Redesigning the Cheerleading Shoe

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My Research Squad

There were so many people along the way that helped me accomplish, my goal of redesigning a cheerleading shoe. First off, to my mom, who was the first person to see that cheerleading was more to me in life; it was a passion. I would like to acknowledge my boyfriend, Christian, for being the driving force that pushed me to continue my education further in graduate school.

I have to say thank you to Roger Baer, my major professor, who believed in my project from the beginning and has been my leading guide. Also, thank you to my committee members, Anson Call and Tim Derrick for listening to stories of cheerleading and footwear.

A special thank you to Mike McBreen, president of Wolverine World Wide, for giving me an internship opportunity in footwear design and development, resulting from our unique encounter. Which leads me to Chris Loveder, my internship boss, who taught me everything that I know about footwear design. Without his help, I know my final design and prototype would not have been nearly as strong as it is today. After designing my first shoe, I now have encountered a new passion for footwear design.

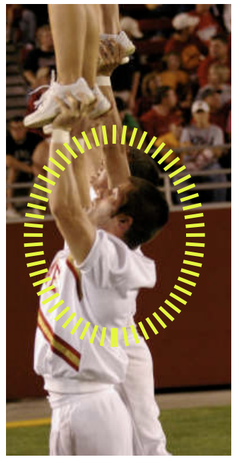
Contents

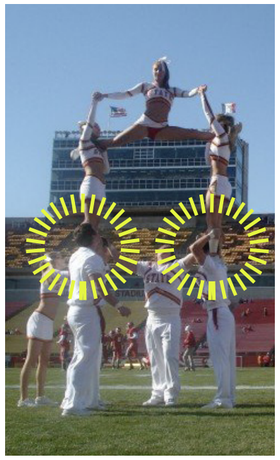
Breaking Down the Elements of Co-ed Cheerleading

Co-ed Cheerleading
A team of male and female cheerleaders on a joined squad performing stunts, pyramids, and basket tosses.

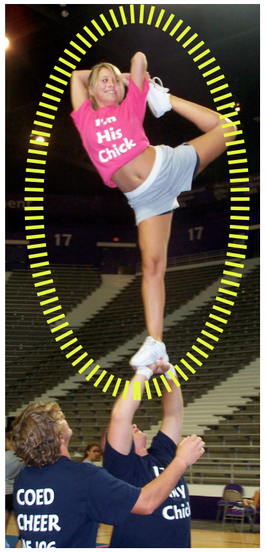
A stunt in co-ed cheerleading is often called a partner stunt. A stunt is when a male base lifts a female flyer overhead to perform a pose or trick on top.

Partner stunt demonstrated above





The Base
The male in co-ed cheerleading, is the ground bounded base. They are the foundation, strength and backbone to building stunts and pyramids.



The Flyer
The female in co-ed cheerleading is the one lifted above her base performing a motion in a stunt, pyramid or basket toss.

The Spotter
An additional base that stands perpendicular to the main base when performing a stunt is known as the spotter. The responsibilities of the spotter are to catch the flyer when falling and to catch her for single or double down dismounts. A single or double down dismount is when the flyer spins her body in a single or double barrel roll, while coming down from a stunt. The flyer opens up to be caught by her base and spotter after spinning.

A Pyramid
A group of stunts that are intertwined together by the flyers. A collegiate pyramid can be two and a half levels high.

A Basket Toss
A group of three bases that throw a flyer approximately twenty to thirty feet in the air for her to perform a flip or pose. The bases also catch the flyer on her way down in a cradle position.

Basic Arm Motions

High "V"
Both arms are lifted overhead at slight angles to represent a "V."

Diagonal
When one arm is lifted at an angle, representing only half of a high "V." The opposite arm is usually bent and placed on the hip or continues down the diagonal.

Full “T”
A “T” motion is when both arms stay level with the shoulders and are extended out from both sides of the body.

Half “T”
A half “T” has the arms straight out from the body’s sides but bends the arms at the elbows to shorten the “T” to half of its length.

From Cheerleader to Designer

At the beginning of every new Iowa State cheerleading season, we cheerleaders received our Nike gear package. Everyone was be anxious to see what the new year’s gear would be. Once the gear was handed out, we were always quickly disappointed with the new Nike cheer shoe. They were often wide, clunky, ugly white shoes that were not fashionably appealing. As a performance shoe, they also scored low for the flyers when tumbling and with the male bases because the shoes were so wide to grip when stunting.

Every year I was shocked with how poorly designed our cheerleading shoes were, especially from Nike. The amount of technology Nike normally invests in footwear has clearly been neglected in their cheerleading shoe line.

After graduating from ISU, I continued my education for a master’s degree in graphic design. Due to my past experience with poorly designed Nike cheer shoes, I decided to design a better shoe. Having this project work out as my M.A. research made it so much more rewarding for me due to my strong passion for design, cheerleading and shoes.

Why I am the Expert

My cheerleading career began at Ames High School on an all-girl squad. In the fall, I cheered for football, girls swimming, cross country and competed with my squad at the State Cheerleading Competition, for the state title. During the winter season, I cheered for boys and girls basketball, boys swimming and wrestling. After high school I attended Iowa State University, cheering on the varsity co-ed cheer squad for four years during my undergraduate. At ISU, I cheered for football, men's and women's basketball as well as competed individually and with my squad at regional and national competitions. Over my eight years experience of cheerleading, I have been exposed to dozens of cheerleading shoes that I have worn as part of my uniform. Every year I have always been shocked with how poorly designed cheerleading shoes are for our athletic performance needs.

It especially became clear to me, when I cheered on the college varsity co-ed squad, just how poorly designed cheerleading shoes were for the male bases. A typical cheer shoe is worn by all-girl and co-ed cheer squads. On an all-girl squad, there are three girls basing a stunt. For a co-ed stunt, there is one male base per flyer. The stunt grips and shoe needs are different for co-ed partner stunts then for all-girl stunts. I witnessed the co-ed male bases injuries resulting from cheerleading shoes on their shoulders, forearms, and hands. I learned the width of the shoes and surface of the sole were the most problematic for the male bases when stunting. The female flyers struggled to tumble in their wide, clunky shoes. Also safety was an issue for protecting ankles from being sprained due to strong ground impact from tumbling and stunting landings.

The male bases on the team, suffered from hard soles that would cut their hands, forearms and shoulders. If a shoe had a lifted heel, or an additional platform, it would dig into the base's shoulders when building pyramids. After repetitively building pyramids throughout the season, the bases' shoulders would become skin burnt and worn to the point they would bleed. Before games, bases sometimes bandaged their shoulders so they would not bleed through their uniforms during a game; especially when wearing their white uniforms.

I also witnessed many former gymnasts convert to collegiate cheerleading. Gymnasts tumble barefoot, but in cheerleading, shoes are constantly worn. When it was the tumbling part of practice, the former gymnasts, would kick off their shoes to tumble. Our coach would harp at them to put their shoes on and tumble in them, because on game days, they would not be tumbling barefoot. They would complain on how heavy and limiting wearing shoes were for tumbling.

Nike sponsors Iowa State's athletic program. So on game day, all collegiate athletes are required to wear Nike from head to toe. Unfortunately, over my four year collegiate experience, the Nike cheer shoes never improved.

After my undergraduate degree, I continued my education at Iowa State University studying graphic design. As a graduate student I struggled to find a topic to do research on. After attending my industrial design history class, I learned designers can improve already poorly designed products. It made me start to think, what products I have been exposed to that could be improved. The first product

that came to my mind was cheerleading shoes. I felt that cheerleading shoes needed large improvements in their design function and there was a lack of improvement over the decades of their production. Unfortunately, there is an overall lack in data, current research and history for this niche footwear market. However, I have been exposed to so many cheer shoes over the years and consider myself an expert.

In today's athletic environment, equipment, gear and uniforms have progressed by incorporating better technology. One such example is, the evolution of a football helmet. It started as a pice of leather, and progressed into the padded, plastic encased helmets for football players today. During this evolution of sports research, footwear has become a huge empire. Creating, developing and testing footwear for specific sports has taken off with huge success. The everyday tennis shoe has now become so vast in categories like running, basketball and soccer, that there is a shoe that best fits every activity or sport's needs. I hope to vastly improve the design of cheerleading shoes.

The **History** of Cheerleading And Its Athletic Footwear

History of Cheerleading

Cheerleading, like baseball, is one hundred percent indigenous to the USA. It's hard to say who was the founder, or when it was actually created. The first known school cheer was recorded in the 1860's (Stein, 2004) by Princeton's students, cheering on campus: "RAY, RAY, RAY! TIGER, TIGER, TIGER! SIS, SIS, SIS! BOOM, BOOM, BOOM! Aaaaaah! Princeton, Princeton, Princeton!" The cheer was done in a repetitive locomotive style (a yell that builds up speed) at collegiate football games.

A graduate from Princeton, Thomas Peebles, introduced the cheer to the University of Minnesota. Then a student at the University of Minnesota, Johnny Campbell, started his own Minnesota cheer by standing at football games and leading with: RAH, RAH, RAH! SKU-U-MAH, HOO-RAH, HOO-RAH! VARSITY! VARSITY! MINNE-E-SO-TAH!" The band caught on by creating the first school "fight song" for Minnesota. A story in the Minnesota student publication was released on November 12, 1898, in the Ariel on nominations for students to lead the yelling for the season's last game (Stein, 2004). It became a large honor for a male student to be selected for the game's yell leader position.

The following year, Campbell and five other male students formed the first all-male cheerleading squad. Male only squads were the first to dominate cheerleading. In order for their voices to be projected through a stadium, the use of megaphones became the game day essential tool (Stein, 2004). The 1989 University of Minnesota, all-male squads, would stand clean cut, wearing white pants and sweaters on the sidelines with their megaphones.

Cheers started to spread amongst other schools with their catchy ways. Other universities, colleges and high schools were creating yell leader positions for their own school's athletics. Students would elect their yell leaders for the sport's season. The young men who often won yell leader positions, were the most popular, charismatic, personable and entertaining males. The all-male squads started to included acrobatics, tumbling, and stunting to keep the fans' attention always on the field.

By the 1920s America's universities were striving to be the "greatest," and the "most grandest" places. A university's greatness, in those days, was achieved if they had a big football stadium (Neil &Hart, 1979). The larger the stadium, the larger the crowds. This created more support for a team, which lead to better football programs and more attention attracted to their school. Stealing attention to have a school become noticed was the purpose of the game, building on the importance of education as well as a strong athletics.

A way for schools to gain more recognition at football games was by including female cheerleaders on the sidelines. Women on the sidelines added a new attractive element. The girls would compliment the boys who wore all white and sweaters, by having a clean look of white skirts and sweaters. Since cheerleading uniforms were not standard, most cheerleaders added their own school patches to create a more uniform squad look. Co-ed squads were being created across the nation with increased complexity of incorporating gymnastics and tumbling into cheerleading.

The first flash card cheering section took place in the student's seat at Oregon State University, and was lead by Lindley Bothwell. Flash card sections swept across California quickly due to the year round warm weather, especially at USC. Crowds were starting to fully participate with sideline cheerleaders. The support of the band, and productions of school fight songs were also becoming a part of the overall game day environment.

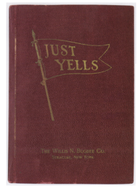
University of Minnesota created the first all-male cheerleading squad.

Brandon "Chick" Griffis, Indiana University Yell Leader yearbook photo

Cheerleading includes females, becoming a co-ed school activity.

Flash card student sections become popular among west coast schools

Pictured is USC's Trojan flash card section



The first published cheerleading book is released

The first organized cheer at Princeton University.

1860s **1898** **1915** **1920s** **1927**

In 1923, Purdue University offered a four-week course that included stunts, crowd psychology and ideal yelling. By 1927 the first published cheerleading book (Stein, 2004) was growing in popularity called "Just Yells," by Willis Bugbee. The book included cheer, chants and rally ideas compiled across the country. University cheerleaders wrote testimonies in the book about the psychology of the crowd and effectiveness of cheers.

At the start of 1930, pom-pons were in the hands of the female cheerleaders, also known as song girls. The first pom-pons, were made from paper. It all started when a high school student took crepe paper and started waving it around at a football game (Stein, 2004). During the 1930s and 40's the popularity of pom-pons spread. Choreographed pom-pons dance routines for entertainment made their way on the field (Stein, 2004). The football field was becoming more then a place to see football, but a stage for unique eye-catching activity. The new pom-pons girls were the beginning of today's dance/drill teams. The marching band's, majorettes, flag groups and energetic mascots were also laying their roots of becoming a part of football's modern game day spectacle.

During the 30's cheerleaders were perceived as clean-cut, wholesome, and energetic. The popularity of being a cheerleader rose due to the spotlight on a cheerleader's academic career. Cheerleaders were instant trend setters. The image of cheerleading then, was all about the perfect pony tail, good looks, popularity, and easier access to dating a football player. Being a cheerleader meant being an All American Girl during the 1930s.

Pop culture quickly adopted the cheerleader. A collegiate fox trot song by Al Lewis describes a cheerleader having a sweetheart at every college (Stein, 2004) wanting to date the All American Girl. The advertising companies took advantage of the image of the cheerleader in their advertisements by placing them no where near a football field. Advertisers started to change the image of cheerleaders by shortening their skirts, putting a twinkle in their eye and a product next to them.

Song leaders with pom-pons started to appear on the field. The predecessors of drill, pom and dance teams

Al Lewis, All American Girl, a fox trot song

Advertiser changing the cheerleader image

Men were called to duty for WWII, creating All-Girl cheer squads

1930s

1940s

War called the men in the 1940s to duty, allowing the women to fly solo as cheerleaders. Without the men, the women created more advanced choreographed routines. The all-girl squads were stealing the spotlight without the men. Bill Horan created the American Cheerleaders Association, (Neil & Hart, 1979) cheerleading's first national organization during the 40's. Organizations and collegiate cheerleaders were starting to come together to teach fundamental cheerleading skills.

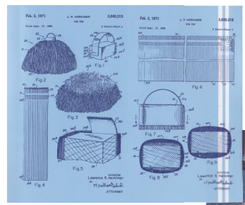
In 1948, cheerleading turned again, when Lawrence Herkimier, known as Herkie, and one of the founding fathers to cheerleading, found his true calling. He was a former cheerleader at Southern Methodist University and at North Dallas High School. He hosted the first cheerleading camp (Neil & Hart, 1979) with fifty-two girls in Dallas, Texas. At camp, gymnastics, choreography, cheers and how to engage a crowd were all taught. It was an instant success and the demand for cheer camps exploded. The following summer he had over three hundred girls attend (Stein, 2004). As a result, Herkie created the first organized cheerleading company, the National Cheerleading Association (NCA) in 1952. During the school year, he also lead day-long clinics, where thousands of cheerleaders would attend. The cheerleaders would train all day, then perform that night during half time at a football game.

In the 1950s Herkie was watching majorettes dancing with their silver batons and realized that colored paper on their batons would photograph so much better (Stein, 2004). He was so fascinated that he and his wife, Dorothy, started making pom-pon kits in their garage. The pom-pon kit included colored shredded paper, a stick, and a wire, along with assembly and maintenance directions. Herkie worked to create fade-proof, flame-resistant paper and a machine for shredding. He ended up patenting his creation, calling them pom-pon and he still holds the rights of the title today. The word pom-pons is derived from pompe, a French word used to describe light feathery decorations; usually attached to hats or slippers. Over the years the name has been confused with pom-poms which is incorrect. Today, they are best know as just poms. This lead Herkie, in 1953,

American Cheerleading Association founded

Lawrence Herkimier hosted the first cheerleading camp

NCA was the first organized cheerleading company.



Herkimier created The Cheerleader Supply Co., a catalog of cheerleading uniforms and his patent pom-pons with instruction kit

1948

1950s

1952

1953

to found the Cheerleader Supply Company (known today as Cheerleaders&DanzTeam Co.), a catalog for uniforms, pom-pons (including his kits) and supplies (Stein, 2004). Dorothy contributed to Herkie's cheerleading catalog by inventing the colored pleated skirts that became the iconic uniform staple.

Through out the 50's Herkie continued to work at his cheerleading summer camps. In 1957, at camp, he watched a squad with an enormous amount of dedication and enthusiasm, but they were not the strongest of performers. The girls did not perform the hardest stunts, or win the competition. Herkie believed they deserved recognition for their dedication, enthusiasm and spirit. So, he broke a branch off of a nearby tree and awarded it to the squad, as the spirit stick award (Stein, 2004). The girls were so thrilled with the award that it became a cheerleading status symbol to win at camp. The cheerleading spirit stick is still awarded today at camp to the most spirited squad with its traditional red-white-and-blue stripes on the baton, representing NCA's identity colors.

Herkie created his own cheerleading jump that is also still known as the "Herkie." The jump strives on height with the pose of the right fist pumping up to the sky, the left hand on the hip, the left leg straight out in front, with the right leg hooked behind. He created the jump when he was in high school and continued to use it through out his cheerleading career. Herkie also became known as Mr. Cheerleader for his success in creating cheerleading camps, patenting the pom-pons, inventing the "Herkie" jump, and creating of the spirit stick.

Fred Gastoff improved Herkie's invented poms in the 60s. He came up with the invention of vinyl poms, and replaced paper poms entirely (Neil &Hart, 1979). This eliminated the days of cheerleaders standing in the rain with dye from their paper poms running down their hands. The vinyl poms held a more bouncy round shape. The newer improved poms were introduced by the International Cheerleading Foundation. Today's poms consist of the classic poms, the multicolored poms, the bull's-eye poms, to poms with or without handles, just to name a few.

The first professional cheerleading squad occurred in the 1960s. Typically a professional football team had local high school squads perform at halftime (Stein, 2004). The Baltimore Colts, broke away from tradition by hiring their own squad of professional cheerleaders to be a part of every game. Also in 1967, The International Cheerleading Foundation ranked its first annual "Top College Cheer Squads" (Neil & Hart, 1979). The foundations also recognized cheerleaders who stood out from the rest with the "Cheerleader All-American Award." Cheerleading began to expand past the traditional football and basketball team. Cheerleaders started to support more sports and increase its number of squads to attend all sporting events. In the 60's cheerleaders were a part of wrestling, track, and swimming (Neil & Hart, 1979). Along with cheering for male sports, cheerleaders started to cheer for female sports like basketball and volleyball.

A new type of cheerleading genre was born in the 1970s. The Dallas Cowboys had a group of local high school cheerleaders, like most professional teams, known as the CowBelles & Baux (Stein, 2004). The general manger, Tex Schramm, wanted much more with a vision of cheerleaders to be a form of sexy entertainment, that included Broadway-style dance routines for half time. His staff scouted for beautiful, dance talented women. Their uniforms were nothing close to traditional, which included: white short shorts, star printed midriff tops and go-go boots. Other professional football teams also adopted this entirely new cheerleader.

Another tradition started in the 1970s with the beginning of the cheerleading competitions. More cheerleading companies started to offer invitations to their camps and competitions. The level of competitive cheerleading drastically increased the skill performance for high school and collegiate cheerleaders, directing cheerleading to become a sport by itself. To execute harder stunts, pyramids and routines, demanded a need to bring the men, and their strength, back to the cheerleading competition floor. Co-ed squads became the new rage (Stein, 2004) due to the increase of the complexity of competitive routines. The need

The birth of the the spirit stick started at NCA's cheer camps

1957

Herkimier's icon jump, called the "Herkie"

Vinyl poms replaced paper poms by inventor Fred Gastoff

1960s

Local high school cheerleaders made up the Dallas Cowboys cheer squad called the CowBelles & Baux that performed at half time prior to professional cheerleaders

The new entertaining Dallas Cowboys Cheerleaders set the trend for dancing pro cheerleaders

Co-ed squads become popular again for executing difficult pyramids, and partners stunts for competitions

1970s

for strong male bases to perform advanced stunts, higher basket tosses and pyramids brought the males back into the cheerleading ring for good.

Another cheerleading pioneer was Jeff Webb. After high school he joined Herkimier's NCA staff and rose quickly to head instructor for NCA's summer camps. After graduating from college, Webb decided to start his own cheerleading company with a vision of increasing the athleticism. Webb introduced partner stunts and combination pyramids at camp to break away from the traditional leadership role. At the same time, Webb wanted to preserve the traditions of school leadership in cheerleading, while increasing the athleticism to take cheerleading to the next level. Webb created the Universal Cheerleading Association (UCA) in 1974. At his first camp, located at the University of Memphis, he demonstrated with his staff, cheerleading skill accompanied by music, giving birth to the cheerleading routine (Varsity, 2010). The cheerleading routine sparked competition and pushed cheerleaders to master complex skill sets. From there, Webb created his own UCA cheerleading competitions to support the skills he was teaching at his camps.

The National Collegiate Cheerleading Championship first aired on CBS television during the spring of 1978 to the nation (Neil & Hart, 1979). The country started to recognize cheerleading as a serious athletic activity with its partner stunts, pyramids and advanced jumps. Some colleges started to consider cheerleading a sport through scholarships, college-credit and a possible letter program.

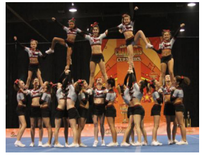
National cheerleading competitions started to allow junior and senior high schools to compete in the 1980s (Neil & Hart, 1979). The strong love of competitive cheerleading evolved into the creation of all-star teams. All-star teams (Stein, 2004) do not represent a school but are more of a club sport that mixes cheerleaders from various schools. These squads come together to practice and to solely compete. At competitions there is an all-star division for these teams that include competitions ranging from regional to world championship levels.

In 1982 UCA's first National Championship competition aired on ESPN. Webb pushed for syndication to expand cheerleading's broadcast awareness. Because of Webb, cheerleading has been on TV for the past thirty years. Occasionally Webb is the commentator for the competitions (The International Cheer Union, 2009). In 1988, UCA was introduced to Japan by starting camps and competitions. The following year UCA made its way to the United Kingdom, which then flourished throughout Europe.

In the 90's Webb continued to lead cheerleading at the international level. UCA tackled the southern hemisphere first in Chile, then spreading throughout South America, the Caribbean and finally, Australia (The International Cheer Union, 2009). During the 1996 Summer Olympic Games at Atlanta, Georgia, cheerleaders participated in the opening ceremony. The global awareness of cheerleading was spreading quickly.

In the 2000s, all-star team federations and international world cheerleading clubs started to form. In 2004, the first World Cheerleading Championship took place at Walt Disney World Resort and was globally broadcasted through ESPN. The World Championship is the equivalent of the Olympic games for cheerleading. Fifteen countries competed for the World Title in 2004. The most recent World Cheerleading Competition, this past 2010, hosted sixty countries, and continues to grow (The International Cheer Union, 2009).

Partner stunts start to become a part of camp curriculum



High schools and All-Star teams start competing

Webb syndicated cheer competitions on ESPN and is sporadically a commentator

Cheerleading exspands internationally

The Olympics of cheerleading, The World Championship was created

Team USA at The World Competition

1980s

1990s

2000s

2004

2009

2010s

History of Cheerleading Footwear

In the 1800s a pair of shoes were worn for everyday purposes, athletics and formal events. In the late 1800s and early 1900s, diverse footwear production was increasing in shoe factories. Athletics and exercise in the early 20th century helped the U.S. Rubber Company produce Keds, a canvas top sneaker with a rubber sole during the 1920s (Pederson, 2005). This was followed by the creation of Converse All Star hightop sneakers, a popular shoe for basketball. Soon shoes, boots, heels and sneakers were being created to meet a range of specific footwear needs.

The term sneakers has been credited to England's Brixton Women's Prison. A publication in 1862 from Female Life in Prison explains how the guards wore rubber galoshes on their feet to quietly "sneak" by the women prisoners (Vanderbilt, 1998). The inmates then started to refer to the guards as "sneaks." The term eventually evolved into sneakers as more shoes with rubber soles were being manufactured. Shoes have many names ranging from plimsolls, cross-trainers, gym shoes, high-tops, runners and tennis shoes.

A popular shoe worn by cheerleaders from the 1930s and through the 70's was the saddle shoe. The development of the saddle shoe started in the 1910s but for the purpose of golfing. In the 1920s and 1930s the shoes became extremely popular with North American collegiate girls. Saddle shoes were also known as saddle oxfords for their black-and-white color contrast. The popular shoe caught with boys as well, which included the black-and-white oxfords but also, solid colored versions. It was reported in 1938, through The Boot and Shoe Recorder (Walford, 2007) that saddle oxfords were popular because of their crepe smooth soles for dancing.

The June 7th, 1938 issue of Life magazine, revealed an advertisement for saddle oxfords. It displayed a photograph of dangling feet wearing socks and saddle oxfords making the shoe style almost famous overnight. The following day there was a shortage of saddle oxfords that sold in stores for $7 to $10 (Walford, 2007) a pair. Since the shoe was in such high demand, factories switched to making only saddle oxfords. This lowered their production costs, and allowed savings to be passed to the consumers with a new price as low as $1.98. By the 1950s the saddle oxfords started to loose their popularity. In 1962 suede Hush Puppies (Walford, 2007) and penny loafers became the new "it" shoe to own. Cheerleaders continued to wear saddle oxfords as part of their uniform even after their popularity wore out. At the time, saddle oxfords and Keds were about the only shoes that were worn before the big sneaker boom in the 1970s for cheerleaders.

In the 1980s the aerobic boom started and was directly aimed towards women. Reebok took full advantage of the aerobic trend by producing the first women's aerobic shoe called the Freestyler (Glarner, 2003). The high-top shoe became so popular that blue and pink Freestyles were produced for all the flashy lycra at aerobic classes. The low top version of the Reebok Freestyles was the Princess that shortly followed. The soft leather's upper became a favorite shoe to be worn for cheerleading. White sneakers based on a cross trainer and aerobic shoe were produced for cheerleaders and called cheer shoes. A popular feature that made a shoe a cheer shoe was the customized colored plastic disks that could be inserted behind the shoe's display logo window.

In 2003 Nfinity was founded, producing women's footwear based on their physiology. Currently Nfinity leads the cheerleading footwear market with the lightest cheerleading shoe produced.

The U.S. Rubber Co. creates Keds, a canvas rubber sole shoe

Converse produces a popular rubber soled basketball shoe

The popularity of the saddle oxford shoe spreads amoung colleges students including cheerleaders, for its smooth crepe sole used ideally for dancing.

The aerobic boom brings the first soft leather aerobic shoe, the Freestyler and Princess by Reebok

The International Cheerleading Foundation's staff wears the Reebok Freestylers and Princess as their cheer shoes.

The color customizable cheerleading shoe

Nfinity's light weight cheer shoes

1920's

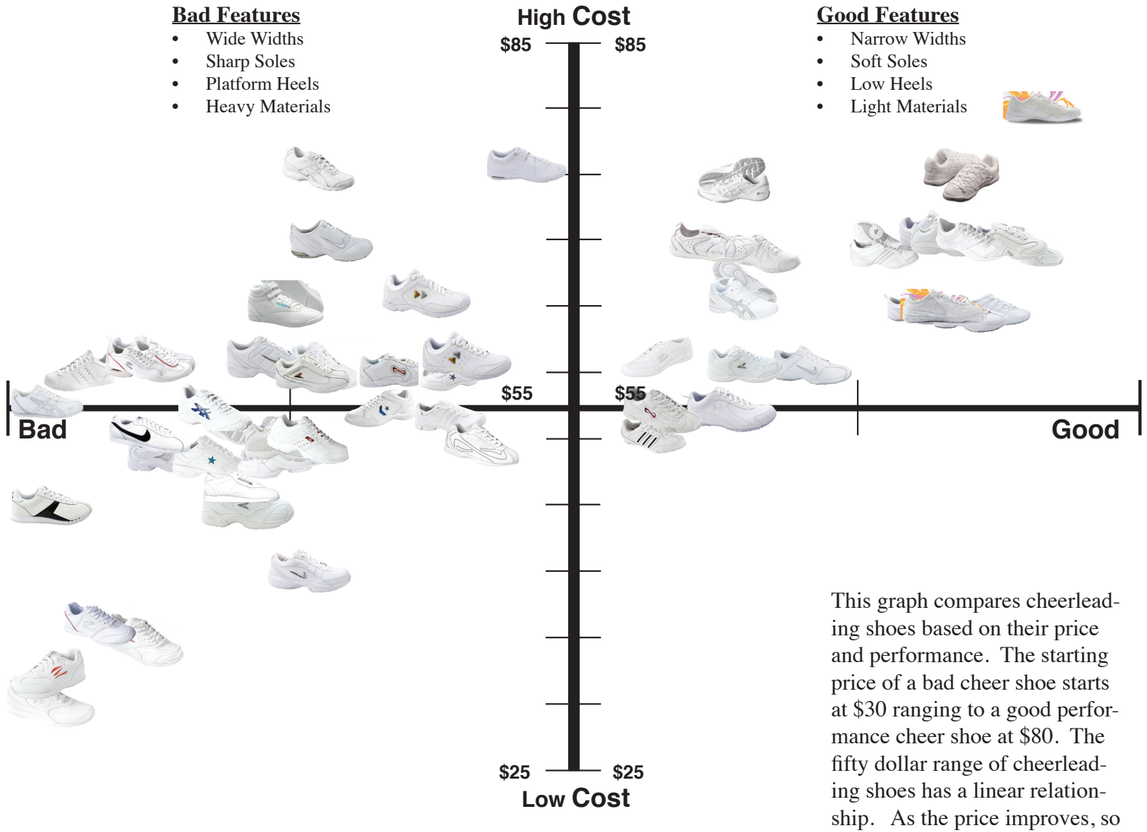
1930's

1980's

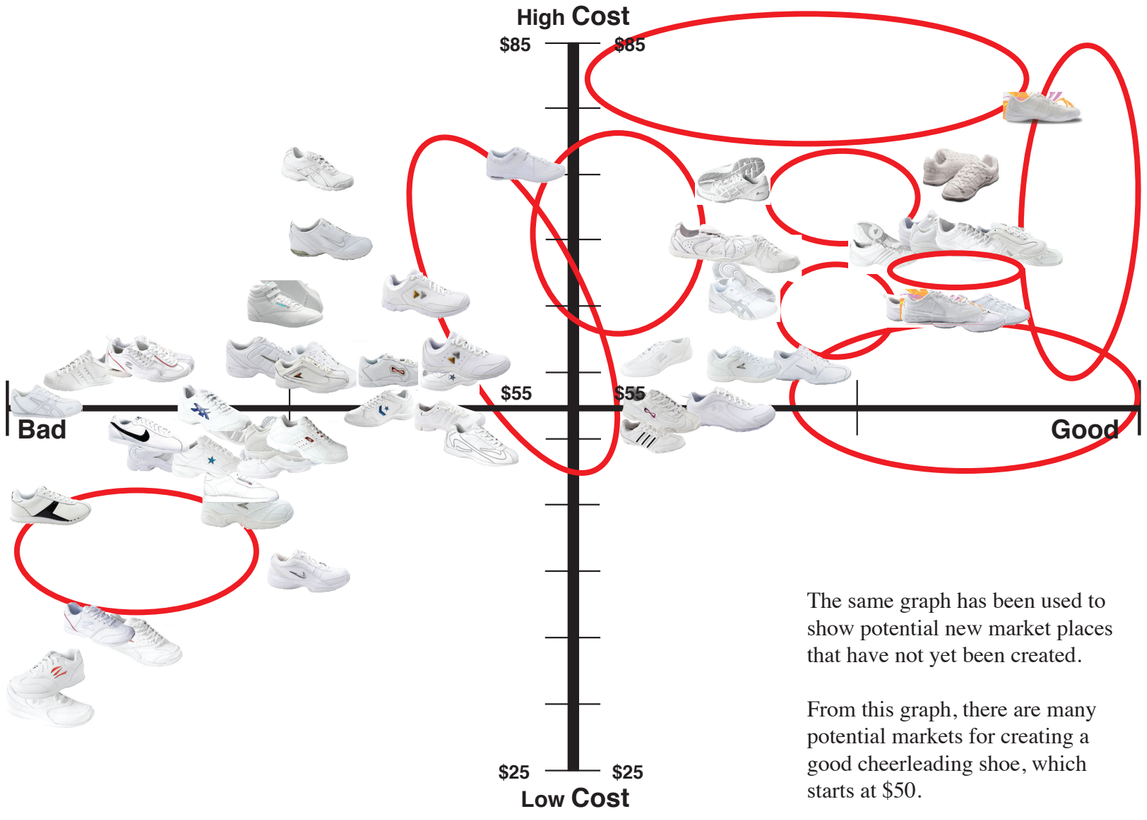
1990's

2000's

Current Product Market For
Cheerleading Footwear



This graph compares cheerleading shoes based on their price and performance. The starting price of a bad cheer shoe starts at $30 ranging to a good performance cheer shoe at $80. The fifty dollar range of cheerleading shoes has a linear relationship. As the price improves, so does the performance features of the shoe.



The same graph has been used to show potential new market places that have not yet been created.

From this graph, there are many potential markets for creating a good cheerleading shoe, which starts at $50.

Bad Feature: Hard Sole Perimeter

Power, Freedom $45

The Power Freedom shoe is a heavy cheerleading performance shoe. The sole has a honeycomb pattern that imprints into the base's hand. The perimeter of the sole is sharp because the foam is angled away from the upper to a wider sole.

Zephz, Butterfly $35

Zephz's Butterfly shoe has a customized colored logo window. The edge of the sole is cut at an angle, making the perimeter sharp and uncomfortable to grip.

Asics, Gel-Inspired II GS $50

The sole in the Asics, Gel-Inspired II GS is the most problematic. The perimeter of the sole is very sharp because the EVA foam is cut at an angle from the upper to the sole. The firm EVA foam and the zig zag pattern of the sole act as a sharp blade. A base's hands can easily be torn up when gripping the shoe for a stunt.

Kapea, Chant $30

I have actually worn the Kapea Chants. A large complaint I heard, was how ugly they were from my squad. The notches on the sole's arch caused more pain for the base's hands because the hard EVA foam was cut at an angle from the upper, causing the perimeter of the sole to be very sharp.

Nike, L: Stamina $48

The Nike Stamina shoes have a hard EVA foam sole that has been cut at an angle from the upper, causing the perimeter to have a sharp edge. There is an additional sharp edge in the arch of the foot's EVA foam cut at a sharper angle.

Zephz, Thunder $54

The sole of Zephz's Thunder shoe is thinner but still has a sharp perimeter edge around just the arch of the foot and heel.

Bad Feature: Heavy, Wide Width Shoes

Nike, Air Stunt $60

In college, I wore the Nike Air Stunt shoes. They were very wide, making it difficult for bases to hold both feet for a one-handed Awesome stunt. I struggled with keeping my feet from rolling inside the shoes when balancing on any one-legged stunt.

For some stunts and pyramids, a flyers feet are together, making the width of her feet even wider to grip.

Saucony, Grid Unity $55

Saucony's Grid Unity cheerleading shoe is wide, heavy and clunky. The sole is very thick, but does have indentations along the side of the sole's arch.

Power, Stadium $45

Power's Stadium shoe has multiple layers with a highly detailed upper design. The shoe is wide and is weighted through its sole's mass. The thickness of the sole is visible in a hole under the heel. This hole feature does not do anything to enhance the performance uses of the shoe and is questionable for its purpose.

Converse, Chant $55

Overall, Converse creates heavy, wide cheerleading shoes. Their logo on the shoe is also a window that can have a plastic colored disk inserted to match the school's colors. The colored plastic disk is inserted into the interior of the shoe through the lining to appear in the star logo's window. Typically, shoes that have the customized color option are wide with a lot of surface area to hold the colored plastic in place.

The Converse Chants has a smooth sole pattern but the arch of the sole is wide for the grips across the shoe.

Converse, Dismount $45

The Dismount shoe has a high arch leaving the heel with a higher platform. Whenever the heel has a high platform it becomes harder for a base to slide their grips around the shoe. It also causes the heel to dig into the base's shoulders when performing a shoulder stand for a pyramid. The arch sits on the base's shoulder and the platform heel presses into the back of their shoulder.

Converse, Kick Out $45

The high platform sole of the Converse, Kick Out makes it more difficult for a base to hold the shoe and uncomfortable when basing a pyramid. This shoe is very wide and clunky making it difficult for a flyer to tumble in quickly.

Converse, Hand Spring $50

The Converse Hand Spring has improved with a minimal heel platform, but the shoe's width is still quite wide.

Adidas, Sequence $60

The Addidas Sequence shoes have an absorbent EVA foam for long comfort. The wide width of the shoe makes it hard to perform co-ed stunts due to the large amount of shoe surface area.

I wore these shoes in high school, while cheering for an all-girl squad. Since the shoes are wide, they work best for an all-girl squad because there are more hands to cover the shoe's surface area.

Addidas, Cheer Sport $55

The Cheer Sport shoe is also a wide version of Adidas cheer-leading footwear. The heel's sole is segregated into five sections. This is problematic when build-ing a pyramid and the flyer has to stand on the base's shoulders. The heel's sections can dig into the base's shoulder with much discomfort. The unique arch of the foot is unnecessary, as it extends into the heel. When performing stunts, the base's hand will have difficulty sliding from the side of the foot to the heel with the large contrast of the sole's depth.

Reebok, Sis Boom Rah I $45

The sole of Reebok's Sis Boom Rah I is wide with a drastically narrow and deep divot arch. The sole of the heel's perimeter has a wavy shape for a base's hand to grip.

Reebok, Sis Boom Rah II $45

The second generation of Reebok's Sis Boom Rah II has very little difference in design. The color of the sole has been changed to a solid white. Also, colored plastic disks can be inserted behind the logo's window.

Kapea, Launch $60

The overall Kapea Launch is a wide clunky cheerleading shoe. Its technology feature is an extra wide eyelet for reinforcement to hold the tongue of the shoe in place.

Bad Specialty Features

Nike, Energy $40

Customizable Colors

Another year in college, I had to wear the Nike Energy. The customized logo window was on the exterior of the shoe with a piece of leather that was sealed by Velcro. When walking, the Velcro would buckle and the colored plastic disk would slide out. The flyer wouldn't notice but the bases often did when their hands would get caught on the plastic and Velcro when stunting.

Kapea, Flyte $50

Stunt Grip Patterns

The sole of the Kapea Flyte has a pattern that is for supposedly aligning the hand in place for stunting. The pattern flows across the foot, but in both all-girl and co-ed stunts, the grips happen to flow up the front of the toe and the back of the heel.

Nike, Air Wave $75

Air Max Heel

The Nike Air Wave shoe, incorporates Nike's Air Max heel with a visible window displaying the pocket of air. To include this feature in the shoe, a hard plastic and rubber heel has to encase the window. This adds more overall weight to the shoe and heel mass. Extra plastic and rubber on the heel makes the shoe hurt the shoulders of a base when building pyramids. The arch of the sole also has a smooth plastic arch. When moisture comes in contact with the plastic arch piece, it become very slippery. So a sweaty base's hand, dew from a football field, rain, or snow will make it dangerous for a flyer to stunt when her shoe's becomes very slippery.

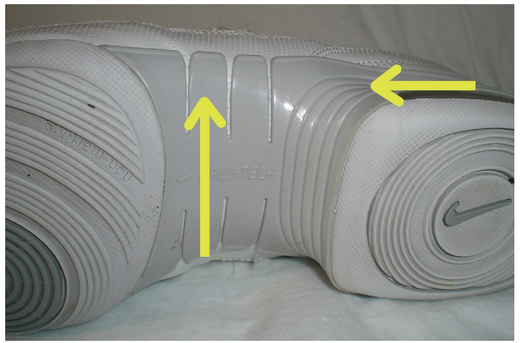
Nike, Cheer Flash $75

Slippery Arch Material

The Nike Cheer Flash has a more fashionable appeal with its sporty patent leather upper. The patent leather pieces are additional outer layers on the upper and add to the weight of the shoe. The plastic arch has been eliminated in the sole, but has been replaced with patent leather. The arch still can become slippery when it comes into contact with moisture.

Nike, ArchTech Cheer $75

Hard Plastic Arch



After wearing these shoes for a single season, the plastic ribs in the arch would pull away from the upper as they would wear. The ribs would also become sharp on the edges and would cut and pinch the base's hands when stunting. The plastic on the arch that wrapped around the rubber sole would also cut the base's forearms and knuckles when performing basket tosses. This part of the heel became even sharper as the sole would wear away, exposing more of the edge to the plastic arch. This roughed heel is extremely problematic for bases when performing a shoulder stand for a pyramid. The plastic can easily tear up shoulders. Lastly, the plastic arch does become slippery when it comes into contact with moisture.

Nfinity,Evolution $80

Sole Durability

The Nfinity Evolution cheerleading shoes are very light. However, there is not much rubber to the sole in its figure eight shape, making it consist mostly of EVA foam. The ball of the foot is used often for pivoting, landing stunts and tumbling passes. The sole can wear thin or all the way through on the ball of the foot. I have heard complaints from cheerleading parents that the shoes do not last a full season and are expensive to replace.

Good Feature: Light Weight

Nfinity, Passion $70

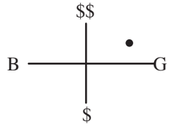
The Nfinity Passion shoes are one of the lightest cheerleading shoes on the market due to their large amounts of mesh components. The sole has been improved with a rubber pivot piece under the ball of the foot and in the front of the toe. These spots on the sole are often stressed in cheerleading from landing and pivoting.

Zephz, Butterfly Lite $55

The Zephz Butterly Lite has a breathable light material to reduce the weight of the shoe. The sole is on a smooth flat plain with EVA foam and rubber on the heel and forefoot.

Good Feature: Narrow Arch & Low Heel

Asics, Gel-Inspire II $75



The Asics, Gel-Inspired II has improved the angle of the upper to the sole to be more acute. This allows the shoe to be held with less discomfort by the base. The arch of the sole is cut narrower then the upper, making it an extremely narrow arch. On the sole, there is a rubber piece on the outside of the heel to help the foot lay flat on a surface. This piece avoid the ankle from rolling on the inside of the shoe. This shoe has one of the narrowest arches of any cheer shoe, allowing a base to tightly grip the shoe. There is also a mix of soft EVA foam with the rubber sole which allows traction and absorption through the sole.

Nike, Musique $70

The upper of the Nike Musique has two layers of leather material that have been stitched together with a line pattern. There are several problems with this shoes. First, the double layer of material only adds more weight to the shoe. Second, the rubber sole is extremely low. Lastly, the arch of the sole has been eliminated, creating a space for a hand to grip the leather covered arch.

Nike, Cheer Elite $65

The Nike Cheer Elite has a narrow arch and a low platform rubber sole. The upper is made from a durable synthetic material, but this is not a light weight shoe.

Nfinity, Panther $60

The Panther, by Nfinity, has a sole with rubber on the heel and the forefoot. The arch is made from EVA foam and smoothly joins the two rubber pieces of the sole together on a low plain.

Kapea, Hyperflyte $70

The Kapea Hyperflyte has a mixture of textures on the sole that allow for traction and added grip for stunts. The arch is narrow but has a raised center. The upper has small amounts of fabric material used to help decrease the shoe's weight.

Good Specialty Features

Nike, Sideline $65

Pivot Point

The Sideline, made by Nike, has a durable rubber on the pivot point on the ball of the foot. A stronger pivot point helps the sole last longer. The shoe is also made from a synthetic leather making it lighter. The is a low rubber sole with a narrow arch, and a customized colored disk that is insert behind the logo's window.

Nfinity, Phoenix $80

Tongue Reinforcer

I have tried the Nfinity, Phoenix, and have found their fashion and performance meet the expectations of a cheerleading shoe. There is a combination of breathable fabric with a patent leather toe piece for added fashionable shine. The tongue is locked in place with a large elastic band that is also tucked into the interior of the shoe to avoid being caught by a hand when stunting. The sole is primarily made of EVA foam with patches of rubber for traction.

Power, Stunt Pro II $60
Laces Tongue Pouch

I love these Power Stunt Pro II cheerleading shoes. The leather had an embossed grid pattern in the leather's upper for minimal material design. The tongue has a pocket for tucking the access laces away. However, I did notice as the rubber wore away, it became very smooth and slippery.

Power, Ultimate Edge $70
Laces Tongue Pouch

Power's Ultimate Edge adds design patterns to the upper with stitched lines. At the top of the tongue is a pocket for sliding access laces into. The sole has a smooth EVA foam with rubber on the heel and forefoot, creating a smooth archway in the sole.

Reebok, Freestyler High $65
Soft Leather Hightops

Reebok came up with the first aerobic soft leather shoe, known as the Freestyler high tops in the eighties. Cheerleaders that have ankle problems have sworn that the Freestyler is still the best cheerleading shoe for ankle support. Surprisingly it is still a favorite shoe to be worn by cheerleaders today.

Reebok, Princess $45
Soft Leather Lowtops

The low top version of Reebok's Freestyler is the Princess. This shoe broke away from the saddle black and white oxford shoes. The style of the shoe has not been updated since the eighties, making it unfavorable towards its fashion.

Performance Grips Co-ed Stunting

The Bond Of Footwear In A Hand

Stunt Basics: Toss to Hands

1.

Toss Hands
This is the most basic co-ed stunt. Toss hands is the fundamental starting block of catching a flyer's feet for stunting. From toss hands, more advanced stunts can be executed by extending the stunt higher.

2.

1. First the base holds the flyer's waist. Then the flyer holds on to the base's wrists.

2. From there, the flyer jumps, or preps, for a power squat. The base follows the flyer's power squat off the floor and throws the flyer up vertically.

3.

3. The flyer uses her arms, once her feet are off the ground to push off her base, with a final flick of in her wrist.

4.

4. Finally the base catches her feet at shoulder height with his elbows down by his sides. At this point, the base can adjust his grip to prepare for extending the stunt further for more advanced stunts.

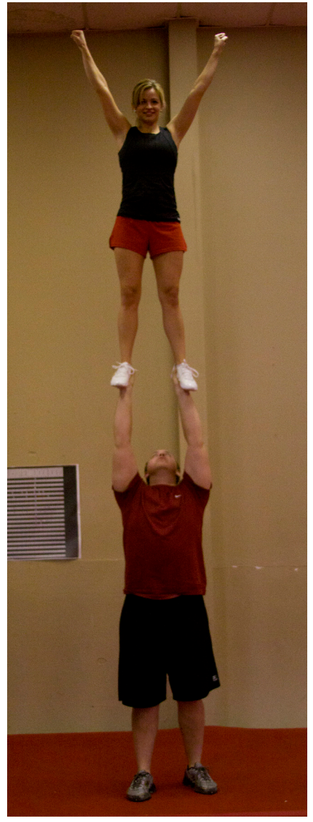
Stunt: Toss Hands

In Toss Hands, the base holds across the arch and heel of the flyer's shoe. The narrower the shoe, the easier the base can squeeze his grip across the flyer's foot. The flyer can also feel the base's grip giving her stability.

The base's pointer finger holds the heel, while the outside of the his hand curls its fingers on the outside of the flyer's foot. The hand fits comfortably under the arch of the flyer's foot.

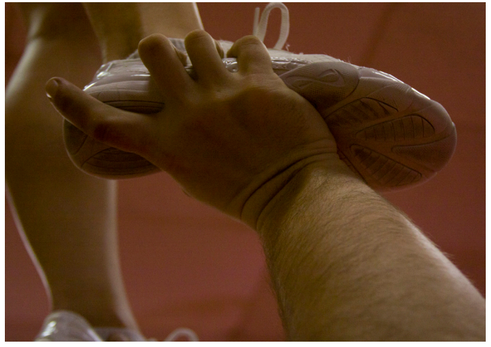
The base's thumb reaches on the inner arch of the flyer's foot for full stability.

Stunt: Extension



The Extension

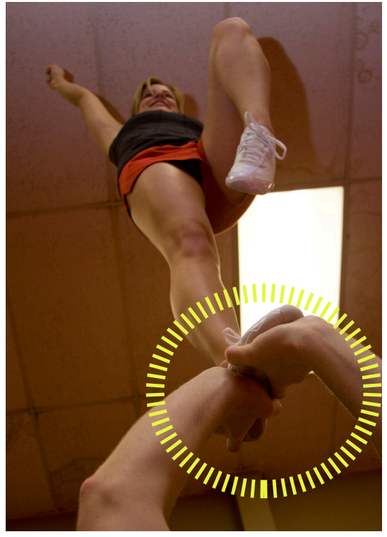
From toss hands, the base can take a shallow dipped squat, that continues to be pressed through his arms until they are fully extended over his head.



The grip of the base stays the same from Toss Hands. In an Extension, the weight of the flyer is sent through the base's wrists, through his body and grounded at his feet.

Stunt: The Liberty

This stunt is also called a Lib for short. This stunt is a one legged stunt for the flyer. From toss hands, the base extends both hands over head but keeps them together to keep the flyer centered. The flyer lifts her left foot bending the knee in front and tucks her left free foot by her standing right knee. Her arms are raised to hit a high "V" motion at the top.



Stunt: An Arabesque

The flyer is fully extended by her base and turned ninety degrees on her right foot, while the base stays standing forward. Once turned, the flyer's left free foot swings straight behind her for the arabesque motion. Her arms are held in a full "T" motion for balance.

Stunt: An Awesome

An Awesome stunt has both of the flyer's feet standing together on one of the base's hands.

In Toss Hands, the base adjusts the flyer's foot to the outside of his hand. This allows his pointer finger and thumb to be free and the platform for holding the flyer's left foot in the Awesome stunt.

As the base extends his right arm overhead, the flyer brings her feet together. At the top, the flyer hits a high "V" motion. The base uses his two free fingers (his pointer finger and thumb) to squeeze the flyer's left foot.

When performing this stunt in wide cheerleading shoes, it makes it harder for the base to grip across both feet. In wide shoes, sometimes the flyer has to squeeze her feet together with all of her weight on her right foot because there is hardly a platform under her left foot.

Pictured above is an example of a bad grip. The flyer's feet are not evenly together, making the base have a bad grip.

On game day, or at a competition, cheerleaders do not want to drop any stunts. Therefore, a base will hold any crazy grip to save a stunt in front of fans or competition judges.

Basket Toss Basics

A group of three bases toss a flyer as high as possible, about twenty-five feet in the air. The flyer performs a trick or motion at the top of the throw and is caught in a cradle by her bases.

Pictured above is a back tuck basket toss.

1. **Basket Toss Grip**
Two main bases face each other, join their hand in a square grip to create a platform out of their forearms.

2. The main bases squat low to allow the flyer to load her first foot on one of the base's forearm. The back base holds onto the flyers waist and helps assist her onto the two main bases' toss platform grip.

3. With a small squat/bounce the flyer places her second foot on the base's forearm. The main bases explode from the squat, throwing the flyer as high as possible. All three bases, (back and main bases), keep their arms overhead and catch the flyer in a cradle position.

Pyramid Basics: Shoulder Stand

A pyramid is a group of stunts performed together and intertwined by the flyers. Collegiate level pyramids can reach two and a half levels high.

Raised heels on cheerleading shoes dig into the base's shoulders. Over a season, a base's shoulders can become sore, bruised or tore up so badly that they can bleed.

Prototype: Toss Hands

The designed prototype is called a rapid prototype because it is made out of solid plastic from a 3D printer. The rapid prototype represents how my designed cheer shoe would look, feel and be gripped. The photos of the prototype are highlighted in yellow to be compared with the photos of the actual stunt grips.

The base's pointer finger sits in the notch of the prototype's sole.

The mesh on the inside of the shoe gives added traction texture for the base's thumb.

Prototype: Extension

In an Extension, the pointer finger lays in the sole's angled notch for better grip. The arch of the foot is narrow to let the base squeeze the flyer's foot firmly.

Prototype: Liberty

The notch in the sole's heel of the prototype frames the pointer finger's grip in a Liberty. Both hands curve along the inside and outside out the shoe. The fingertips, of this grip, lay on the mesh component of the shoe for additional friction.

Prototype: Arabesque

The two hands, in an Arabesque grip, can easily squeeze the outside of the prototype shoe because it is so narrow.

Both hands can easily reach across the prototype's sole and along the sides of the shoe.

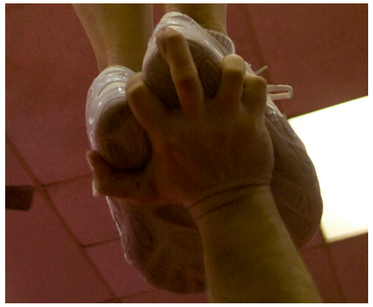
Both thumbs sit nicely on the inside of the prototype's mesh component part.

Prototype: Awesome

Unfortunately only one prototype was created, allowing half of the Awesome stunt to be demonstrated.

The pointer finger and thumb are free from holding the right foot, letting the free fingers to grip the left foot.

There is enough room on the base's hand to easily hold two shoes together.



The notch in the sole is being used to hold the right foot of the awesome in place.

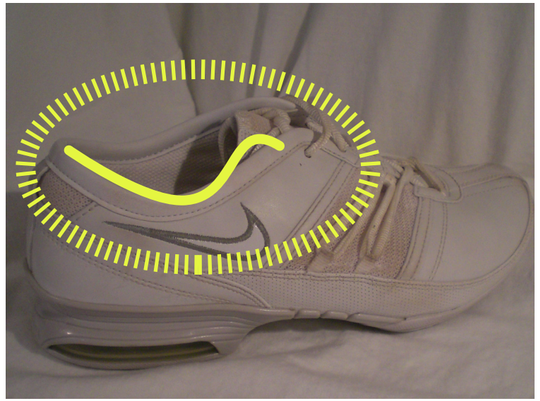
Prototype: Shoulder Stand

The minimal heel of the prototype sits level on the base's shoulder. There is a small arch in the shoes, but it does not dig into the shoulder.

Footwear Design Improving The Needs Of Performance Cheer Footwear

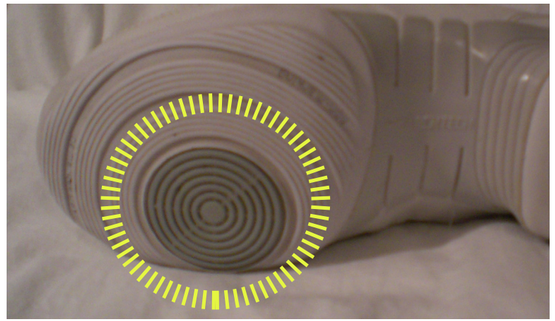
1. Analyzing Design Issues

Laces
The laces of a cheerleading shoe do not need to be in a fancy pattern. The wider the laces stretch across a shoe, the more surface area they take up on the outside where grips for stunts take place. Laces need to be used instead of elastic or Velcro because they give with a heavy foot motion. A flat shoe lace, which is harder to untie, is the best solution for keeping the foot secure in the shoe. There are not many cheerleading shoes that store the tied shoe's access laces. Most cheerleading shoe laces lay across the top of the shoe. At times they can get caught on the bases hands when stunting or in the way.



Ankle
The opening of the ankle should not be wide or shallow because the flyer needs to have the shoe fit tightly for stability while stunting and tumbling. When the shoe is too loose around the ankle, it increases the risk of ankle sprain injuries.

Heel
When a heel has a raised platform, it causes discomfort for the base when basing a pyramid. The heel of the flyer's shoe digs into the base's shoulder with her weight and the second level of the pyramid's weight. Heels can also put added pressure and/or tear up a base's forearm when throwing a flyer in a basket toss. When stunting, a raised heel makes it more challenging for a base to slide his hand back over the heel, or to adjust his grip on the sole.



Pivot Point
A great feature on the ball of the foot's sole is a pivot point. It gives more durability to the shoe and allows the flyer to move more easily on the balls of her foot. The ball of the foot is an area of the sole that is often worn quickly from landing with impact from tumbling and stunts.

Arch of the Shoe

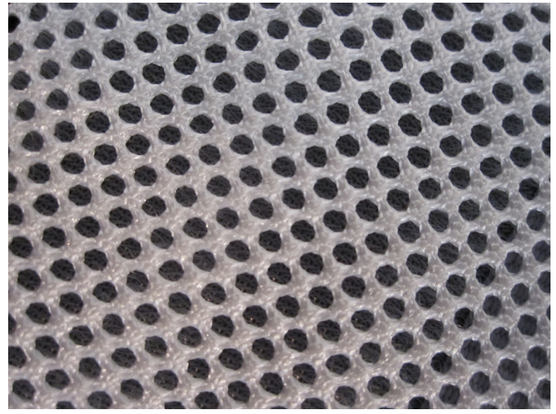
The best solution for the arch of the foot is to keep it narrow and in line with the heel and forefoot. Fancy plastics and materials in the arch of the foot usually make gripping the shoe more difficult or slippery.

Customizable School Colors

Often palettes of school colored plastic disks come with cheerleading shoes. They are only successful when they fit properly into the shoe without causing any interior discomfort for the flyer. If the plastic disk sheets are inserted in the exterior of the shoe, they can not interfere with the base's hands gripping the shoe.

Wide Shoe Widths

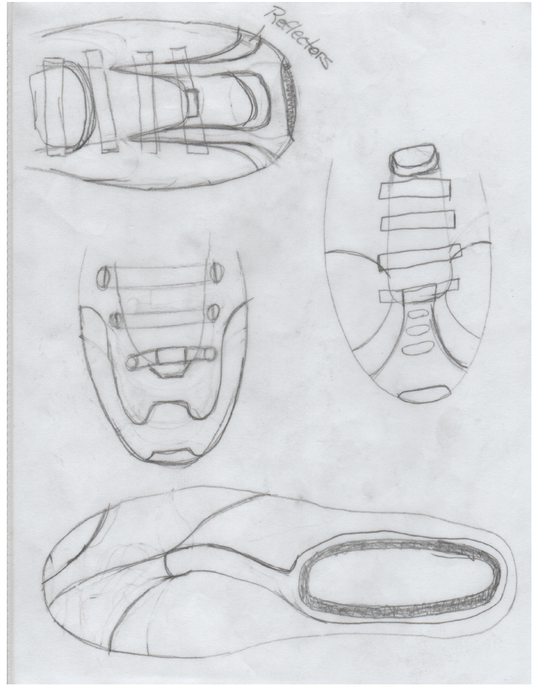
Cheerleading shoes that are wide make it more challenging for base's to have their hands tightly grip the flyer's feet, especially for the Awesome stunt.



Materials

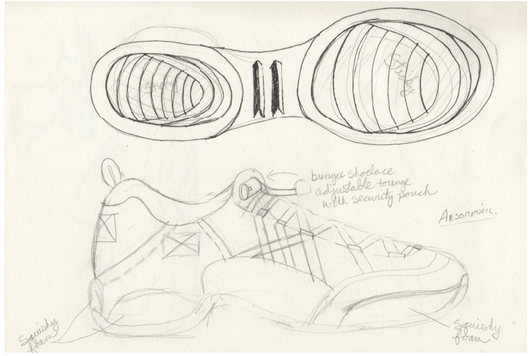
There needs to be a balance of durable and light weight materials to keep a cheer shoe light. Using lightweight materials helps the flyer when tumbling to feel almost barefoot. At the same time, durability cannot be compromised because a pair of shoes goes through a long season of wear. Synthetic leathers, meshes and breathable materials are ideal for keeping shoes light, but must stand against long durability. A soft EVA foam in the sole will decrease the shoe's weight as well as give comfort to a base's hands when stunting.

2. Sketches

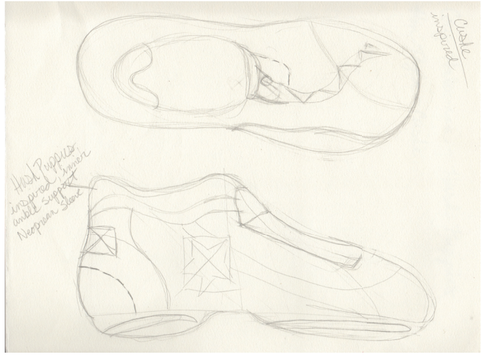


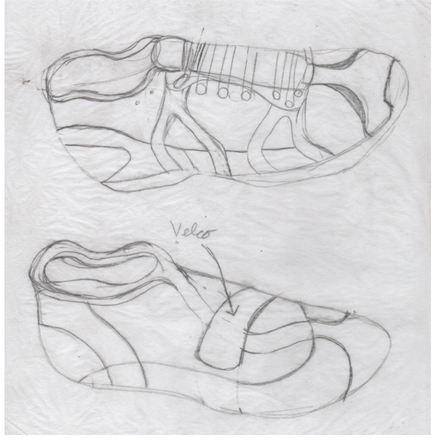
In these first sketches, I am concentrating on the look and shape of the toe for the shoe.

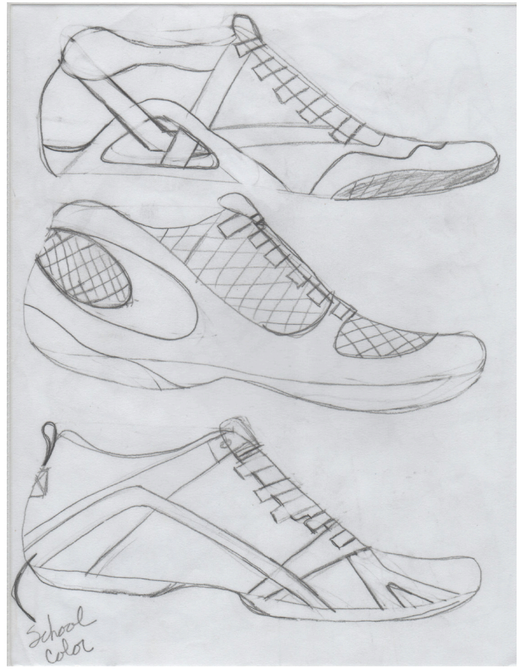
Here, I am applying a few looks to the toe of the shoe and how it would then flow along the lateral side of the shoe.



These sketches are my first attempt at trying to capture every aspect of the shoe.



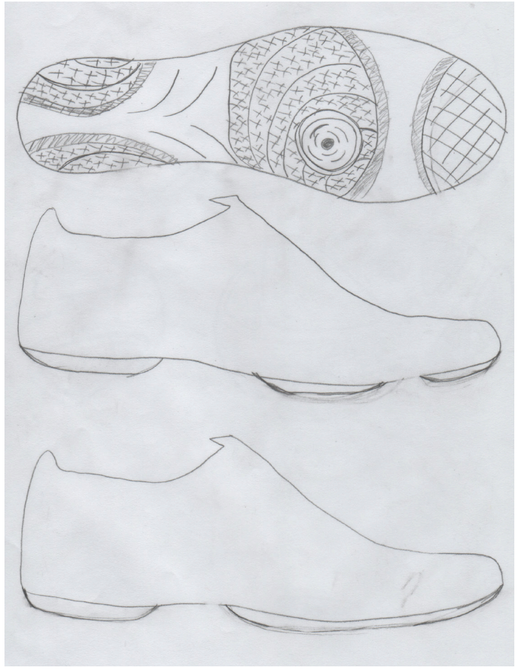




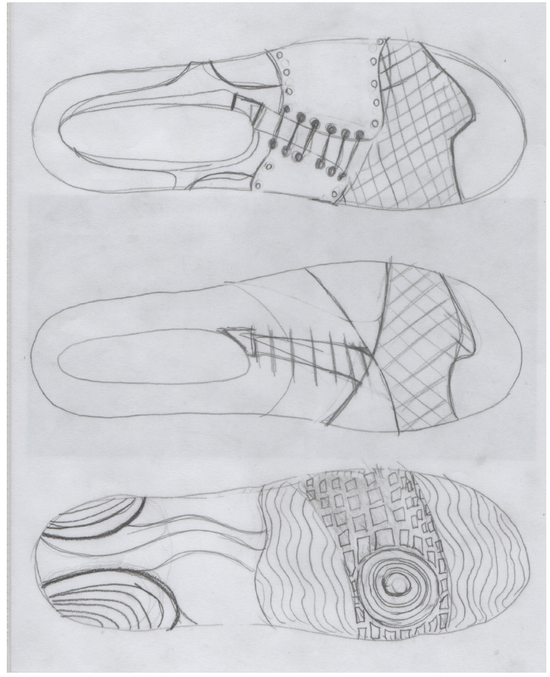
In these sketches I am focusing on the lateral side of the shoe's design and starting to include light materials like mesh components.

Here I am working with an asymmetrical design and how is flows across all sides of the shoe with mesh components.

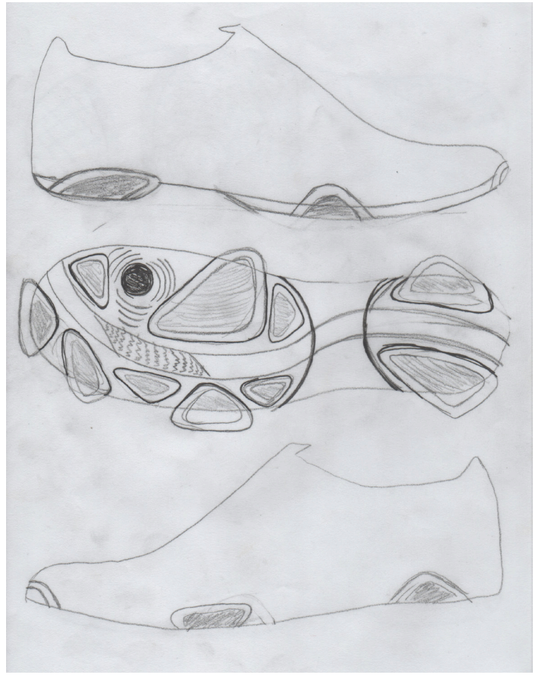
Above, I am starting to experiment with how a sole and a design of the upper meet together along the sides of the shoe.



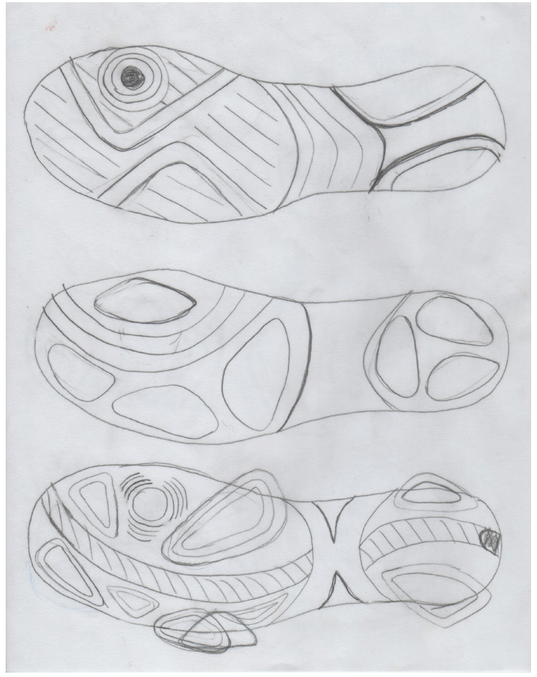
I am starting to sketch the patterns and the grooves of a sole and how they relate to the shape of the sole.



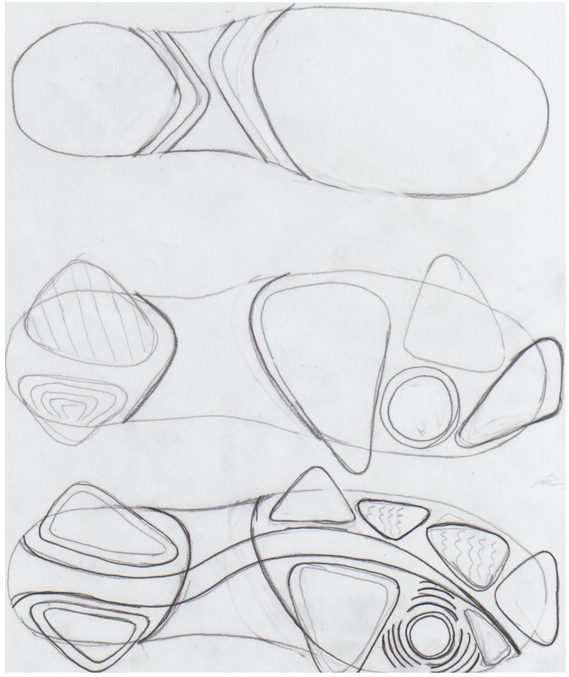
At this point, I know I am going to design an asymmetrical cheerleading shoe. There is currently not one on the market, so I am sketching asymmetrical shoes with mesh to keep them light.

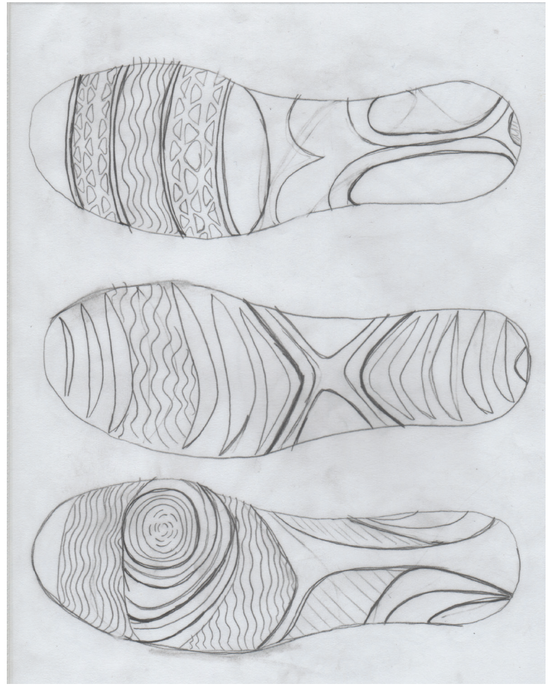


Now I am trying to work with patterns in soles and how they relate to the design of the upper.



Here I am trying to figure out each purpose of the sole's pattern for traction on basketball courts, football fields and competition floor mats.

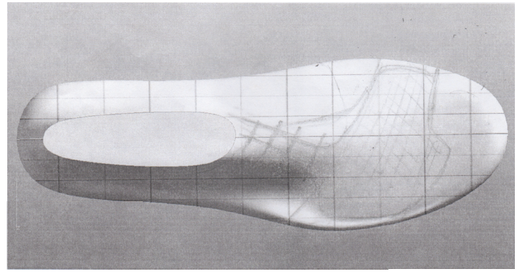


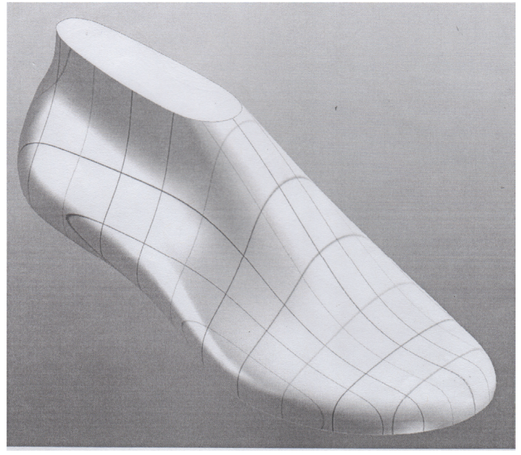


I am starting to go too far by overloading my soles with too many grooves and patterns.

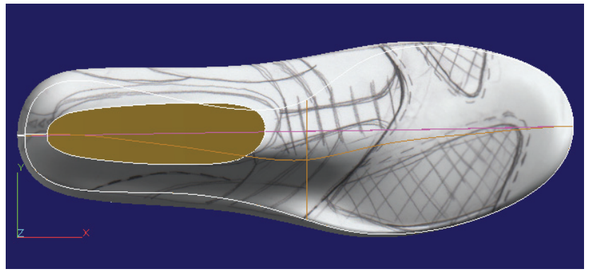
This sketch was selected as the final one to be created. I was having difficulty trying to sketch an asymmetrical shoe on paper, so I moved the sketch to the computer to start finalizing the flow of the design in 3D.

3. Sketching in 3D

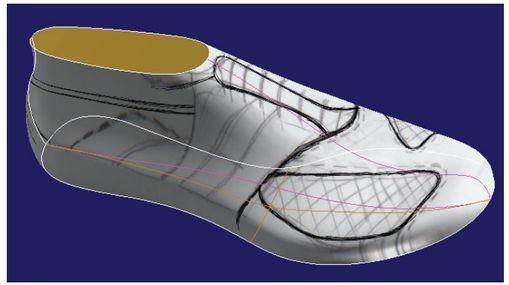


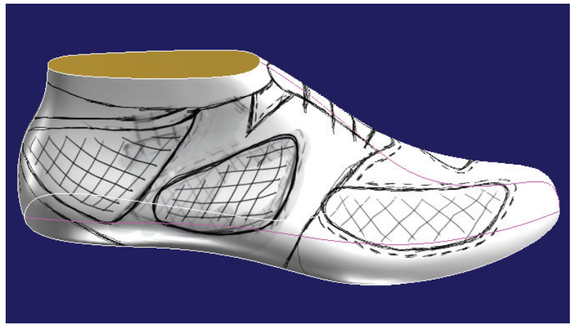


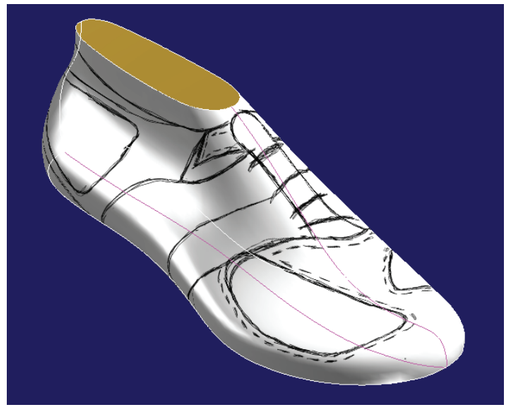
First I selected the correct last. A last is the fit, form and fashion of the shoe form.

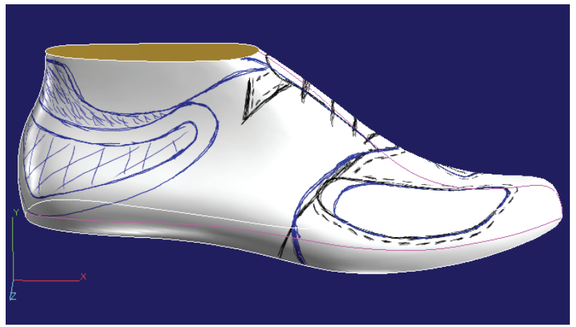


Then I scanned my sketch and wrapped it around the 3D last. Wrapping a 2D sketch on a 3D last does stretch and distort part of the design. The initial 2D sketch become a template for sketching in 3D mode.

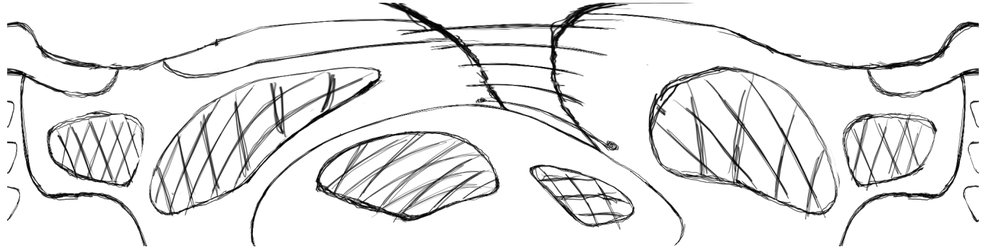






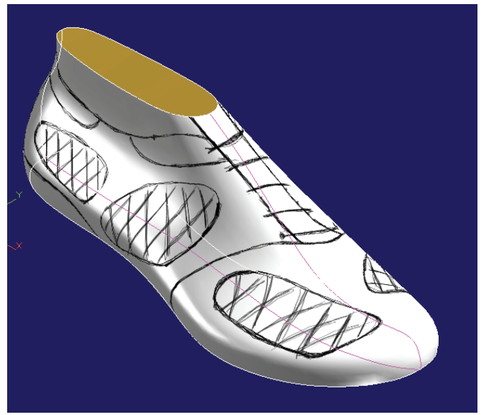


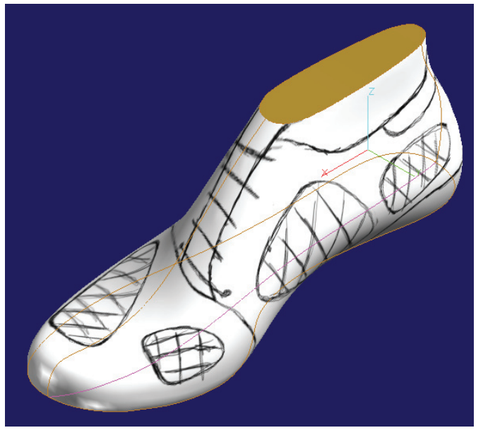
In 3D mode, I tried different designs on the outside of the shoe to find the one that best fit the flow of the asymmetrical shoe on all sides.

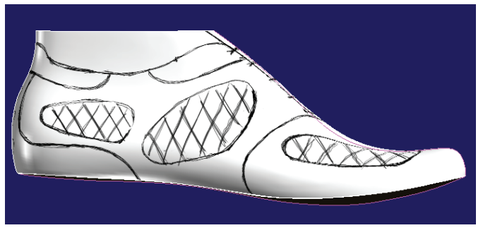


Above is my final design flattened back to 2D for creating patterns of the materials for the manufacturer to produce.

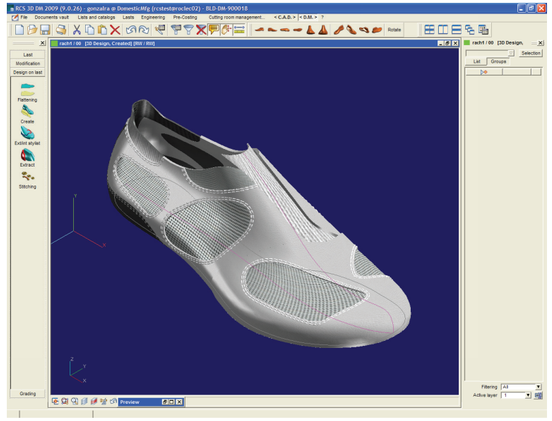
Below is my final sketch in 3D mode.

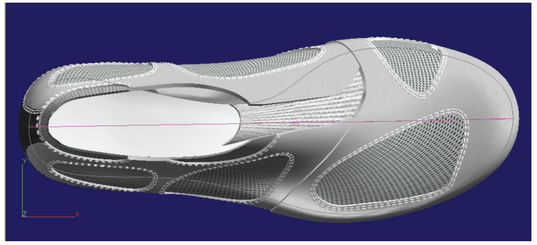


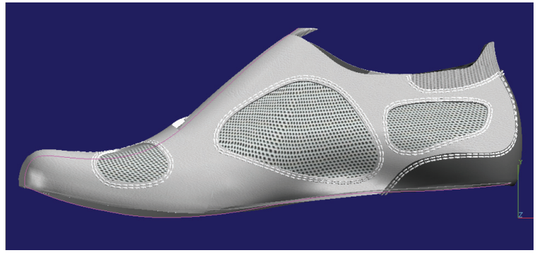


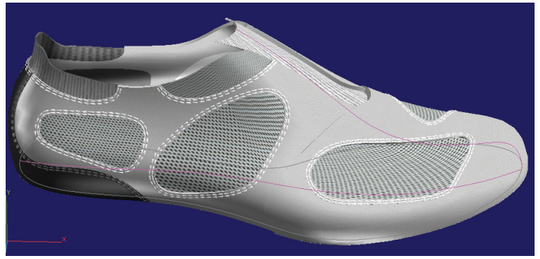


4. Digital 3D Prototype



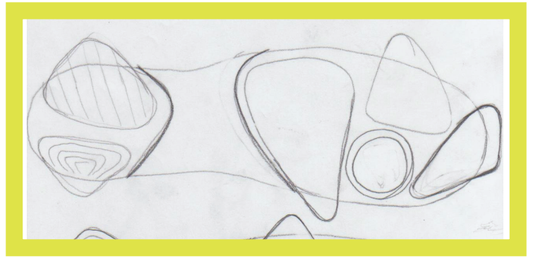




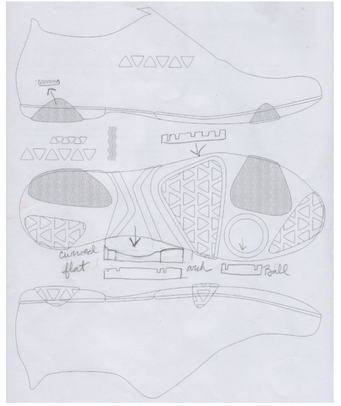


The software used to develop the 3D sketches, material patterns and digital prototypes was Roman's CADD. Currently, it is the only footwear software being developed for 3D digital prototypes. This is very surprising since there are so many 3D generated software programs for apparel design, but not footwear.

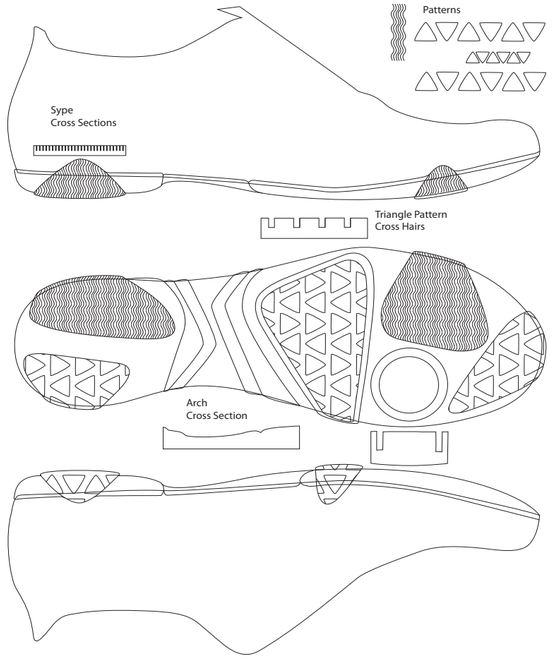
5. Sole



This is the final sketch that was picked for my cheerleading shoe. I scanned the design and redrew it in Adobe Illustrator. Once on the computer, I was able to add the textured patterns to the sole.



Here I am trying to decide how to draw the cross sections of the sole's grooves.



Above is the finalized computer sketch that was sent to the 3D printer's CADD system to create the rapid prototype's sole. The sole and the upper of the rapid prototype are created separately and then glued together.

6. Rapid Prototype

The rapid prototype is created from a 3D printer that etches the design into a plastic material. Here is how the rapid prototype looked on all sides once it was all assembled and glued together.

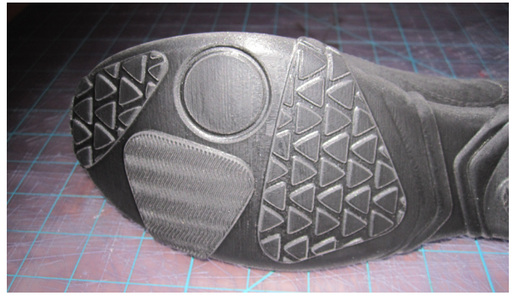
Features

Curved Laces

Traditionally, cheerleading shoes lace right up the middle of the shoe. I wanted to angle the laces with the actual center of the foot. This made the laces curve towards the inside of the shoe, leaving more surface area on the outside of the shoe for base's to grip when stunting.

Pocket for laces

Here, I added a pocket, that would be made out of an elastic material for tucking the excess laces in. That way, there wouldn't be tied laces laying across the front and sides of the shoe possibly getting in the way of hands gripping the shoe for stunts.



The sole of the shoe would be made out of a soft EVA foam. The circle and the large triangles, with the patterns on them, would be made out of rubber for added traction. On the ball of the foot sole's would be a pivot point.

The wavy pattern on the rubber is the best traction for smooth surfaces, like basketball courts. This same traction is used on boat shoes for smooth wet dock surfaces.

The larger triangle rubber pattern is used for traction on soft football fields and asphalt.

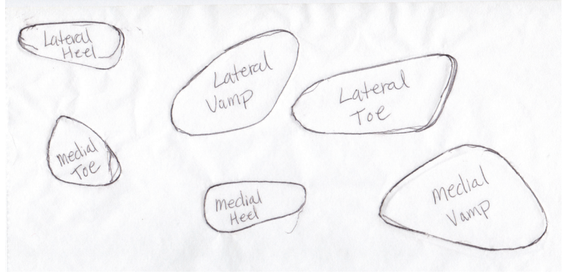
The low heel eliminates any pressure digging into the shoulders of a base when building a pyramid from a shoulder stand.

There is also a negative space between the rubber traction patterns creating a notch for the base to set his finger in when holding a flyer in the Toss Hands position, an Extension and a Liberty.

7. Adding Details

Before I spray painted my rapid prototype, I used tracing paper to trace the patterns of the mesh component. Then I cut out the pieces to made sure they were correctly.

Dance shoes are often black to match their black jazz pants. In order to help differentiate my design as a cheerleading shoe, instead of a black dance shoe, I applied a few coats of white paint in the College of Design's spray room.



Mesh was cut in to the shape of the shoe's mesh component's from the traced pattern. The cut pieces of mesh were then glued into their proper location.

Silver paint was added to the heel to represent a reflector. Also, silver was painted on the pocket for the laces, to help break up the white lateral side of the shoe. Silver was chosen because it is a neutral color that can fit most school's uniformed colors.

Conclusion Further Testing And Extending The Product Line

Furthering the Research

After analyzing problems with current cheer shoes and creating my own design of a cheerleading shoe, the next step would be to actually test the footwear. Producing a couple pairs of this design in a variation of sizes would be the initial step. I would then have a set of experienced collegiate co-ed cheerleaders test the shoes for a month. This would put a significant amount of wear on the shoes from practices and game days. Both the male bases and female flyers would have reliable feedback to further enhance the shoe from this first test.

I don't believe this version of the design is the best solution, but it is a vast improvement in cheerleading footwear. After actually testing the shoe, I hope to improve the footwear features even further. After developing my design to its current rapid prototype phase, I have noticed a few more design features that I would like to try for the next version. When holding the prototype in the Toss to Hands position, the pointer finger sits in the sole's notch. I would like to try and extend that notch up the back of the heel for the next version. Another feature would be extending the sole of the shoe's toe to create a toe cap over the big toe. With more rubber covering the toe, it would help the wear of the shoe from a flyer's tumbling landings. The extension of the rubber sole would act as a stopping guard on the front of the shoe.

If I were to extend my research even further, my next project would be designing a cheerleading shoe for a male base cheerleader. Currently the male cheerleading shoes are a white basic court shoe. When the bases hold a stunt, or a two and a half high pyramid weighing about two hundred pounds, that weight is going through their shoulders, through their back and grounded at their feet. My goal would be to design footwear that helps support their body when balancing a flyer's weight overhead. I would like to have the footwear help absorb the extreme amount of weighted pressure from basing pyramids.

I would first start by learning about weight lifting shoes that are made for body builders lifting ridiculous amounts of weight. Their shoes are often a flat soled shoe that has a firm foam angled on a wedge platform. The heel is the highest point of the wedged sole with the most amount of foam under it to absorb the lifted weight. This type of sole could be applied to male cheerleaders for basing.

From my four years experience of collegiate cheerleading, I have learned that wrapping the base's wrist with athletic tape is not good for their wrists. Taping actually weakens the wrist's muscles and ligaments.

A body builder's shoe with a wedged heel to support a large amount of lifted weight.

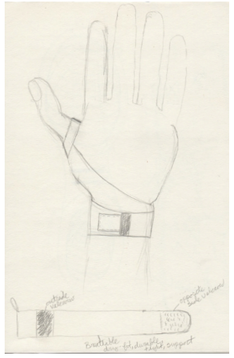
At the same time it is necessary for long periods of stunting, like practice and game days. The tape acts as a barrier for the base's sweaty forearm and the flyer to hold onto the base's wrist in the beginning position of Toss to Hands. The flyer needs a dry wrist for friction to hold on to when exploding off the ground to Toss to Hands and also for pushing off of her base's throw to execute enough height to finish.

Boxers wrap their wrists with cotton weaved bands. Gymnasts wear Tiger Paws, a leather wrist wrap that supports their weight and protects their wrist ligaments when tumbling. If I could combine the features of wrist support from

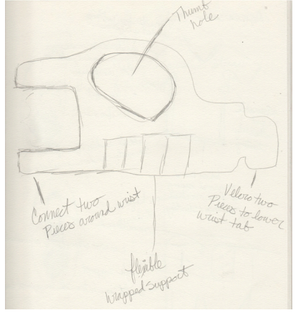
A male base cheerleader with taped wrists at the 2009 World Championship Competition.

Gymnastic Tiger Paws

Boxing wrist wraps



In these sketches I am trying to combine a gymnastics Tiger Paw and boxing wrist wraps.



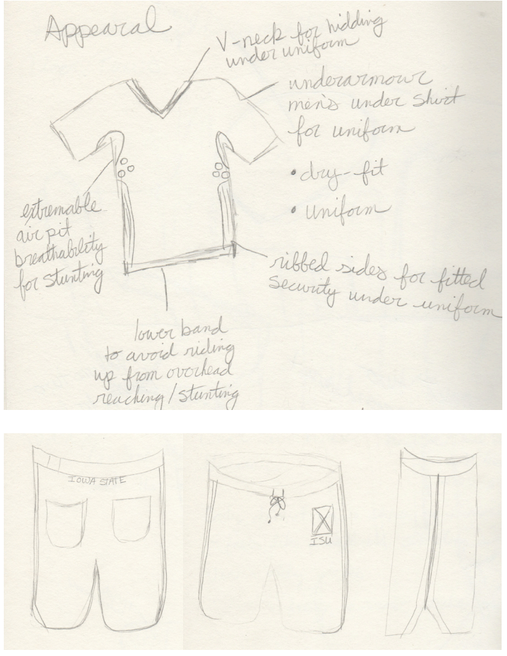
Here I am trying to add small plastic reinforcing plates in a wrap and also to a Tiger Paw for wrapping around a wrist.

a gymnastic's Tiger Paws and a boxer's wrap for long stay-in-place wear, then a new product could be created to replace athletic tape for male cheerleader's wrists.

The materials for cheerleading uniforms could also be improved. There are so many sports materials that have a dri-wick feature and could be added in cheerleading uniforms. Most uniforms are made from a heavy polyester or non breathable motion flex fabric. I would like to start incorporating a dri-wick material into uniforms, along with a camouflage ventilation piece in the arm pits. It would have to be camouflaged to look cohesive with the overall uniform's design pattern and not be noticeable since cheerleaders' arms are often overhead.

Female cheerleading uniforms are very well established. I would like to focus on fixing the fit of cheerleading uniforms for the males. Their tops (the shell) is typically wide and their paints are narrow and very tight around their waist. I would like to better enhance the fit of the whole male cheerleading uniform for their performance needs without restricting their motion. The males become hot easily from holding stunts and running game day flags as they are very active in their long polyester pants. I would like to design male cheerleading shorts as part of their uniform that are long and roomy enough for them to perform comfortably. The current male cheer short uniforms are extremely short, pleated and tight. Creating a more fashionable, and performance enhancing uniform would help the male cheerleaders stay cooler at games and competitions.

Overall, I would love to better enhance gear for cheerleaders. It is a sport that is neglected and could benefit from better designed products. I would love to work for a sports company that allowed me to continue being a designer, especially



Above are a few rough sketches for improving the features in male cheerleaders uniforms.

for cheerleading. First, I would like to start in creating better footwear because that is the primary performance tool used in cheerleading. Another possibility would be for me to create my own company that makes cheerleading shoes. With that said, I am really looking forward to graduation and starting my footwear career with Wolverine World Wide in Rockford, Michigan.

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Appendix

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