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### Design Game-based Learning: Playtesting a Thesis

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# Design Game-based Learning: Playtesting a thesis

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## Abstract

Design game-based learning helps students understand interdisciplinary studies as they write a research paper. This presentation explores our use of game design in a team-taught interdisciplinary language and technology general education course. We are students majoring in computer engineering technology, computer systems technology, and construction management and civil engineering technology. Our focus on design allowed us to create tabletop games to playtest our theses and showcase our original ideas.

## Introduction

With the advancement of technology and the social acceptance of digital games, the idea of incorporating game-based learning, specifically, digital game-based learning, into the classroom becomes more desirable. In recent studies of the impact of game-based learning, it was found that incorporating games into a curriculum offered positive results in knowledge acquisition and synthesis of the subject matter (Qian & Clark, 2016). When it comes to game-based learning, the idea is that students are playing and analyzing games to understand the topic that they are studying at the time. One of the common focuses of game-based learning is gameplay. Students are introduced to games that have similar learning outcomes to what the course requires and, from there, synthesize the subject due to the level of interactivity and engagement that games provide. *Introduction to Language and Technology* is a team-taught interdisciplinary course that explores the social and cultural connection between language and technology. The course has three main topics: multimedia, games, and virtual reality. Early on in the course, students and professors discuss chapters on the nature of language (Fromkin et al., 2018) and the idea that the medium is the message (McLuhan, 1964). From there, we learn and discuss how different media changes how society learns languages, interacts socially, and comes to understand any positive or negative impact of using that technology.

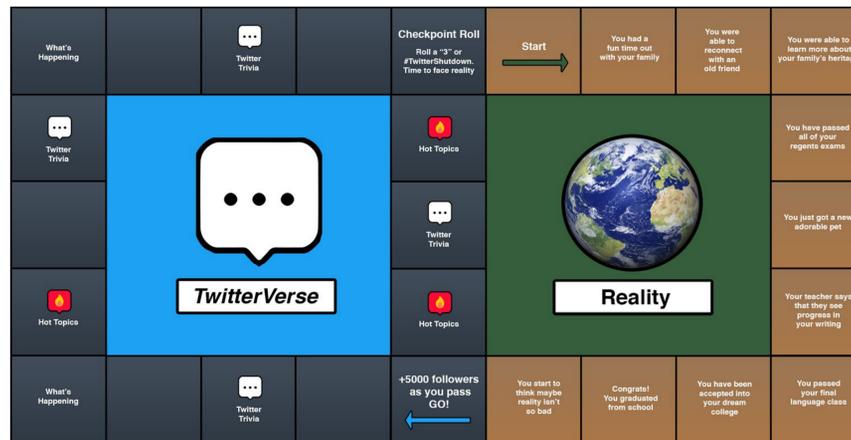
This unique course includes non-digital game-based learning within the framework of the curriculum. The main assignment is an interdisciplinary research paper featuring a thesis that focuses on the social and cultural relationship between language and technology. Some examples of games presented this semester were a roll and move board game, a card game, and a social party game. In the following section, we highlight our three game case studies, including our interdisciplinary research paper thesis and game rules.

## Methods

### Case Study Game 1: TwitterVerse

Thesis Statement: Twitter has negatively impacted how teenagers interact with each other, which is symptomatic of the general regression of their social language skills.

The main message of my game is that Twitter engulfs teenagers into a closed loop with the prospect of tweeting something and receiving positive feedback through likes and retweets. The board is split in half with a "TwitterVerse" side and a "Reality" side, with two card decks—one labeled "Hot Topics" and the other labeled "Twitter Trivia." The Hot Topics deck gives players an opportunity to gain, lose, or maintain their following through various scenarios, while the Twitter Trivia deck tests players on their knowledge of current trendy abbreviations. Players start at GO! to explore the TwitterVerse realm, competing to see who can hit 100,000 followers first or who can stay in Reality for four rounds. To set the board up, players first choose a social media manager. This social media manager will compute all the players' following growth and decay throughout the entire game; they must record the computations on a separate sheet of paper. Then, each player rolls the dice, and whoever gets the highest roll goes first, with the rotation continuing in a clockwise direction. When playing the game, players roll the dice and advance their game piece the same number of spaces, while looking at the space they have landed on. The four main landing spaces are: "Twitter Trivia," "Hot Topics," "What's Happening," and "Mandatory Checkpoint Roll." When a player enters Reality, they can no longer gain a following, but they can win by staying in Reality for four rounds. While players advance in Reality, there are spaces with scenarios that remind them how their social life and language skills have improved.

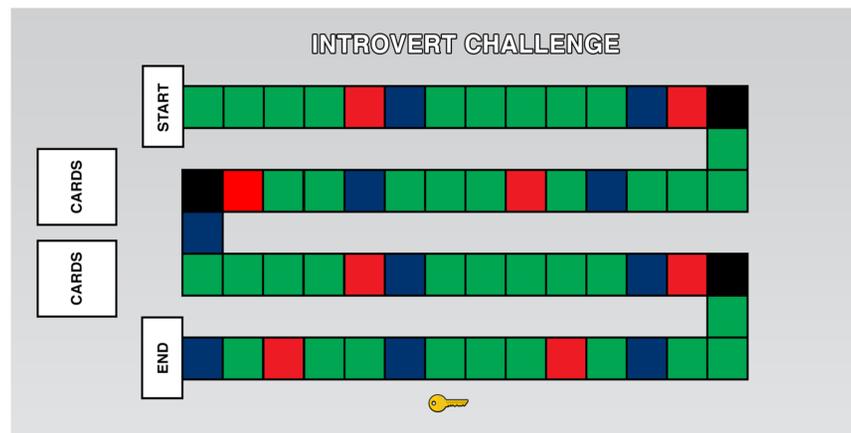


TwitterVerse game board by Micheal Lewis.

### Case Study Game 2: Introvert Challenge

Thesis Statement: Because introverts who communicate online using online messaging such as texting do not have to interact with people face-to-face (which can be overwhelming and intimidating for them), they can connect with others on their own terms and thrive because they have more control over interactions and their responses to them.

My game was created to prove that, for introverts, coming up with a conversation on the fly is difficult, although texting is easier than face-to-face conversations. The main goal of the game is to make it to the end without landing on Red three times. Landing on Green means you are "safe," and landing on Blue allows the player to pick up three "Message Cards." Both players in the game have specific rules to follow; two of the most important rules concern what happens if a player lands on a Red or Black space. Landing on Red means players have to start a conversation that has specific rules (in order to ensure the conversation will be interesting). Landing on Black means players must use their message cards to have a conversation by alternately putting cards down to assemble a conversation that simulates a "text message" conversation exchange.

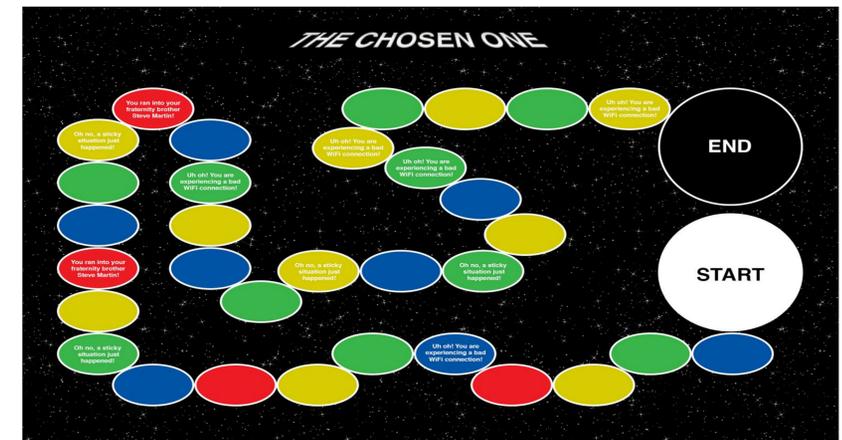


Introvert Challenge game board by Kimberly Ramgopal.

### Case Study Game 3: The Chosen One

Thesis Statement: Although computer algorithms that are used by worldwide employment websites are supposed to be unbiased toward job applicants, they actually do the opposite and discriminate based on words/phrases that do not reflect the type of candidate they prefer (e.g., one who is White and male).

In my game, each character (James Smith, Akira Sato, Imani Johnson, and Catalina Santana) has their own resume with important skill words; five of those skill words are needed to win the game. James Smith's resume consists of three skill words, Akira Sato's resume contains only two, and both Imani Johnson's and Catalina Santana's resumes contain only one skill word. Only the character James Smith can move an additional space because the "Fraternity Connections" is a red circle and James Smith is the sole character who is red. The game is rigged for the character of James Smith to win, with Akira Sato second and with a tie for Imani Johnson and Catalina Santana. The reason for this was to model how today's society and job site algorithms are set up to prefer White males above any other group.



The Chosen One game board by Cindy Veliz.

## Conclusions

By creating tabletop games, we were able to come up with unique ways to approach our research paper and demonstrate our understanding of the social and cultural relationship between language and technology. In the process, we were able to figure out whether our games offered enough supporting evidence to make a strong case for our theses or if the playtest session revealed counterarguments to these theses. When playtesting the prototype game in Case Study Game 1, the different game techniques of each player were observed along with their psychological standpoints. It was intriguing to see how easy it was to emulate the feelings of being on Twitter in a board game. Case Study Game 2 demonstrated that it can be easy for two introvert players to have a normal conversation if they have many things in common. Although unknowingly pairing two introverts during playtesting made the conversation funnier and less awkward, it also revealed that there had to be changes made to the rules to limit the kind of verbal conversations that players can have and the power of common interest driving face-to-face conversations. In Case Study Game 3, the surprising outcome of the game was that it was not the character of James Smith who won, but rather Akira Sato. The player who played the character of James Smith landed on the "Wi-Fi Connections" circle many times and never landed on the "Fraternity Connections," which would have enabled them to move up a space. Funnily enough, it was the player who played Catalina Santana who managed to land on the "Fraternity Connections" circle the most but was never able to move up one space because her character color was yellow and the "Fraternity Connections" circles were red. In any case, the game was still a success and still proved the thesis on how men get hired more than women. Though the assignment was difficult because we had to think outside of the box, by the end of the game creation process, we were able to better understand our theses and write more well-developed interdisciplinary research papers.

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