpress printing and manual typesetting. The first full spread of the booklet further defines the *Maker's Dozen* brand and the usage of a kit as a *hands-on* educational resource. Additional terms are defined as well:

- traditional formats of analog design
- design fundamentals
- elements of design
- principles of design

Another section of the booklet highlights and defines the many terms used in the digital age that have a direct correlation with letterpress printing, such as:

- logotype/logo
- kerning
- leading
- uppercase/lowercase
- cut and paste
- out of sorts
- mind your p's and q's

Finally, the last full spread of the booklet compares traditional letterpress printing to modern letterpress printing. The last page of the booklet serves as a sort of "advertisement" for the entire collection of kits that could be made available as part of the *Maker's Dozen*.

WELCOME TO THE WORLD OF ANALOG

WHAT IS **LETTERPRESS PRINTING**?

Letterpress printing is a type of relief printing—using a printing press—where the raised areas of a printing surface are covered with ink and brought into contact with paper creating a print. Most notably, modern letterpress printing is recognized by the printed impression it creates in the paper. While printing plates are often used in letterpress printing—especially in today's digital age—letterpress printing is often characterized by its use of movable type. Movable type is the use of individual letterforms/characters (known as "sorts") that are set by hand with physical spacing material.

The spacing material used for creating the spaces between words is known as "spaces" and "quads," while the spacing material used for creating the spaces between lines of type is known as "leads" and "slugs."

Fig. 4.9

WHAT IS **MAKER'S DOZEN**?

Calligraphy & Hand Lettering


Ceramics


Drawing


Fiber Art


Film Photography


Glassworking


Letterpress Printing


Metalworking


Painting


Screenprinting


Sculpture


Woodworking

Maker's Dozen is a family of 12 different kits each containing the necessary materials, tools, and instructions for working with one of the various traditional formats of analog design* listed in the column on the left.

Each kit is designed to serve as a *hands-on* educational resource for collegiate level online instruction in design fundamentals** and contains the necessary materials, tools, and instructions for working with a specific traditional format of analog design. While each kit provides the opportunity for learning about a specific traditional format of analog design, the goal of each kit is to highlight the tangible correlation between traditional formats of analog design and design fundamentals and how this additional knowledge can be incorporated into the digital age.

*** WHAT ARE TRADITIONAL FORMATS OF ANALOG DESIGN?**

In the simplest of terms, traditional formats of analog design are any of the materials, tools, processes, and/or media used for creating art and design that do not require the use of a computer or digital technology—essentially, anything used prior to the digital age.

**** WHAT ARE DESIGN FUNDAMENTALS?**

The combination of the elements of design and the principles of design that inform the practice of visual composition.

ELEMENTS OF DESIGN: The fundamental ideas of design that serve as the foundation and structure of visual composition.

PRINCIPLES OF DESIGN: The fundamental ideas of design that are used to tie the elements of design together into a cohesive visual composition.

LETTERPRESS VOCABULARY IN THE DIGITAL AGE

There are many terms used in the digital age that have a direct correlation with letterpress printing. The following list is just a sampling of some of these terms:

LOGOTYPE / LOGO

The term used to describe a stylized word or phrase —usually a company name, slogan, or headline. The term originates from the ancient Greek word for "word": lógos. In letterpress printing, logotypes referred to frequently used words or phrases that were cast as a single piece of type. Logotypes were most often stylized in a decorative way that could not be achieved with traditional movable type. Over time, the term has transitioned to the modern usage of referring to the appearance of a company's name as part of their overall brand.

LETTERPRESS VOCABULARY IN THE DIGITAL AGE (CONT.)

KERNING

The process of adding or removing space between letterforms/characters to achieve a visually-pleasing result. In letterpress printing, kerning would be achieved by manually adding physical spacing material between the letterforms/characters (known as "sorts.") If wood type was used, the typesetter also had the option of carving away space on individual letter blocks to allow for the sorts to be placed closer together. If metal type was used, certain parts of letterforms simply hung off the edge of the sort (known as "kerns.") These kerns provided the appropriate visually-pleasing spacing desired when setting type resulting in the modern use of the term "kerning" when describing the act of adjusting space between letterforms/characters.

LEADING

The process of adding or removing space horizontally between lines of type. In letterpress printing, leading would be achieved by manually adding physical spacing material between lines of type. Known as "leads" and "slugs" depending on the thickness, they were made from thin strips of lead resulting in the use of the term "leading" to describe the spacing used between lines of type.

UPPERCASE / LOWERCASE

The traditional way in which type cases (shallow drawers of movable type) were arranged in print shops. Majuscules (capital letters) were often stored in a separate type case located above the type case for minuscules (small letters.) As such, the majuscules were literally "uppercase" letters while the minuscules were literally "lowercase" letters.

CUT & PASTE

The process of removing ("cutting") text or imagery from one location and placing ("pasting") in a different location. Prior to desktop publishing, the phrase "cut and paste" originated from the manual process of using scissors and scalpels to cut physical pieces of printed text from one page and then using adhesive to paste the pieces of printed text onto another page to be photographed as part of a method known as phototypesetting.

"OUT OF SORTS"

In letterpress printing, "sorts" refer to the letterforms and characters cast as single pieces of type. Being "out of sorts" meant the compositor literally ran out of type before being able to finish the job at hand. Understandably, this often lead to the compositor being irritable and in low spirits. Over time, this printing phrase gained usage in American English to describe anyone feeling the same way.

"MIND YOUR P'S AND Q'S"

In letterpress printing, type cases (shallow drawers of movable type) were divided in such a way that each letterform/character had its own compartment. While the layout of these compartments varied, many configurations had the compartments for the "p's" and the "q's" directly next to one another. Since movable type is set backwards and upside down, type setters (referred to as "compositors") had to pay close attention to which letter they were using—quite literally, they needed to "mind their p's and q's." Over time, this printing phrase gained usage in American English to describe anyone needing to pay close attention to something.

LETTERPRESS **THEN**

The origins of letterpress printing can be traced back to the invention of the printing press and movable type. Most often associated with Johannes Gutenberg, the invention of the printing press and movable type provided a much quicker and easier way to produce and reproduce manuscripts. Prior to this time, any type of manuscript had to be written and illustrated by hand. With the printing press and movable type, printers could re-use individual pieces of wood or metal type to compose an entire page of written text instead of writing and illustrating everything by hand. Any type or illustrations would be covered with ink and brought into contact with paper resulting in a letterpress print. As the main form of printing for nearly 500 years, no other technological advancement proved as critical to advancing the practice (and profession) of graphic design than the invention of the Apple Macintosh computer and desktop publishing during the 1980s.

CHARACTERISTICS OF "TRADITIONAL" LETTERPRESS PRINTING

• type setters (referred to as "compositors") set each letter-form/character by hand

• any illustrations were printed from a wood or metal block containing an engraving of a specific image or graphic

• when printing, the goal was to "kiss" the paper meaning the inked surfaces of the printing area would only touch the paper long enough to transfer the ink to the paper

LETTERPRESS **NOW**

While letterpress printing was still used in some capacity into the 1980s, the invention of the Macintosh and desktop publishing lead to a significant decline in its use. Since that time, letterpress printing has seen a continued increase in interest and use as a popular printing method for invitations, business cards, greeting cards, and stationery. Many people associate this modern resurgence in letterpress printing to Martha Stewart who became a proponent of using letterpress printing for wedding invitations during the 1990s. As letterpress printing continues to make a resurgence in the digital age, some collegiate graphic design programs have once again begun incorporating coursework experiences in letterpress printing and manual typesetting for the added value provided for students' understanding of design fundamentals.

CHARACTERISTICS OF "MODERN" LETTERPRESS PRINTING

- *many printers no longer use movable type for letterpress printing and instead choose to use photopolymer plates created from digital files on the computer*

- *photopolymer plates allow printers to create detailed designs on-screen combining images and text together*

- *most notably, modern letterpress printing is recognized by the deep printed impression it creates in the paper (often referred to as debossing)*

MAKER'S DOZEN — BRINGING ANALOG INTO THE DIGITAL AGE

Each kit of the **Maker's Dozen** *is specifically designed to help improve the perception and understanding of design fundamentals by online/remote learners through opportunities for hands-on experiences with traditional formats of analog design.*

CALLIGRAPHY & HAND LETTERING

CERAMICS

DRAWING

FIBER ART

FILM PHOTOGRAPHY

GLASSWORKING

LETTERPRESS PRINTING

METALWORKING

PAINTING

SCREENPRINTING

SCULPTURE

WOODWORKING

Fig. 4.10

Fig. 4.10 - All of the other remaining items contained within the kit are the materials, tools, and supplies necessary for letterpress printing and manual typesetting:

- 3D-printed letterpress with press bed
- 3D-printed movable type bases with photo-polymer plate tops
- 3D-printed spacing material (leading, em quads, and en quads)
- Letterpress ink
- Palette knives
- Glass artist palette
- Rubber brayer
- Cotton paper
- Drafting tape
- Cleaning rags
- Mineral spirits

Aside from the 3D-printed letterpress with press bed, all of the items contained within the kit have their own packaging. This is not only important for keeping a consistent brand identity but also for the practical purpose of providing clarity through the use of labels on each of the supplies and providing an additional layer of protection to prevent any of the supplies from getting damaged.

Fig. 4.11 - The 3D-printed letterpress with press bed is designed to be used on a raised work surface (such as the edge of a table) to allow adequate room to turn the handle on the press without hitting the work surface on which the press is sitting. The bolts on the press are used to apply pressure by tightening or loosening each of the wing nuts on either end of the press. The craft foam sheet included in the kit also helps to apply additional pressure on the set type by giving the roller better traction as the press bed moves through the press.

Fig. 4.12 - The press bed contains a purple adhesive mat with a clear plastic protective sheet to ensure the adhesive stays sticky. The use of an adhesive mat ensures that nothing moves around on the press bed when moving through the press.

Fig. 4.13 - Fig. 4.14 - The box labeled "Movable Type" containing all of the small movable type pieces needed for letterpress printing.

Fig. 4.15 - Fig. 4.20 - The boxes labeled "Spacing Material" each serve a specific purpose in separating the physical spacing material by size:

- Leading *(Fig. 4.15 and Fig. 4.16)*
- Em-Quads *(Fig. 4.17 and Fig. 4.18)*
- En-Quads *(Fig. 4.19 and Fig. 4.20)*

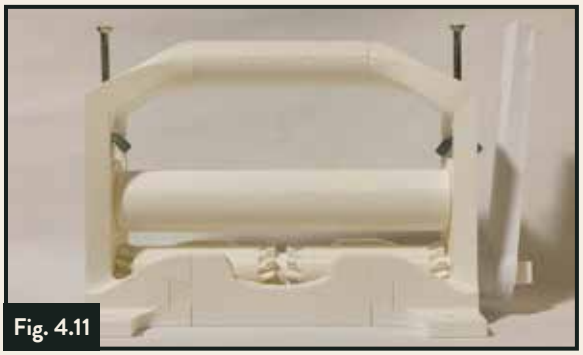


Fig. 4.11

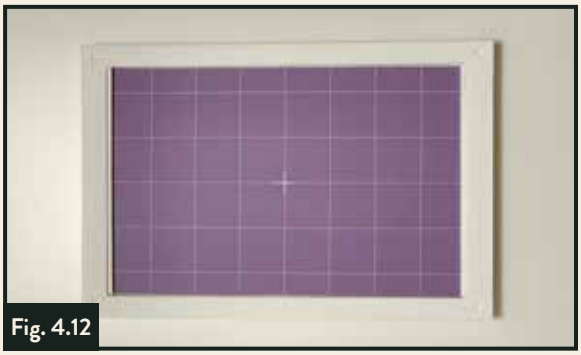


Fig. 4.12

Fig. 4.13

Fig. 4.14

Fig. 4.15

Fig. 4.16

Fig. 4.17

Fig. 4.18

Fig. 4.19

Fig. 4.20

Fig. 4.21 - The belly band around the paper helps to hold the entire stack of 8.5" x 5.5" cotton paper together.

Fig. 4.22 - While the label on the drafting tape does not serve a specific purpose, it does help to keep the drafting tape included in the overall brand identity.

Fig. 4.23 - Fig. 4.24 - The box labeled "Letterpress Ink & Palette Knives" contains all of the individual tubes of letterpress ink as well as the package of palette knives protecting these supplies from damage.

Fig. 4.25 - Fig. 4.26 - The labels on the letterpress ink tubes and the bottle of mineral spirits include special safety precautions for handling these specific supplies.

Fig. 4.27 - Fig. 4.28 - The clear cellophane bags for both the palette knives as well as the cleaning rags help to keep these multiple supplies together.

Fig. 4.29 - Fig. 4.30 - The packaging for both the rubber brayer and the glass palette also serves a specific purpose in protecting these supplies from damage.


Fig. 4.21

Fig. 4.22

Fig. 4.23


Fig. 4.24

Fig. 4.25

Fig. 4.26

Fig. 4.27

Fig. 4.28

Fig. 4.29

Fig. 4.30

CHAPTER 5:

CONCLUSION

Conclusion

Traditional formats of analog design—such as letterpress printing—are not being included to the fullest extent in the curriculum and methods of today's collegiate graphic design programs. The main emphasis of graphic design education in the digital age continues to revolve around students' technical expertise in learning the newest technologies and software, resulting in less opportunities to incorporate traditional formats of analog design and other manual crafts. As many of the digital tools and processes of modern design software come directly from the tools and processes found in the manual craft of letterpress printing, a strong case was made for incorporating traditional formats of analog design—such as letterpress printing—into collegiate level online instruction as pedagogical tools, increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals. While the instruction in design fundamentals is applicable to both analog and digital design formats, there has been a definitive change in how these design fundamentals are perceived and understood by the graphic design students of today's digital age—especially online/remote learners. Prior to the desktop publishing revolution of the 1980s, the curriculum and methods used in the instruction of design fundamentals at the collegiate level had a direct, tangible correlation with the analog technology of the time. Unfortunately, the graphic design students of today's digital age—especially online/remote learners—have a disadvantage when it comes to their perception and understanding of design fundamentals as the correlation between design fundamentals and digital technology is less tangible than it had been with analog technology.

Since collegiate level online instruction is digitally based and lacking in analog engagement, online/remote learners are at a greater disadvantage than residential students without access to physical studio spaces, labs, and the materials and tools necessary for engaging in *hands-on* experiences with traditional formats of analog design—such as letterpress printing. As a result, online/remote learners are not able to see the correlation between design fundamentals and digital technology as easily without opportunities for *hands-on* experiences. Although collegiate educators are continuously exploring new ways to adapt traditional, in-person classroom experiences for the online/remote learning environment, the common consensus by academics in higher education seems to support the use of kits as an effective solution for bringing *hands-on* experiences to online/remote learners.

While there are some variations of letterpress kits currently on the market, none of these examples are specifically designed to be used as pedagogical tools in collegiate level online instruction for increasing the effectiveness of the curriculum and methods used in the

instruction of design fundamentals. Although some of the letterpress kits currently on the market could (and are) being used by collegiate educators and students alike, most of these kits are simply designed to provide all of the necessary components for building a portable letterpress—they are not necessarily designed to be a comprehensive pedagogical tool including learning objectives and step-by-step instructions. As such, a strong case was made for the creation of a letterpress kit containing all of the necessary materials, tools, and supplies for engaging in letterpress printing and manual typesetting that can be used to improve the perception and understanding of design fundamentals by online/remote learners.

The visual solution for this thesis uses a kit to serve as a *hands-on* educational resource for use by educators and students alike in collegiate level online instruction in design fundamentals. The kit is specifically designed as a pedagogical tool to help improve the perception and understanding of design fundamentals by online/remote learners through opportunities for *hands-on* experiences with traditional formats of analog design. While the use of the kit could eventually be tailored to also include the traditional, in-person classroom, it is initially being designed as an educational resource to meet the needs of collegiate level online/remote learners and educators—ultimately increasing the effectiveness of the curriculum and methods used in the instruction of design fundamentals in the online/remote learning environment. Each kit is enclosed within a box containing the necessary materials, tools, and supplies for working with a specific traditional format of analog design—in this case—letterpress printing. Learning objectives further direct educators and students alike to the connections between the materials and tools in the kits and specific design elements and principles. Through the use of the kit, online/remote learners will gain a better understanding of the tangible correlation between traditional formats of analog design and design fundamentals and how this additional knowledge can be incorporated into the digital age.

Continued research on this thesis topic could further support the creation of additional kits of traditional formats of analog design. While this thesis only focused on the creation of a letterpress kit, the remaining 11 kits of the *Maker's Dozen* could also eventually be created. Furthermore, while the use of the kit was initially designed as an educational resource to meet the needs of collegiate level online/remote learners and educators, additional consideration could be given to marketing this type of kit to a larger audience. In its current state, the kit could easily be tailored to also include the traditional, in-person classroom. In addition, the kit could be used across a variety of course offerings. As the kit is meant to be used for increasing the effectiveness of the curriculum and methods used in the instruction of design

fundamentals, the kit will probably be most beneficial in a foundation course; however, the kit could also be used in any course that teaches design fundamentals.

While the research for this thesis was primarily secondary research, the thesis topic could also benefit from primary research to further support the case for incorporating traditional formats of analog design—such as letterpress printing—into collegiate level online instruction as pedagogical tools. The use of surveys could be a useful method for collecting the views and opinions of graphic design educators at the collegiate level. Through their survey responses, conclusions could be drawn about the best ways to incorporate traditional formats of analog design into the curriculum and methods for teaching design fundamentals. Furthermore, by having groups of collegiate educators and students test the kit through *hands-on* experiences, additional feedback may be provided for making any necessary improvements to the kit.

The current version of the letterpress kit could also see enhancements in the treatment and organization of the set of movable type. For example, additional typefaces could be created as "add-ons" or even included within the initial kit. While the current set of movable type is a monospaced typeface, perhaps the use of variable-width typefaces could provide an additional challenge for ensuring the appropriate amount of physical spacing material is used between the individual characters of set type. Furthermore, while the set of movable type is currently packaged within a single box, perhaps additional consideration could be given to the use of a compartmentalized type case for organizing all of the individual characters much like a California job case.

With some modifications, the kit could also be expanded to include additional "add-ons" providing further opportunities for utilizing the kit in other ways (i.e. advanced coursework experiences or specific project-based experiences.) While the kit is meant to serve as a *hands-on* educational resource for use by educators and students alike in collegiate level online instruction in design fundamentals, the kit could also be used as a pedagogical tool at either the high school level or even by home school families. No matter the grade level using the letterpress kit, the overall objectives remain:

- improve the perception and understanding of design fundamentals through opportunities for *hands-on* experiences with traditional formats of analog design—such as letterpress printing

- ensure a better understanding of the tangible correlation between traditional formats of analog design and design fundamentals and how this additional knowledge can be incorporated into the digital age

Bibliography

Ambrose, Gavin, and Paul Harris. *The Fundamentals of Graphic Design*. AVA Publishing, 2009.

Armstrong, Helen. *Digital Design Theory: Readings from the Field*. Princeton Architectural Press, 2016.

Bennett, Audrey. *Design Studies: Theory and Research in Graphic Design.* Princeton Architectural Press, 2006.

Bierut, Michael, et al., editors. *Looking Closer 2: Critical Writings on Graphic Design.* Allworth Press, 1997.

Bierut, Michael, et al., editors. *Looking Closer 5: Critical Writings on Graphic Design.* Allworth Press, 2007.

Book Arts Guild, www.bookartsguild.org/post/book-arts-for-the-online.

Cooper, Alexander, et al. "Letterpress: Looking Backward to Look Forward." *Visible Language*, vol. 47, no. 3, 2014, pp. 52–72. *University of the Arts London*, ualresearchonline.arts.ac.uk/id/eprint/12546/.

Cramsie, Patrick. *The Story of Graphic Design: from the Invention of Writing to the Birth of Digital Design*. Abrams, 2010.

Dancewicz, Kyle. "Can You Teach Art Online?" *ARTnews.com*, ARTnews.com, 17 Apr. 2020, www.artnews.com/art-in-america/features/teaching-art-online-covid-19-professors-strategies-1202684147/.

Davis, Meredith. *Graphic Design Theory*. Thames & Hudson, 2012.

Davis, Meredith. T*eaching Design: A Guide to Curriculum and Pedagogy for College Design Faculty and Teachers Who Use Design in Their Classrooms*. Allworth Press, 2017.

Decherney, Peter, and Caroline Levander. "What Will Life Be Like at Post-COVID Colleges and Universities?" *Inside Higher Ed*, 20 May 2020, www.insidehighered.com/digital-learning/blogs/education-time-corona/what-will-life-be-post-covid-colleges-and-universities.

Drucker, Johanna, and Emily McVarish. *Graphic Design History: A Critical Guide*. 1st ed., Pearson, 2009.

Eskilson, Stephen J. *Graphic Design: A New History*. Yale University Press, 2012.

Freyermuth, Sherry. "Hands On History: Learning the History of Typography with a Letterpress Workshop." *Art History Teaching Resources*, 1 May 2017, arthistoryteachingresources.org/2017/05/hands-on-history-learning-the-history-of-typography-with-a-letterpress-workshop/.

Heller, Steven. *The Education of a Graphic Designer*. Allworth Press, 2015.

Heller, Steven. *The Education of a Typographer*. Allworth Press, 2004.

Heller, Steven, and Elinor Pettit. *Design Dialogues*. Allworth Press, 1998.

Hibel, Andrew. "Priorities, Questions, and Challenges of Teaching Online." *HigherEdJobs*, 30 Apr. 2020, www.higheredjobs.com/HigherEdCareers/interviews.cfm?ID=2222.

Ings, Welby. "Malleable Thought: The Role of Craft Thinking in Practice-Led Graphic Design." *International Journal of Art & Design Education*, vol. 34, no. 2, 2015, pp. 180–191., doi:10.1111/jade.12013.

Kelemen, Robert L. "Teaching Design Concepts Through Letterpress." *Kent State University*, 2013. *OhioLINK Electronic Theses and Dissertations Center*, rave.ohiolink.edu/etdc/view?acc_num=kent1371736745.

Kelly, Rob Roy. "The Early Years of Graphic Design at Yale University." *Design Issues*, vol. 17, no. 3, 2001, pp. 3–14. *JSTOR*, JSTOR, www.jstor.org/stable/1511796.

Kelly, Rob Roy. "Recollections of Josef Albers." *Design Issues*, vol. 16, no. 2, 2000, pp. 3–24. *JSTOR*, JSTOR, www.jstor.org/stable/1511859.

Meggs, Philip B., and Alston W. Purvis. *Meggs History of Graphic Design*. 6th ed., Wiley, 2016.

Partners in Print, www.partnersinprint.org.

Provisional Press, www.provisionalpress.com.

Perry, Michael. *Hand Job: A Catalog of Type*. Princeton Architectural Press, 2007.

Pinizzotto, Russell F. *Reimagining Hands-on Learning in a Hands-off Time: Co-Ops, Labs, and Practicums*. 22 May 2020, www.higheredjobs.com/Articles/articleDisplay.cfm?ID=2249.

Ruggie-Saunders, Cathie, and Martha Chiplis. *For the Love of Letterpress: A Printing Handbook for Instructors and Students*. Bloomsbury Visual Arts, 2013.

Type Tom Dot Com, www.typetom.com.