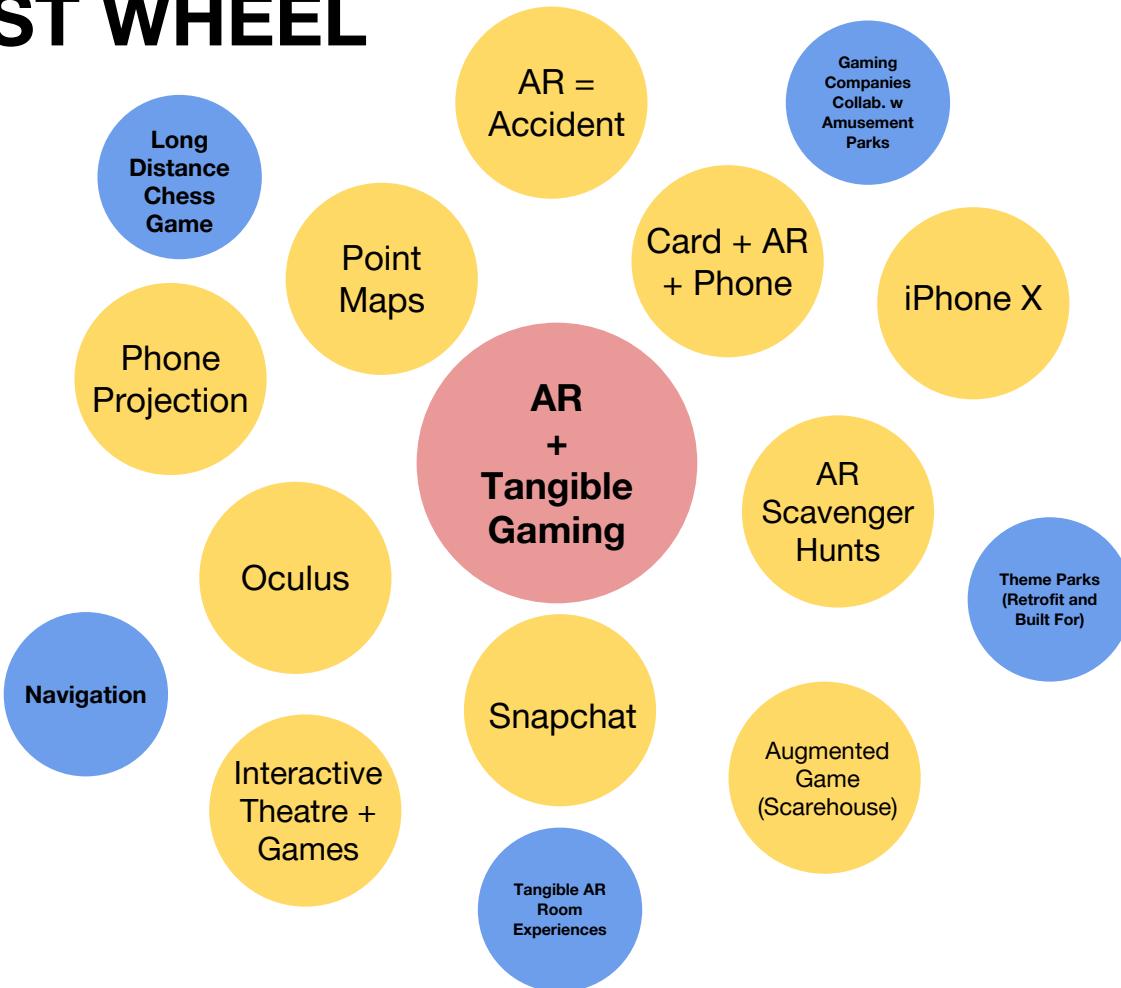


TANGIBLE GAMING + AUGMENTED REALITY

Annisa Prasetyanto, Rebecca Radparvar & Brandon Zepeda

FUTURIST WHEEL



Is there an ideal demographic
or game-type for AR
integration?

What games or industries
are ripe for AR?

Are old school gamers open to the
idea of technology integration?

WHAT IS THE FUTURE OF TANGIBLE GAMING + AR?

Does the existence AR integration
help players to be immersed in the
game or just a novelty?

How can AR seamlessly improve the
gaming experience?

How can AR improve tangible gaming
experiences as opposed to diluting
them?

RESEARCH TIMELINE

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Contextual Inquiry at Game Shop				Contextual Inquiry with MTG Club		Applied Ethnographic Research at Eternal Weekend
Interview with Gamers & Game Bloggers						
	Tangible Gaming & Gameplay Research					
	Observation with DnD StuCo			Contextual Inquiry with MTG Club		
	Gameplay & AR Applications for Gaming Research					
	Interviews with Gamers & AR Subject-Matter Experts					
	Artifact Analysis with MTG Club					
	CoDesign & Love Letter/BreakUp Letter Activities					
	Analyze Data					
	PRESENT FINDINGS					

GAMING LANDSCAPE

Conversation Games

Daring Games

Drinking Games

PARTY GAMES

Guessing Games

Pub Games

Singing Games

Card Games

Board Games

Dice Games

Miniature Games

TABLETOP GAMES

Pen-and-Paper Games

Tile-Based Games

Role-Playing Games

German-Style Games

Strategy Games

Massively Multiplayer Online (MMO) Games

Adventure Games

Real-Time Strategy (RTS) Games

DIGITAL GAMES

Action Games

Puzzles Games

Stealth Shooter Games

Role-Playing (RPG)

Educational Games

INTERVIEW & CONTEXTUAL INQUIRY



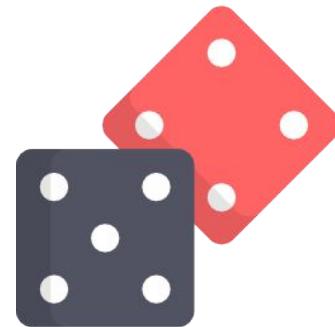
Game Shop Owners

Both owners are unfamiliar with the application of AR to physical gaming



Game Bloggers

AR has a huge potential in tangible gaming, especially if tied to a popular franchise (ex. Pokemon Go)



Gamers

Familiar with physical + digital gameplay but never seen it done well enough

All are worried that application of technology (AR) would be a gimmick than enhancing gameplay

NARROWING SCOPE



Magic: The Gathering

&



Dungeons and Dragons

BACKGROUND INFORMATION

MAGIC: THE GATHERING



Strategic Trading Card-Based Game

Established in 1993

Short Format Game

DUNGEONS AND DRAGONS

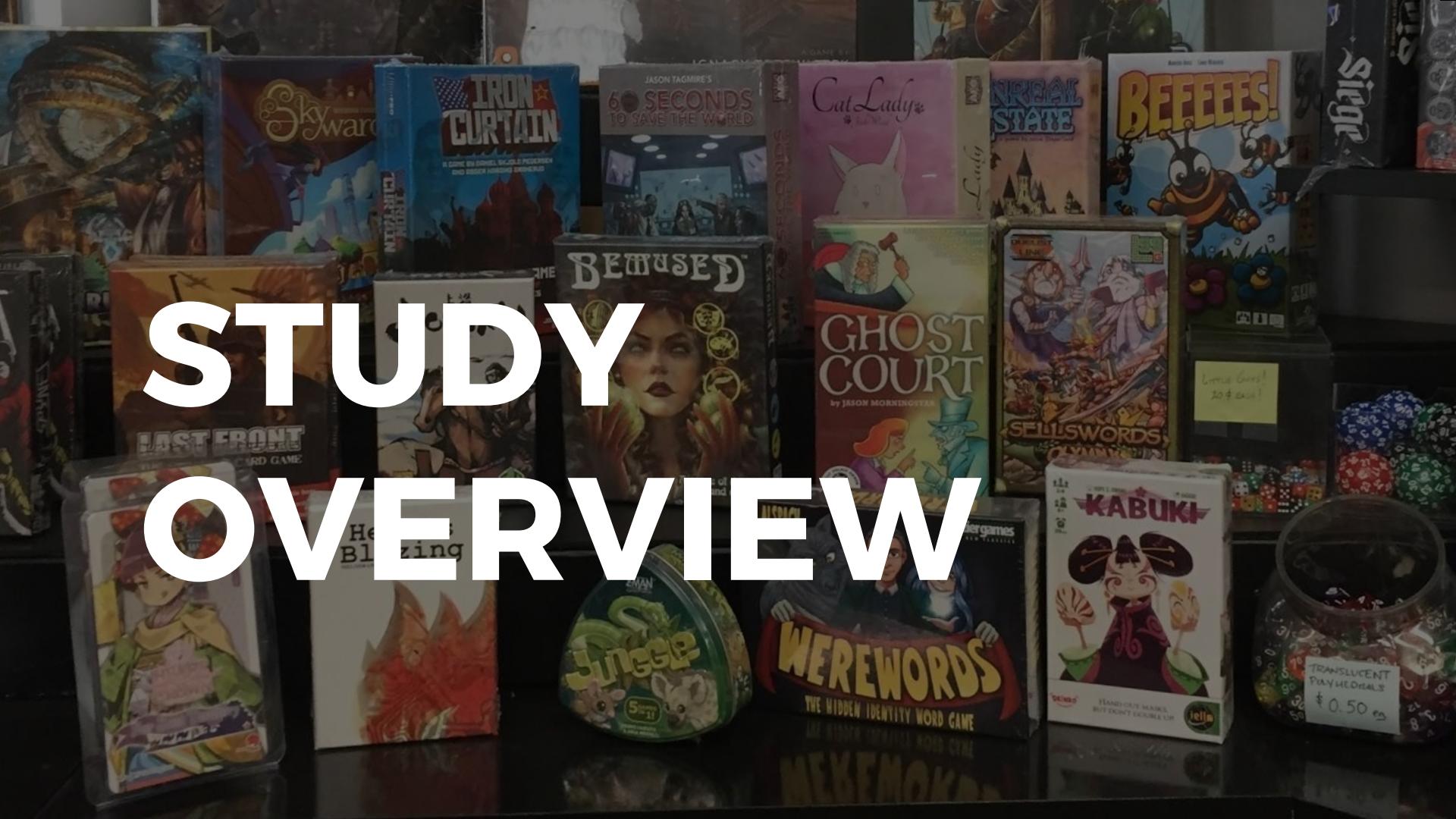


Fantasy Tabletop Role-Playing Game (RPG)

Established in 1974

Long Format Game

STUDY OVERVIEW



APPLIED ETHNOGRAPHY



StuCo
98-313 - Dungeons & Dragons 101



Club
Magic at CMU

Study Objectives

- Understand the physical space
- Understanding competitive play
- Understand the gamers and community

ARTIFACT INVENTORY



Study Objectives

- Understanding unique habits kept in the community or individually
- Understanding if there are “cheat codes” in tangible gaming

LOVE LETTER & BREAK UP LETTER

LOVE LETTER + BREAKUP LETTER

WRITE TWO LETTERS TO THE SAME GAME. ONE LETTER SHOULD BE SHOULD BE A LOVE LETTER: JUST LIKE YOU WOULD WRITE A GIRLFRIEND OR BOYFRIEND YOU ARE INFATUATED WITH.

ANOTHER SHOULD BE A BREAKUP LETTER: A LETTER EXPRESSING THE REASONS WHY YOU NO LONGER LOVE YOUR SIGNIFICANT OTHER AND WOULD LIKE TO END THE RELATIONSHIP.

IT CAN BE AS LONG AND EMOTIONAL AS YOU WOULD LIKE. THE LETTER CAN BE TYPED OR HANDWRITTEN AND THEN SENT TO ME AS A PHOTO OR DOC IN AN EMAIL.

Study Objectives

- Understanding the relationship between gamers and chosen game
- Identify reasons why gamers “love” the game
- Identify reasons why gamers “hate” the game

CODESIGN

Write Game Name Above

**+
Me**

Thank you for agreeing to participate in our Co-Design Study!

As a part of our study, we would like to get a better idea of how you currently play your chosen game and how you may want to play that game in the future!

The following kit has been designed to provide you with opportunities to share your gaming experience with us. We ask that your responses be authentic - no need to make things 'picture perfect' - and give us as much information as you feel necessary.

We will be guiding you through the activity and ask that you do not read ahead, as our activities have been ordered carefully! If you have any questions at any time, please feel free to ask.

Thanks again - let's get started!

What are three things which frustrate you about your game?

Why?	Why?	Why?

Study Objectives

- Understanding the relationship between gamers and chosen game
- Understanding gamers' feelings about the application of technology
- Understanding gamers and their frustrations with the chosen game

SEMANTIC CODING SCHEMA



Grounded Theory

Analyze data and highlighting repeated themes throughout all the different design methods

RESEARCH METHODS

Method		Participants
Interview	<i>Gamers</i> <i>Game Bloggers</i> <i>AR & Gaming Subject-Matter Experts</i>	 13
Contextual Inquiry	<i>Game Shop Owners</i> <i>Magic the Gathering Club</i>	 15
Applied Ethnographic Research & Observation	<i>Dungeons and Dragons Club</i> <i>Eternal Weekend</i>	 18
Activities	<i>Artifact Analysis</i> <i>CoDesign</i> <i>Love Letter & Breakup Letter</i>	 18+
Secondary Research	<i>Gameplay Videos & Documentary</i> <i>Papers & Articles on AR Applications for Gaming</i>	

MAGIC: THE GATHERING



INTERVIEW, OBSERVATION & CONTEXTUAL INQUIRY

Cultural



Financial
Investment



Community and
Friends



History &
Time

Game Play



Strategy + Luck



Fast Paced



Memorizing Information
& Staying Current

APPLIED ETHNOGRAPHY

ETERNAL WEEKEND



Social Issues



Financial Side



Security



Publication



Coming from Far and Wide

ARTIFACT INVENTORY

Backpack
Cards
Card sleeves
Card holders
Live Tracking
(Dice, Phone,
Paper pencil)

Dice
Playing mats
Proxy Card
Fake Cards

Cost

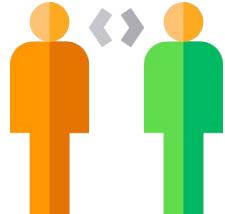
Hundreds (\$\$) to Thousands (\$\$\$\$)



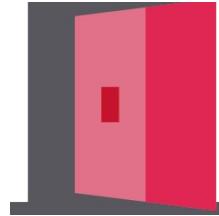
LOVE LETTER & BREAK UP LETTER



Games Evolution Always
Keeps Things Interesting



Community & Friendships



Closeted Nature

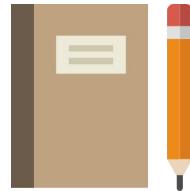


Reciprocation ≠ Cost

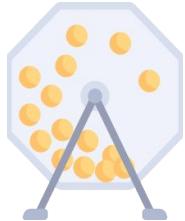
CODESIGN



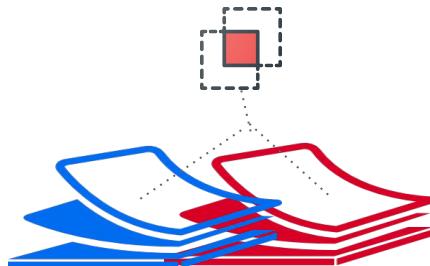
*Experience
Lull & Rekindling*



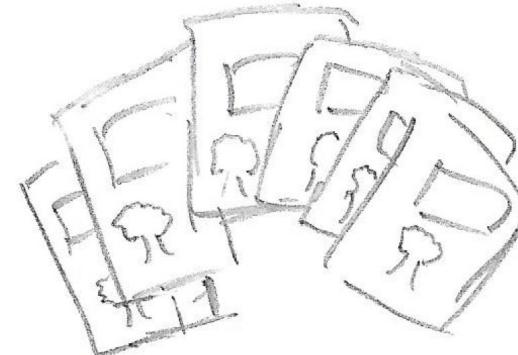
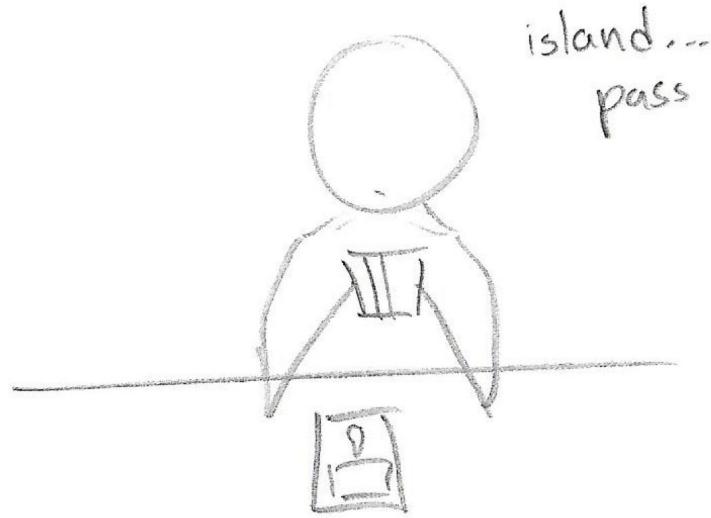
*Game Play Themes
Tracking Lives*



*Important Moments
“Drafting” Keeps
People Involved*



*Future of MTG
VR/AR Reducing Barrier to
Entry*



QUOTES

“A lot of us table top guys have a hard time letting go of the tangibles”

“[I don’t like to put my cards in sleeves] because I like to remember they’re just pieces of cardboard”

“I don’t see AR... MTG has a community of purist”

“I been the best man in several wedding because of Magic”

“If you don’t buy the most recent card decks you get wrecked”

INSIGHTS



Community and investment keep player over for years of their lives

Many pause playing because it's too expensive and accessibility to it is lower than online card game (ie. *Hearthstone*)

Game players here are highly strategic and tend to be more intensely interested in outcome than gameplay

The community is male dominant

Magic cards are a form of currency

Players indulge in MTG's rich history

INVESTMENT-TYPES



Store Owners

Live off Magic- they have quite their previous employment to support through magic cards

Travel to events or send employees to events every weekend

Use salesmanship and psychological nudging, priming to move cards

Dealers

Extreme players of the game that have taken a liking to the economics

Move other people cards and take a cut

Always on the lookout for opportunities to win on value

Generally enjoy the art of speculation

Support the Habit

Participation in community is primary, profits is secondary

Concerned about developing addiction, keep their net cost at zero

Justify trips and adventures to new cities through card selling revenue

DUNGEONS AND DRAGONS



INTERVIEW, OBSERVATION & CONTEXTUAL INQUIRY

Cultural



Creativity-Focused

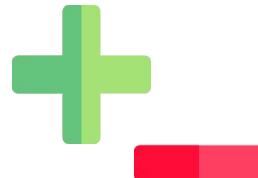


Cooperative



Trust and Comfortability
are Key

Game Play



Polarizing Feelings on being
Dungeon Master



Game Involves a lot of Prep
and Long-Term Commitment



Keeping Track of Points
During Games is Difficult
and Stalls Gameplay

INTERVIEW ROLL 20



Technically inadequate

Doesn't provide the social component most players are looking for

Takes too much imagination out of the hands (heads) of the player

Seen as laughable, or a joke, in player's eyes

ARTIFACT INVENTORY

Adventure Packet or Gameplay Book
(Player and/or DM)

Character Sheet & Pencil

Dice or Dice App

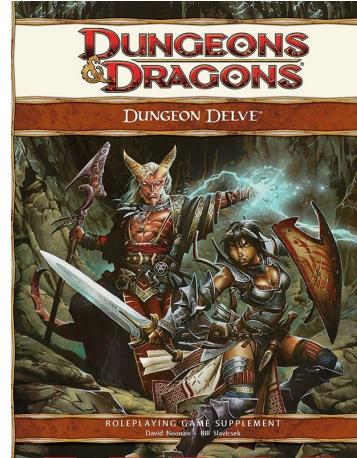
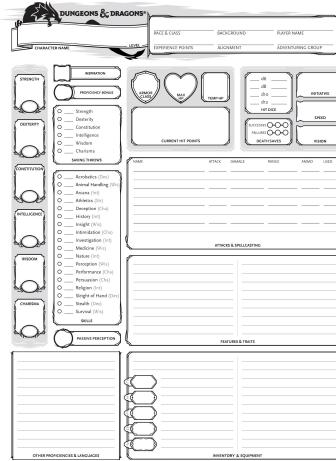
Tabletop Board & Tokens

Calculators or Computers

Cost

Standard Player: \$50+

Dungeon Master: \$100+



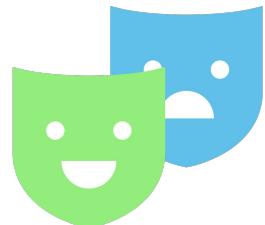
LOVE LETTER & BREAK UP LETTER



Exploration and Adventure



Game Too Long



Freedom to Be Anyone



Obsession & Self-Deprecation

CODESIGN



Experience
Most People Are Introduced by Their Friends



Game Play Themes
Time Gaps (Years) Between Campaigns



Perspective
Elements of Improv



Future of DnD
Holograms and VR/AR

QUOTES

“Tabletop takes a sh*tload of investment... for DnD it's worth the investment.”

“The mechanisms of the game can interfere with the actual gameplay and role playing...”

“You can suck at the beginning and it's okay...”

“I love being the Dungeon Master... it has something to do with a God complex...”

“Dice rolls to determine actions?! What is this 1987?”

PLAYER-TYPES



Dungeon Master

Responsible for guiding the players through the game and an entirely different world

Tends to enjoy complete control,
“God-like Complex”



Narrative-Focused Player

Interested in the building of a world where their characters explore, adventure, and interact

Appreciates aspects of improv
Generally does not like playing with combat players



Combat-Focused Player

Concerned with precision and strategy, narrative is secondary

More likely to use a physical board for accuracy

Spends a lot of time examining strategic possibilities and calculating scores

INSIGHTS



There is an extremely low barrier to entry for the game and as it is mostly in player's heads, it allows players to make it what they want it to be.

Improv is integral to gameplay.

Players devise creative solutions to attempt to achieve seamless gameplay but still are victim to stalls in gameplay.

Players are welcoming, but hesitant of, technical applications.

AUGMENTED REALITY



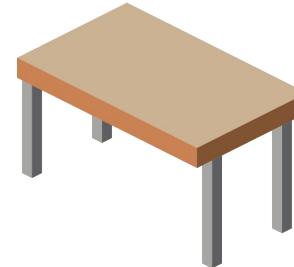
AUGMENTED REALITY THOUGHTS AND CONCERNS



Built For v. Retrofitted To



Gimmicky v. 'True Magic'



Blank Tabletop Assumption



Importance of Tangibility



The Future
Mixed Reality



The Future
Technology Ownership

PUTTING IT ALL TOGETHER



PRODUCT OPPORTUNITIES

TANGIBLE GAMING + AR

MAGIC: THE GATHERING



Training

Making the act of reading cards faster, especially for new player



Value Exchange

For players who engage in buying and selling, AR can make finding true value of cards faster and more appealing as well as keep track of transactions.



All Possible Combinations

Creating a cheat feature that can read and show unforeseen options.

DUNGEONS AND DRAGONS



Counting

Making it easier for Dungeon Masters to keep track of the scores throughout the game.



Projections

For players who use the board, creating a more visually interactive game for track keeping and in order to keep them focused in the game.



SFX

Sound and lighting effects that are enacted based on DM's narrative.

FUTURE RESEARCH & METHODS



Applied Ethnography

Participating in a Dungeons and Dragons Campaign for Further Gameplay and User Research



Wizard of Oz

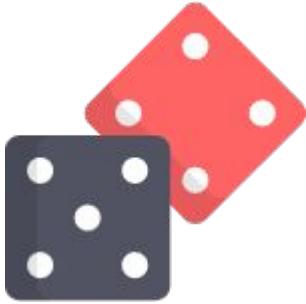
Low Fidelity Prototypes of Possible Concepts



Diary Study of Campaign

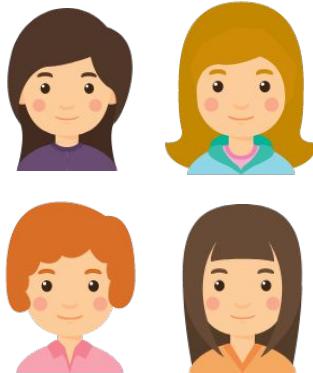
Understand Frustrations Beyond Count-Keeping and Tracking

PROCESS RETROSPECTIVE



Game Exploration & Play Testing Opportunities

Opportunity to explore game design and experiment with Tabletop and Tabletop-Augmented Reality Games



Female Engagement

Exploring and interacting with the Female Gaming Community



Exploring Augmented Reality Independently and Deeper

Understanding Augmented Reality's capabilities, shortcomings and potential opportunities outside of a gaming context



THANKS!