THE PEDAGOGY OF DESIGN & TECHNOLOGY AT XAVIER UNIVERSITY OF LOUISIANA

Shayna T. Blum, Assistant Professor, Design

DISCUSSION

Methods in teaching design thinking processes to a diverse and interdisciplinary student demographic

Assisting students to develop creative thinking skills necessary for professional career within a global technology market.

Subject Focus:

- Design thinking
- Design theory
- Product design
- User experience design
- Human computer interaction

Review: Student processes, experiences, challenges and outcomes

RESEARCH METHODS

Literary Review / Resources: XULA library database, Google Scholar, JSTOR, Academia EDU, Google News

Artifacts: Student Analysis & Evaluations, Project Reports, Presentations, Photography, Video
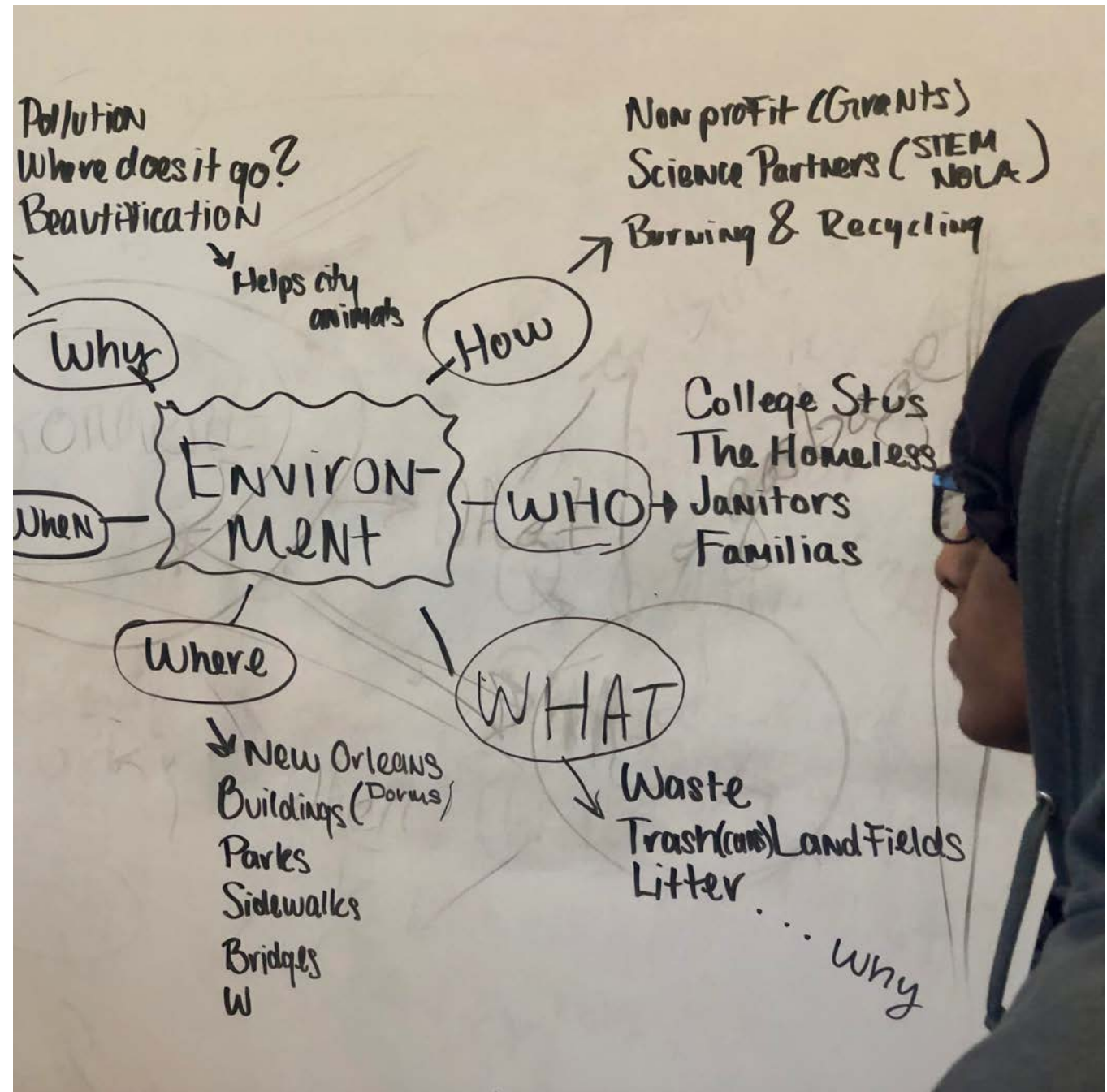
XAVIER UNIVERSITY OF LOUISIANA

> STEM-focused institution
>
> Mission to contribute to the promotion of a more just and humane society
>
> Historically Black Catholic University (HBCU)
>
> Serves under-represented minority.
>
> Majority of students first generation college graduates.
>
> Increasing number of first generation American: Vietnamese, Palestinian

DESIGN & TECHNOLOGY COURSES @ XULA

> Hybrid courses in which students engage in active learning through interdisciplinary collaboration for project based assignments.
>
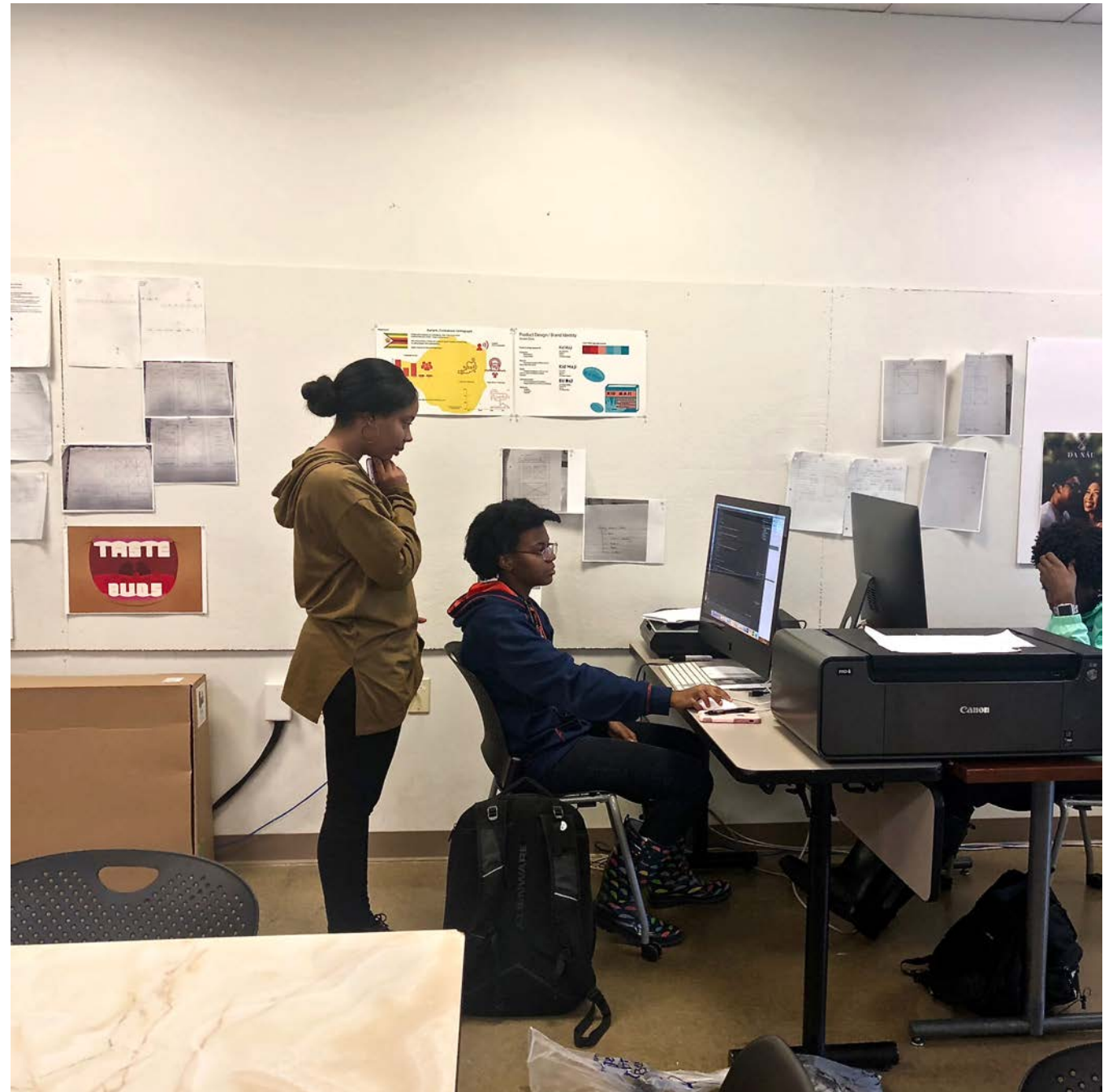> **Learning Outcomes / Skills:** Creative thinking, problem solving, visualizing, strategizing, digital technology.

CHALLENGES

> Program size
>
> Budget and resource limitations
>
> Up-to-date products and software
>
> Unpredictable internet connections

DESIGN THINKING

Current: Faculty refocusing teaching methods from standard classroom pedagogy to an interactive learning environment in which students develop skills in design thinking processes.

DESIGN THINKING

Creative process utilized in formulating a product through problem-solving and strategizing.

Incorporates interdisciplinary collaboration.

Primary focus: User/market experience.

According to theorists, Rim Razzouk and Valerie Shute, "a person requires design thinking skills to be successful in most professions in competitive global environment."

CHARACTERISTICS OF A DESIGN THINKER

Ability to conceptualize and visualize.

Capability to multitask and work systematically.

Proficiency in communication: visual, verbal and written.

Interest and ability to participate in teamwork.

Competency in innovative thinking

PROJECT_1 POSTER DESIGN:

Professor Shayna Blum
Graphic Arts 2020
Spring Semester

MOST FAVORED _____?

[DEVICE]:
-S1. iPhone
-S2. Laptop
-S3. Smartphone
-S4. Desktop
-S5. iPhone
-S6. Smartphone

[PRODUCT]:
-S1. Bed
-S2. Television
-S3. Jackets
-S4. Car
-S5. Netflix
-S6. Laptop

[BRAND]:
-S1. Google
-S2. Toshiba
-S3. Bic
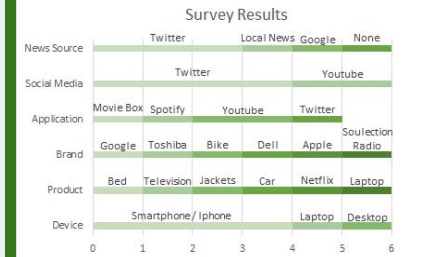-S4. Dell
-S5. Apple
-S6. Soulection Radio

[APPLICATION]:
-S1. Movie Box
-S2. Spotify
-S3. Youtube
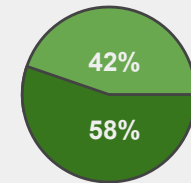-S4. Youtube
-S5. Twitter
-S6. Soundcloud

[SOCIAL MEDIA]:
-S1. Twitter
-S2. Twitter
-S3. Youtube
-S4. Youtube
-S5. Twitter
-S6. Twitter

[NEWS OUTLET]:
-S1. Twitter
-S2. Twitter
-S3. Local News
-S4. None
-S5. Twitter
-S6. Google

Kyrah Felder, Natalie Jones, Mya Bolds, Makhi Austin, Kaitlyn Nguyen, & Joshua Reimonenq

Survey Results

PERCENT TECH. PER DAY

42%
58%

S.1 14/24 = 58%
S.2 10/24 = 43%
S.3 16/24 = 66%
S.4 20/24 = 83%
S.5 13/24 = 54%
S.6 11/24 = 45%

Average student spends 58% using technology per day

DEFINITION OF TERMS:

[VISUAL COMMUNICATION]
Communicating message through visual context

[BRAND IDENTITY]
Defines the product or service (the brand). Character/personality of the company.

[PRODUCT DESIGN]
Research/brainstorming process

[USER EXPERIENCE DESIGN]
The interaction between user and user's wants to satisfy the user experience.

[TYPOGRAPHY]
Study of alphabetic letter forms

[HIERARCHY]
Layout and organization of the page & typography

[DESIGN PROCESS]
Research, brainstorming session, sketching, brand identity, prototyping, production, market, evaluation/evolution

[GRID]
Organizational system when working with design

DESIGN PROCESS

Student engage in design process from ideation to production.

DESIGN PROCESS

1. Research
2. Brainstorm/mind-map
3. Visualize/sketch
4. Digital prototype
5. Feedback/critique
6. Finalize
7. Test, survey, evaluate
8. Launch

FINAL SUBMISSION

Formal presentation outlining full design process including challenges and problem solving solutions.

Students submit final report detailing processes via text and image.

UX/HCI

USER EXPERIENCE DESIGN (UX)

Focus on relationship and interactivity between product and user.

Goal in UX: to stimulate a positive emotional response from user to form a positive perspective on and memory of the product

PROJECT: WEB DESIGN & DEVELOPMENT

Students analyzed existing company's website to formulate ideas for better design and user experience.

Observe and video record teammate's interaction with the website

Site analysis: student response, video

Brainstorm of ideas to improve the usability and design
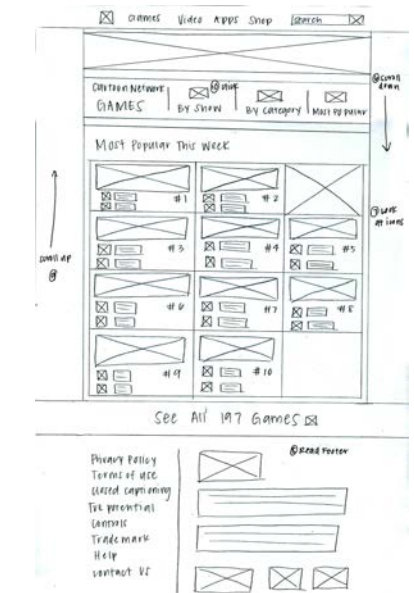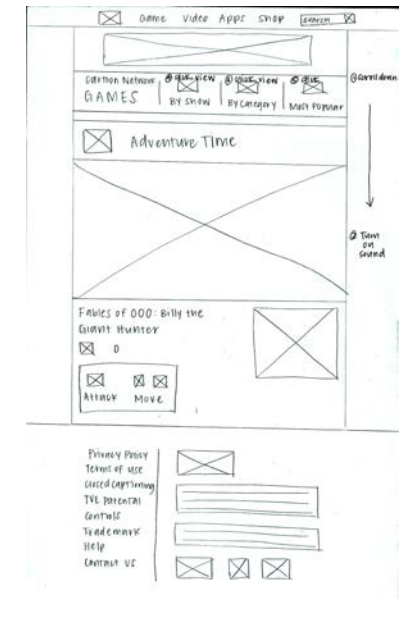
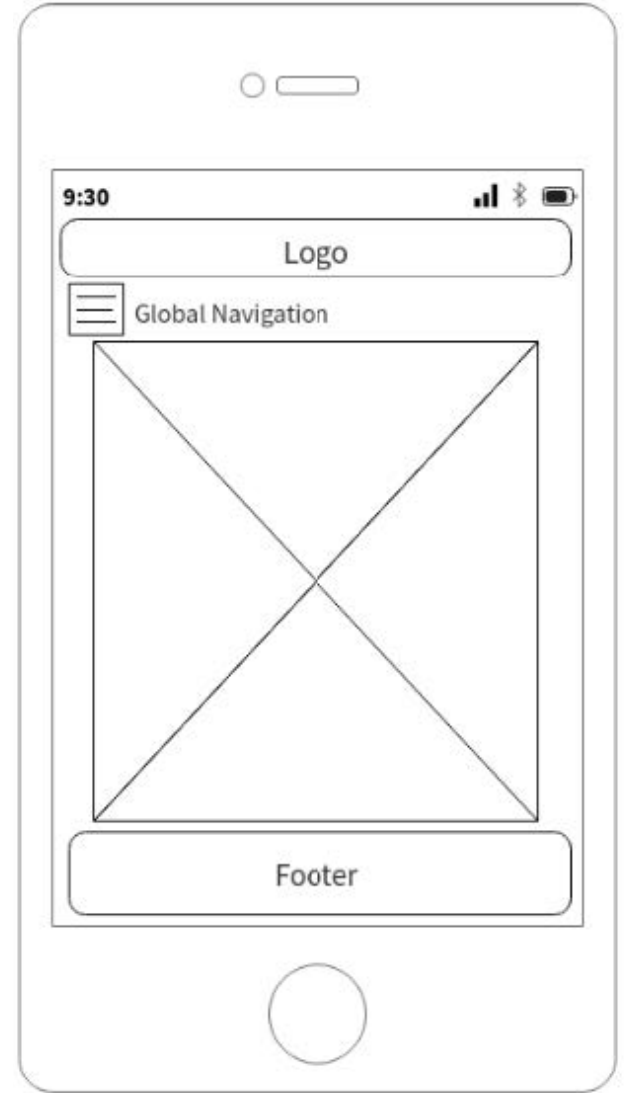Site-map, Wire-framing
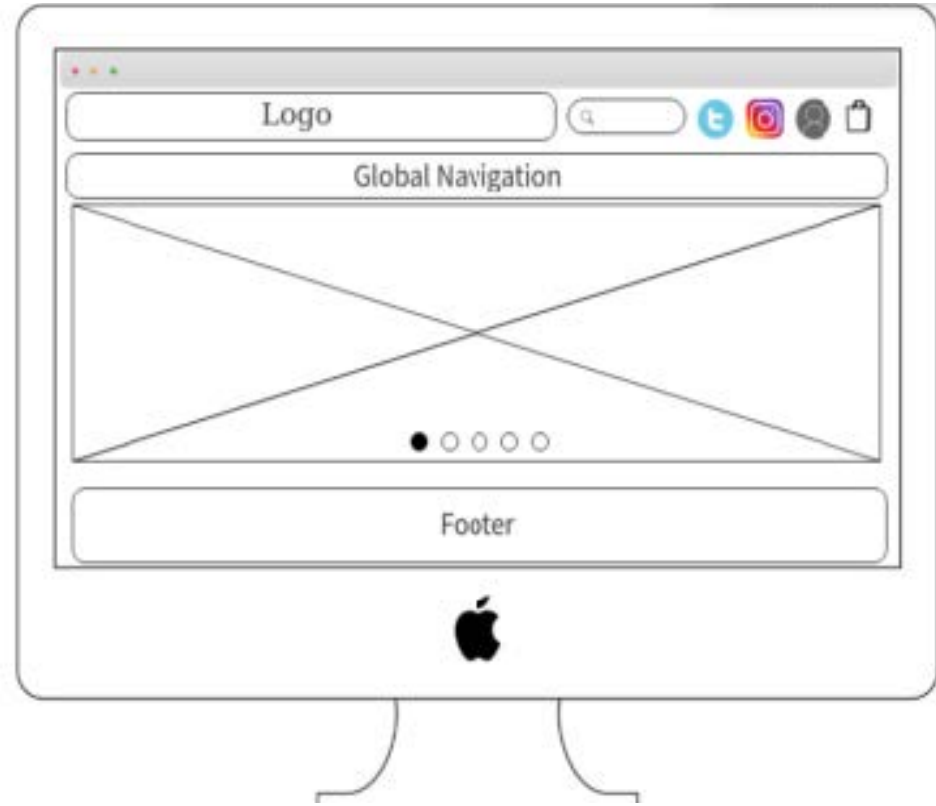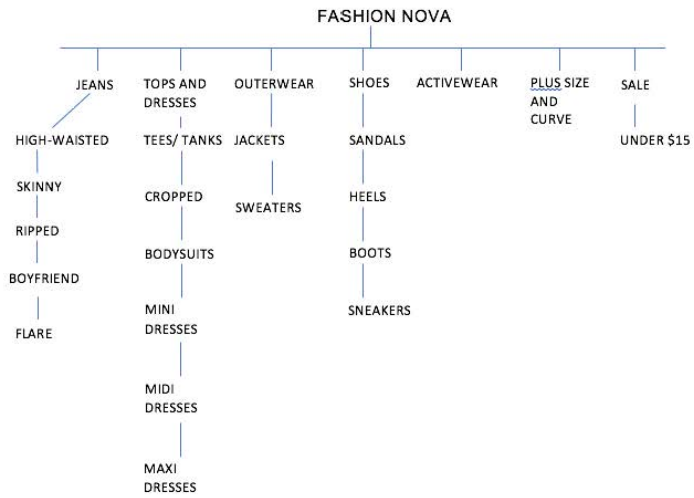
Digitalize

First time user reactions

- Scans the website's Homepage
  - Face seemed shock or confused
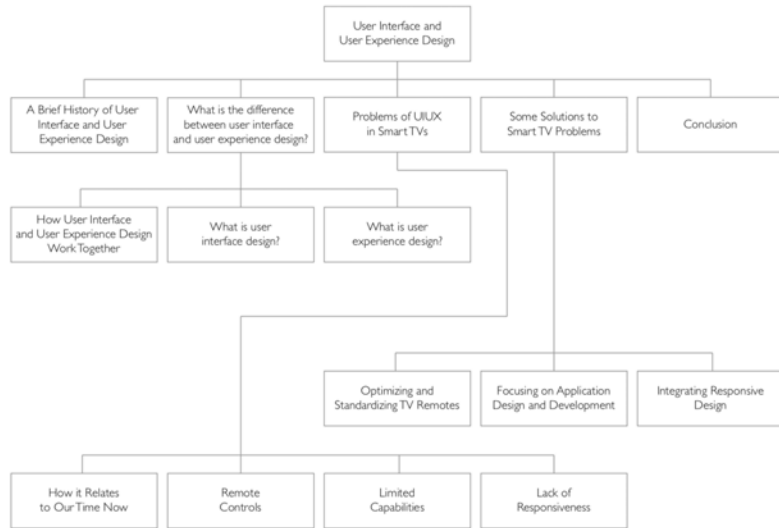- Places hand on face
  - Seemed intrigue by the site

- Scrolls down
  - Browsed the topics and text
- Scrolls up
  - Hovered over tabs at the top and scan the

FASHION NOVA

JEANS | TOPS AND DRESSES | OUTERWEAR | SHOES | ACTIVEWEAR | PLUS SIZE AND CURVE | SALE

HIGH-WAISTED | TEES/ TANKS | JACKETS | SANDALS | | | UNDER $15

SKINNY | CROPPED | SWEATERS | HEELS

RIPPED | | |

BOYFRIEND | BODYSUITS | | BOOTS

FLARE | MINI DRESSES | | SNEAKERS

MIDI DRESSES

MAXI DRESSES

Logo | 🔍 | Global Navigation

Footer

9:30

Logo

☰ Global Navigation
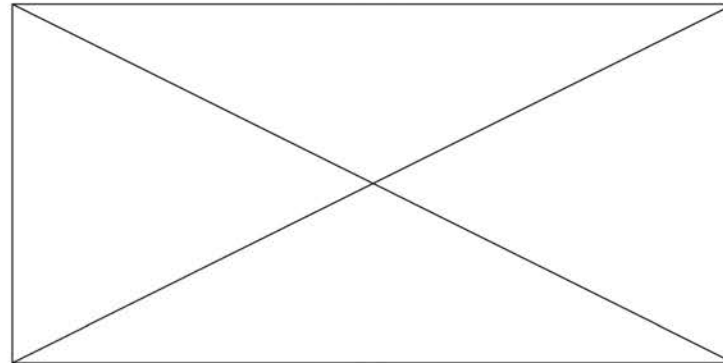
Footer

Student: Tyra Johnson

Student: Yen Nguyen

USER INTERFACE AND USER EXPERIENCE DESIGN

HISTORY   UI VS. UX   PROBLEMS   SOLUTIONS   CONCLUSION

ABSTRACT

ABOUT ME
RESOURCES
SITE MAP
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USER INTERFACE & USER EXPERIENCE DESIGN

HISTORY   UI VS UX   PROBLEMS IN SMART TVS   SOLUTIONS FOR SMART TVS   CONCLUSION

ABSTRACT

User interface and user experience (UIUX) design is integrated in many people's daily lives because of the huge advancement in technology. Today, we access the internet and the functions previously exclusive to personal computers through mobile phones, tablets, televisions, and more. However, not all devices are the same. Some devices work better than others in terms or usage and/or design. In this research, the focus will be on smart TVs. Smart TVs are relatively new, but a majority of TV sales are attributed to smart TVs [4]. Although the sales are high, the transition from regular TVs to smart TVs is not very successful. Therefore, the user interface and user experience design will be explored on smart TVs. Smart TVs are a great commodity, but they still use inconvenient remote controls, they have limited capabilities, and they lack responsiveness. The solutions to these problems are as follows: optimization and standardization of TV remotes, more focus on application design and development, and integration of responsive design. These ideas are based on surveys and studies as well as the concepts of UIUX.

ABOUT ME
RESOURCES
SITE MAP
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STREAMLINE

NEW ORLEANS

Built on swamp land.

Prone to tropical storms and hurricanes. (Katrina)

Flooding leads to infrastructure and economic damage.

GRAPHIC AND ADVERTISING DESIGN PROJECT

Students worked collaboratively to find innovative solution for flood problem.

Examined elements of environmental design, urban design, product design, branding, and experiential marketing.

DESIGN PROCESS

Research location and environment of New Orleans and explore established methods currently being used to help the flooding problem

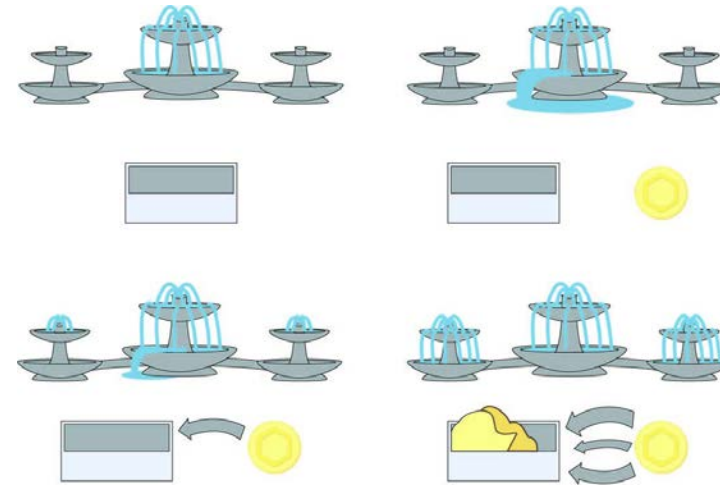Research products and methods used by other countries with similar environmental challenges.

Organize data

Brainstorm

Create graphs, charts, diagrams, and outlines

Visualization of product

STREAMLINE

Company that builds extensive pipeline pumping excess water from New Orleans to other cities

Hydroelectric dams in levees create electricity

SOLVING THE FLOOD PROBLEM IN NEW ORLEANS

Blair Lyons, Danton Vu, Kynedi Grier, Lauren Nguyen, Marisa Demasiliere, Mark Veals, and Ronald Davis
ART 2020 Introduction to Graphic and Advertising Design
Fall 2018
Project Duration: Three Weeks

BRIEF

The city of New Orleans was built on marsh and swamp land along the Mississippi River. It is also located near the Gulf of Mexico, resulting in vulnerability to tropical storms and hurricanes every year. Even with protections in place, New Orleans still experiences frequent flooding. Students will be developing and designing their own product that will contribute to the flood solution in the city. In addition to the creation of a product, students will create a brand and experiential marketing campaign for their product.
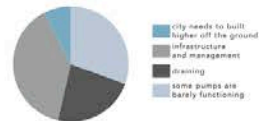
RESEARCH
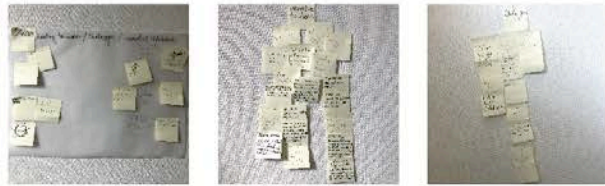
Challenges
- Illegal to collect rainwater
- We pay a water bill, therefore would be illegal?
- NOLA is under sea level
- NOLA is surrounded by water that naturally flows into the city
- Marshy land
- 3 large lakes surround city
- Government/Funding
- Government would likely not approve funding for such a big project
- Local government issues
- Interstate issues
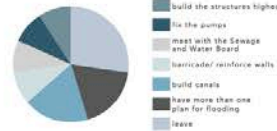
Solutions Implemented in Other Countries
- China: Known for using floodplains and sponge cities to decrease to decrease flooding along the coast
- India: planted mangroves, that absorb the water along the coast to reduce flooding
- Netherlands: International role model for water control; dams, artificial lakes, locks, etc.
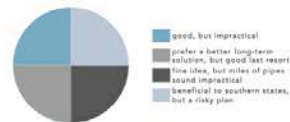
Survey Questions and Answers

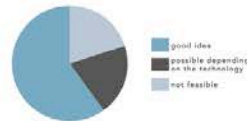What is the biggest problem with our flood protection system?
- city needs to built higher off the ground
- infrastructure and management
- draining
- some pumps are barely functioning

What do you think of converting the water into electricity?
- good idea
- possible depending on the technology
- not feasible

What would you suggest for our flood problems?
- build the structures higher
- fix the pumps
- meet with the Sewage and Water Board
- barricade/ reinforce walls
- build canals
- have more than one plan for flooding
- leave

What do you think about pushing water to other states?
- water is too contaminated to give away
- maybe, if it does not do more harm than good
- negates New Orleans being a port

What do you think about our plan?
- good, but impractical
- prefer a better long-term solution, but good last resort
- fine idea, but miles of pipes sound impractical
- beneficial to southern states, but a risky plan
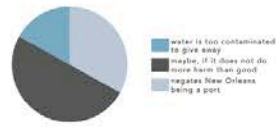
Where do you see NOLA in the next 20 years?
- existing, but with less land
- with more green neighborhoods or in better condition
- underwater, flooded, or eroded
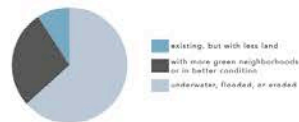
INNOVATIVE SOLUTIONS FOR NOLA

Hydroelectric Dam
adding dams or converting levees into dams, then harnessing the power of the water flowing through the levees for hydro electricity

Green Roofs
adding water tanks and green houses to roofs of homes in NOLA to catch and repurpose rain water

Home Trenches
digging deep trenches around houses to catch and divert flood water before it reaches the house

Artificial Lakes
create artificial lakes north of NOLA that can catch flood water coming from the Mississippi River

Additional Water Pumps
additional maintenance on the current water pumps in the city, as well as adding more water pumps to pump out flood water more effectively

Elevating/Floating Houses
elevating houses off the ground to that they do not get flooded, or converting houses into floating houses so they can move with the flood water

Mangrove trees
planting mangrove trees to stop and divert flood water

PROPOSED SOLUTION

Brainstorming & Sketching

Sketch #1   Sketch #2   Sketch #3

Sketch #1 This is a sketch of a levee that contains a hydroelectric pump that can convert water into energy. There is also a pipe attached to the levee that will transport water to other states in the country.

Sketch #2 This is a sketch of the United States map that shows the web of pipes that flow out of New Orleans and into other states in the country.

Sketch #3 This is a more detailed sketch of the levee with the pipes and hydroelectric pump. The levee will keep the water out of the area, the pipes will transport the water to other states, and the pump will be used to create energy and help push the water into the pipes.

Digitalized Sketches
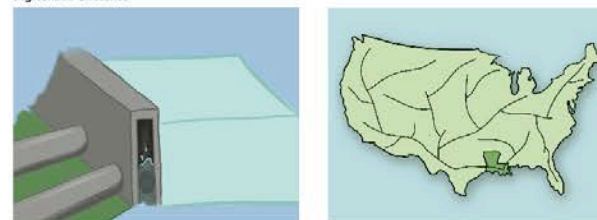
Final Products
The product on the left shows the levee with the pipes and hydroelectric pump. The product on the right shows the web of pipes that will transport the water from New Orleans to other states.

TARGET MARKET

- Homeowners
- New Orleans and the other cities that the pipeline will affect.
- Investors
- Corporations
- Unemployed people in the area/surrounding areas
- The construction of the pipeline will create jobs.

BRANDING

Slogans
- "Dumping the bowl"
- "The Great American Pipeline"
- "STREAMLINE, helping construct a safer Louisiana.
- "Memorable cities deserve a memorable plan."
- STREAMLINE, keeping the future of Louisiana flood-free."

Company Names
- Pump Line
- Stream Line
- Open Water
- Great American Pipeline
- Flow-Way

Colors
- Blue and gray

Typeface
- Sans Serif

Personality
- Open-Minded
- Realists
- Idealists

Final

STREAMLINE   streamline

"Memorable cities deserve a memorable plan"

EXPERIENTIAL MARKETING

Concept
A water fountain spectacle that will display the concept/ functionality of our new water pumping system. The base of the center water fountain represents New Orleans as a whole, whereas, the smaller fountains that are connected/ surrounding the main fountain represents the states to which the water will be pumped to. These states include California, Arizona, and New Mexico. The participating audience will interact with this fountain spectacle by first paying to see the show (proceeds will go to the construction of the pipeline). After payment, the audience will receive a special coin with a special purpose that will be revealed once the show commences. At some point, the center fountain will begin to overflow, and the audience will draw attention to it. Then the main event will begin. This will be the opportunity for our participation audience to come into action. Each token given represents the donation that the audience made. Participating audience members will be instructed to place these coins into a smaller separate container (to be determined) that will weigh the amount of coins added to it. The more coins added to this separate fountain, the more water that will be pumped from the base fountain to the smaller connected fountains.

CONCLUSION

New Orleans has many problems. Among its many problems, flooding is one of the biggest issues. Streamline Company has recognizes this issue and wants to revert the once thought inevitable: flooding. Furthermore, we recognize the needs of other areas such as California, Arizona, and New Mexico who may be in benefit to receive more water due to droughts and forest fires. Our new pumping system allows for excess water from Lake Pontchartrain and the Mississippi River (where the city currently dumps water back into) to be pushed into the mentioned regions. Furthermore, we convert the water into hydroelectricity. The levees that we have bordering our home will be the site for the new pumps and hydroelectricity. To promote our company's ideas, we opted for an experiential marketing campaign. We will host an event to showcase the overall concept of our new pumping system. The overall message that we want to portray is that the donations from the community members will save our home, New Orleans.

REFERENCES

Bliss, Laura. New Orleans Learn to Love Water. The Atlantic. July/August 2016.
Craig, Tim. It wasn't even a hurricane, but heavy rains flooded New Orleans as pumps faltered, The Washington Post. 9, August 2017.
Schwartz, John & Schleipstein. Fortified But Still in Peril, New Orleans Braces for its Future. The New York Times. 24 Feb. 2018.
N/A. Reducing Future Flood Damage in New Orleans Through Home Elevation and Land Use Changes. RAND Corporation. 9, Nov. 2018

ADVANCED GRAPHIC & ADVERTISING DESIGN

Collaborative work.

Freedom to choose project.

Independent study.

DESIGN PROCESS

Defining the product: Bubble Tea Shop

Research current market and competitors.

Brainstorm for logo, mobile application, website, food truck

Discuss branding and marketing

Prototypes

Feedback on prototypes

Improvement of prototypes

Final products

CHALLENGES

Team cooperation and participation from some of the students

Use of new programs such as Adobe XD
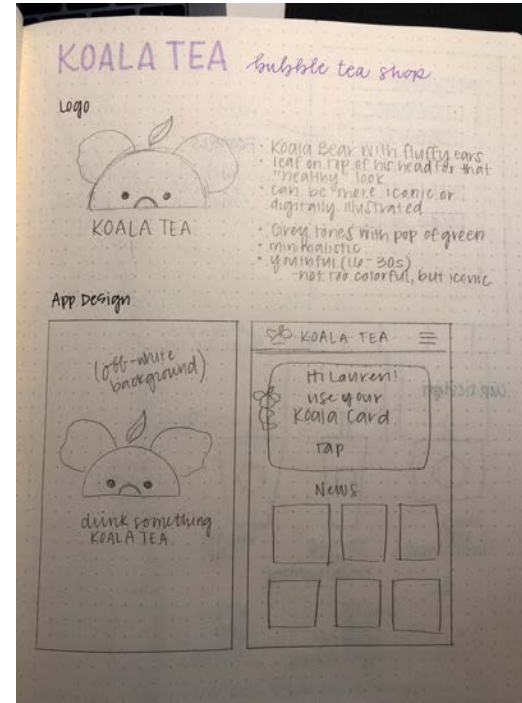
Sketches by Lauren Nguyen and Brianna Pace
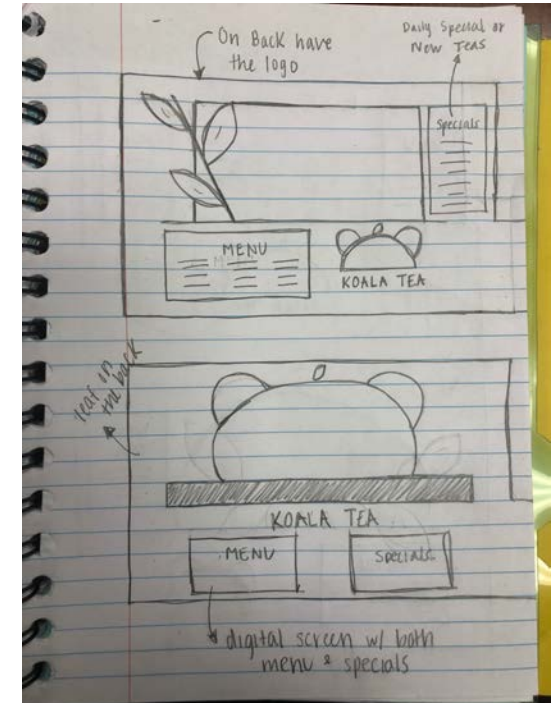
KOALA TEA: Bubble Tea Shop.

Health focused with fresh, fruity teas.

Target market: 16-30 years

Mobile app for rewards and online ordering

Consistent branding.

koala tea.

Rayfield Alveris, Lauren Nguyen, Brianna Pace, and Mark Veals
ART 4010 Intermediate Graphic Design
Spring 2017
Project Duration: 4 Weeks

brief

The purpose of this project is to create a product and expand on the branding, concept, and product idea. The product can be anything the students wish to create. The goal of this project is for the students to create products based on the user experience.

product ideas

scheduling app
- team task management

bubble tea shop
- branding
- website
  - ordering online
- app

app that helps develop better habits for college students/digital planner
- eating
- sleeping
- studying

app/website for learning human anatomy
- flash card style
- animated videos
- organization through organ systems

watch/app that tracks heart rate/vital signs for any medical conditions
- notifies user when something is wrong
- reports data back to app/site to track overall progress

app that unlocks a door (car/house) from the device using fingerprint
- features:
  - alarm system to notify if the door was forced open
  - car: turn on air conditioning or heating from a distance

product that assists with CPR on infants (or adults) while waiting for ambulance
- website/app that accompanies device that teaches CPR

"studentdeals.com" website &/or app (iOS, Android)
- aggregates student deals from online & in-store only retailers, organized by category etc..

research

What is bubble tea?
- originated from Taiwan
- tea, milk, sugar and toppings
- can be blended with ice into a slush
- toppings include:
  - tapioca balls
  - jelly
  - pudding
  - popping boba

Market
- bubble tea market expected to grow by 3,214 M by 2023
- US accounted for 97% of the North American market
- North America accounted for 57% of world market

In Comparison to What is Already Available
- none of the bubble tea places are on Starbucks's level in the US
- refreshing in comparison to coffee due to the use of fruits
- "new" and "youthful"
- key marketing strategy of Starbucks is consistent branding centered around making everything feel personable
- effort into creating a place that allows consumers to hang out or work - encouraging other activities rather than just buying the product

Customer Loyalty Rewards Program
- media/device that interacts with the customer as well (notifications, etc)

- boba business rewards program is creative, not just offering discounts, but has a VIP status that allows for different perks
- boba segments target audience and send targeted messages catered towards their preferences
- loyalty program - adds notations to customer profile so that it notifies employees of each customer's preference
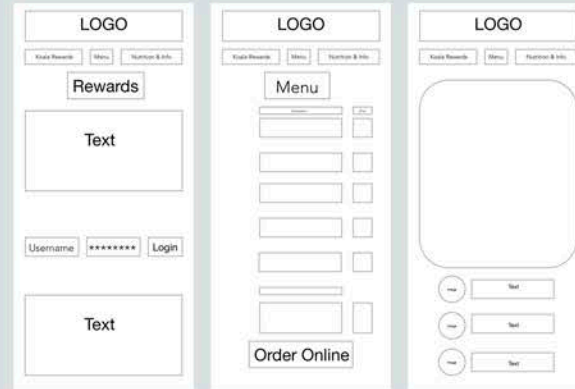
brainstorm
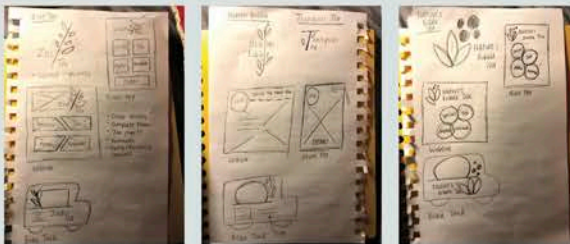
website
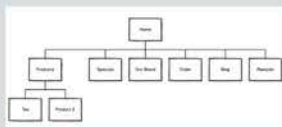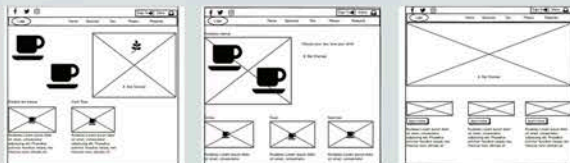
mobile application

logo

The idea for logo was to use the top half of a koala head and put a leaf on top of its head for the health portion of the brand. The first challenge was to decide between the koala with its features or without. The second challenge was to choose the colors for the logo. In the end, we chose a dusty blue colored koala with a light green.

koala tea.

Rayfield Alveris, Lauren Nguyen, Brianna Pace, and Mark Veals
ART 4010 Intermediate Graphic Design
Spring 2017
Project Duration: 4 Weeks

cup designs

We had to choose a cup design for our overall brand. Ultimately, we chose the second cup and the last cup as a special cup. The challenge was figuring out what cup could represent our brand better.

truck design

front- open/closed
For the truck design, we wanted the front to have the koala bear's head as the window shape. After more thought, we thought that when the window is closed, it should have the actual koala bear's face. The front also includes a menu that is digital and embedded into the truck to protect it from rain.
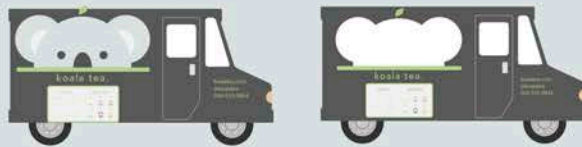

back
The back of the truck includes the leaves of our brand, our information, and the logo. The challenge for this design was figuring out where the logo should be positioned that would make its positioning purposeful. Ultimately, we placed the logo in the empty space at the top because the text left aligns with the bottom text and it fills up the empty space.

mobile application
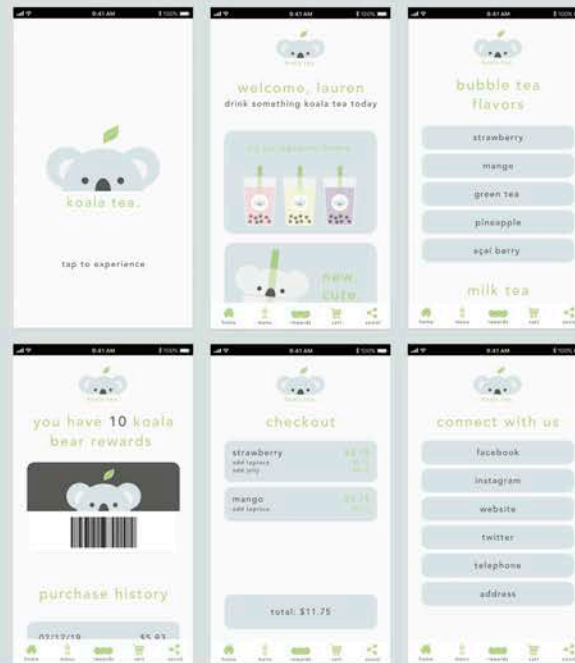
The goal was to make the mobile application clean, simple, fresh, and easy to use. The app uses the same colors from the logo to give it that brand consistency. The navigation includes the home page with a personalized welcome message and updates, the menu, a rewards section to collect points with each purchase, the cart for online orders, and social media links. The challenge was to create an interactive application using a new program, Adobe XD. Eventually, after research, we were able to create an interactive prototype.

website design

We used Adobe Dreamweaver to create a functioning website in HTML and CSS language. The website incorporates the colors of the logo, which creates a sense of consistency among all the products and helps with the branding of the company. The global navigation includes the home page, our brand, specials, drinks, and contact. On each page, we emphasize the quality of the teas and focus on the health benefits of them. One challenge we faced was the coloring of the text. Originally, some of the green text did not show up on the background, so we had to adjust the background color to make sure that it did show up.

conclusion

In conclusion, we were able to create a consistent brand that targets the 16-30 year old target market. With the inclusion of the minimalistic design and the cute koala bear, we can bring in younger customers. With the food truck and the mobile application, the brand can bring in customers that use their phones constantly. In today's world, targeting the on-the-go customer is very important. Lastly, we created a website that includes all the information about the brand and has consistency with color and branding as well. Some challenges included working with a team and being able to put everyone's skills to work. However, with organization and planning, we were able to create a consistent brand.

references

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CONCLUSION

Diverse and interdisciplinary learning environment allows opportunities for student collaboration in design processes to develop creative thinking skills.

EVALUATION

Team: Students graded on organization, performance, research, writing, problem-solving, conceptualizing, visual presentation, and communication.

Individually: Students graded on participation and engagement.

CHALLENGES

Students concerned with teammates' attendance and participation.

FUTURE

Two new design and technology seminar courses added to the university core curriculum:

XCOR 3010 Design and Technology in Global Culture

XCOR 1012 New Orleans Innovation Bootcamp

Continue developing design and technology program, proposing courses in User Centered Design

Continue research in design pedagogy and the examination of student development in creative skills

Faculty currently reviewing new ways to track student progress and performance.