

CONTEMPORARY MIDDLE SCHOOL UNIFORMS
INSPIRED BY SPORTS TEAM DESIGN

A Thesis

by

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ABSTRACT

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Texas A&M University-Commerce, 2017

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The middle school years provide a critical stage of growth and development for young people. Unfortunately, students start to lose interest in academics while at this level (Clapham 40). This new and uncertain time can sometimes create low self-esteem in young people as they navigate from elementary to middle school (DeWitt). When students become disenchanted with learning during these short, formative middle school years, there are lifelong adverse effects as foundational learning is held back (Fredricks, McColskey 3).

This study and exhibition will address the loss of interest in Science, Technology, Engineering, and Mathematics (STEM) subject matter among middle school students in the United States, with the goal of envisioning a contemporary school uniform design inspired by the visual language and design elements utilized in team sports uniforms. Revealing ways in which the visual semiotic language used by sports teams promotes team pride, as well as a sense of identity for each player, will help guide research into other possible components of student uniforms (e.g., jersey design, the use of color, scale, typographic treatment, and more).

The researcher will identify the current state of school uniforms worn in middle school learning environments, highlighting their influences pertaining to student learning. In addition, the researcher will examine sports team uniform trends, as well as the visual design vernacular in order to guide the reimagined uniform aesthetic.

This research will inform the creation of a newly envisioned approach to school uniforms with the goal of building a team-based camaraderie among classmates while building interest in STEM subjects through the creation of motivational apparel as a tool for learning.

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Chapter 1

INTRODUCTION

Statement of the Problem

The middle school years provide a critical stage of growth and development for young people. Unfortunately, students start to lose interest in academics while at this level (Clapham 40). This new and uncertain time can sometimes create low self-esteem in young people as they navigate from elementary to middle school (DeWitt). When students become disenchanted with learning during these short, formative middle school years, there are lifelong adverse effects as foundational learning is held back (Fredricks, McColskey 3).

The National Middle School Association produces an annual publication titled *This We Believe: Keys to Educating Young Adolescents* and has stated how important this stage of a child's education is for developing a feeling of empowerment in their learning, building competence as a member of society, and fostering a commitment to lifelong learning (53).

In her review of student learning in the United States, Ivette Diaz-Rubio highlights the need for schools to focus more on Science, Technology, Engineering, and Mathematics (STEM) education in order to better prepare a future workforce (4). Because of the current shortage of qualified workers entering these fields (Atkinson 29), Diaz-Rubio sides with those who profess the importance of building an early interest in these careers in order to produce a larger domestically trained workforce that is STEM-literate (Evans, et al. 624).

During the middle school years, learning outcomes and engagement inside the classroom go hand-in-hand. *Change the Equation*, a Washington, D.C.-based initiative with the goal of ensuring that all students are STEM-literate, claims teachers need creative stimuli in order to create a more dynamic learning environment that will lead to student engagement and,

ultimately, student success (Vital Signs). Researchers at the University of California, Santa Barbara concluded the need for strategies to promote student engagement, stating that effective interventions lead to increased high school graduation rates (Hart, Stewart, and Jimerson 67).

One attempt to increase engagement and outcomes in students has been the use of school uniforms. In 1994, the Long Beach Unified School District in California became the first public school district in the United States to implement a mandatory district-wide uniform policy for its students (Wade, Stafford 401). This initiative received much praise because of the immediate reduction in violence seen throughout the district, as well as the creation of a more positive school environment. However, many critics challenged the initiative's effectiveness in improving underperforming school scores (Brunsmas 53).

In the years since the Long Beach uniform mandate, responses have ranged from a U.S. President delivering a State of the Union address promoting uniforms in schools to heated controversy and research about this topic. Many claim that requiring students to wear a uniform is an infringement of First Amendment rights (ACLU), while others uphold that uniforms create a more positive school environment, leading to improved self-esteem and academic achievement (Thomas 46).

Regardless of the varied perspectives on wearing school uniforms, very little research focuses on the aesthetic design of those uniforms, or on how the design can be used as a motivational tool to affect student outcomes in these influential middle school years. No one has yet addressed ways in which the clothing design, style, or color affect students' feelings toward their studies, their school, their peers, or themselves.

Purpose of the Study and Exhibition

This study and exhibition will address the loss of interest in Science, Technology, Engineering, and Mathematics (STEM) subject matter among middle school students in the United States, with the goal of envisioning a contemporary school uniform design inspired by the visual language and design elements utilized in team sports uniforms. The researcher will identify the current state of school uniforms worn in middle school learning environments, highlighting their influences pertaining to student learning. In addition, the researcher will examine sports team uniform trends, as well as the visual design vernacular in order to guide the reimagined uniform aesthetic.

Revealing ways in which the visual semiotic language used by sports teams promotes teamwork and success between players will help guide research into other possible components of student uniforms (e.g., jersey design, the use of color, scale, typographic treatment, and more). This research will guide the creation of a newly envisioned approach to school uniforms with the goal of building team-based camaraderie among classmates—along with the hope of building an early interest in and exposure to STEM subject matter through the creation of motivational apparel as a tool for learning.

Method of Procedure

The final design decisions made in the visual development of Activate Learning uniforms and the secondary accoutrements were based on an investigation into the visual language used in sports design, visual trends among current middle school uniforms, and the promotion of social issues within the realm of professional sports.

Investigation of Sports' Visual Language

The researcher began by visually dissecting and cataloging examples of professional sports collateral, such as player jerseys, advertising, and team merchandise, focusing on the visual language used in each (i.e., color, typography, scale, hierarchy, color semiotics, color psychology, and fashion psychology).

Color. Color alone is one of the largest differentiators creating unique identity among sports teams. Regarding the National Football League (NFL), colors like green, navy blue, or even yellow bring certain teams immediately to mind. A team's physical location is sometimes the genesis for colors used in their uniforms or branding, while at other times the available materials dictate colors used. Within the sport of baseball, early team uniforms were stylistically directed by the fabrics available. Wool being the go-to for many teams, the uniform's overall appearance reflected a practical tone (Fussell 114), allowing color to be seen in a player's tall stockings or socks. These secondary uniform accoutrements generally highlighted a team's main color, visually standing out from their plain wool shirts and pants.

Within the NFL, uniform colors have been the genesis of change regarding media presentation. Early black-and-white television viewers had a frustrating time deciphering their team from the opposing team if the color value of each uniform was too close (NFL Color Rush). For example, a red and green team with the same color values was virtually indistinguishable on a black-and-white television, especially if a viewer was color-blind. From this early initiative of having teams wear different uniforms based on their opponents, the NFL implemented an initiative called the Color Rush in 2015, where teams don a uniform styled fully in one color—of differing value—when playing an opponent with similar value uniforms (fig 1.1). This allows a viewer in the audience, or at home, to easily distinguish each team.



Fig 1.1. Kansas City Chiefs 2016 Color Rush jersey (left), Dallas Cowboys 2016 Color Rush jersey (right).

Another color trend the researcher identified within contemporary professional sport is the use of high-visibility (high-vis) fabric and graphics. Trek-Segafredo, a global professional cycling team, recently adopted a high-vis uniform complete with bright yellow upper shoulders and arms, as well as shoe covers of the same color (fig 1.2). The team even created custom bicycles in this bright high-vis color. This diversion from their regular red and black—with grey pinstripe—uniforms shows an effort to increase the safety of their team riders while on group training rides. The team says that wearing these high-vis colors creates a more striking visual “contrast with the environment” (Bowden) for drivers, especially in low-light situations.



Fig 1.2. Professional cycling team Trek-Segafredo high-vis bicycle frame and clothing.

The well-known sports brand Nike has also ventured into the high-visibility arena with several of its soccer cleats and shoes. With color names like “Electro Purple, Volt, Green Glow, and Electric Green,” Nike says this highly visible footwear helps players quickly locate a teammate while running down the field, especially in darker conditions, potentially giving an advantage to the team wearing these colors (Nike Football).

Typography. Sports uniforms are a way for teams to communicate and market themselves. Using the uniform, a team communicates the name of the team or organization, a player’s name and number, and in certain sports—as in cycling—the uniform communicates team sponsorship. Within each of these usages, typography is called upon to relay the communication to the viewer.

Large typography is employed for areas like the player’s name and number, while smaller typography is seen in areas highlighting sponsorship. Major League Baseball and The National

Association of Professional Baseball Leagues state in their official rulebook that “all players’ uniforms shall include minimal six-inch numbers on their backs” (Lepperd 6). Baseball players’ numbers first appeared on the left sleeve of the Cleveland Indians uniforms in 1916, and later moved to the back along with player names. In the seventies, numbers were even printed on players’ pants (Okkonen).

Typefaces used in professional sports uniforms abound, but there are a few consistent features. Among NFL uniforms, slab serif typefaces can be found often when reviewing older uniforms, but there seems to be a general trend towards sans serif typefaces with modern sensitivities like rounded corner terminals or unique flared terminals to mimic a team’s style (fig. 1.3).



Fig 1.3. NFL team jersey typography. (Bears, Titans, Patriots *Throwback*, Jaguars)

Typefaces can generally be broken down into multiple categories, but the most recognized classifications are serif and sans serif. A serif typeface is one where the ends of letterform—or the terminal—have small shapes like the top of a lowercase letter f, or the top and bottom of an uppercase letter S, or the bottom of an uppercase T. These shapes originated from the writing of letterforms by hand (Kane 22). Sans serif typefaces do not have this minute detail at the ends of the letterforms, and instead simply terminate cleanly like many of the NFL team jersey typography in Fig. 1.3. This simplification in the letterform originated from an early advertising

and marketing need for simple fonts to use in posters and newspapers where an instant impact to the audience was required (Jury 26). Another category of serif typefaces is called slab serif or square serif. These large and often visually heavy typefaces have a distinctly square-shaped serif, creating what looks like blocks at the ends of letterforms. See the numbers 4 and 7 in the far left example of Fig.1.3. In the far right example, in Fig. 1.3, you will see a sharp upper corner in the letterform of number one. This is called a terminal, and refers to the end of a letterform. This final flourish to the letterform stroke gives personality to the letter, and many sports teams either choose existing fonts or edit existing fonts to create a unique personality with their uniform lettering.

Sports like rugby, for example, have seen a more modern and contemporary design aesthetic come into play with the use of large geometric sans serif typography (fig. 1.4).



Fig 1.4. Suisse rugby team jersey typography.

Promoting of Social Issues Among Professional Sports

Among professional sports, the promotion of social issues can be seen. Because of professional sports' loyal audience, these initiatives benefit from much publicity adding to a cause's effectiveness among the population. The NFL promotes their *Crucial Catch* partnership with the American Cancer Society during the month of October. Through the visual altering of player and referee uniforms, the game ball, and even field elements—all adorned with ribbon emblems and the color pink—the social cause of cancer is made known on a national and even global scale (fig. 1.5).



Fig 1.5. *Crucial Catch*. The National Football League's partnership with the American Cancer Society.

The National Rugby League (NRL) also has utilized player uniforms to promote a secondary cause. Beginning in 2014, the NRL partnered with Marvel, promoting the goal of encouraging young players and fans to embody their heroes (fig. 1.6). Through wearing jerseys with Marvel Comics heroes emblazoned on them, the NRL challenged viewers to “suit up, and be transformed” (ISC Sport).



Fig 1.6. National Rugby League partnership with Marvel. (team jerseys)

Visual Trends Within Current School Uniforms

The researcher also identified visual themes and trends within current school uniform designs in order to set a benchmark of current standards to guide the new approach. Among public schools in the United States, “ninety percent of school officials prefer” (National Association of Elementary School Principals), a causal dress style rather than a more formal attire for their students. Many private schools and even some public schools, however, employ a more formal attire with oxford buttoned shirts, plaid skirts, ties, and jackets. Navy blue leads the statistics as the main shirt color used in public schools, while white and red are second and third (National Association of Elementary School Principals). School logos or emblems are also seen on some uniforms, generally located in the upper left chest area—but sixty-four percent of schools across the country do not show their logo on the uniforms, while fifty-three percent think

adding the school's logo to the uniform would elevate school spirit (National Association of Elementary School Principals).

Developing the Activate Learning Brand & Uniform System

Once a foundational understanding of current school uniform design and style were explored, and the visual language used in sports team design had been reviewed and cataloged, the researcher began to establish the look of a reimagined contemporary middle school uniform approach based on the research findings thus far.

A concept name was developed first to embody the attitude and maxim for these contemporary uniforms. The words “activate” and “learning” were chosen because of the energizing notion of activation, and because students who wear these uniforms will hopefully be inspired and encouraged to learn. Thus, *Activate Learning* became the concept title, and later the uniform system's brand name (fig. 1.7).



Fig 1.7. Activate Learning logo.

Hand-drawn sketches of uniform design were created next to explore visual variations using a polo shirt. Short-sleeved and long-sleeved polo shirts were used to sketch from, and a full list of the sketches can be found in Appendix A. Also, the researcher developed sketches for sock designs with the plans to produce two shirt designs and one sock design for the exhibition. (These can also be seen in Appendix A.)

A fictitious middle school named *Lambert Middle School* was developed in order to show how the Activate Learning uniform system would work with existing schools that already have a logo, motto, and color palette. A lion was chosen as a mascot for Lambert Middle School, and a visual for the mascot was developed based on the triangular shape of the Activate Learning mark.



Fig 1.8. Lambert Lions logo. (fictitious middle school)

Through sketching and reiterative review among peers and thesis committee members, the researcher established a systematic approach to the polo shirt design, allowing school officials the freedom to substitute their logo or emblem and color palette to create a unique uniform for their students.

From the sketches, two uniform designs were chosen to establish further design iterations within the computer. From the two variations, the researcher developed one option that employs a white front and back with colorful sleeves (fig. 1.8) and a second option that uses one dominant color for the entire shirt with added visual embellishments (fig. 1.9).



Fig 1.9. Activate Learning Uniform option A.



Fig 1.10. Activate Learning Uniform option B.

Regarding the uniform designs, the collar houses several elements. On the outside of the collar is the name of the school (right lapel), the school's motto or logo (backside of collar), and

the student's name (left lapel). The placement of a student's name is subtle, allowing teachers, friends, and family to see it, and promoting self-identity while creating student pride and ownership in their uniform. The researcher originally wanted to place a student's last name on the back of the uniform—based on sports team uniform research—to promote a student's identity, but this raised child-safety concerns where a student could be called over to a stranger who saw the child's name on their shirt. On the inside of the collar, if worn up, the researcher placed the STEM pattern as a playful reveal and subtle element that students could choose to show off.

The upper back of both uniform options displays the student's school name, along with a number representing their current grade level. The combination of school and grade number would add to the promotion of a school's identity, creating student pride. Uniform option B uses large typography and asymmetry for the back panel, inspired by professional curling and baseball teams who employ asymmetry for their uniforms. The use of a large darker hue stroke around the large grade level number creates a visual balance between the smaller school name and number in the shoulder panels. Uniform option A shows a large, centered grade number underneath a centered school name across the upper back. Inspired by contemporary professional soccer uniforms, the number in this option employs a hard-edged gradient pattern within the letterform and a large stroke signifying the outer edge of the letterform. This hard-edged gradient pattern can also be seen in the shoulder panels of this uniform option.

The shoulder area of each shirt design option is inspired by sports team uniforms like football, baseball, or even polo—originally inspired by the insignia and ranking medals used in military uniforms to distinguish ranking (Fussell 13)—where player numbers are displayed. Activate Learning uniform shoulders are a place to highlight the student's grade level and a

school motto (right shoulder), as well as the school's logo or emblem along with STEM icons to promote STEM curricula throughout the school (left shoulder).

Lastly, on the front left chest panel, Activate Learning uniforms display a school's main logo or emblem. This prominent placement is a common position for the most important element on the front panel of professional sports uniforms.

School-specific visuals. School logos or emblems are placed on the upper left chest, reminiscent of professional soccer jersey team emblems, and a second larger scale watermarked (lower opacity) version of the school emblem is placed in the lower front right portion of Uniform option A. This second logo placement creates a visual uniqueness for the uniform and an asymmetrical layout inspired by sports team jerseys. Logos or emblems could also be placed on the left shoulder to further drive school pride, as well as on the backside of the collar. This particular placement would create visual interest for students as they stand in line and see the student in front of them, or as they are walking through the school hallways.

School mottos or taglines also have a place in the Activate Learning uniform system. These could be placed on the right sleeve, below the student's grade number, or within the collar area. Uniform A finds the school motto on the rear of the collar, while Uniform B uses a modified encouragement phrase like, "I am a lion."

Activate Learning color palettes. In her book, *Color Design Workbook*, Terry Lee Stone says that "color can be used to irritate or relax, encourage participation or alienate" (Stone 46), and goes on to say that wearing clothing of a certain color can affect mood (Stone 45). She says that wearing the color blue "symbolizes loyalty or trust," while the color green universally means "go" and is a "calming refreshing" (Stone 29) hue. Viewing the colors blue and green have also been said to enhance creative performance (Elliot, et al. 103), while other research

finds the colors blue and green both create “feelings of relaxation and calmness, happiness, comfort, peace, and hope” (Kaya and Epps 400).

Color may be the largest factor of a uniform system that has the potential to create interest among middle school students. A study by Nurgül Kılınç around children’s color preferences found that children between ages six and nine preferred different colors based on gender. Kılınç found that girls preferred the colors magenta, red-violet, and yellow, whereas boys preferred blue, cyan, black, and yellow (Kılınç 1363). Pantone’s 2017 Fashion Color Report for Spring showed several ultra-vibrant hues in their annual lineup of forward-thinking color predictions (Pressman). With more and more clothing items now being created using high-vis hues, Activate Learning uniforms would follow this methodology to employ high-chroma hues to compliment a school’s existing color.

Many schools currently employ a single main color for their branding. As mentioned previously, the most used colors in school uniforms are navy blue, white, and red. The Activate Learning uniform system would use the existing uniform color for a given school, but also employ an “activated” secondary color palette. By using a modified triadic color harmony within a color wheel, existing school colors could be paired with two secondary colors to create a fresh, high-intensity palette. For example, a school using navy blue as their main color would find a lime green and bright hot-orange as their secondary colors within the Activate palette (fig. 1.10). The key with selecting *activated* secondary colors is that they be located farther outward on the intensity scale, or brighter. A school with the color red—or burgundy—as their main color would find a bright brilliant blue and pronounced yellow as secondary colors. Using this method, any existing school color could be “activated” with two secondary colors.

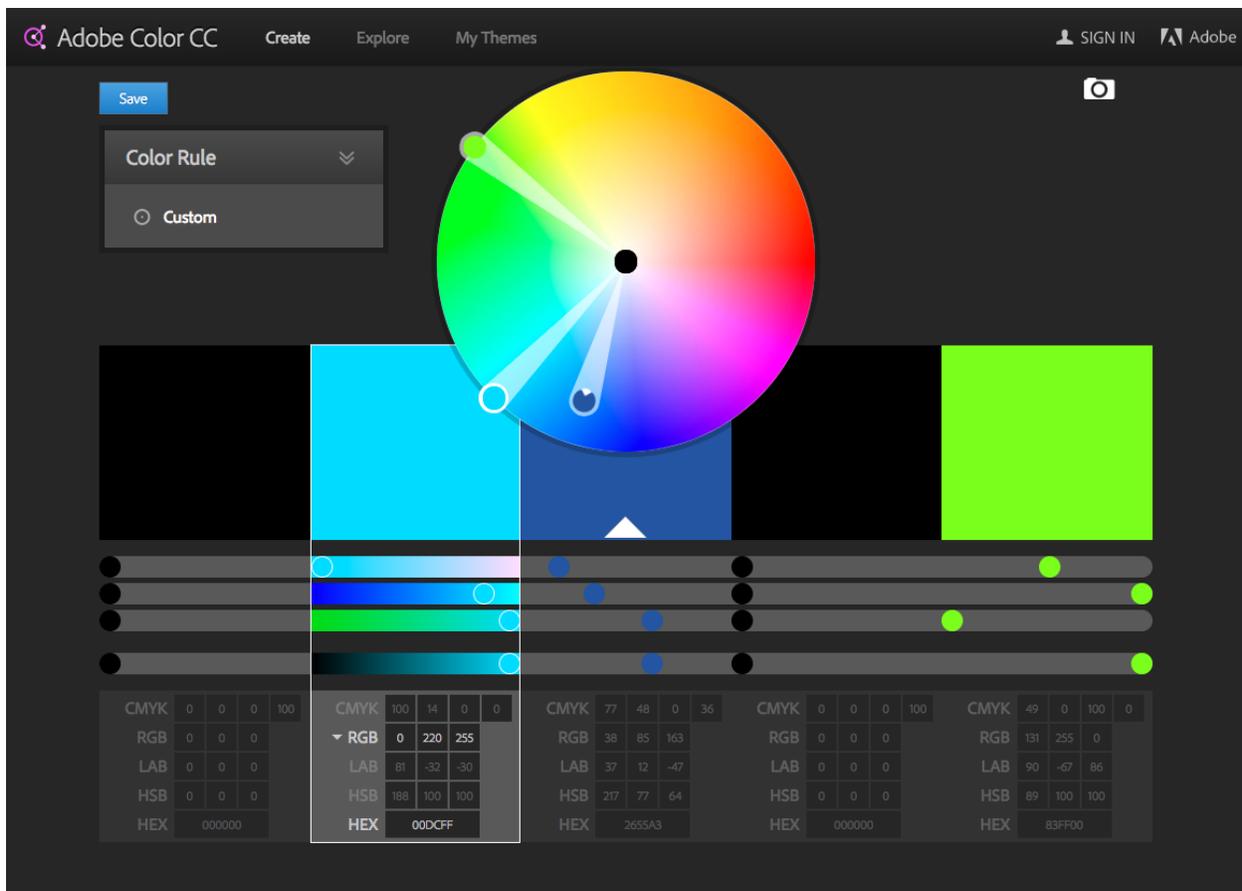


Fig 1.11. Adobe Color CC online tool | Activate color. (modified triadic pairing with navy blue)

Typography. The typeface Univia Pro, designed by Olivier Gourvat in 2016, was chosen to represent lettering and numbers within the Activate Learning uniform system (fig. 1.11). This ultra-modern typeface was designed to function both as a display and text typeface. A display typeface is one designed for headlines or large, minimal word phrases, whereas a text typeface functions best when used for body content or paragraphs of running sentences.

Typefaces with large open counters—“the negative space within a letterform, either fully or partially enclosed” (Kane 3)—add to legibility, says David Jury in his book *About Face: Reviving the Rules of Typography* (58). Univia Pro is a contemporary sans serif—or grotesque—typeface with distinctly square-shaped letterforms, no doubt inspired by the digital technologies

of computer screens and pixels. This highly legible font is quickly comprehended when viewed from afar because of the lack of letterform embellishment and overall open shape. Setting the type used within the uniform system in uppercase, or all capital letters, helps create an easily recognizable word when viewed from afar (Jury 70).

Sans serif typefaces are “ideal where a short, loud statement” (26) is needed, says Jury. He goes on to explain that “display characters, by their very nature, are designed to shout; draw attention to themselves and to work more independently of each other” (Jury 30). For this reasoning, Univia Pro was chosen to represent the large lettering seen within the Activate Learning uniforms and secondary accoutrements.

Jury says certain typefaces, or weights, within a font family can be called upon to convey a specific visual appearance, sometimes becoming more important than the actual “mechanistic requirement of reading” the words (64). Through the use of the Bold Italic weight within the Univia Pro family, the appearance of movement is achieved, giving a single character, word, phrase visual energy and creating excitement for students wearing the uniform.

**ABCDEFGHIJKLMN
OPQRSTUVWXYZ**

**abcdefghijklmn
opqrstuvwxyz**

0123456789

Univia Pro | Black

***ABCDEFGHIJKLMN
OPQRSTUVWXYZ***

***abcdefghijklmn
opqrstuvwxyz***

0123456789

Univia Pro | Black Italic

Fig 1.12. Univia Pro typeface. (black & black italic)

Iconography. A set of icons was developed for the Activate Learning uniform system. Beginning with sketches, the researcher explored visual iconography that would represent the four sections of STEM learning foundations: Science, Technology, Engineering, and Mathematics. These initial sketches can be seen in Appendix A.

Each icon has been designed to fit into a square base shape, while a consistent stroke thickness has been employed to give the family of icons a similar visual tone when viewed together or apart.

The icon for science represents a molecular structure with its nucleus and surrounding electron orbit bands. The icon for technology uses two lines of binary code—ones and zeros—representing digital technology. The icon for engineering represents two different-sized circular

gears. Finally, the icon for mathematics is the lowercase Greek letter π , and symbol for the English phrase Pi, which represents the “ratio of a circle’s circumference to its diameter” (Sokolowski) (fig. 1.12).

The use of iconography within the Activate Learning system creates an opportunity for schools to promote a social cause, educational initiative, or even pertinent interest for the students or faculty. Through repeated sightings, students and faculty alike would be consistently reminded of the said cause or initiative, further promoting its purpose. Even family or community members outside the school would potentially be intrigued enough to ask about the icons, thus impacting the surrounding community.

S		Molecular Structure
T	1010 0011	Binary Code
E		Gears
M	π	PI Symbol

Fig 1.13. Activate Learning iconography.

Pattern. Pattern is another design element directly inspired by sports design and uniforms seen in many sports. The researcher found that a pattern creates visual rhythm, which leads to interest and energy when paired with color and iconography. In their study of intentional nonconformity regarding fashion, Silvia Bellezza, Francesca Gino, and Anat Keinan quote men's fashion director at Saks Fifth Avenue Eric Jennings, saying the “bolder the pattern or color” (51), the better for current audiences.

The Activate Learning system employs an arrow-shaped pattern to be used subtly within the uniform design, such as inside the collar (fig. 1.13). The same arrow can be seen in the Activate Learning logo and was inspired from the arrows on a football field marking the yardage. Currently, the pattern displays STEM lettering and iconography, and is placed discreetly on the inside of the shirt collar. If a student wore their collar popped up, the pattern would be visible.

The pattern could also be used elsewhere, such as in floor graphics to be used in a school.

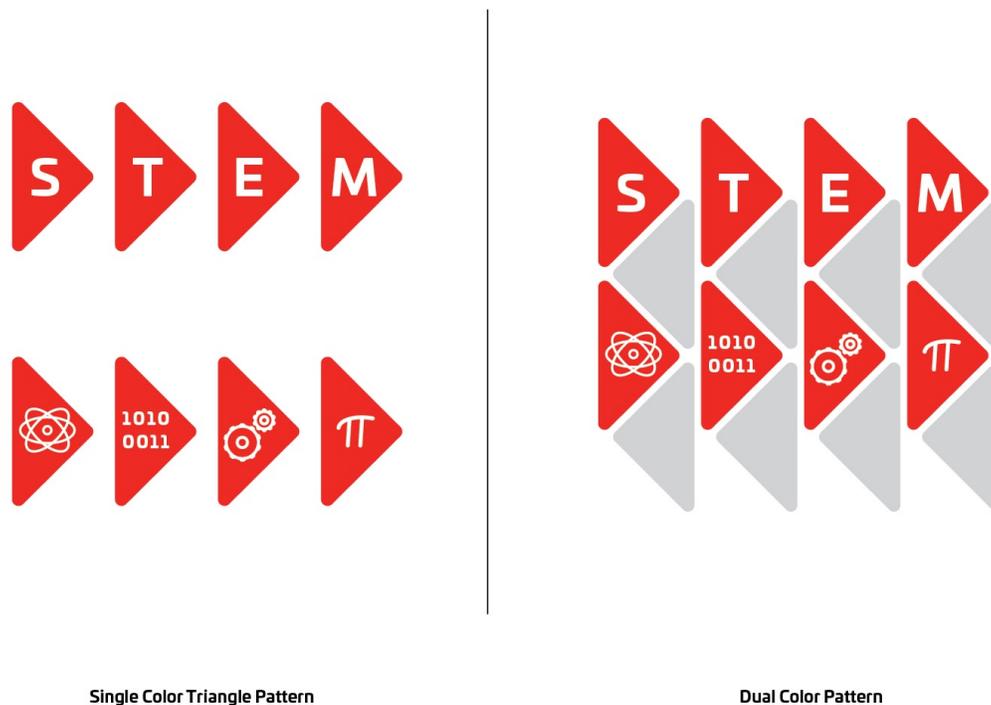


Fig 1.14. Activate Learning pattern highlighting STEM icons.

Secondary Accoutrements

Belts. Most schools that implement a dress code require shirts to be tucked in with a belt. Belts could be used as a design element within the Activate Learning uniform system to promote STEM curricula or any initiative. Through the use of iconography and text spelling “STEM,” a school could employ their unique colors to promote STEM curricula.

An example of this design can be found in Appendix B.

Ties. Ties could also be a way to introduce students to STEM subject matter during the middle school years, while promoting school pride and identity. Some schools require long ties, while others require bow ties for special occasions. The researcher has suggested the use of the

STEM pattern across the bow tie, while the long tie promotes a school's colors and emblem—or logo—on the front and STEM pattern on the inside.

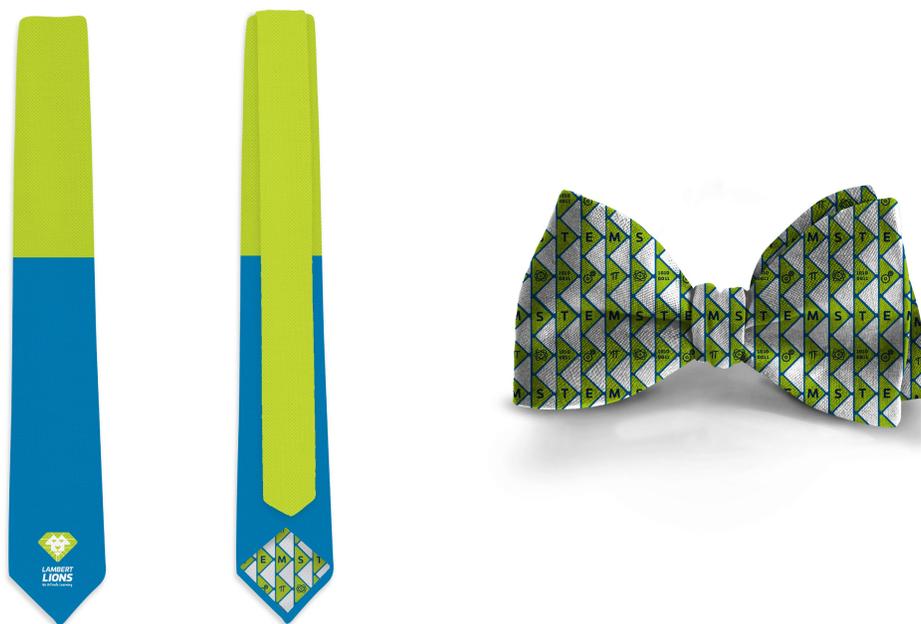


Fig 1.15. Activate Learning tie designs.

Socks. Currently, socks are a subtle way for students to show their individual personality. Including Activate Learning socks in middle school students' wardrobes could help promote their STEM awareness while encouraging and promoting their individuality.

Jenny Marchal, a freelance writer for Lifehack, titled an article, “People who wear crazy socks are more brilliant, creative, and successful” (Marchal). She elaborates on socks as an article of clothing that only some people will see, thus allowing the wearer some freedom to be adventurous with their footwear. According to an article in the *Journal of Consumer Research*, wearing wild or colorful socks “can signal higher status and competence to others” (Bellezza, et al. 35).

Activate Learning would employ a crew sock with a 4-6” vertical section coming up the ankle. The sock design would display a school’s logo or emblem on the front upper portion of the ankle or shin, while showing the STEM pattern on the back upper portion of the ankle. The researcher chose to place the encouraging message, “I AM A LION,” on the top of the foot facing the viewer. This positioning creates a unique message only the wearer of the sock sees when he or she puts on the socks.



Fig 1.16. Activate Learning sock design.

Floor Graphics. Inspired by the yardage markers seen on a football field, these large arrow floor graphics, if placed in strategic areas throughout middle school hallways—near STEM classrooms—could inspire and energize students as they navigate their daily learning exploration.

The use of floor graphics within a school employs the technique of wayfinding, which “relies heavily on a system of icons applied as large-scale graphics integrated with architectural surfaces” (IMAX Theatre), says the American Institute of Graphic Arts (AIGA).

Activate Learning floor graphics consist of arrow shapes with STEM lettering and STEM iconography within the arrow shape. Because the use of floor graphics may not be currently employed by schools, the use of these bold colors and shapes within this currently static setting could garner interest among students, thus encouraging a cause.

See Chapter 3 for examples of this design.

Limitations and Delimitations

The exhibition will be limited to producing a series of two uniform variations. This will allow for a more thorough survey of the current school uniform environment while also limiting the time required to produce the exhibit.

This research does not address the fashion of middle school uniforms in full, nor the details of materials or procedures used in constructing such uniforms. Rather, it discusses printed graphics, or lack thereof, employed with regard to middle school uniforms.

Budgetary restrictions will shape the production and fabrication of the final exhibition, and time constraints will prevent the researcher from exploring existing middle school curricula outside of STEM.

Geographically, the researcher will focus on existing STEM curricula within the U.S. and, specifically, course content developed for the middle school age range. Sports teams and programs, both professional and amateur, will be evaluated based on their visual branding.

The researcher cannot guarantee that this approach to school uniform design will have any positive impact on the middle school learning environment, nor on the exhibition viewers.

Organization of the Chapters

The remaining sections of this document follow the research and final execution process to demonstrate the development of contemporary middle school uniforms inspired by the visual language used in professional sports graphics as well as an associated exhibition. Chapter 2 contains a review of relevant literature explored during the research phase of the project, specifically literature related to the middle school learning environment, STEM, uniforms, and the physiology of wearing uniforms. Chapter 3 presents design decisions made by the researcher regarding the exhibition development and final public presentation. Chapter 4 summarizes the findings of the study and highlights opportunities for further research on the subject.

Chapter 2

REVIEW OF THE LITERATURE

Introduction

Underachievement for many students begins in their middle school years (Ritchotte 103). Some say the transition from a familiar elementary setting to a new, uncharted middle school with unknown faces provides the genesis for this unfortunate academic departure (Wilde), but even students categorized as gifted tend to lose interest in academic studies during this time period (Ritchotte 103).

Kathi Hanna points out that being part of a sports group or team deters boredom, which ultimately results in engagement (51), and the use of school uniforms is one approach that schools across the country have implemented in an attempt to counter a lack of interest from students. While there are both positive and negative reactions from critics regarding uniforms, one study found that when asked which methods students would take to improve their school environment, they requested uniforms (King, Vidourek 12).

While forty-nine percent of schools across the country have uniform policies in place (National Association of Elementary School Principals), there has been little research regarding the actual design of the uniform itself. One initiative from North Carolina Public Schools invited students to participate in the design process of their own uniform system. Once students realized their future uniforms would not include traditional styling, instead taking a more contemporary approach, this initiative created an opportunity to build students' pride in their school, thus creating a more positive learning environment ("Students Design School Uniforms").

Jack McGourty and Kenneth P. De Meuse say, "Teams are an integral component of today's workplace." They go on to say, "A major contribution that educators can offer their

students is developmental activities that nurture the necessary team skills” (13) needed in future workplaces.

Within the realm of sports, the use of a visual language holds insights for understanding the psychology of the team spirit. Sports teams provide valuable pathways for students to improve self-esteem, as well as communication skills (TrueSport 8).

Sports teams employ a distinct visual vernacular regarding their clothing with potentially untapped implications for the middle school classroom.

Middle School Learning Environment

Many stimuli compete for the attention of a middle school student. In order for students to thrive in their education, certain aspects of the learning environment must be addressed. The National Middle School Association found that an inviting, safe, inclusive, and supportive school environment proves to help students flourish the most (33).

Roeser, Midgley, and Urdan found that much of a student’s motivational drive is derived from that student’s perception of his or her school’s pedagogical approach or methodology (410). If a student perceives his or her school as high-performing, the student’s goals will be shaped by that perception.

One study found that an overcrowded classroom environment can lead to lower test scores (Rockoff, Lockwood 74), while others suggested a teacher's approach to creating an environment where students felt like they belong promoted better student engagement with the subject matter (Connell 88, Goodenow 23, Midgley 981). In his book *On Teaching Science*, Jeffrey Bennet says that “learning requires effort and study” (9). Middle school students

especially need physical as well as personal interaction to fully engage with subject matter (Wolper-Gawron).

STEM—From Classroom to Workplace

Science, Technology, Engineering, and Mathematics (STEM) are woven throughout almost all areas of life, and they “hold the key to meeting many of humanity’s most pressing current and future challenges (16),” says the Committee on a Conceptual Framework for New K-12 Science Education Standards. As students advance from elementary to middle school, they experience more freedom in pursuing personal interests and, unfortunately, core subjects like STEM can sometimes be edged out of focus (Høgheim and Reber 17). STEM classes are the beginning of a potentially lifelong pathway into a promising and societally needed career (Quinn, Schweingruber, and Keller, 16), but a study by the National Assessment of Educational Progress (NAEP) in 2011 found that only thirty-two percent of eighth graders were at or above the proficiency level in science. In 2013, they found that only thirty-five percent of eighth graders were at or above the proficiency level in mathematics, and in 2015 this same study found that number had dropped to thirty-three percent (NAEP).

There is an unsettling trend in the United States that we are not creating enough domestic workers in the STEM fields, leading some to blame education reform and call for a “fundamentally new approach” to STEM education (Atkinson 1). Ivette Diaz-Rubio highlights the need for a domestic focus on STEM education (4), and Ethel Machi says we need fresh ways to combat “today’s STEM crisis,” advocating a systematic approach to redefining learning opportunities (2). In 2009, the Obama administration initiated a campaign called “Educate to Innovate,” with the goal of instigating further STEM education and interest among students

(Hom). STEMconnector®, a consortium of companies, nonprofit associations, and professional societies, all concerned with STEM education and the future of human capital in the United States, projects that in 2018 the U.S. will need 8.65 million workers to fill STEM-field jobs (Hom).

Another interesting finding is that female students are not traveling as far down a STEM career path as males (Cornelis). Providing motivation for both male and female students while encouraging an attitude of learning is critical. In their review of middle school student interests, Emily Clapham, Lori E. Ciccomascolo, and Andrew J. Clapham propose developing a lesson plan pairing current STEM class subject matter concepts with physical activity, with the goal of helping students maintain an interest in science and physical activity by making the lesson plans fun and interactive (14). Creating a learning environment that provides students with opportunities to see the utility of a subject and its practical applications is what Rani George calls for in his review of student attitudes toward STEM learning (578).

ACT®, the company that produces the ACT test for high school students, released a report in 2015 highlighting the current state of STEM in the U.S. where they called for increased awareness around potential STEM career paths for students, parents, and even teachers at the middle school level (Mattern, et al. 25). In K-12 grades, the promotion of STEM subject matter and potential future STEM career opportunities helps to create an awareness and interest during these impressionable years. In an executive report prepared by the President's Council of Advisors on Science and Technology (PCAST), they state that the U.S. must inspire and prepare all students, "including girls and minorities who are underrepresented in these fields" (Venkataraman, Riordan, & Olson 6), to learn STEM. There are only around 100 STEM-focused

high schools in the U.S. currently, and Venkataraman, Riordan, & Olson suggest the creation of 800 STEM-focused elementary and middle schools within the next ten years.

Wearing a School Uniform

Twenty-three percent of all public and private schools around the country have implemented school uniform policies (School Uniform Statistics), with advocates stating that uniforms create “fewer absences, tardies, truancies and referrals to the office for behavior problems, fewer suspensions and expulsions, and in some cases, significantly higher achievement” (Brunsma, Rockquemore 54).

One study found that students enrolled in schools with a uniform policy perceived their school climate much more favorably than those without (Murray 110), and another study determined that wearing school uniforms would lead to increased respect among middle school students (King, Vidourek 12). Further findings highlight a social leveling effect that uniforms have on the fashion stratification between people (The Psychological Effects), while opponents argue that uniforms limit one’s self-expression and individual rights (Bodine 58).

Bill Clinton, in his 1996 and 1997 State of the Union address, and later his administration’s *Manual on School Uniforms*, promoted school uniforms, explaining how they help create school spirit, improve a school’s image within its community, and provide an element of safety by having a visual consistency among a student body (8).

The clothing people wear has an effective influence on their self-perception, as well as someone else’s first impression of them (Blakeslee; Roberts, et al. 350). What we wear is an “integral component” (383) and indicator signaling how we are perceived by others, say Sally K. Francis and Pamela K. Evans in their research of garment color and perception. For a

policewoman, not only does the uniform she wears affect her audience's view toward her, but it also affects the policewoman's view of herself (Johnson). An article published by the *New York Times* addressed the effects of clothing on our thinking process, called "enlothed cognition," explaining how wearing certain clothes affects our "body and brain, putting the wearer into a different psychological state" (Blakeslee).

What students wear affects their attitudes towards their learning, their peers, and even themselves (Star). New York school board president William Thompson, Jr. says a uniform policy "creates a better educational climate" (Keller). Within a school, uniforms can help promote the school's brand or learning initiative, serving as a "symbol of commitment to academic achievement" (DeMitchell).

Visual Language of Uniforms

Currently, sixty-four percent of school officials say their student uniforms do not feature branding (i.e., school logo and colors), but more than half would like to see increased branding in order to promote school spirit (National Association of Elementary School Principals). The current standard for uniform bottoms includes plaid skirts or dresses, or khaki pants for females, and khaki shorts or pants for males. Common tops include button-down or polo shirts, with colors generally ranging from white to khaki, shades of blue, or black (Delisio).

On the sports field, wearing a specific color, or logo, gives a team a strong visual identity and helps to build camaraderie between players (Quinn). It is well known that people associate certain colors with specific emotions or mood. Wearing lighter colors, such as white, can be associated with concepts of purity, cleanliness, and healthiness (Craik 151), while wearing red elicits energy and has even been suggested to influence performance (Hill et. al). Colors in the

blue family, on the other hand, tend to create emotions of serenity, peace, and calmness (McCammon 124).

“Color not only represents psychological associations but can also influence them” (1), says Webster, Urland, and Correll, pointing out how the color of a piece of clothing affects both a viewer and the wearer. In another study, researchers hypothesized that sports teams wearing the color red would “be more successful than teams wearing other colors” (Attrill et. al 578), going on to predict a longer winning record over time when compared to wearing other colors. This red factor can be seen in sports like wrestling, soccer, rugby, and even first-person shooter games where digital teams wearing the color red won more than teams wearing blue (Elliot, et al. 101).

Spanning back to the 1920s, there are certain color combinations across professional sports that have proven to be the most successful (Sorrentino). Twenty percent of all winning sports team jerseys included red and blue (Lind), while navy and white, navy and red, black and gold, and red and black each showed significant success over other color combinations (Sorrentino). During a rebranding endeavor for a professional hockey team in Canada, color was heavily scrutinized in order to produce “excitement and aggression” from both players and fans (Sorrentino). For this team, blue and green were rejected in favor of orange and yellow, with black added to produce an “emotional reaction from the fans” (Sorrentino).

Uniform design can unify a group of athletes as well as enhance their performance. During the Olympic Games, teams wear multiple uniforms for various occasions. Each uniform serves the unique purpose of highlighting the team’s national identity, as well as communicating to team members and those outside the team (Shin 210). The use of color and pattern within sports team garments can be inspired by many things, such as national plants, flag motifs, and even animals indigenous to a team's home (Shin 221).

Many sports teams promote their identity and team spirit through the development of mascots and logos representing their heritage. Collin R. Payne, Michael R. Hyman, Mihai Niculescu, and Bruce A. Huhmann reviewed the use of animals in collegiate team logos, finding that giving consistent visual identity to team elements helps not only inform an outside viewer of who is on what team, but also encourages loyalty between team members—leading to further identity of one's position on a team (133).

In his book *Uniforms: Why We Are What We Wear*, Paul Fussell states, “The universal dilemma can be specified succinctly: everyone must wear a uniform, but everyone must deny wearing one, lest one’s invaluable personality and unique identity be compromised” (5). Fussell goes on to state that “the Uniform attaches one to success” (5), giving the wearer a dignity and belonging.

Uniforms can be embellished to serve a purpose. Among military uniforms, various areas of the body are adorned. Shoulders are chosen to make known one’s ranking among the various levels of those enlisted. This area was particularly chosen to highlight the masculinity of its wearer. Broad shoulders showed power and attractiveness. The shoulder area was designated in military service, originally, for officers only to show their awarded medals or ranking insignia (Fussell 13). On the football field, a player wears pads across their shoulders, enhancing a masculine look while sometimes also displaying that player’s jersey number in this same region.

Within the ranks of Camp Fire Boys and Girls (Girl and Boy Scouts), attached accoutrements also play a part in the experience of wearing a uniform. Attached to a vest, a Girl or Boy Scout wears patches indicating one’s achievements or awards. Based on their vest, Fussell says you can “learn a great deal about children – what they’re proud of, and what their position in the world can be” (166).

Promoting a Cause Within Professional Sports

Within the realm of professional sport, teams look for opportunities to promote themselves in order to garner fans as well as add to their revenue. Teams also attempt to pursue marketing initiatives that increase trustworthiness of the team to their fans. One way teams do this is through cause-related marketing (CRM) and social-cause marketing (SCM). Paul N. Bloom, Steve Hoefler, Kevin L. Keller, and Carlos E. Basurto Meza define CRM as an initiative where “every unit sold triggers a donation to a cause” (50), while social-cause marketing is defined by Jennifer R. Pharr and Nancy L. Lough as an initiative benefiting a person’s current or future interests as well as the society they live within (93).

A successful example of CRM can be seen in the National Football League’s (NFL) Crucial Catch campaign. This is a partnership between the NFL and the American Cancer Society (ACS), where players wear pink shoes, pink socks, and pink gloves – and even the game ball is adorned with a pink ribbon. During the month of October, NFL teams play games wearing their pink accoutrements and auction players’ items to benefit the ACS (Pharr, Lough 99). This type of partnership builds trustworthiness between a brand and its audience, and helps build community and “social capital” among fans (Sherry, Karg, O’May 122), ultimately creating positive feelings for a fan towards the NFL and ACS because of their personal experience with the cause.

Another NFL initiative that falls into the SCM category is the NFL’s PLAY 60. The objective of this campaign is to “inspire kids to get the recommended 60 minutes of physical activity per day” (NFL Launches NFL PLAY 60). Parr and Lough consider this campaign a social-cause focus because it benefits both the students who partake in the activities and the

society around them presently and in the future. Through new curriculum designed to inspire exercise and a multi-channel marketing campaign, the NFL PLAY 60 initiative challenges students to engage in exercise rather than any sort of monetary transaction (Pharr, Lough 99), helping to build awareness at a young age around the issue of obesity.

Building awareness around a social issue is also the focus of the Homeless World Cup (HWC), a soccer tournament held annually where, in order to be a player, one must “have been homeless or in a substance-abuse program within the last two years” (Sherry, Karg, O’May 111). This event focuses on creating opportunities that build community between players and the audience, highlighting and promoting the issue of homelessness. For participants who may have lost touch with society, the event helps reconnect them with the surrounding community as well as other players who have experienced a similar path, ultimately creating new community and strengthening players’ attitudes (Sherry, Karg, O’May 122).

Outcomes of both CRM and SCM include improved brand recognition and brand loyalty (Pharr, Lough 93), and emotional connections between a fan, team, player, or league (Pharr, Lough 94).

Conclusion:

Based on the findings presented here, the researcher has established a need for envisioning a contemporary school uniform and/or worn accoutrements inspired by the visually rich language of sports team styling. In an attempt to address a loss of academic interest among middle school students, this unconventional approach to motivation within the classroom environment may prove advantageous in building camaraderie between students, as well as building an early interest in STEM subject matter in an innovative way.

Chapter 3

DOCUMENTATION OF THE EXHIBIT

The exhibition serves as a defense for the researcher's thesis study. The goal of the exhibition is to introduce the audience to the focus of the study, and explain the creative process used in developing the proposed design-centric solution.

First, the exhibition space was examined. The researcher shared the exhibition space with five other exhibitors. The exhibitors were arranged in a way that maximized the use of space for each exhibitor.

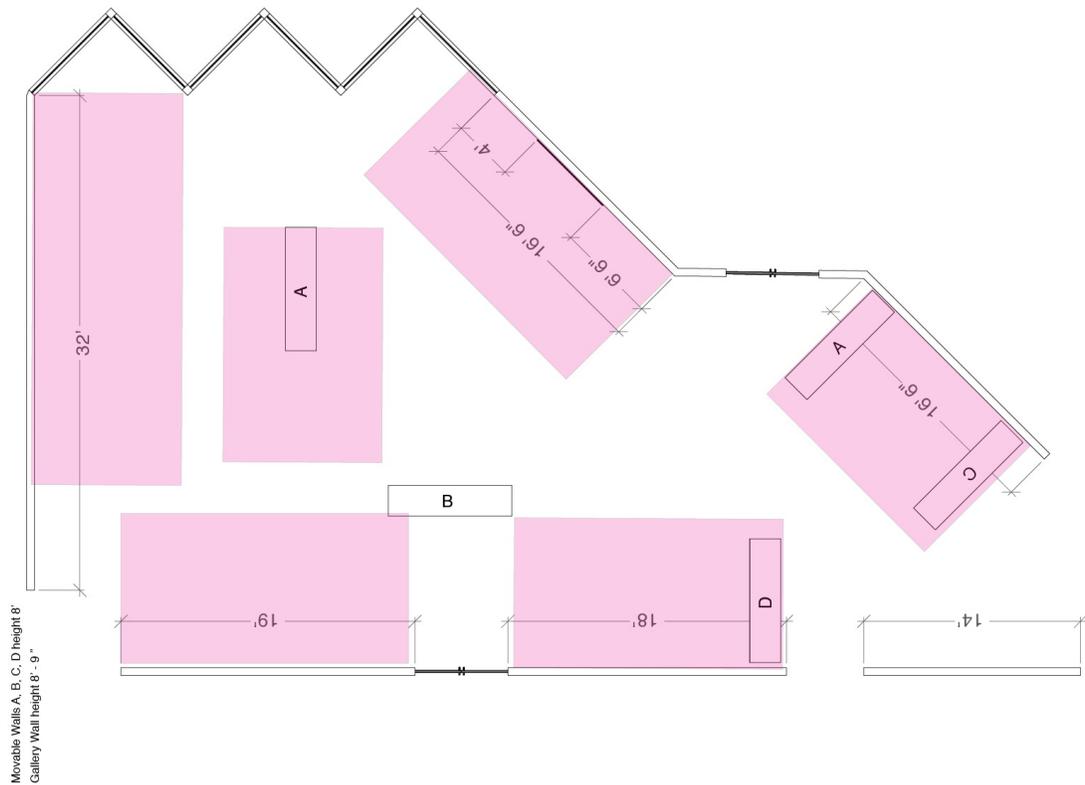


Fig 3.1. Gallery space exhibitor distribution.

The exhibit space contained four mobile walls to utilize, and the researcher chose to employ one of these walls in the exhibition. The area was taped off within the exhibition space in order to begin visualizing the display and how the presentation would flow. The researcher chose to use one existing wall and one mobile wall, creating an “L” shape. The wall measured 13’ 5” x 8’ 9”, and the mobile wall measured 8 x 8 x 2’.

Next, sketches

how to best present in

3.4).

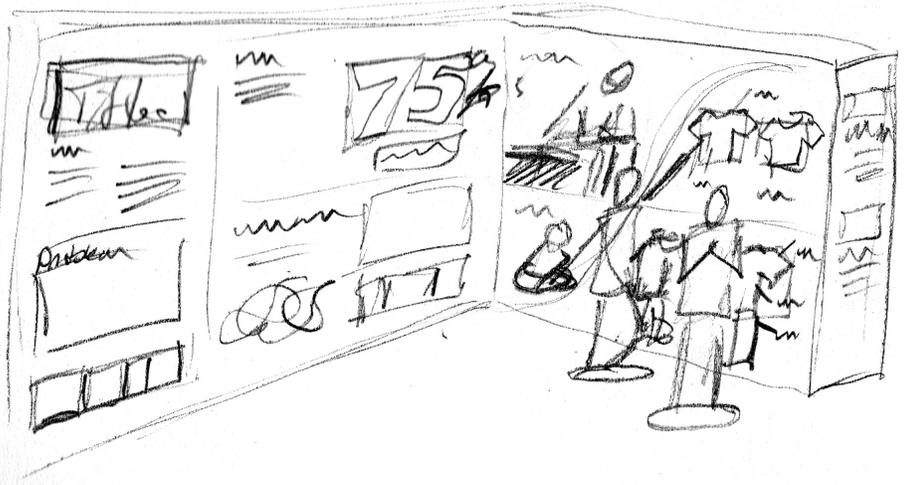


Fig 3.2. Initial exhibition sketches.

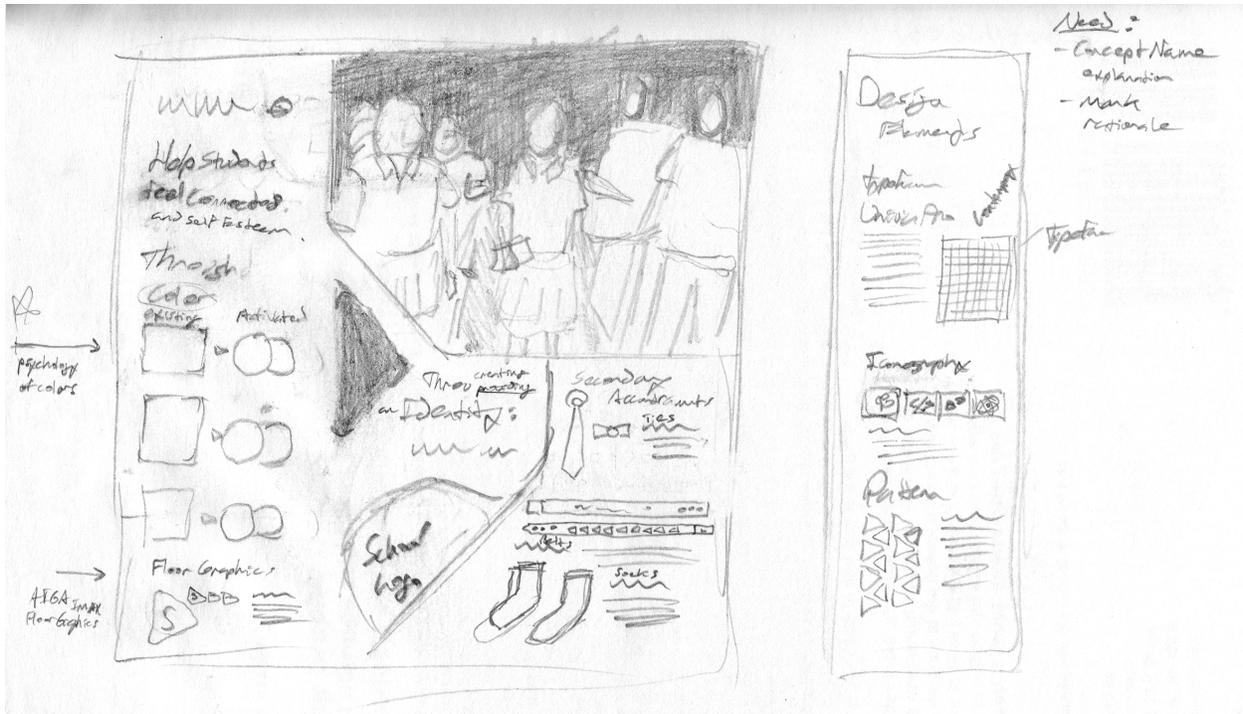


Fig 3.3. Initial exhibition wall information flow sketch.



Fig 3.4. Initial exhibition mannequin sketch.

Along with printed graphics attached to the existing wall and mobile wall, the researcher had two uniforms printed and sewn together, as well as printed socks to show how this uniform system could work for a future school or district. These fully fabricated uniforms and socks were placed on child-sized mannequins within the exhibition space.

A scaled three-dimensional model was created to help visualize and articulate placement and sizing of information (fig. 3.5).



Fig 3.5. Three-dimensional exhibit design mock-up.

Because this study addresses middle schools, a chalkboard background was chosen as a backdrop for graphics, mimicking a classroom setting, and colors—used in the wall displays—were chosen to support the printed uniforms.

Beginning in the upper left corner of the existing stationary wall, a viewer is introduced to the thesis title, “Contemporary Middle School Uniforms Inspired by Sports Team Design.”

The viewer is then led through content and visuals highlighting the current situation leading to the need for this thesis approach, as well as the goal of the thesis. (Exhibition wall designs can be found in Appendix D.) Next, key research points are presented regarding STEM and the current state of students in the United States. A brief history of school uniforms comes next, giving viewers a quick visual history of school uniforms from 1222 to present day. Finally, visual findings from the realm of sports are presented, giving viewers a snapshot of the design vernacular procured throughout the research phase that informed the visual direction for Activate Learning uniforms.



Fig 3.6. Final exhibition space.

Moving to the mobile wall at the right, a viewer is then presented with the visual exploration and sketch ideation of this contemporary approach to middle school uniforms. The

reasoning behind the viability of this visual approach is explained, and a breakdown of the Activate Learning uniform system is presented. Exploration of secondary wearable accoutrements, such as ties, belts, and socks, are also presented. On the outer edge of the mobile wall, a large version of the Activate Learning logo is placed as a strong visual cue.

The colors of blue and lime green have been used in the exhibit to match the two produced uniforms, creating one cohesive presentation.

In the center of the exhibit space, two mannequins were presented atop small circular pedestals eight inches tall and two feet in diameter. Both mannequins were fully clothed in school uniform attire (fig. 3.6). One mannequin wore the proposed option A of the Activate Learning uniform system along with khaki shorts, a belt, Activate Learning socks, and black shoes. The second mannequin wore the proposed option B of the Activate Learning uniform system along with a khaki pleated skirt, Activate Learning socks, and white shoes.



Fig 3.7. Fabricated uniforms in exhibition space.

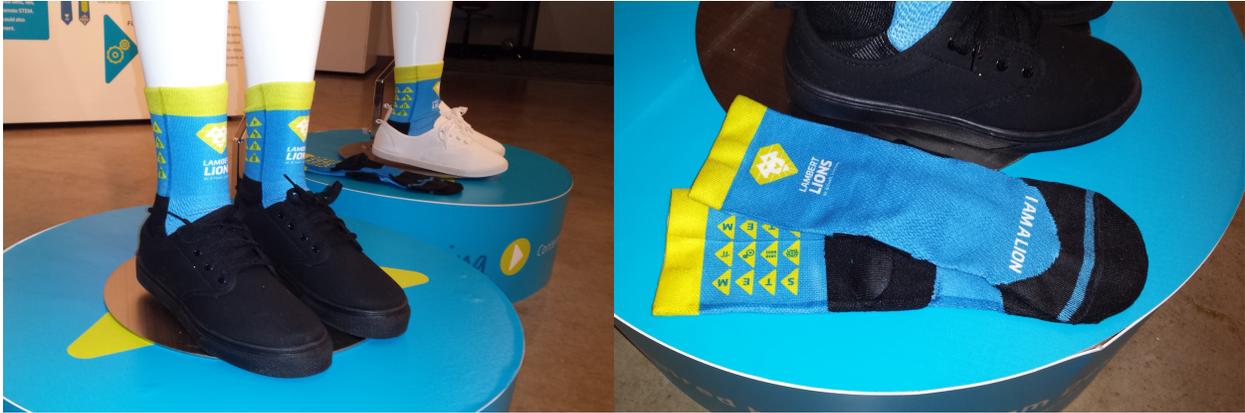


Fig 3.8. Fabricated socks in exhibition space.

Starting from the farthest corner of the exhibit space is a set of floor graphics in front of each mannequin. These floor graphics are large arrows pointing at each mannequin (fig. 3.8). One set displays the letters STEM on each arrow, while the second set of floor graphics displays iconography representing each STEM discipline.



Fig 3.9. Floor graphics and mannequin pedestals in exhibition space.

A public exhibition of the study was held inside the Texas A&M Commerce VisCom gallery in downtown Dallas on June 23, 2017. The researcher delivered a short presentation communicating key research points and inspirations before holding a brief question and answer session with the audience. The exhibition was on display for 10 days.

Chapter 4

SUMMARY OF THE STUDY

Students begin to lose interest in STEM curricula during middle school. While both male and female students lose interest, females have a harder time maintaining interest in STEM throughout their schooling. This lack of interest has led many to believe the U.S. will have a shortage of STEM-qualified workers in years to come, causing a regression of our national economy.

Many school districts across the country have implemented school uniform policies requiring students to dress consistently, creating a level playing field for students from various socioeconomic backgrounds.

Professional sports employ a uniquely visual language within their uniforms, and this vernacular helps create camaraderie among teammates.

Findings

This study was performed without human participation, and found that the implementation of middle school uniforms inspired by the visual language used in professional sports would be feasible.

The researcher did not have time to establish per-unit costs on a large scale, but further investigation may reveal alternate methods for financing uniforms. Various methods could lead to a sustainable uniform cycle, such as a community closet—where uniforms could be handed down to younger students—or offering physical space within the uniform design for sponsorship, or working with a manufacturer to fully recycle uniform materials in order to create new uniforms for future generations. Alternatively, communities could finance the uniforms through a partnership with local Parent Teacher Associations (PTA).

Conclusions

Studies have shown clothing can play a large part in an individual's experience. While learning, the clothing a student wears can help deter boredom, create interest, provide identity, and even help promote a cause. Within the sports realm, the visual language used in a team uniform creates team spirit, encourages action, and creates group identity. Therefore, the researcher suggests that a contemporary approach to middle school uniforms, inspired by professional sports, would help create an early awareness in STEM curricula, possibly leading to a higher number of students pursuing STEM careers.

Implications

If middle school uniforms adorned with sports-inspired design elements were adopted and implemented by a school or district, the design could be systematically adapted to represent the school or district (i.e., using their color and logos). Students wearing these stylized uniforms would also be introduced to STEM subject matter through secondary accoutrements, potentially creating early exposure to STEM careers.

Recommendations for Further Research

The researcher recommends further study of school uniform design concerning the visual language used. Further research around the different types of clothing articles (i.e., polo or oxford shirts) employed in middle schools would also reveal ways in which the apparel enhances a student's learning experience.

Further research into the current STEAM movement, where Art is being included into the STEM curricula, could hold insights for encouraging students to pursue STEAM careers. Art and Design careers hold valuable potential to affect change in the world—along side Science, Technology, Engineering, and Mathematics—and should be included in further development of

this uniform conversation as more and more STEM initiatives across the country are beginning to include Art and Design into their existing offering.

Future research into the color, typography, and design of school uniforms is needed to aid in understanding the psychology of wearing graphically designed clothing.

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APPENDICES

APPENDIX A

ACTIVATE LEARNING UNIFORM SKETCHES

ACTIVATE LEARNING UNIFORM SKETCHES



Fig. A.1. Short-sleeved Polo Shirt Sketches

ACTIVATE LEARNING UNIFORM SKETCHES



Fig. A.2. Short-sleeved Polo Shirt Sketches (Continued)

ACTIVATE LEARNING UNIFORM SKETCHES

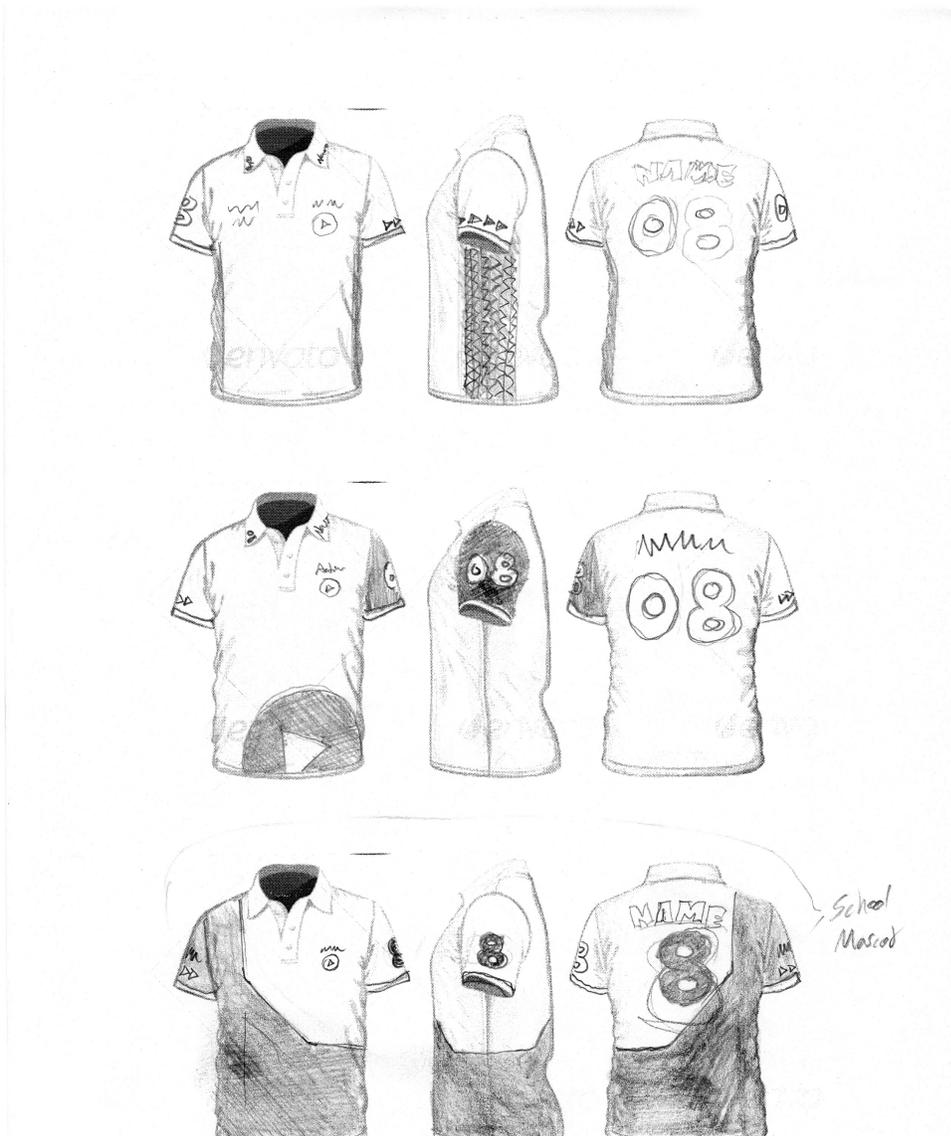


Fig. A.3. Short-sleeved Polo Shirt Sketches (Continued)

ACTIVATE LEARNING UNIFORM SKETCHES



Fig. A.4. Short-sleeved Polo Shirt Sketches (Continued)

ACTIVATE LEARNING UNIFORM SKETCHES



Fig. A.5. Long-sleeved Polo Shirt Sketches

ACTIVATE LEARNING UNIFORM SKETCHES



Fig. A.6. Sock Sketches

APPENDIX B
POLO SHIRT SUBLIMATION TEMPLATE
DESIGN IDEATION

POLO SHIRT SUBLIMATION TEMPLATE DESIGN IDEATION



Fig. B.1. Short-sleeved Polo Shirt Design Ideation

POLO SHIRT SUBLIMATION TEMPLATE DESIGN IDEATION



Fig. B.2. Short-sleeved Polo Shirt Design Ideation (Continued)

POLO SHIRT SUBLIMATION TEMPLATE DESIGN IDEATION



Fig. B.3. Short-sleeved Polo Shirt Design Ideation (Continued)

POLO SHIRT SUBLIMATION TEMPLATE DESIGN IDEATION



Fig. B.4. Short-sleeved Polo Shirt Design Ideation (Continued)

POLO SHIRT SUBLIMATION TEMPLATE DESIGN IDEATION



Fig. B.5. Short-sleeved Polo Shirt Design Ideation (Continued)

POLO SHIRT SUBLIMATION TEMPLATE DESIGN IDEATION



Fig. B.6. Short-sleeved Polo Shirt Design Ideation (Continued)

POLO SHIRT SUBLIMATION TEMPLATE DESIGN IDEATION



Fig. B.7. Short-sleeved Polo Shirt Design Ideation (Continued)

APPENDIX C

FINAL POLO SHIRT & SOCK SUBLIMATION
TEMPLATE DESIGN

FINAL POLO SHIRT & SOCK SUBLIMATION TEMPLATE DESIGN

Activate Learning Polo - SMALL - Option A

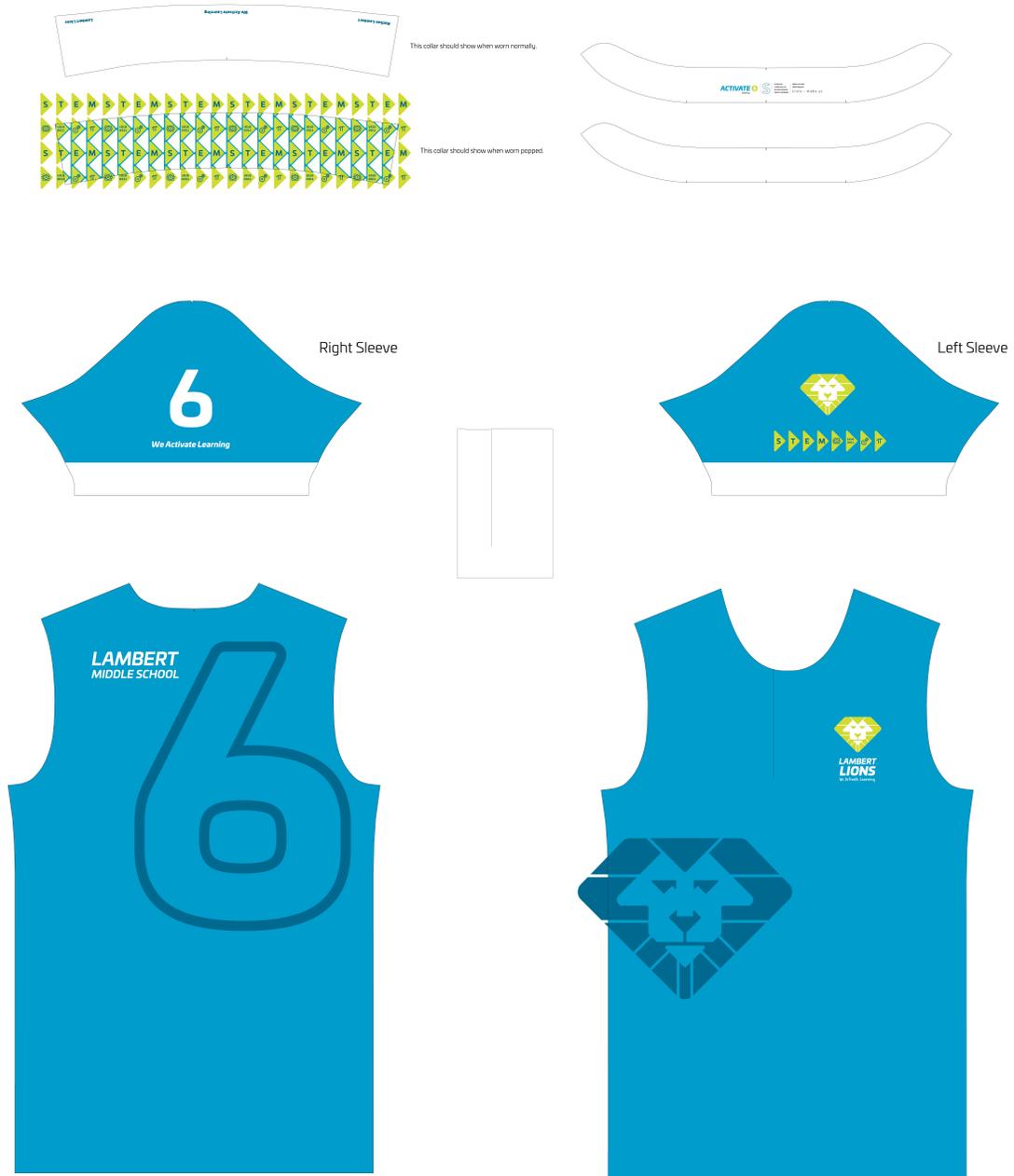


Fig. C.1. Final Sublimated Polo Shirt Template - Option A

FINAL POLO SHIRT & SOCK SUBLIMATION TEMPLATE DESIGN

Activate Learning Polo - SMALL - Option B

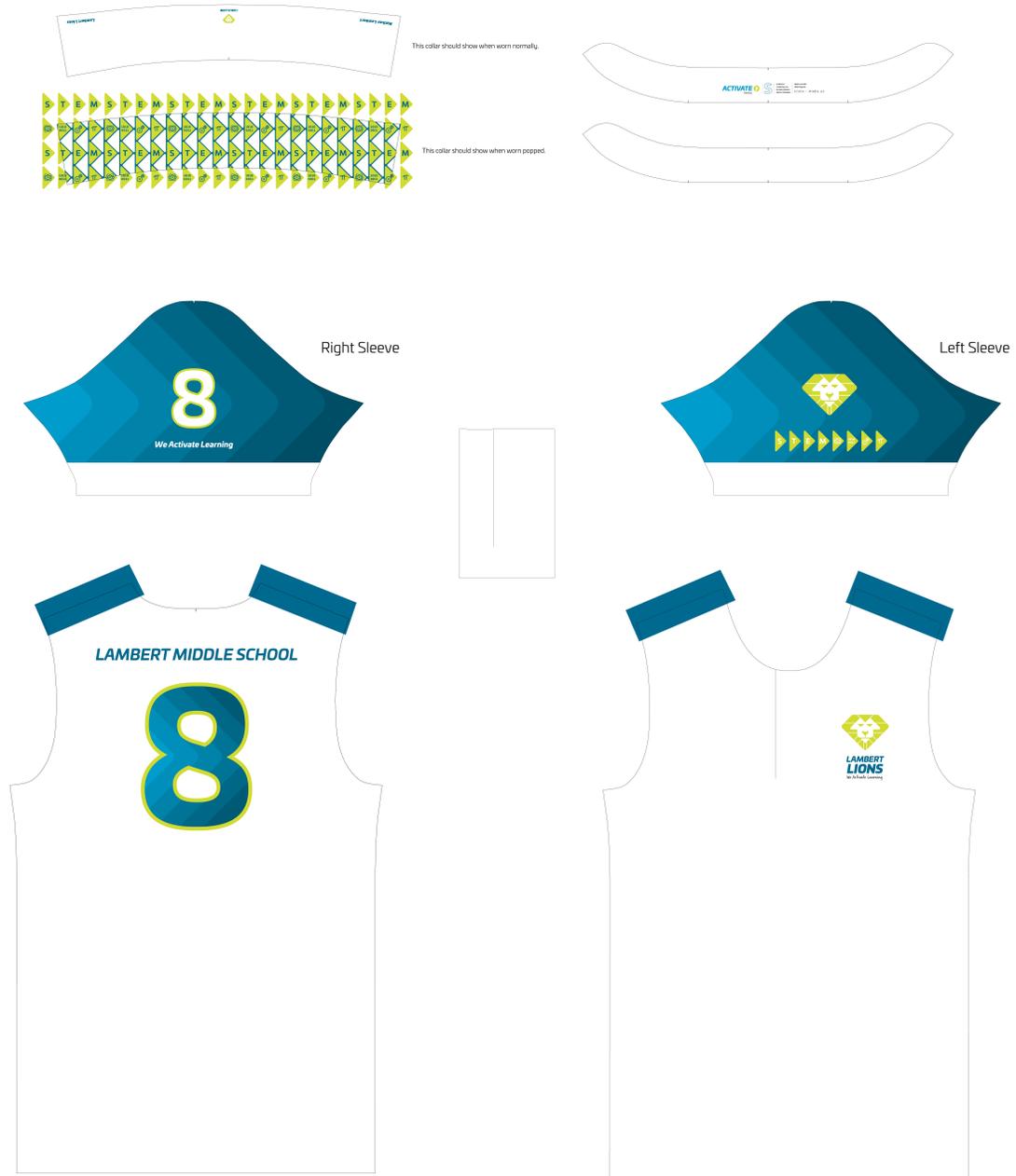
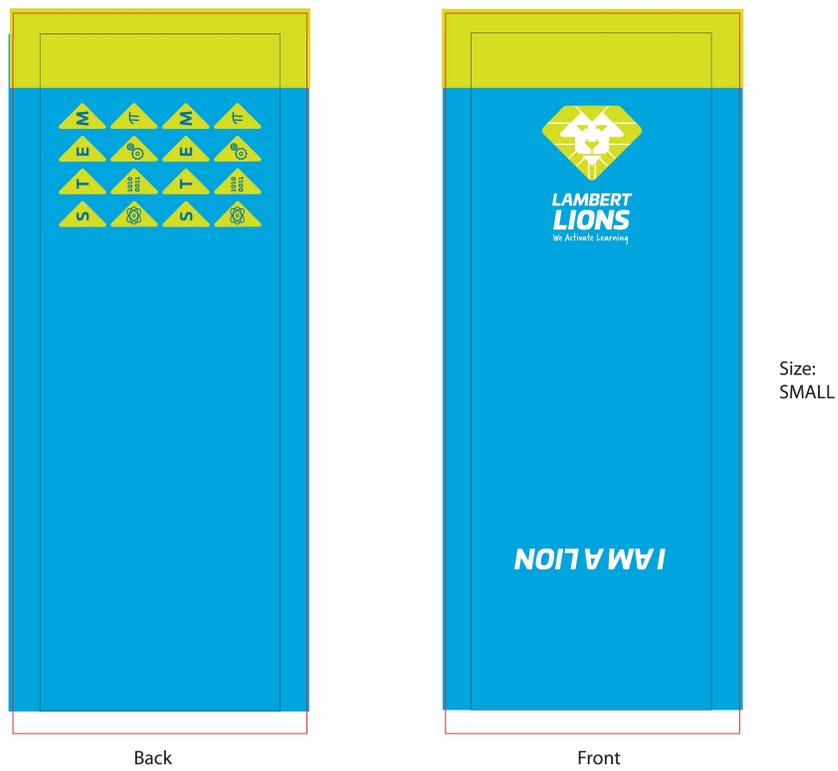


Fig. C.2. Final Sublimated Polo Shirt Template - Option B

FINAL POLO SHIRT & SOCK SUBLIMATION TEMPLATE DESIGN



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Fig. C.3. Final Sublimated Crew Sock Template

APPENDIX D
FINAL EXHIBITION WALL DESIGN

FINAL EXHIBITION WALL DESIGN

Science, Technology, Engineering, & Mathematics (STEM):

There is an unsettling trend in the U.S. that we are not creating enough domestic workers in the STEM fields, leading some to blame education reform and call for a “fundamentally new approach” to STEM education.⁶ Providing motivation for both male and female students while encouraging an attitude of learning is critical.

FEMALE STUDENTS ARE NOT TRAVELING AS FAR DOWN A STEM CAREER PATH AS MALES.⁸

RESEARCHERS PROFESS THE IMPORTANCE OF BUILDING AN EARLY INTEREST IN STEM CAREERS IN ORDER TO PRODUCE A LARGER DOMESTICALLY TRAINED WORKFORCE THAT IS STEM-LITERATE.⁶



67% of 8th graders are not proficient in mathematics when they complete 8th grade.⁷

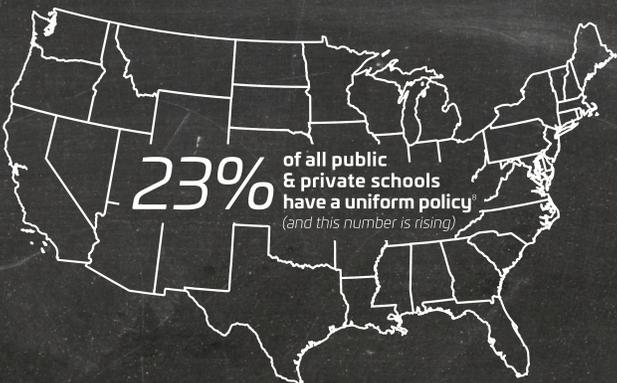
A Brief History of School Uniforms:



THE MOST COMMON UNIFORM SEEN TODAY INCLUDES A WHITE POLO SHIRT WITH EITHER KHAKI PANTS, SHORTS, OR PLEATED SKIRT.

Twenty three percent of all public and private schools around the country have implemented school uniform policies,⁹ with advocates stating that uniforms create “fewer absences, tardies, truancies and referrals to the office for behavior problems, fewer suspensions and expulsions, and in some cases, significantly higher achievement.”¹⁰

UNIFORMS CAN HELP PROMOTE A SCHOOL’S BRAND OR LEARNING INITIATIVE, SERVING AS A “SYMBOL OF COMMITMENT TO ACADEMIC ACHIEVEMENT.”¹⁰



23% of all public & private schools have a uniform policy⁹ (and this number is rising)

Fig. D.2. Panel Two of Six

FINAL EXHIBITION WALL DESIGN

Taking a Cue From Professional Sports:



NFL Color Rush®
Buffalo Bills Jersey



Professional Cycling®
TDEK Segafredo Team High-Wa Uniform & Bike



Professional Soccer®
Netherlands Uniform

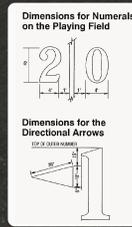
COLOR - Color alone is one of the largest differentiators creating unique identity among sports teams. A team's physical location is sometimes the genesis for colors used in their uniforms or branding, while at other times the use of color is stylistically directed by the fabrics available.

WITHIN THE NFL, COLORS LIKE GREEN, NAVY BLUE OR EVEN YELLOW BRING CERTAIN TEAMS IMMEDIATELY TO MIND.

TYPOGRAPHY - Typography communicates everything from the name of a team or organization to the player's name and number to the field markings. In certain sports—as in cycling—the uniform communicates team sponsorship. Large typography is used for the player's name and number, while smaller typography highlights sponsorship.



Seattle Seahawks Jersey
Typography: DWAT



Dimensions for Numerals on the Playing Field

Dimensions for the Directional Arrows

NFL Rulebook®
Field Markings & Regulations

The National Baseball League states in their official rulebook that "all players' uniforms shall include minimal six-inch numbers on their backs."

THERE SEEMS TO BE A GENERAL TREND TOWARD SANS SERIF TYPEFACES WITH MODERN SENSITIVITIES LIKE ROUNDED CORNER TERMINALS OR UNIQUE FLARED TERMINALS TO MIMIC A TEAM'S STYLE.



TYPOGRAPHIC TERMINAL

The self-contained finish of a stroke without a serif. Often called a "head".



Professional Soccer®
Santitas Design



Professional Baseball®
Texas Rangers Women's Uniform



Professional Cycling®
Chinese Uniform

THE UNIFORM - From shirts to pants to hats and even socks, sports teams utilize every aspect of the uniform surface to promote a player's identity as well as the organization's identity.

PROMOTING A CAUSE - During the month of October, the NFL's *Crucial Catch* initiative sees players don pink-clad accoutrements like gloves, socks, shoes, and wristbands creating awareness among players and fans alike around breast cancer.



NFL's Crucial Catch®



NFL's Crucial Catch®
Player's Glove



NFL's Crucial Catch®
Uniform Accoutrements

SPORTS TEAMS USE PLAYER UNIFORMS TO PROMOTE A SECONDARY CAUSE.

Fig. D.3. Panel Three of Six

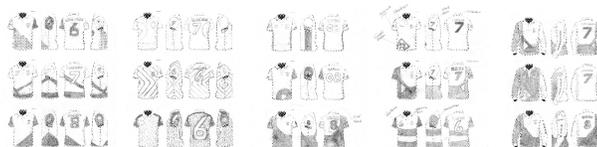
FINAL EXHIBITION WALL DESIGN



Introducing...
ACTIVATE 
 learning

Establishing the Activate Learning Look:

UNIFORM CONCEPT SKETCHES



Variation Sketches Exploring Uniform Design Style

CONCEPT NAME - The words "activate" and "learning" were chosen because of the energizing notion of activation, and because students who wear these uniforms will hopefully be inspired and encouraged to learn.

ICONOGRAPHY - The use of iconography within the Activate Learning system creates an opportunity for schools to promote a social cause, educational initiative, or even pertinent interest for students or faculty.

S		Math/Science
T		History/Literature
E		Green
M		STEM

Each icon has been designed to fit into a square base shape, while a consistent stroke thickness has been employed to give the family of icons a similar visual tone when viewed together or apart.

COLOR - The Activate Learning uniform system would use the existing uniform color for a given school, but also employ an "activated" secondary color palette. By using a modified triadic color harmony on a color wheel, existing school colors could be paired with two secondary colors to create a fresh, high-intensity palette.



PATTERN - Pattern is another design element directly inspired by sports design and uniforms seen in many sports. Patterns create visual rhythm which leads to interest and energy when paired with color and iconography.

THE BOLDER THE PATTERN OR COLOR, THE BETTER FOR CURRENT AUDIENCES.

BYC CREATIONS - AGENCY PARTNER DIRECTOR AT LAMP PARTNER AGENCY



19. National Association of Elementary School Principals, School Uniforms Are on the Rise, Lancet's End School Uniforms, 24 Aug. 2016.
 20. A. J. Auer, "Green," Super Simple Songs, 101, YouTube, Feb. 2015, <https://www.youtube.com/watch?v=101>.
 21. "Vital Signs: Change the Equation," Vital Signs, 1 Dec. 2015.

Fig. D.4. Panel Four of Six

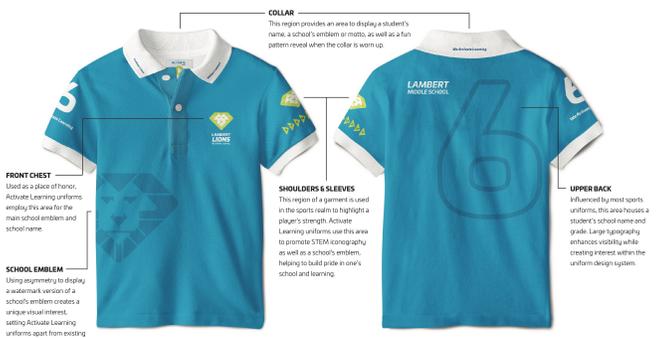
FINAL EXHIBITION WALL DESIGN

MIDDLE SCHOOL UNIFORMS DESIGNED TO HELP IMPROVE STUDENTS' SELF ESTEEM, CAMARADERIE WITH THEIR PEERS, & CREATE AN EARLY INTEREST IN STEM CURRICULA

The Activate Learning Uniform System

SHIRT - Many schools require either a polo or oxford-style shirt. Activate Learning shirts help create camaraderie among peers because the shirts create a metaphor of being on a team. Each grade (6th, 7th, & 8th) would wear numbers on their back and sleeves promoting student identity.

64% OF SCHOOLS OFFICIALS SAY THEIR STUDENT UNIFORMS DO NOT INCLUDE STEM-RELATED LOGOS, LOGOS AND COLLARS, BUT WOULD HAVE THEM IF THEY COULD AND THEY WOULD BE MOST LIKELY TO INCLUDE STEM-RELATED LOGOS TO PROMOTE SCHOOL SPIRIT.



TYPEFACE - Univia Pro works well for use with Activate Learning uniforms because of its ultramodern look specifically designed for both large display and text usage. This contemporary sans serif type family has distinctively open square counters (the negative space within a letterform, either fully or partially enclosed), improving legibility. It also creates a pleasant personality with its smooth curves and round corners.

Univia Pro - Bold, 16pt
ABCDEFGHIJKLMNO
PQRSTUUVWXYZ
 abcdefghijklmno
 pqrstuvwxyz
 0123456789

Univia Pro - Bookends, 16pt
ABCDEFGHIJKLMNO
PQRSTUUVWXYZ
 abcdefghijklmno
 pqrstuvwxyz
 0123456789

Designed: Glenn Coulson | Published: Glenn Coulson | 2018 | All Rights Reserved | Glenn Coulson

TEACHERS NEED CREATIVE STIMULI IN ORDER TO CREATE A MORE DYNAMIC LEARNING ENVIRONMENT THAT WILL LEAD TO STUDENT ENGAGEMENT AND, ULTIMATELY, STUDENT SUCCESS.²⁶

One way to create that dynamic learning environment could be the encouragement of wearing clothing accoutrements like belts, ties, or socks that promote STEM. Floor graphics could also create engagement.

The Activate Learning uniform system helps encourage an early awareness of STEM curricula via secondary accoutrements & environmental elements.

BELTS - Belts could be employed to promote STEM curricula. Through the use of iconography and text spelling "STEM," a school could employ their unique colors to promote STEM curricula.

TIES - Ties would also be a fun way of introducing students to STEM subject matter during the middle school years. Many schools require long ties, while others require bow ties for special occasions.

SOCKS - Currently, socks are a subtle way for students to show their individual personality. Including Activate Learning socks in middle school students' wardrobes could help promote their STEM awareness while encouraging and promoting their individuality.

FLOOR GRAPHICS - Inspired by the yardage markers on a football field, these large arrow floor graphics employ the technique of visual wayfinding. If placed in strategic areas throughout middle school hallways—near STEM classrooms—these floor graphics could inspire and energize students as they navigate their daily learning exploration.

Fig. D.5. Panel Five of Six

FINAL EXHIBITION WALL DESIGN

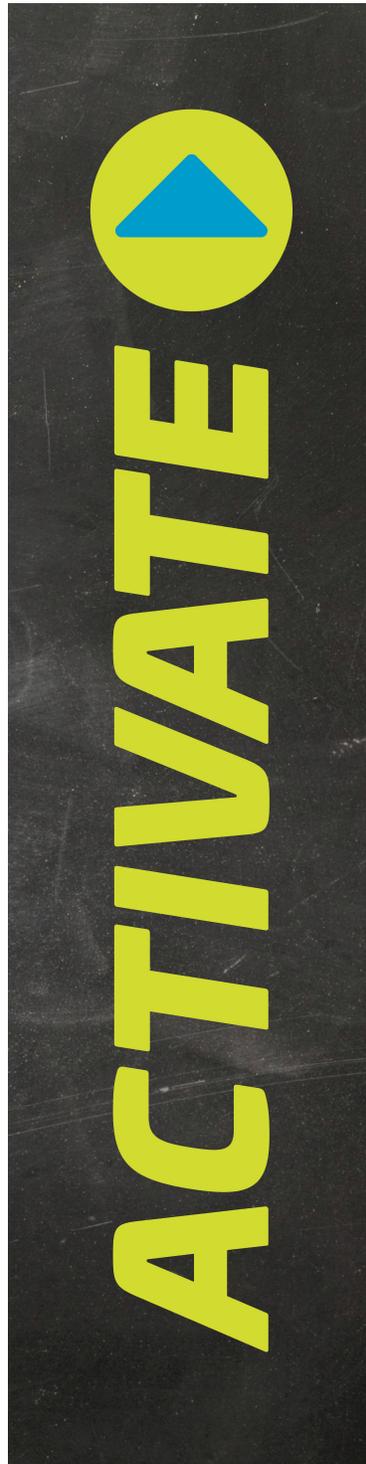


Fig. D.6. Panel Six of Six

9. VITA

Nathan Allan Lambert graduated from Abilene Christian University with a Bachelor of Fine Arts (BFA) in Graphic Design in 2006. He is currently pursuing a Master of Fine Arts (MFA) degree with an emphasis in visual communication at Texas A&M University-Commerce.

After acquiring his BFA, Nathan was offered an internship with CIVA (Christians in the Visual Arts) on the campus of Gordon College in Wenham, Massachusetts where he designed and produced printed collateral for the art-centric program and also helped facilitate an annual artist workshop. From 2008 to 2014, he worked as a conceptual designer with the Dallas-based advertising agency MEplusYOU (formerly named imc^2), developing interactive experiences as well as all matter of design material for Fortune 500 pharmaceutical companies. Nathan currently works as an interactive designer/developer for a professional printing company in Dallas called Full Color, where he helps guide marketing and design pursuits.

Nathan has taught as adjunct faculty, leading students through introductory design classes at Texas A&M University-Commerce as well as the Frisco campus of Collin College. He has also had the opportunity to shadow professors Virgil Scott, Casey McGarr, and Josh Ege at the downtown Dallas campus of Texas A&M University-Commerce.

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