UNDERSTANDING HOW IDENTITY SUPPORTIVE GAMES
CAN IMPACT ETHNIC MINORITY POSSIBLE SELVES AND LEARNING:
A DESIGN-BASED RESEARCH STUDY

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ABSTRACT

Serious Games are digital games with an educational, informative, or persuasive goal beyond mere entertainment (Abt, 2002). They are promising because they often contain features that appear to be useful for learning (Squire, 2004), eliciting behavioral or attitudinal change (Yee, 2007) or encouraging new perspective taking, empathy, and new ways of thinking (Thomson, 2006; Gee, 2005). As of yet, not much research yet exists on how to effectively use this form of technology to support identity development, raise awareness about social issues, or foster positive social or personal change (Thomson, 2006).

In this Design-Based Research (DBR) dissertation study, I propose and test a specific Serious Game design that I call Identity Supportive Games (ISGs). Specifically, I design and test two game prototypes that allow players to explore Asian-American identities and issues in relation to ethnic stereotypes. Many misconceptions and myths persist regarding Asian-American issues (e.g., the effects of seemingly positive stereotypes such as the “Model Minority” image that depicts Asian-Americans as intelligent overachievers who rarely fail). In reality, these stereotypes and self-beliefs can lead to problems including identity crisis (Erikson, 1968), mental illnesses and depression (Cohen, 2007), poor self-esteem and self-image (Mok, 1998; Sue & Sue, 2004), decreased academic performance (Steele, 1997), decreased opportunities (Cheng & Thatchenkery, 1997), and pigeonholing (Sue & Sue, 2006). With this in mind, this study sought to investigate how Serious Games can help people support, understand, and define their self-identities and to explore the influence of ethnic minority stereotypes.

The results indicate that the games (1) were effective in educating players about the reality of Asian American issues; (2) changed perceptions of Asian culture; and (3) changed perceptions of self-identity. Qualitative data also provided evidence of how the games allowed for identity reflection, definition, and support; promoted more sophisticated understandings (e.g.
the subtle implications of seemingly positive stereotypes); and promoted the learning of facts and new perspectives on Asian culture. This work also informed design principles for social issue Serious Games, especially in terms of strategies to promote attitudinal and learning outcomes in this genre of digital games.

The issues explored run parallel to those of similar groups in other contexts, such as other ethnic minorities in schools and the workplace, as well as women in science, technology, engineering, and math (STEM) fields. This mixed-methods dissertation study, largely drawing upon the theoretical frames of Erik Erikson’s model of identity development, Marcia’s Identity Status paradigm and Markus and Nurius’ notion of possible selves, leverages recent work on identity play in digital games (e.g. Turkle, 1995; Yee, 2007) and provides timely work on identity and learning within digital games for social impact.
# TABLE OF CONTENTS

LIST OF FIGURES ........................................................................................................................................... viii
LIST OF TABLES ............................................................................................................................................... xi
ACKNOWLEDGEMENTS ................................................................................................................................... xii

Chapter 1  What is the need and why is it important to address and study? ........................................... 1
     Introduction and Overview of the Dissertation ......................................................................................... 1
     A paucity of research on a diverse, extremely fast growing segment of the population ......................... 2
     The Origin of Stereotypes for Asians ........................................................................................................ 4
     Lingering stereotypes continue to be seen and perpetuated today ......................................................... 7
     The Consequences of Identity Crisis and Being Caught Between Two Worlds ..................................... 16
     The Need ................................................................................................................................................. 18
     A Note on Researcher Identity ................................................................................................................ 19

Chapter 2  Literature Review and Preliminary Studies .............................................................................. 21
     Definitions and Theories of Identity ......................................................................................................... 21
     Identity in the Social Sciences ................................................................................................................ 25
     Identity in Digital Games ........................................................................................................................ 37
     Game-Based Studies Related to Identity Support or Attitudinal/Behavioral Change ......................... 38
     Pilot Studies and Relevant Prior Work .................................................................................................... 40
     Towards the Right Kind of Game Design for Identity Support ............................................................. 44
     An Overview of Serious Games ................................................................................................................. 44
     Game Designs and Patterns ....................................................................................................................... 46
     Examples of Serious Games for Persuasion ............................................................................................ 51

Chapter 3  Methodology ............................................................................................................................ 60
     Identity Supportive Games: Towards a Design for Positive Identity Support and Social Change ............ 60
     1. Self-Empowerment and Growth ......................................................................................................... 61
     2. New Understandings and New Ways of Thinking ............................................................................ 62
     Design Based Research (DBR) Methodology ......................................................................................... 64
     Characteristics of a DBR approach ......................................................................................................... 65
     Why DBR? Scientific Contribution of this Work Using DBR ............................................................... 65
     Study Design ........................................................................................................................................... 67
     Phase One: Requirements-Gathering, Feedback and Brainstorming .................................................. 68
     Phase Two: Play-test and Data-Gathering ............................................................................................... 68
     Participants ............................................................................................................................................... 70

Chapter 4  Design Process, Findings, and Results .................................................................................... 72
Patterns and Themes

Qualitative Analysis: Triangulation of Data with Maximal Variation Sampling

Role of Researcher in Interpretation of Data

General Trends from Pre to Post

Procedure for Analysis of Pre- and Post-tests

Exploratory Data Analysis Procedures for diff1

Learning Facts Regarding Asian Culture: Paired Sample T-Test

Learning Facts Regarding Asian Culture: ANCOVA Model for testing differences in learning between groups

Analyses for Diff2

Perceptions of Asian Culture: Paired Sample T-Test

Perceptions of Asian Culture: ANCOVA Model for testing differences in perceptions of Asian culture between groups

Analyses for Diff3

Perceptions of Self-Identity: Paired Sample T-Test

Perceptions of Self-Identity: ANCOVA Model for testing differences in perceptions of self-identity between groups

Role of Researcher in Interpretation of Data

Qualitative Analysis: Triangulation of Data with Maximal Variation Sampling

Overview of Concept

Design of Flying Asian Stereotypes! Experience

Overview of Concept

Design of the Fob Or Not? Game

Overview of Concept

Design of the Fob Or Not Experience

Themes

T1. Gain of new perspectives, facts and realizations on Asian culture (Learning Outcome)

T2. Realization of misconceptions while judging acculturation by external appearance (Identity Outcome)

T3. Greater awareness of one’s assumptions, biases, and misconceptions (Identity Outcome)

T4. Identity definition while playing the games (Identity Outcome)

T5. Ability to learn various things about self and identity (Identity Outcome)

T6. Pride or affiliation with one’s culture (Identity Outcome)

T7. Empathy and/or comparisons to self (Identity Outcome)

T8. Increased awareness of Asian issues (Outcome Related to Perception of Asian Culture)

T9. Increased sophistication in understandings of stereotypes (Outcome Related to Perception of Asian Culture)

T10. Learning of the existence of certain stereotypes (Outcome Related to Perception of Asian Culture)

T11. Shared battle (Perception of Asian Culture Change)

T12. Tensions fitting in with a culture (Observation/Reflection of Identity)
Chapter 5 Discussion

Revisiting the Research Questions
Research Question 1
Research Question 2
Research Question 3
Research Question 4
Research Question 5
Research Question 6
Research Question 7
Design Feedback and Principles
Design Changes and Redesign

Chapter 6 Conclusions

Contributions of Research
Limitations of the Study
Why Does This Work Matter?

Appendix A Initial Survey on Beliefs of Asian Culture

Appendix B Semi-Structured Interview Protocol

Appendix C Sample Post-test

Appendix D Sample Transcript

References
LIST OF FIGURES

Figure 1-1: The Yellow Terror in All His Glory, 1899 editorial cartoon..........................5
Figure 1-2: Examples of Asian stereotypes in the media today........................................6
Figure 1-3: Comic strip portraying stereotypes of Asians...........................................5
Figure 2-1: Identity play and learning about diversity within a virtual world platform.........6
Figure 2-2: Cross-cultural course investigating possible selves, gender, IT careers ..........5
Figure 2-3: Student creating ethnic and gender congruous identities of success.............6
Figure 2-4: Example of an advergame: Mini-golf game for Orbitz flight services ..........5
Figure 2-5: The McDonald’s Game: an anti-advergame based on food politics ..........6
Figure 2-6: NewsGaming.com’s political commentary game, September 12 ...............5
Figure 2-7: Ayiti: The Cost of Life and Darfur is Dying..............................................6
Figure 2-8: Fatworld, a Persuasive Game on obesity in America.................................5
Figure 2-9: PosOrNot: A game that challenges assumptions about HIV/AIDS...............6
Figure 4-1: Campuswide stereotype poster activity.......................................................5
Figure 4-2: Mockup of Mini-Game One........................................................................6
Figure 4-3: Intro screen to Flying Asian Stereotypes! Game........................................5
Figure 4-4: Instructions for how to play Flying Asian Stereotypes! Game.......................6
Figure 4-5: Player chooses between “Identity Choice” stars to construct identities........6
Figure 4-6: Player may avoid or touch “Nerd” stereotype moving towards avatar..........5
Figure 4-7: “Nerd” stereotype hits player......................................................................6
Figure 4-8: Fact about Asian American depression and suicides presented within game.....5
Figure 4-9: Intro/splash screen for Fob Or Not Game..................................................6
Figure 4-10: Instructions for Fob Or Not Game..............................................................5
Figure 4-11: Recording one’s initial thoughts on ability to judge by external appearances...6
Figure 4-12: Basic gameplay of FobOrNot Game..........................................................5
Figure 4-13: Feedback and scoring mechanism of Fob Or Not Game ......................... 6
Figure 4-14: Comparing player assumptions with bios ........................................... 5
Figure 4-15: Player reflections after playing Fob Or Not game ................................. 6
Figure 4-16: Box with final score displayed at the end of Fob Or Not Game ............. 5
Figure 4-17: Diagram of procedure ........................................................................... 6
Figure 4-18: Histogram and Q-Q plot ................................................................. 5
Figure 4-19: Tests of Normality ............................................................................... 6
Figure 4-20: Scatterplot of response variable by pre-test ....................................... 5
Figure 4-21: Boxplot ............................................................................................... 6
Figure 4-22: Paired Sample Statistics ..................................................................... 5
Figure 4-23: Histogram of Residuals and Scatterplot of Residuals vs. Predicted Values ..... 6
Figure 4-24: Results of ANCOVA analysis ............................................................. 5
Figure 4-25: Histogram and Q-Q plot .................................................................... 6
Figure 4-26: Scatterplot ......................................................................................... 6
Figure 4-27: Boxplot ............................................................................................... 5
Figure 4-28: Results of Paired T-test. ...................................................................... 6
Figure 4-29: Histogram of Residuals and Scatterplot of Residuals vs. Predicted Values ..... 6
Figure 4-30: Estimated Marginal Means. ............................................................... 5
Figure 4-31: Results of ANCOVA ......................................................................... 6
Figure 4-32: Histogram and Q-Q plot .................................................................... 5
Figure 4-33: Test of Normality. .............................................................................. 6
Figure 4-34: Scatterplot ......................................................................................... 5
Figure 4-35: Boxplot ............................................................................................... 6
Figure 4-36: Paired Sample T-Test ......................................................................... 5
Figure 4-37: Histogram of Residuals and Scatterplot of Residuals vs. Predicted Values ..... 6
Figure 4-38: Levine’s Test of Equality of Error Variances ........................................5

Figure 4-39: Results of ANCOVA ..............................................................................6

Figure 4-40: Estimated Marginal Means .................................................................5

Figure 5-1: Image of Game Redesign .......................................................................6
LIST OF TABLES

Table 2-1: Erikson’s Eight Stages of Psychosocial Development. .............................................4
Table 4-1: Non-Asian survey response to words and beliefs related to Asian people..............6
Table 4-2: Variable Descriptions. ........................................................................................................4
Table 5-1: Conceptions of Asians During Fob Or Not Game. .....................................................6
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Chapter 1

What is the need and why is it important to address and study?

Introduction and Overview of the Dissertation

Despite being labeled a “model minority” and viewed as regular achievers of academic success, Asian-American youth often face serious issues and challenges in society that largely go unnoticed and unaddressed. These include: (1) the effects of widespread stereotypes, some of which are overtly negative (e.g. “Asian men are emasculated, passive wimps unfit for leadership positions”) and other stereotypes that seem positive initially, but are in fact damaging or limiting (e.g. “Asians are smart nerds, great at math and science”); (2) a “shame culture” that masks real problems that need to be addressed, including a large number of Asian groups who tend to struggle at the bottom of the academic curve (CARE, 2008); (3) parental, cultural, and societal pressures to succeed and meet sometimes unrealistically high expectations of the “Model Minority” image (Wang & Lin, 2005); and (4) the “caught between two worlds” cultural clash between Asian and Western values that leads to identity crisis (Erikson, 1968), role confusion, and in some cases depression, mental illnesses, or even suicide (Cohen, 2007). There is a need for a broader awareness of issues and problems facing Asian-Americans today, as well as novel strategies for Asian-American identity development and self-empowerment. Simultaneously, there is a need to understand how technology can play a role in shaping self-concept and possible selves (Markus and Nurius, 1986).

The following roadmap provides a preview of the contents of this dissertation. In this first chapter, I will describe the background of the problem facing the Asian-American ethnic minority group, its significance and why it is important to study. I will then provide a
representative literature review in Chapter Two, including a discussion of the existing theoretical lenses for understanding identity and self-concept and existing approaches to identity development. Upon highlighting the gaps within this literature, I will then move onto a discussion of design-based interventions and identity play within technologies such as Serious Games, and the need for more research in this space. Based on the needs described in the first two chapters, Chapter Three will present a promising approach that proposes and tests a specific kind of Serious Game that I call Identity Supportive Games (ISGs). This game design seeks to address these challenges while advancing theory on learning within digital games for social impact. The chapter will provide methodological details including design propositions tested, an initial design of two Identity Supportive Game prototypes, and a description of the participants sampled. Chapter Four will provide the results of the study: a thorough discussion of the design process (e.g., how the two game prototypes were designed), quantitative results, and the themes that emerged from the qualitative data. Chapter Five will revisit the research questions and discuss the significance of the findings. Finally, Chapter Six will provide some concluding thoughts for this work, including remarks on contributions to the field and limitations to the study.

To begin my discussion of the needs facing Asian-Americans, I will first make some distinctions that are important to discuss in order to better grasp the complex problems at hand. This includes some basic facts about the fastest growing segment of the U.S. population, as well as the origin and effects of various stereotypes that continue to be perpetuated today.

A paucity of research on a diverse, extremely fast growing segment of the population

Asian-Americans, defined by the U.S. Bureau of the Census as people “having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent
including...Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam,” comprise 4.2% (or 11.9 million) of the overall U.S. population, as of the most recent U.S. Census (U.S. Census, 2000). While media often discusses Asian-Americans as though they were one homogeneous group with shared values, traditions, and experiences, a closer examination reveals an amazing range of diversity. Asian-Americans represent over 28 ethnic groups, the largest of which are Chinese (2.7M), Filipinos (2.4 million), Asian Indians (1.9M), Vietnamese (1.5M), Koreans (1.2M), and Japanese (1.1M). Other groups of significant size are Cambodians (206,000), Pakistanis (204,000), Laotians (198,000), Hmong (186,000), and Thais (150,000) (U.S. Census, 2000).

It is critical to recognize that Asian-Americans represent a “full range of socioeconomic spectra, from the poor and underprivileged to the affluent and highly educated” (CARE, 2008, p. 15). Asian-Americans also vary in culture as much as the French differ from Italians or the English from the Norwegians and Germans, though all are Europeans. Diversity in terms of generational and acculturation status is evident, as Asian-Americans such as the Hmong are much more recent immigrants, while many Japanese are now fifth and sixth generation Americans (Nguyen & Huang, 2007). Furthermore, the historical backgrounds and motivations for entering the United States are diverse: some, like the Vietnamese, entered as political refugees, while others came as immigrants and still others as “sojourners” who intend to return to their countries of origin (Nguyen & Huang, 2007). These factors, as well as various other cultural differences, are a major reason why Asian-Americans have a broad variety of beliefs, values, and practices.

Importantly, Asian-American youth have rapidly become the fastest growing segment of the population in the United States; they will increase by 74% by 2015 (compared to 19% for African American and a decrease of 3% for White non-Hispanic), and will increase to 20 million by 2020 (Nguyen & Huang, 2007). Asians account for one-third of all new arrivals since the 1970s (Lee and Zhou, 2004). Despite the group’s increasing presence, however, there is a lack
of understanding of the needs of this diverse group and a general paucity of research available
(Nguyen & Huang, 2007).

In addition to a lack of understanding of Asian-American issues, in many cases oversimplifications or altogether inaccurate conceptions of Asian-Americans persist. Images of Asian-Americans portrayed in the media often reinforce stereotypes held about this group, which can be degrading and limiting (Kawai, 2005). It is helpful to consider the history of Asian-American immigration and other key events and how Asian-Americans have been represented in media to better understand how these stereotypes may have come into existence. The next section briefly summarizes a historical overview of the origin of Asian stereotypes and how popular media has echoed sentiments from society.

The Origin of Stereotypes for Asians

Since early Chinese immigration in the late 1840s, some Whites resented Asian immigrants, viewing them as a foreign culture and an economic threat and competition for scarce jobs and resources. Political theorist and author Lothrop Stoddard (1920) wrote books arguing against Asian immigration, claiming immigrants threatened American society, with their presence a "peril." The view of Asians as “an undesirable race” led to the U.S. Chinese Exclusion Act of 1882, which turned Chinese Americans into the first “illegal aliens” and reduced Chinese immigration from 30,000 per year to just 105 (CARE, 2008). During this exclusionary era, the metaphor known as “Yellow Peril” (or “Yellow Terror”) was given, and the only image most Americans had of Asians was the “wily, mysterious, sneaky, and inscrutable” portrayal in numerous newspapers (e.g., the representation in the editorial cartoon in Figure 1-1 below) and in films (Mok, 1998, p. 188). As a popular theme, Yellow Peril was essentially made incarnate in the master criminal Fu Manchu, created by Sax Rohmer in his book The Mysterious Fu Manchu.
in 1929. Fu Manchu was cruel, sardonic, and mysterious, and reinforced negative stereotypes of Asian men as alien outsiders, sneaky, or evil (Zhou and Lee, 2004).

![Figure 1-1 The Yellow Terror in All His Glory, 1899 editorial cartoon.](image)

In contrast to the cruel and mysterious villain Fu Manchu, symbolic of the “evil Asian” archetype, the “good Asian” archetype can be traced to author Earl Derr Bigger’s character Charlie Chan. Charlie Chan, featured in over 10 novels and 40 films starting in 1925, was depicted as an emasculated, unassertive, wise yet apologetic Asian detective who solves cases while politely enduring racist insults from White characters. He often spoke in broken English with a thick accent, often using aphorisms and wise sayings. Compared to the other white fictional detectives of the time period, Charlie Chan was not threatening, daring, nor romantic. Instead, he “walked with the light dainty step of a woman,” and once while being insulted, he meekly responds, "Humbly asking pardon to mention it, I detect in your eyes slight flame of hostility. Quench it, if you will be so kind. Friendly co-operation are essential between us." (Bigger, 1925, p. 76). This portrayal of the submissive, docile Asian also reinforced stereotypes of Asian men as wise, yet effeminate or weak.
War and politics played a large role in how various Asian groups were depicted in the media. Around the beginning of World War II, American films depicted the Chinese in a more positive manner (albeit one-dimensional) than before. Chinese people (generally played by White actors) often were depicted as hardworking, self-sacrificing peasants in movies such as The Good Earth (Mok, 1998). Following Japan's attack on Pearl Harbor in 1941, Hollywood continued to portray the Chinese as docile peasants while portraying Japanese soldiers as cruel and lustful men (Mok, 1998). Soon after World War II, Mao Zedong’s rise to power in the People's Republic of China in 1949 caused helped fuel anti-Communist sentiment, particularly against China and North Korea, especially as the United States got involved in the Korean War. Japan, meanwhile, was viewed more favorably, as it adopted the United States’ democratic and capitalistic ideals. In the subsequent 20 years, new villains were introduced. During the Vietnam War, Vietnamese men were depicted in films such as The Deer Hunter as “sneaky warmongers—often as brutal, anonymous people capable of extreme brutality” (Mok, 1998, p.188).

While stereotypes of Asian men perpetuated in writing and film have been negative and damaging, sadly, the stereotypes of Asian women have been just as harmful or worse. Filmmaker Renee Tajima has called the representation of Asian women in Hollywood a “Dragon Lady/Lotus Blossom” dichotomy (Hagedorn, 1997). In other words, Asian women have historically been either maliciously deceptive seductresses nicknamed Dragon Ladies, or else Lotus Blossoms (or helpless China Dolls): delicate, subservient possessions to be acquired by White men (Kawai, 2005; Lee & Zhou, 2004; Fung, 1994). They have frequently been portrayed as aggressive or submissive hypersexual beings – as self-sacrificing, servile war brides, Geishas, Tokyo Roses, or prostitutes.

In summary, it can be seen that Asians, corresponding to historical events at various points in time, have traditionally been stereotyped and depicted in mass media as negative or strange misfits and weirdos: unassimilable aliens, segregated from other Americans, with
corrupt or backward cultures; yellow peril (“Fu Manchu”); and feminized asexualized men (“Charlie Chan”); while Asian women have been depicted as helpless, objectified Yellow Geishas, China dolls, or sinister dragon ladies.

**Lingering stereotypes continue to be seen and perpetuated today**

Asian-Americans in the TV and film industry today continue to be largely marginalized, invisible, and given few major roles. Even when films feature predominantly Asian subject matter, the main character is typically White (as in *The Last Samurai* (2003), *The Killing Fields* (1984), or *Seven Years in Tibet* (1997)). When Asians or Asian-Americans are cast in major roles, they are often depicted in negative, limiting, or one-dimensional ways. Unfortunately, these stereotypes and biases are not limited to movies and TV, although examples of their reach are most easily seen there. Residual effects of historical events and stereotypes of yesterday linger on, as the modern day portrayal of Asian-Americans reveals evidence of how they are perceived in society. The following is a brief list of some examples of Asian stereotypes (as commonly seen in popular culture and media):

- **The Outsider: Asians as perpetual foreigners who cannot be assimilated.** Asians are often shown as alien outsiders who speak broken English or use otherwise thick accents (Mok, 1998; Lee & Zhou, 2004). In *Sixteen Candles* (1984), for instance, a Chinese foreign exchange student known as Long Duk Dong is depicted as alien and speaks using very strange noises; or more recently, outlandish depictions of Asians are commonplace on the comedy show *MadTV*. For example, a recurring sketch entitled “He’s an Average Asian” depicts an Asian-American male as an “average” character who tries to fit in as part of the mainstream, but all other characters invariably assume that various eccentric
Asian stereotypes must be true about him (e.g. he knows kung fu, he is bad at driving, he is abnormally gifted at music, etc.)

- **The Bad Leader: Asian males as passive and lacking in leadership, verbal, and management skills.** Asians are stereotyped as passive, bad leaders and lacking in leadership/managerial skills including creativity, verbal communication, analytical thinking, divergent thinking, etc. (Kim & Yeh, 2002). A survey on attitudes towards Chinese-Americans revealed disturbing findings: 23% of Americans would not want a Chinese-American to be President of the United States, in contrast to 15% compared with an African American candidate, 14% compared with a woman candidate and 11% compared with a Jewish candidate (ADL, 2001). In the same vein, 7% of those surveyed said they would not want to work for an Asian-American CEO, in contrast to 4% for an African-American, 3% for a woman, and 4% for a Jew.

- **The Token Dead Villain: Asians as inept, unintelligent and anonymous villains.** In numerous movies including *Kill Bill* and *Rambo*, Asians are often shown as less intelligent and less skilled than their White counterparts (Prasso, 2005). They are usually nameless, anonymous, inferior, and replaceable. They make numerous blunders and almost always lose in combat, piling up huge numbers in casualties.

- **The Cookie Cutter Asian: All Asians look the same.** Related to the perception of Asians as unassimilable outsiders and anonymous, nameless token individuals is the hackneyed expression that “All Asians look the same.” The website AllLookSame.com allows visitors to explore this stereotype by viewing photos and testing their ability to identify the correct ethnicities of Asians (AllLookSame, 2008).

- **The Reject: Asian males as undesirable romantic partners.** In the movie *The Joy Luck Club* (1993), based upon Amy Tan’s novel, the Asian men are depicted as abusive misogynists, promiscuous, and irresponsible. One husband was depicted as a rapist, while the other was an irresponsible playboy. Asian men are rarely depicted as romantic partners that are desirable and positive (Mok, 1998). In addition, Asian men are commonly depicted as less physically or sexually attractive (Kee, 1998; Topix, 2008). For example, a common stereotype is that Asian men have small genitals (Topix, 2008).

- **The Gaysian: Asian males as effeminate and ambiguously gay.** Details Magazine in April 2004 published a feature entitled *Gay or Asian?* (see Figure 1-2 below) that compared the physical features and fashion style of Asian males to outrageous Asian and gay stereotypes. The feature reads: “One cruises for chicken; the other takes it General Tso-style. Whether you’re into shrimp balls or shaved balls, entering the dragon requires imperial tastes…So choke up on your chopsticks, and study hard, Grasshopper: A sharp eye will always take home the plumpest eel.” Although Details claimed the piece to be nothing more than comedic satire, “Gay or Asian?” infuriated both gay and Asian communities, resulting in thousands of signatures in online petitions.
• The Yellow Uncle Tom: Asians as passive, wise sage. The Yellow Uncle Tom image, very much related to its precursor Charlie Chan, is usually depicted as an old, effeminate Asian man who is very wise and speaks mildly in broken English. Examples of the Yellow Uncle Tom include the character Mr. Miyagi, played by Pat Morita, in *The Karate Kid* movies (1984-1994). Morita, despite being an American WWII veteran, still portrayed the character with a foreign accent.

• The China Doll/Lotus Blossom: Asian women as exotic, weak and subservient. In several movies, Asian women are shown as beautiful and delicate, soft-spoken, young, and subservient with little identity (Prasso, 2005; Mok, 1998). In many cases, she is more like an object or sexual toy, in movies such as *Return to Paradise* (1998) and the *Year of the Dragon* (1985). Some have argued that the stereotype of Asian women as submissive sex objects has impeded women's economic mobility and has fostered increased demand in mail-order brides and ethnic pornography (e.g. Kim, 1984).

• The Dragon Lady: Asian women as seductive, backstabbing, and evil deceivers. Another popular image for Asian women is the Dragon Lady (Hagedorn, 1997; Prasso, 2005). In contrast to the China Doll/Lotus Blossom, the Dragon Lady image depicts Asian women as untrustworthy and evil.

• “Yellow Fever”: The White Male-Asian Female Combination. While Asian men are rarely depicted as positive romantic partners for White women (Prasso, 2005), Asian women are commonly portrayed as positive romantic partners for White men (e.g. films such as *Tomorrow Never Dies* (1997), *The World of Suzie Wong* (1960), *Live Free or Die*...
This stereotype is explored in Wong Fu Productions’ movie, Yellow Fever.

- **The Mystic Fighter: Asians as skilled, machine-like fighters.** The Mystic Fighter is a skilled Asian fighter who is powerful and usually fights for good. He does not seem quite human; he is almost machine-like. He generally speaks in broken English. Bruce Lee and Jet Li have often been featured in this role, in movies such as Fearless (2006), Hero (2002), and Enter the Dragon (1973).

- **The Model Minority: Asians as model worker, overachiever, or math/science/computer nerd.** The term Model Minority, coined in 1966 at the height of the Civil Rights Movement, is a stereotype that initially seems positive, but actually is very harmful, as I will discuss shortly. On television and in film, Asians are often depicted as quiet, diligent, successful model students or citizens that generally lacking flaws except perhaps working too hard and being out of touch socially (Mok, 1998b). Asians are also depicted as very intelligent and gifted, especially in areas such as math, science, and computers (see Figure 1-2 depicting Time magazine cover entitled, “Those Asian-American Whiz Kids” below). This picture is often painted to the extreme, in which Asians are robbed of humanity and lacking any signs of shortcomings (Kim & Yeh, 2002).
Figure 1-2 Examples of Asian stereotypes in the media today: Details Magazine (left) and Time Magazine (right).

Figure 1-3 Comic strip portraying stereotypes of Asians (Toyoshima, 2008).
As evidenced in these examples, Asian stereotypes still linger on, disturbingly, in various forms, including mainstream shows within popular media, regularly permeating American consciousness. Yee (1992) has argued that the stereotypes and perceptions of Asians and Asian-Americans are dualistic in nature in that they tend to "flip-flop" from positive to negative depending on various attitudinal elements in U.S. society. Yee describes two harmful effects of this flip-flopping characteristic of Asian stereotypes. First, this adds to the perceived homogeneity of Asian-Americans (i.e., "all Asians are the same"). Second, Asians are seen as being of one extreme or another in either a positive (e.g. wise sages, exemplary citizens) or a negative light (e.g. sadistic executioners, sly villains). Yee has hypothesized that American attitudes toward Asians carry strong evaluations of Asians as alien competitors, perhaps of two forms: exemplary and pernicious. He believes that these stereotypes have the power not only to influence attitudes and behaviors toward Asian Americans, but also to influence the attitudes and behavior of Asians themselves.

Social psychological literature confirms the fact that stereotypes are often harmful on both short term academic performance and long-term identity. Steele (1997) describes stereotype threat, a phenomenon in which academic performance is depressed when negative stereotypes about stigmatized groups are evoked. This phenomenon, replicated in over 100 studies in the last decade, demonstrates a direct and immediate effect on a testing situation that evokes it, as well as a cumulative erosive effect over time that influences both intellectual performance and a longer-term sense of identity (Steele, 1997). Shih et al. (1999) also found that ethnic stereotypes impact academic performance, even when the stereotypes are not explicitly evoked. They administered standardized math tests to Asian-American women and found that those reminded of their Asian heritage did better than those reminded of their gender or those in the control group. However, the stereotypes increase self-imposed pressure upon Asian-Americans to fit that stereotype, and
when they are unable to do so, this leads to emotional distress (Kim & Yeh, 2002) and self-imposed views that they are a failure to their own race, leading to unflattering self-deprecating terms such as a “Not So Smart Asian” (NSSA).

In addition to self-imposed pressure to succeed, stereotypes can very often lead to both subtle and direct forms of racism or discrimination against Asian-Americans. Discrimination, which affects a person's attitudes and behaviors toward an individual (e.g., an unwillingness to vote for a politician simply because of his or her race) can frequently work against Asian-Americans in various settings, including the workplace. Stereotyping limits opportunities (e.g. the ability to work certain managerial positions) and access to resources (Fisher et al., 2000; S. Lee, 1996).

In addition to these effects, stereotypes assigned to Asian-American can create resentment or conflicts among peers. Fisher et al. (2000) found higher levels of distress from peer discrimination (e.g. being threatened, called racially insulting names, and excluded from activities) in Chinese and Korean students than in African Americans, Hispanics, and Whites. In extreme cases, stereotypes and beliefs related to race and ethnicity can lead to violence and racially motivated hate-crimes. For example, the case of Vincent Chin, a Chinese-American who was misperceived as Japanese-American and was murdered by two White men who lost their jobs, was an incident fueled largely by Anti-Japanese sentiment. According to the FBI Hate Crime Statistics report for 2006, more than 65% of hate crimes reported were related to race and ethnicity, and hate crimes against those perceived to be “the other” have been on the rise since the terrorist attacks of September 11 (FBI, 2007; AAJC, 2003). Negative stereotypes can cause people to assume characteristics about an individual, even if entirely unfair or untrue. Understanding and coming to appreciate cultural differences may help to reduce negative or inaccurate stereotypes, which may in turn reduce violence or hate crimes.
What about the effects of seemingly “good” stereotypes? It is interesting to note how prejudice (in the form of preferential treatment or high expectations) can also work in favor of an Asian-American in certain contexts, but even these seemingly positive attributions often cause detrimental effects that are not readily apparent. For example, consider the following scenario: A teacher believes Asian-American students to be intelligent and hardworking, which may affect the grades of the student (perhaps causing the teacher to grade more positively, or possibly, to grade more strictly). In the long run, however, harmful side effects often develop. A student may strive to maintain his or her hardworking image by being obedient and conforming, pigeonholing himself or herself, or else a student who rebels against these stereotype-driven expectations faces the wrath of his teachers for violating their notions or expectations of a "good" Asian (Sue & Sue, 2006). Asian-Americans who do not perform well in mathematics are often denied the assistance they need to improve (CARE, 2008).

Evidently, damaging consequences are not limited to overtly negative stereotypes. While some may believe certain stereotypes attributed to Asian-Americans are harmless or even complimentary, the research indicates otherwise. For example, the Model Minority image can increase self-imposed stress and expectations to succeed, while negatively affecting academic performance (Lee, 1996; Cheryan & Bodenhausen, 2000). In addition, the stereotype negatively influences the perception of Asians’ capability and likelihood of success in managerial and leadership positions, leading to a glass-ceiling effect dubbed the “Bamboo Ceiling,” in which Asian-American men with equivalent or superior education and experience levels receive less income and are excluded from managerial jobs on the basis of subjective factors such as "lack of leadership potential" or "inferior communication ability" (Cheng & Thatchenkery, 1997; Wong and Nagasawa, 1991). Third, this stereotype has also sometimes led to the exploitation of Asian-American employees (Choi & Chen, 1996). Furthermore, this image has rendered invisible a large number of Asians who need financial and academic help. While certain Asian-American
groups (primarily of Chinese, Korean, and Japanese descent) have achieved much success, the Model Minority stereotype masks the fact that many Asians (particularly those from Southeast Asian countries like Laotian, Hmong, Cambodia) actually fall into the highest poverty rate and lowest academic success rate levels (CARE, 2008).

As Asian-Americans are regularly confronted with stereotypes and perceptions that are in part socially constructed by Hollywood and mass media, they are constantly reminded that they are anything but “normal.” (Wong et al. 1998; Kim, 1997; Oyserman, 1997; Kawai, 2005; Mok, 1998b). They are frequently homogenized into a uniform social group (the “model minority”) while derogatively stereotyped as “nerds,” “geeks,” “passive,” or various other names, deviant from normal teenage Americans. (Lee and Zhou, 2004). Asian-Americans may start to believe these perceptions and internalize stereotypes held about their group as a result of the Reflected Self (or Looking-Glass Self) phenomenon in which people come to see themselves as they believe others see them (Tice & Wallace, 2003). In addition, Asian-Americans must confront and sort through the cultural clash caused by being immersed in the middle of two completely different worlds in direct conflict: an Asian heritage and its value system colliding with a Western value system.

**The Consequences of Identity Crisis and Being Caught Between Two Worlds**

Erikson (1968) coined the term *identity crisis* to describe the most important conflict human beings encounter as they go through eight developmental stages in life. According to Erikson, an identity crisis is a time of intensive analysis and exploration of different ways of looking at oneself, struggling between feelings of identity versus role confusion. Marcia (1968; 1993) extended Erikson’s work, describing *identity achievement* as the most secure identity status, i.e., commitment to a secure identity.
Asian-Americans face an extra challenge as they go through this developmental process, as the challenge of negotiating between two clashing worldviews further exacerbates identity crisis (Sue & Sue, 2006). As Lee and Zhou (2004) put it, “native-born Asian-Americans find themselves caught between two vastly different worlds and at ease with neither.” (p. 14). The Western and Asian cultures generally have directly contradictory values and standards over several fundamental issues including risk aversion, individualism/collectivism, power distance, and other civil liberties (Hofstede, 1980). In heavily Confucian-influenced Asian nations, for example, the primary family unit is very strong and typically exerts heavy-handed control over its members. Parents often play a very central role in guiding important choices in their children’s lives, including constraints on possible career choices (Leong & Serafica, 1995). Emphasis is placed on obedience to authority and elders, obtaining a good education, and giving the family a “good” name, which tends to result in greater passivity and less autonomy in individuals (Sue & Sue, 2006). The fear of experiencing guilt or shame is a powerful force that encourages self-control and risk aversion, as is a sense of responsibility and living up to the expectations of elders (Sue & Sue, 2006). Simultaneously, Western values assail Asian-Americans on multiple fronts, including mass media, peer circles, and schools. Emphasis on individual personal freedoms, assertiveness, spontaneity, and risk-taking can be in direct conflict with Asian values of deference and reserve (Hofstede, 1980).

The consequences of identity crisis and being caught in between two vastly different worlds are multifaceted. Asian-Americans struggle to find their role in society, as they often find difficulty aligning their individual interests with acceptable career choices. This is challenging, as they must wrestle with their sense of self-worth and identity, and how much to listen to (or reject) various influences pulling in multiple directions: cultural and parental pressures, peers, stereotypes and societal expectations of what niches are appropriate or desirable for Asians, etc. (Wang & Lin, 2005; Leong & Serafica, 1995). Concurrently, Asian-Americans must deal with
pressures to succeed and high expectations to live up to the smart, hard-working “model minority” image given by society (Cheryan & Bodnehausen, 2000; Lee, 1994). These pressures and other reasons can often lead to a host of self-image and mental problems, including lower self esteem and a distorted sense of self worth (Cohen, 2007; Sue & Sue, 2004). In addition, Asian-American have been shown to view their own ethnicity as being less physically attractive than White counterparts, as well as less desirable romantic partners (Mok, 1998; Sue and Sue, 2006). Worse yet, mental illnesses, depression, and even suicide are not uncommon, as Asian-American women have been reported as having the highest suicide rate among women of any race, ethnicity for that age group (Cohen, 2007). Cohen (2007) also points out that suicide is also the second highest cause of death for Asian-American women between the ages of 15-24.

The Need

In the face of damaging, limiting, and inaccurate stereotypes, identity crisis and other important issues surrounding Asian-American identity, there are specific needs that need to be addressed. First, greater awareness of issues surrounding Asian-Americans are needed, as many misconceptions and myths persist that need to be clarified – everything from the group’s lack of apparent diversity to the real damage done by seemingly positive stereotypes like the “model minority.” Second, there needs to be a greater awareness of societal forces that constrain or cause unwanted behavior, such as stereotypes that limit or pigeonhole people. Third, Asian-American self-empowerment and further support for identity development is needed. These needs run parallel to the needs found in similar groups in other contexts, such as other ethnic minorities in the workplace and women in science, technology, engineering, and math (STEM) fields. The lessons learned and principles learned from addressing the needs of Asian-Americans will benefit these other groups as well.
A Note on Researcher Identity

This problem is personally relevant for me as a Chinese-American who has seen these issues firsthand in my life and in many of my Asian-American peers. While I was born in America and speak English as my primary language, it quickly became apparent since early schooling days in a suburb of western Pennsylvania that I was not perceived to be a “normal” or “average” American citizen, often receiving comments such as “You’re Asian, so you must be smart,” “Ahh-so! Are you related to Bruce Lee?” and “Do you know kung fu?” In addition, I have often had to deal with the tensions involved in being a member of two very different worlds and cultures – everything from deciding how much to assert my personal and career goals and how much to yield to parental pressures, cultural norms and expectations. Like any other member of an underrepresented group in any context, I have often been confronted with stereotypes and their unintended effects, and it is not always clear to me how much these stereotypes have impacted me for better or for worse. I have a strong desire to help bring about positive change or betterment to people, even if in only in small ways or as a first step towards a larger positive outcome.

Now, as a scholar and researcher, many key pieces have fallen into place and I am uniquely positioned to address this issue. I have access and entrée to a large community of Asian-American university students. As a researcher and designer, I value the opportunity to make a difference within this fast growing community, while seeking to gain a richer understanding of theory that can advance multiple fields including the learning sciences and game design. In terms of past experiences that influence my present mindset, I have a Bachelor’s degree with honors in computer science, and experience as a software engineer in a large international software corporation. I also have over four years of graduate training in Information Sciences and Technology, an interdisciplinary field that connects technology design with other
areas including cognitive psychology, education, and sociology. This background and training is invaluable for building a game-based intervention intended to promote learning and social change.
Chapter 2

Literature Review and Preliminary Studies

I will now discuss the relevant literature on identity and self-concept and existing approaches to understand and support identity development. I will begin with an overview of perspectives on identity, the gaps within this literature, and then move to onto a detailed discussion of identity play within technologies such as Serious Games, and the need for more research in this space.

Definitions and Theories of Identity

Identity is a concept that draws upon theories from several different disciplines including psychology, social psychology, sociology, anthropology, cultural studies, and more recently from interdisciplinary fields such as the learning sciences. The researcher trying to formulate a singular definition of identity by studying the vast body of literature will almost certainly find it to be a daunting task. Many conceptualizations of identity exist, each of which may vary in terms of level of analysis, emphasis, agency, or the phenomena of interest. Adding to the confusion is the fact that people of different disciplines sometimes make use of different terminology within parallel universes to discuss largely the same ideas. For example, Hogg et al. (1995) point out that in sociology, identity theory is primarily adopted while in social psychology, social identity theory is often used, with a great deal of overlap in the two theories. In discussing identity, Baumeister (1998) ultimately concludes that it is “not really a single topic at all, but rather an aggregate of loosely related subtopics” (p. 681).
As the literature on identity is vast, multidisciplinary, somewhat overlapping and lacking consistent terminology, I do not attempt to exhaustively review the literature here (see Cote & Levine, 2002 for a review). Instead, I frame the literature on identity into four overlapping perspectives below. I acknowledge that there are many useful ways to organize the literature, and that my approach is one of many possible means to make sense of this vast body of research (e.g. see Gee’s Four Identities (2001) framework for another organizational framing).

I propose the following four categories of perspectives on identity:

1. **Self-concept view.** This view can be described as who a person *is*, or how a person sees himself or herself (‘*you are what you think you are*’). This includes ethnic or cultural identity (self identification with a group and its shared language, attitudes, values, knowledge of group history), gender identity, academic identity (one’s investment in a domain like math or science and self-efficacy in it), and any other facets of one’s personal or ego identity, including possible selves, or the kind of person one wants to become (or avoid becoming) (Markus & Nurius, 1986). One’s self concept can be based on forces in nature (e.g. being a younger brother or being a member in a particular ethnic group) or one’s awareness of his or her unique characteristics or idiosyncrasies that distinguishes oneself from others.

2. **Others-concept view.** A second view can be described as how others conceptualize or describe a person, especially making use of one’s distinguishing roles, positions, responsibilities, and unique traits. In other words, “*you are what other people say you are.*” This typically involves power structures within institutions that can be formal (e.g. to be a “professor in computer science” or the “president of an organization”) or more subtle (e.g. the expectation of what it means to be an “African-American woman” or
“Asian American male”). Personality traits identified during discourse (e.g. to be known as an amicable or creative person) also can contribute to the overall conceptualization of a person (Gee, 2003). The expectations and stereotypes that are often associated with these roles, labels, and terms often this leads to stereotyping, categorization, and in-group and out-group comparisons (Tajfel, 1981; Turner et al., 1987). Gerth and Mills (1953) discuss how one’s behavior is often enacted in order to meet expectations of others, especially significant others such as friends, enemies and individuals who are of value to a person. In the same vein, Tice & Wallace (2003) also describe a Reflected Self (or Looking-Glass Self) phenomenon in which people begin to take on new identities after others attribute skills or positive traits to them (e.g. John begins to view himself as a cook upon developing a reputation among friends that he is “great at cooking.”)

3. Performative view. A third view can be described as what a person does; that is, routine behaviors of individuals acting within particular social contexts (“you are what you do”). As an example, this view would argue that a person must perform the role of a criminal in order to be a criminal. In this way, identity can be described as a dynamic product that is achieved, rather than simply innate or given by default (Caltabiano, 1984; Hogg, Abrams, & Patel, 1987; Simic, 1987). Cultural practices and activities that a person engages in often contribute to who a person is. For example, how cultural factors affect the way youth see themselves as actors in math and science practices has been studied by various researchers (e.g. Nasir & Saxe, 2003). Nasir (2003) describes studies involving “practice linked identity,” in which African-American middle school students initially see themselves as basketball players (“ballers”) with little connection to mathematics, but using fantasy basketball statistics and calculations, soon begin to see mathematics as being more aligned with their identities.
4. **Contextual/Affinity Space view.** A fourth view can be described as how people are “shapeshifters” who present themselves (or appear to others) as a certain kind of person depending on specific contexts or the goals at hand (“you are who you present yourself to be in any given situation”). People wear multiple hats; one could be a female, a younger sister, an environmentalist, an Asian-American, a guitar player, and a professor all at the same time, and yet it is not always clear which identities are activated and which identities in the hierarchy govern thought and behavior. Pittinsky et al. (1999) describe multiple, adaptive identities this way: “an Asian American woman who attends a prestigious university has at least three different social identities that may be salient at different times: (1) her gender identity; (2) her ethnic identity; and (3) her identity as a student at an elite university.” Each identity, linked to common stereotypes, is associated with distinct predictions for her behavior (Pittinsky et al. 1999). New identities are also being negotiated within affinity spaces, as people identify with and desire to participate and belong to a community of practice or a community of interest (Lave and Wenger, 1998; Gee, 2003). People are free to experiment and redefine themselves unlike ever before. This is consistent with Turkle’s (1995) observation that technology in recent years has encouraged people “to think of ourselves as fluid, emergent, decentralized, multiplicitous, flexible, and ever in process.” (p. 263-264).

In summary, identity has been discussed in the literature in different ways; some scholars treat it as a discrete entity that is innate and fixed, resilient to change, while others view identity as much more malleable, fluid, and dynamic.
Identity in the Social Sciences

For decades, identity has been widely discussed in the social sciences, and as can be expected, people of various disciplines approach it from different angles. I will briefly highlight some of the influential themes that emerge in psychology, social psychology, and sociology in order to highlight the gaps and need for further research.

Identity in Psychology: Identity Crisis and Ethnic Considerations

In psychology, identity can be broadly described as one’s mental model of him or herself, including the self knowledge of one’s unique attributes. Early work in the 1960s by Erik Erikson (1968), a German psychoanalyst heavily influenced by Sigmund Freud, considered three aspects of identity: the ego identity (the self), personal identity (the personal idiosyncrasies that distinguish a person from another), and the social or cultural identity (the collection of social roles a person might play). Erikson (1968) also theorized a very influential theory of development known as the Eight Stages of Development, which considered the impact of external factors, parents, and society on personality development from childhood to adulthood (see Table 2-1 below). According to this theory, each stage has its own psychosocial task and a conflict that needs resolution. The adolescent stage, for instance, is about trying to resolve the conflict between identity and role confusion. Adolescents refine and attempt to solidify a sense of self by testing roles and integrating them to form a single identity, or else they become confused or remain apathetic about who they are.

<table>
<thead>
<tr>
<th>Stage (Conflict)</th>
<th>Age</th>
<th>Task (Challenge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust vs. Mistrust</td>
<td>Infancy (0-1)</td>
<td>Develop trust towards self, others,</td>
</tr>
</tbody>
</table>
and environment if basic needs are reliably met

<table>
<thead>
<tr>
<th>Stage</th>
<th>Developmental Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy vs. Shame and Doubt</td>
<td>Toddler (1-2)</td>
</tr>
<tr>
<td>Initiative vs. Guilt</td>
<td>Preschool (3-5)</td>
</tr>
<tr>
<td>Competence vs. Inferiority</td>
<td>Elementary School (6-puberty)</td>
</tr>
<tr>
<td>Identity vs. Role Confusion</td>
<td>Adolescence (teens-20s)</td>
</tr>
<tr>
<td>Intimacy vs. Isolation</td>
<td>Young Adulthood (20s to 40s)</td>
</tr>
<tr>
<td>Generativity vs. Stagnation</td>
<td>Middle Adulthood (40s to 60s)</td>
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<tr>
<td>Integrity vs. Despair</td>
<td>Late Adulthood (60s and up)</td>
</tr>
</tbody>
</table>

Erikson (1968) coined the term *identity crisis*, as a state of distress, disorientation, and role confusion (sometimes referred to as a *turning point*) that occurs as a result of conflicting internal and external experiences, pressures, and expectations, often leading to rebellious behavior or the inability to accept an role they believe is expected of them by parents or society (Erikson, 1968). This idea has become increasingly relevant in today’s global economy and information age, as many students today have been simultaneously blessed and cursed with the freedom (and burden) to choose a vocation (Cote & Levine, 2002). It can be challenging to commit to a vocation in the face of seemingly unlimited options and uncertainty. Further exacerbating the occurrence of identity crisis is globalization, online technology, and other factors that have opened up access to niche pockets of society.

In general, less individualistic cultures (including the vast majority of Asian cultures) tell adolescents who they are rather than letting them decide on their own (Myers, 1998). In contrast, western cultures tend to value individualism and autonomy. This cultural clash of values adds to the complexities of negotiating one’s identity, and can presumably exacerbate identity crisis.
This is one reason why I believe it is important to explore how technology can support identity development in the face of messy and complex cultural influences.

James Marcia extended Erikson’s work on identity crisis with his notion of the identity status paradigm, positing that an adolescent’s identity is determined largely by the choices and commitments made regarding certain personal and social traits (Marcia, 1966). He argued that the adolescent stage consists neither of identity resolution nor identity confusion, but rather the degree to which one has explored and committed to an identity in life domains such as religion, career, relational choices, gender roles, etc. Marcia’s theory of identity achievement argues that two distinct parts formulate an adolescent’s identity: crisis (i.e. a time when one’s values and choices are being reevaluated) and commitment. He defined a crisis (or awakening) as a time of upheaval where old values or choices are being reexamined. The end outcome of a crisis leads to a commitment made to a certain role or value.

Marcia (1966) identified four possible ego-identity statuses, depending on the presence or absence of exploration of identity issues and commitment to a personal identity. (1) identity diffusion, in which adolescents who have neither experienced a crisis nor made a commitment demonstrate a lack of focus; (2) identity foreclosure, in which a person has made a premature commitment based on the options and attitudes of others but has not fully explored for himself or herself; (3) moratorium, in which adolescents are currently in the process of exploring identity options but have not yet made a commitment; and (4) identity achievement, in which a person has explored identities in depth and arrived at a secure, committed sense of self.

Marcia’s four ego-identity statuses are not necessarily representing a developmental continuum; that is, it is possible for individuals to remain identity-diffuse or foreclosed throughout much of their life, or to move in various patterns among the statuses (Waterman, 1982). Identity diffusion and foreclosure are generally seen as less mature forms of identity, and an achieved identity is considered the optimum outcome of the identity process (Waterman,
The moratorium (or exploration) period is necessary for identity achievement. One can therefore think in terms of an ideal sequence from the lower stages (diffusion and foreclosure), through moratorium, to an achieved identity.

While Erikson’s early work on identity crises and Marcia’s work on identity status have been extremely influential, Phinney (1993) observes that relatively little attention has been given to ethnic identity development. She remarks, “Most research on ethnic identity has emphasized the content of ethnic identity, that is, the actual ethnic behaviors that individuals practice, along with their attitudes toward their ethnic group. In contrast…the process of ethnic identity formation, that is, the way in which individuals come to understand the implications of their ethnicity and make decisions about its role in their lives…has been far less studied.” (Phinney, 1990, p. 64).

Phinney (1993) studied 196 Asian-American, black, Hispanic, and white students and found that moratorium subjects were easy to identify by involvement in ethnic identity search, while the other two stages, diffusion and foreclosure, could not be reliably distinguished from each other by coders. Phinney believed that minority subjects initially accept the values and attitudes of the majority culture, including internalizing negative views of their own group held by the majority. Various factors including tensions in conflicting cultural values, parental pressures, or societal expectations may also blur the distinctions of identity statuses. As a result of the studies, Phinney developed a three-stage model for ethnic identity development: (1) Unexamined Ethnic Identity, which essentially combines Marcia’s diffusion and foreclosure identity statuses; (2) Ethnic Identity Moratorium/Search, usually triggered by events that were emotionally disruptive; and (3) Ethnic Identity Achievement, the ideal outcome of the identity process, characterized by a clear, confident acceptance and sense of one’s own ethnicity. While this work provides an important early foundation for capturing snapshots of trajectories towards
identity achievement, there is a need for a greater understanding of how to support this kind of positive identity development.

Another important identity paradigm with implications for self-concept, motivation, and cognition is Hazel Markus and Paula Nurius’s (1986) theory of Possible Selves (see Oyserman, 2006 for a thorough review of the literature on adolescent possible selves). Possible selves represent individuals’ conceptions of themselves in future states: what they might become (e.g. a successful writer), what they would like to become (e.g. a famous athlete), and what they are afraid of becoming (e.g. an unemployed person), and thus provide a conceptual link between cognition and motivation.

Possible selves are important for several reasons. First, they provide a clear goal to strive for (if positive) and to avoid (if negative). In this way they function as incentives for future behavior (i.e., selves to be approached or avoided). Second, they can inspire or energize an individual to pursue whatever actions are necessary to pursue that goal. Ruvolo & Markus (1992) believe that simulating a desired end-state causes the person to create plans and strategies relevant to achieving this state, as well as positive affect and selective information processing for anything that promotes the desired end-state. Some studies suggest that imagining successful possible selves improve well-being (King, 2001) and performance (Ruvolo & Markus, 1992). Finally, possible selves provide an evaluative and interpretive context for the current view of self, which can lead to greater awareness of one’s plans and strategies.

It seems that possible selves theory has much potential as a fruitful approach to supporting ethnic identity development (Oyserman, 2006). By allowing ethnic minorities to envision new possible selves, including atypical selves and those that challenge limiting stereotypes about their group, new identity trajectories can result, and motivation and behavior can be impacted for the better.
While numerous studies have investigated possible selves in many ways, the literature on Asian-American possible selves is nearly nonexistent. Oyserman’s (2006) comprehensive review of the literature on adolescent possible selves found that “compared with African American and American Indian youth, considerably less research attention has focused on the possible selves of Asian American youth” (p. 18). In their review, only one study of possible selves of Asian Americans was found: a small-scale qualitative study (Kao, 2000) that suggests academic possible selves are likely to be common among Asian Americans, and that Asian Americans form these possible selves largely due to stereotypes attributed to their group and pressures to excel to avoid failure. Additional work needs to be done to investigate strategies involving ethnic minority possible selves, especially as it holds a great deal of potential for self-empowerment and growth.

**Identity in Sociology: Roles, Behavior, and Society**

In contrast to the psychological literature where identity research emphasizes self-concept or mental model, the emphasis in the sociological literature on identity is on roles and role behavior. William James (1890) believed that for each person, there are as many different selves as there are different positions that one holds in society and therefore several different groups who respond to the self. Stryker (1980) argued that the self reflects society. As the self is negotiated and constructed in social interaction within the context of a complex, organized, differentiated society, many believe that the self must be complex and organized and differentiated as well (Stets & Burke, 2003). The overall self is organized into multiple parts (identities), each of which is tied to aspects of the social structure. One has an identity, an “internalized positional designation” (Stryker, 1980, p. 60), for each of the different positions or role relationships the person holds in society. Thus, self as a daughter is an identity, as is self as
coworker, self as friend, and self as any of the other myriad of possibilities corresponding to the various roles one may play. The identities are the meanings one has as a group member, as a role-holder, or as a person.

Views of identity in sociology tend to be rooted in the structural approach to the symbolic interactionist perspective (Stryker, 1980). Stets & Burke (2003) describe society as stable and durable as reflected in the “patterned regularities that characterize most human action” (Stryker, 1980, p. 65). A frequently used perspective, growing out of the work of Burke (1980), McCall & Simmons (1978), and Stryker (1968), is identity theory, a micro-sociological theory that sets out to explain individuals’ role relationships and role-related behaviors (Hogg et al., 1995). This view emphasizes that the core of an identity is “the categorization of the self as an occupant of a role and incorporating into the self all of the meanings and expectations associated with performing that role” (Stets & Burke, 2003, p. 134). People are invariably acting within the context of social structure, in which each person employs labels and recognizes others as possessing positions or roles within society (Stryker, 1980). Thus, identity theory explains social behavior in terms of the reciprocal relations between self and society; it is strongly associated with the symbolic interactionist view that society affects social behavior through its influence on the self (Mead, 1934; Blumer, 1969).

Individuals have multiple role identities, defined as “the character and the role that an individual devises for himself as an occupant of a particular social position” (McCall & Simmons, 1978, p.65). Role identities are ranked and organized in a hierarchy of prominence, reflecting one’s ideal self. Multiple role identities give lives meaning and provide guides to behavior (Stets & Burke, 2003). The more prominent one’s role identity, the more likely it surfaces in a given context or situation. Identity negotiation, a process in which a person negotiates with society at large regarding the meaning of his or her identity, may arise from the learning of social roles through personal experience.
People act to verify their conceptions of who they are. A college professor, for example, may act in ways that make it clear to himself or herself and to peers, that she is knowledgeable, smart, analytical, thoughtful, and logical. She may engage in a variety of actions and interactions to convey these images. To identity theorists, these are both individual patterns of behavior and help us understand the individual professor, as well as the same patterns of behavior that are part of a larger social structure.

Another relevant theory is *Reflected Self Theory* (also known as the Looking-Glass Self). According to this theory, people begin to take on new identities based upon their perceptions and beliefs of how others see them (Tice & Wallace, 2003). For example, a person may encounter skills or traits attributed to himself or herself, leading to a refined identity (e.g. Sarah begins to view herself as musically talented upon hearing from a close friend that she is “great at playing the guitar.”) The idea of a “reflected self” originally stems from Cooley (1902), generally considered the first symbolic interactionist. Cooley argued that the idea of the self cannot be separated from social forces and proposed that the self is built by observing how others view himself or herself, and then incorporating those views into the self-concept (Tice & Wallace, 2003).

Since the early conceptions of symbolic interactionists, many scholars now hold a refined view of Reflected Self theory; the basic idea remains, except people see “through the glass darkly” (Shrauger & Schoenerman, 1979). People tend to hold certain views of themselves, and these views can sometimes bias or cloud their perceptions of how others view them. Various studies (e.g. Harter *et al.* 1998; Beaman *et al.* 1979) have found that people do not just view themselves as others actually see them but rather view themselves as they *think* others see them, through somewhat biased processing (Tice & Wallace, 2003). Close, intimate relationships with important others (such as parents and friends) seem to be particularly influential and are especially likely to create a looking-glass self (McNulty & Swann, 1994; Cook & Douglas,
To the extent that people hold idealized beliefs about a person, the person may then move towards an ideal self (Tice & Wallace, 2003).

In order to understand how to impact self-concepts towards ideal selves, more work is needed to consider ethnic minorities’ Reflected Selves – that is, how adolescents view themselves based upon perceived stereotypes and how they believe others see them. In addition, multiple role identities and the negotiation of roles in society need to be better understood.

*Identity in Social Psychology: The Impact of Beliefs About Others*

A popular identity perspective in social psychology is social identity theory (e.g. Tajfel, 1981; Turner *et al*., 1987), defined as an individual’s self-concept derived from perceived membership in social groups (Hogg & Vaughan, 2002). Social identity theory consists of three components: (1) *categorization*, in which people place themselves and others into categories that have value-judgments associated with them (e.g. labeling someone as a Westerner, a Catholic, or football player is a way of suggesting some qualities about these people); (2) *identification*, in which people associate with in-groups that serve to increase their self-esteem; and (3) *comparison*, in which people constantly compare the in-group in which they belong with other groups, typically seeing a favorable bias towards one’s in-group (at the expense of the out-group). The theory was originally developed as an attempt to understand the psychological basis of intergroup discrimination.

Tajfel & Turner (1986) showed that when people merely categorize themselves as members of a group, this was enough to lead them to display in-group favoritism. After being categorized of a group membership, individuals seek to achieve positive self-esteem by positively differentiating their in-group from a comparison out-group on some valued dimension. Social
identity theory provides an important foundation for understanding how stereotypes and subsequent discrimination can be formed.

Another important identity paradigm in the social psychology literature is Dweck’s work on *self-theories* (1999). Dweck and others (1999) have investigated how students develop beliefs about their intelligence and abilities, and how these self-theories shape thoughts, feelings and behaviors. The theories reveal why some students are motivated to work harder, and why others fall into patterns of helplessness and are self-defeating. Students carry two types of views on ability/intelligence: *Entity theorists* and *Incremental theorists*.

Students who are Entity theorists view intelligence as fixed and stable, while Incremental theorists see intelligence as malleable, fluid, and changeable. Entity theorists have a high desire to prove themselves to others; that is, to be seen as smart and avoid looking unintelligent. Entity theorists are susceptible to learned helplessness because they may feel that circumstances are outside their control (i.e. there's nothing that could have been done to make things better), thus they may give up easily. As a result, they may simply avoid situations or activities that they perceive to be challenging (perhaps through procrastination, absenteeism, etc.). Alternatively, they may purposely choose extremely difficult tasks so that they have an excuse for failure. Ultimately, they may stop trying altogether. Because success (or failure) is often linked to what is perceived as a fixed amount of intelligence rather than effort (e.g., the belief that "I did poorly because I'm not a smart person"), students may think that failure implies a natural lack of intelligence. Dweck (1999) found that students with a long history of success may be the most vulnerable for developing learned helplessness because they may buy into the entity view of intelligence more readily than those with less frequent success.

In contrast, those with an incremental view ("Incremental theorists") when faced with failure, react differently: these students desire to master challenges, and therefore adopt a mastery-oriented pattern. They immediately began to consider various ways that they could
approach the task differently, and they increase their efforts. Unlike Entity theorists, Incremental theorists believe that effort, through increased learning and strategy development, will actually increase their intelligence. These students see satisfaction coming from the process of learning and often see opportunities to get better. They do not focus on what the outcome will say about them, but what they can attain from taking part in the venture. Dweck demonstrated empirically that students who hold an entity theory of intelligence are less likely to attempt challenging tasks and are at risk for academic underachievement.

Another relevant theory found in the social psychological literature is the work on stereotype threat (e.g. Steele & Aronson, 1995; Steele, 1997). Stereotype threat is the phenomenon in which a student’s performance can be negatively affected because of concerns that he or she will confirm negative stereotypes about a self-identified group that he or she belongs to. For example, Steele & Aronson (1995) showed in several experiments that Black underclassmen performed worse on standardized math tests than White students when their race was emphasized before taking the test. When race was not emphasized, however, Black students performed better (equivalent to White students). Gender stereotypes also contribute to stereotype threat. Spencer et al. (1999), for example, showed that women’s performance on standardized math tests decreased when primed beforehand of the negative stereotype that females are not as good as their male counterparts.

These studies show that stereotypes clearly have a direct and immediate effect on short term performance and also a cumulative erosive effect over time that influences both intellectual performance and a longer-term sense of identity (Steele, 1997). In other studies, researchers found that consistent exposure to stereotype threat can reduce the degree that individuals value certain academic domains (Aronson, et al. 2002; Osborne, 1995; Steele, 1997). Some members of a group may be more vulnerable to stereotype threat’s negative consequences than others;
factors such as the strength of one’s group identification or domain identification have been shown to be related to one’s subsequent vulnerability to stereotype threat (Steele, 1997).

Stereotype threat studies have been applied beyond stigmatized groups in academic settings to many other groups and contexts, including white men in sports (e.g., Stone et al., 1999), women in negotiation (Kray et al., 2002), homosexual men in providing childcare (Bosson et al., 2004), and women as skilled drivers (Yeung and von Hippel, 2008). These studies demonstrate that no one is completely immune to stereotype threat, and that it is a problem that is far reaching.

To date, very few technology-based interventions for addressing stereotype threat exist. In fact, in media such as digital games, stereotypical images and roles are pervasive, including women portrayed as damsels in distress or hypersexualized objects (Lee et al., 2006). Digital games often embody values that reinforce stereotypes and stereotypical behavior (e.g. ethnic minorities engaging in violence and delinquent behavior in a game like Rockstar Games’ popular yet controversial title Grand Theft Auto 4). We need to understand how game designs and other technology-based strategies can mitigate and alleviate the effects of stereotype threat, and to go a step beyond that: to determine how technology can support the development of positive, secure identities.

To summarize, the literature in psychology, sociology, and social psychology has posed many challenges related to identity. As evidenced in the preceding discussion, ethnic groups are often especially susceptible to identity crisis, internalization of negative stereotypes, and limited roles and possible selves. In the following section, I will discuss ways identity has been understood or manipulated in designed interventions, including technology.
Identity in Digital Games

Identity has been explored within digital games for decades, whether it be early forms of gender swapping in text-based Multi-User Dungeons (MUDs) and Mud Object Oriented (MOOs), role-playing in immersive virtual environments like *Ultima Online* or *World of Warcraft*, or off-the-shelf computer games that allow players to try out novel experiences of all kinds. In the influential book *Life on the Screen: Identity in the Age of the Internet*, Turkle (1995) describes the flexibility and fluidity of taking on new identities in game spaces. Turkle observes that technology in recent years has encouraged people “to think of ourselves as fluid, emergent, decentralized, multiplicitous, flexible, and ever in process.” (p. 263-264). Adopting Erikson’s (1968) framework, she discusses games’ value in providing spaces for Erikson’s notion of moratorium, i.e. constant experimentation and reflection that allows individuals to explore new identities and learn about themselves.

How is it that digital games naturally afford powerful identity play, self-exploration, and opportunities for empathy (Bers, 2001; Gee, 2005)? As Yee (2007) puts it, “Being in somebody else’s body changes the way you see the world.” Games allow players to step into the shoes of a different person, and to see the world from a new perspective (Gee, 2005). For a few minutes or several hours, games can transform a player into a three-inch tall cleaning robot attempting to save a couple’s marriage (such as in the Nintendo Gamecube game *Chibi-Robo*), a soldier in the military relying on teamwork (US Army’s recruitment-based game, *America’s Army*), a child living in poverty in Haiti trying to get an education (Global Kids’ *Ayiti: The Cost of Life*), a diplomat trying to navigate the conflict in Middle East (*Peacemaker*); or simply an Italian plumber trying to gather coins and rescue a princess (Nintendo’s *Super Mario Brothers* platform game). These kinds of experiences, depending on the designer’s values and if leveraged
effectively, can lead to a vast array of possibilities, including increased empathy, recruiting new skills and behavior, and increased transfer back into the real world (offline).

Still, despite rapidly growing interest from researchers, non-profit organizations, and practitioners alike in this relatively nascent technology, not much research yet exists on how to effectively use this form of technology to support identity development or raise awareness about social issues. Digital games for education or persuasion are still generally at the prototype level without many studies documenting the effectiveness of the games, especially in terms of fostering positive social or personal change (Thomson, 2006).

**Game-Based Studies Related to Identity Support or Attitudinal/Behavioral Change**

Various studies have considered how to support identity or positive attitudinal and behavioral changes. Rather than provide a comprehensive review, I will focus on specific studies that are particularly relevant for game-based approaches to supporting identity development.

Nasir (2002) describes how alignment with identity can make the difference between an activity students willingly undertake and learn for (such as learning mathematics in order to play dominoes or in order to keep complex basketball statistics) and an activity students may reject or "fail" at (such as learning mathematics in order to pass tests in school). In studies that explore what Nasir terms *practice-linked identity*, African-American middle school students initially see themselves as basketball players with little connection to mathematics, but after using fantasy basketball statistics and calculations, soon begin to willingly learn math and see math as being a more relevant part of their lives.

Bers (2001) explored how virtual environments can support young people in the exploration of personal and moral values in environments that she called *Identity Construction Environments*. She describes a group of teenagers’ and their designs within virtual city named
Zora. Students populated the virtual city with objects and characters representing aspects of themselves and their values. This work was an attempt to consider how technology can have an impact on character and moral education, and in turn, identity development as adolescents reflect and express themselves by producing digital artifacts.

Baylor & Plant (2005) investigated how allowing students to receive positive messages from avatar-based pedagogical agents could increase females’ interest in engineering. They found that women reported more positive math and science related beliefs compared to their attitudes at the beginning of the semester, and compared to a group of women who did not interact with an agent. Some researchers (e.g. Atkinson, 2002; Moreno et al., 2001) suggest that avatars support the transfer of learning, but not many studies have considered how attitudinal beliefs related to fields such as science or math can be influenced by interactions and experiences in virtual worlds.

Shaffer (2005) described Epistemic Games, in which students are given a set of experiences that simulate aspects of a professional practice (e.g. using simplified tools for urban planning). Data collected in pre- and post-interviews show that in playing these game-like experiences, students began to develop ways of thinking and doing characteristic of urban planners. While the work remains in pilot stages, this work suggests identity play using game mechanics can help young people think in terms of new possible selves (Lee & Hoadley, 2007; Lee & Hoadley, 2006).

Game designers hold a lot of power over the kinds of possible identity presentations available in a game or virtual environment. Many virtual worlds, for example, do not allow for the possibility to play an African-American or Asian-American character, or else the choices are very limited. Game designers’ decisions affect (constrain) possible presentations of self (McDonough, 1999).
Yee (2007), in a set of studies called the *Proteus Effect* studies, explored how characteristics of an avatar in a virtual environment (e.g. perceived attractiveness of the avatar) affects behavior, both within the virtual environment and offline afterwards. Specifically, he set out to determine if users tend to conform to expected behaviors of their avatar. In the first study, Yee found that participants in attractive avatars walked closer to and disclosed more information to a stranger than participants in unattractive avatars. In a second study, he found that those who controlled taller avatars negotiated more aggressively in a bargaining task than participants in shorter avatars. In a third, he demonstrated that the Proteus Effect occurs in an actual online community. And in a fourth study, he found that the Proteus Effect persists outside of the virtual environment: placing a participant in a taller avatar changes how they consequently negotiate in a face-to-face setting.

**Pilot Studies and Relevant Prior Work**

Over the last four years, I have explored identity play and empowerment within various pilot studies and also as part of four classes that I have taught. The insights I gained from these studies were very important in that they have helped shape my understanding of the potential of identity play in serious games to address real world issues. I will briefly highlight what happened and the takeaways that can be drawn from each study.

In 2005, I taught a five-week, 45 hour residential summer enrichment course for 14 high school students in which I provided first-hand learning experiences using avatar-based identity play in two multi-user virtual environment (MUVE) platforms: Linden Labs’ *Second Life* and Makena Technologies’ *There*. Students created and enacted various avatars to explore issues of identity construction, discrimination, stereotype formation, and cultural sensitivity (Figure 2-1). The students reported using the tool to explore and to equalize cultural and demographic
differences. They showed significant improvement on a measure of sensitivity towards an understanding of diversity, and evidence suggests they were able to develop a more sophisticated, less essentialist model of diversity (Lee & Hoadley, 2006). One major takeaway from this study, therefore, was that using avatars to adopt the perspective of another ethnicity or gender can be a powerful learning experience that impacts the perceptions of people in relation to cultural stereotypes.

Figure 2-1 Identity play and learning about diversity within a virtual world platform.

I taught a twenty-hour course consisting of a cross-cultural collaboration with eight high school girls in the United States and ten girls in Jamshedpur, India in summer 2007 (see Figure 2-2 below). Each student in both parts of the world was given a digital camera and personal weblog space for reflection, and each was asked to capture her views on the role of technology in one’s daily life and in society at large. Each student shared thoughts and reflections on her own career
trajectory, and role of technology in relation to her own culture, and so on. Students in America and India enjoyed interacting together, sharing career trajectories, and differences in cultures. A takeaway I drew from this study is that it allowed students to compare and contrast different societal expectations, and therefore more fully explore their own possible selves (e.g. the role of technology and its relevance to one’s future career).

Figure 2-2 A cross-cultural course that investigated possible selves and how gender relates to IT careers.

During fall 2007, I ran a study using the Second Life platform involving math stereotypes, avatar construction, and self-reflection (Lee, Gaydos, & Hoadley, 2008). 38 students were asked to complete short math exams and create two avatars – a realistic avatar of themselves and also an avatar of a hypothetical math expert. The study investigated students’ stereotypes of successful math identities and probed student self-identification with the math domain (e.g., how closely students aligned their own self-concept with those good at math). This study also yielded interesting findings. For instance, while most participants created hypothetical math avatars that were consistent to perceived stereotypes of mathematicians, some participants (e.g., Figure 2-3 below) created math identities that were ethnic and gender congruous identities of themselves
(e.g. a female African-American information sciences and technology student who created an avatar that resembled an older version of herself) – evidently linking to possible selves (Markus & Nurius, 1986). In addition, some participants expressed frustration when mismatches between ethnic stereotypes and self-concept existed. For instance, one male Asian-American student expressed annoyance and shame that he was a “failure to his own race”; he hated math and that he was bad at it, but most of his friends believed he was good at it simply because he was Asian. To summarize the key takeaway from this study, this demonstrated that creating and enacting various identities in virtual environments has the potential to reveal both (1) possible selves and (2) specific realizations about oneself related to stereotypes and subjects like math.

Figure 2-3 Example of a student creating ethnic and gender congruous identities of success.

More recently, in summer 2008, I taught a two week computer game design course for 16 high school students. After covering various topics including values in games, designer metagoals, Serious Games movement, narrative, and basic game design skills, the students designed and developed “Games for Good” – essentially serious games for change or social impact computer games. They chose to design and create games that incorporated themes including peer pressure, cigarette smoking, teen pregnancy, obesity, and making wise choices. Upon designing and playing these games, the students showed significant gains on the belief that “games can change society for the better.” The takeaway I drew from this class was that students felt they
benefited from social impact-based digital games, and that they also felt empowered to benefit others through this kind of technology.

Towards the Right Kind of Game Design for Identity Support

Based upon the above, it seems like a natural fit to leverage the identity-recruiting properties of digital games to address the needs highlighted in both the first chapter and the review of literature. Digital games are engaging, interactive and fun, an important factor when trying to reach a young audience that is increasingly growing accustomed to being both consumers and producers of digital culture. Asian-Americans, compared to other ethnic groups, are one of the most connected groups in the country; that is, they use the Internet and online technologies more often and for a longer duration than all other ethnic groups (Pew Internet, 2001), and so they will likely be relatively comfortable with these kinds of games. In order to understand the significance and potential constructive uses of digital games for shaping identity, I will now provide an overview of Serious Games, a category of digital games that have been of keen interest to educators and academics in recent years. I will then lay down the groundwork for a specific kind of game design to address identity support.

An Overview of Serious Games

The definition of a game (in general) is subject to much debate, and is outside the scope of this paper. For the purposes of this paper, I will adopt Clark Abt’s (2002) simple definition that games are “a particular way of looking at something, anything.” Instead of considering games in general, I will focus on Serious Games, a particular form of digital game with distinct characteristics and goals beyond mere entertainment. The following will provide a brief
overview of Serious Games. I will describe a basic definition and then proceed to highlight a simple taxonomy.

**Serious Games**

Serious Games, in recent years, have gained critical mass as a movement. In 2002, the Woodrow Wilson International Center for Scholars in Washington D.C. launched a “Serious Games Initiative” to encourage the development of games that address policy and management issues. Shortly thereafter, more focused sub-groups emerged, including Games for Change which focuses on social issues and social change, and Games for Health which addresses applications in health care. Outside of the government, there is substantial interest in games for education, professional training, healthcare, advertising and public policy.

There is no one universally accepted definition for Serious Games, as they have been defined in many different ways. Clark Abt (2002) offers one definition for games that have goals beyond mere entertainment: Games with “an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement” (p. 9). While he was referring to non-digital games such as board games and role-play for use in contexts like industry, science, and education, his definition still holds up well for digital games. *Serious Games* is now most commonly used as an umbrella term for a wide variety of technology-based games and simulations used for training, advertising, simulation, conflict-resolution, or education. Commonly used and related terms to describe Serious Games include:

- Digital Game-Based Learning
- Educational Games
- Edutainment
- Games for Change
- Immersive Learning Simulations
- Persuasive Games
- Simulation
- Synthetic Learning Environments
- Social Impact Games
- Virtual Reality

These terms are often used interchangeably, although many would argue that each of these terms have varying foci and distinctive features. Regardless of the term or working
definition one prefers to use, one point is clear: many stakeholder groups are excited about the potential of Serious Games to deliver powerful educational or social benefits to those who play.

Serious Games often contain features that are useful for experiential learning, persuasion, and conveying important messages that can elicit behavioral or attitudinal change (Bogost, 2007). Serious Games proponents argue that games can be more than just mindless fun; they can be an engaging medium that can encouraging new ways of thinking and understanding (Thomson, 2006; Gee, 2005). Indeed, games are often very good at helping people think about and understand complex solutions and problems. Serious Games also feature intrinsic mechanisms allowing for feedback, reflection, active learning, and agency – they force one to evaluate evidence, make choices, and see what happens as a result (Gee, 2005). Furthermore, Serious Games contain a persuasive element that is typically missing from movies, books, and other non-interactive printed material: they present a persuasive argument or message to challenge assumptions and one’s current thinking (Bogost, 2007) and allow the player become a different person, and experience the world from this new perspective via role-play and identity play (Gee, 2005).

**Game Designs and Patterns**

What kinds of game design and engineering patterns are promising to afford the intended outcomes for identity support and development? To generate an effective design that takes advantage of what we know about the features of existing Serious Games, one needs to begin by looking at general game design and engineering patterns. Serious Games are very frequently based on these patterns, which I will summarize below. It should be noted that the boundaries between game genres are becoming increasingly fuzzy (e.g., many games cannot be easily classified as action or adventure, as they are more of an action-adventure hybrid), and that
innovative new games often invent new genres. Based upon Sawyer and Smith’s (2008) partial taxonomy, the following is a working taxonomy in alphabetical order:

- **Action Games.** Action games can take a wide variety of forms, ranging from dance/rhythm type games (e.g. DDR, Rock Band, Wii Music, the Guitar Hero series, etc.), first person shooter (FPS) games (e.g. America’s Army, Counterstrike, Half-Life 2, etc.), side-scrolling platformers (e.g. Super Mario Bros., Sonic the Hedgehog), fighting games, shoot-em-ups, or fast paced, party or mini-games (e.g. Mario Party 8 on the Nintendo Wii). They generally require players to make use of quick reflexes and good timing to overcome obstacles or defeat challenges.

- **Adventure Games.** Adventure Games, starting with the text-based Colossal Cave Adventure in 1972, are generally games involving strong narratives, exploration, searching for clues, and collecting inventory items in order to solve puzzles or advance the plot in a storyline. They are sometimes point-and-click graphical games, such as *King’s Quest* (1983), a highly influential game by Sierra. Other games in this genre include *Myst* (1993), *Zork* (1977), and *Phoenix Wright: Ace Attorney* (2005).

- **Alternate Reality Games (ARGs).** ARGs are games that blend “real-life treasure hunting, interactive storytelling, video games and online community.” These games typically consist of a blending of real-world activities and clues (e.g. newspaper advertisements), dramatic storylines, and a series of codes and puzzles on Web sites. These games, which are usually free, often have a specific goal of not only involving the player with the story and/or fictional characters but of connecting them to the real
world and to each other. Many game puzzles can be solved only by the collaborative efforts of multiple players, sometimes requiring one or more players to get up from their computers to go outside to find clues or other planted assets in the real world. Examples of ARG include The Beast, and I Love Bees.

- **Augmented Reality Games** (also uses the acronym ARGs). Augmented Reality Games are generally defined as games that combine real world experiences with additional information supplied to them by technology such as handheld computers, cell phones, and PDAs. Some scholars have used this technology to promote scientific inquiry skills using location-aware mobile devices and role-playing strategies (e.g. Education Arcade’s Environmental Detective). Other forms of Augmented Reality Games exist. Augmented Card Games, for instance, are a blend of board games and interactive video games (e.g. the Eye of Judgment on the Playstation 3 console).

- **Competitive Fandom.** Users can join leagues that involve “drafting” real-life athletes, celebrities, or other kinds of people and compete to earn points based upon their real-life performance. Competitive Fandom Games are available in a wide variety of genres, including more traditionally common sports such as football or baseball, as well as more niche areas (e.g. Fantasy Congress, based upon the actions of real-life Republicans and Democrats, and Fantasy Survivor, based on a popular TV show).

- **Crowdsourcing Games.** Crowdsourcing can be defined as the act of taking a typically expensive job traditionally done by an agent and outsourcing it to a large
group of people. Developers have packaged tasks in the form of an online game, such as Google’s Image Labeler Game and CMU’s ESP Game for tagging the Web.

- **Geo-location Games.** Geo-location Games (including the act of going on hidden treasure hunts commonly known as Geocaching) typically involve a GPS device and finding clues, information, and artifacts based on predefined coordinates. Examples include Backseat Playground, a game that tracks the location of a car and challenges the user to solve various puzzles and mysteries.

- **Interactive Fiction Systems.** Interactive Fiction takes on various forms, but its defining characteristic is that it is story-centric. Dating and anime-based adventure games fall into this category.

- **MUDs/MOOs.** Multi-User Dungeons (MUDs) or Mud Object Oriented (MOO) are traditionally text-based virtual reality spaces based off an adventure or Dungeons and Dragons theme. Players create avatars, collect items, and interact with non-player characters (NPCs) and each other. MUDs and MOOs paved the way for much more graphically intensive persistent worlds such as Massively Multiplayer Online Roleplaying Games (MMORPGs).

- **Passively Multiplayer Online Games (PMOGs).** Passively Multiplayer Online Games are social meta-games that create new game layers in ordinary spaces of Internet use. For example, Justin Hall created a game that gathers information about players’ web browsing habits and the websites they frequently visit. Each person automatically develops a profile, and the player earns “experience” points and can
“level up” their character simply by surfing the web. Players can create or accomplish user-created “quests” by visiting sites linked by a common theme. Other players can even leave behind unique PMOG items (e.g. mines or treasures) that other players can discover during their web surfing.

- **Play-by-Mail Games (PBM games).** Play-by-Mail (PBM) games are turn-based games conducted over postal or electronic mail. These games are especially suited to those in isolated areas, those with uncommon gaming tastes, or geographically separated participants. Games played include *Diplomacy*, *Chess*, *Axis and Allies*, and several others.

- **Simulation Games.** Simulation Games are games that imitate some aspects of real-life situations or processes. Simulation Games come in many forms, including flight sims, construction and management simulations, business simulation games, urban planning simulations (e.g. *SimCity*), God-games (e.g. *SimEarth, Black & White, SimEarth, Spore*, etc.), urban planning games, government simulation games, life simulation games, pet simulation games (e.g. *Nintendogs, Dogz*, etc.), and social simulations (e.g. *The Sims*).

- **Social MMO Environments.** These systems typically house thousands of players in a persistent, immersive 3D world. Avatars (digital representations of users) are usually customizable and users can collect, earn, or exchange virtual currency and goods. The objectives are often open ended (i.e. there may not be required tasks to accomplish), as community and social interaction are the focus. As a result, multiplayer mini-games and community events are common. These environments
often target specific demographics, such as teens (*There, Teen Second Life*) or kids (e.g. *Barbie Girls World, Club Penguin, Neopets, Whyville*)

- **Strategy/Puzzle Games.** These games often involve solving puzzles or are designed to improve cognitive skills (e.g. *Brain Age 2* on Nintendo DS).

Each of the above game design patterns have unique strengths and weaknesses and are good at accomplishing distinct outcomes, depending on a game designer’s goals. I believe that elements of an open-ended action/adventure game pattern combined with the avatar customization features (such as those found in MMO environments) may be the best choice for a game design that intends to provide opportunities for identity exploration, support, and learning about the self. In addition, some aspects of simulation games (especially social simulations) can be adopted to help increase the relevance of the game’s ideas and message. These features would allow the player to construct simple avatars and narratives based on one’s own identity, and also allow the player to reflect upon and explore possible selves while learning content. I will now discuss three basic categories of Serious Games that will inform my design: advergaming, edutainment, and social impact games.

**Examples of Serious Games for Persuasion**

Serious Games tend to inform, persuade, or educate players about various subject matter or social issues. Alvarez & Rampnoux (2007) attempted to classify Serious Games in five main categories: Advergaming, Edutainment, Edumarket, Diverted game and Simulation game. Smith & Saywer (2008) also presented a taxonomy of Serious Games, though this was limited in scope.
For the purposes of this paper, I will highlight three categories of Serious Games and illustrate the unique characteristics and strategies of each category by highlighting examples of each:

1. **Advergaming**

   An advergame can be described as a downloadable or Web-based game created mainly for the purpose of enabling product placements. Advertisers use entertainment (in the form of games) as a means but not as an end; they wish to “promote their brands and products, and because of this, see games as a tool for persuasion” (Frasca, p. 225). Examples of this include the pop-up minigames such as *Sink the Putt* by Orbitz.com, a simple miniature golf game designed to help promote Orbitz’ travel service products.

![Sink the Putt](image.png)

Figure 2-4 An example of an advergame: A mini-golf game for Orbitz flight services.

Other variations include *anti-advergames*, a game created to “censure or disparage a company rather than support it” (Bogost, 2007, p. 29). In the *McDonald’s Game*, created by Italian social critic Molleindustria, the player manages multiple aspects of the McDonalds enterprise, including the restaurant where food products are sold, the corporate pasture where
cattle are raised with profit in mind, and the corporate offices, where business decisions are made. The game requires that players weigh tradeoffs and make both difficult business and moral choices (Bogost, 2007). Players can resort to questionable business practices such as the use of growth hormones, destroying indigenous villages, bribery, and covering up health risks in order to maximize profits.

![Figure 2-5 The McDonald’s Game: an anti-advergame based on food politics.](image)

2. **Edutainment: Serious Games for Education and Training**

   Serious Games for Education (sometimes called Edutainment, for digital games that are a combination of education and entertainment) can be traced back to the 1970s or earlier. Edutainment comes in many different forms and various game genres. Early commercial successes include *Oregon Trail* (1971), designed to teach children about pioneer life in the 1840s, and Broderbund Software Inc.’s *Carmen Sandiego* series (1985-1998), games in which users must find clues and research historical information to successfully solve a series of detective-style missions.
More recent examples of edutainment include the coordinate and vector math-based game *Dimenxian*, simple arithmetic mini-games in the party game *Big Brain Academy* for the Nintendo Wii console, and *American History: Revolution* designed by MIT Education Arcade. In *American History: Revolution*, the player is immersed in a setting that takes place in the years surrounding the American Revolution War period. The player learns history as he or she takes on roles within the game (e.g. farmer, slave, politician or merchant). Other examples include simulation games such as *IndustryPlayer*, a business simulation based on real world data, or *Peacemaker*, a simulation of the Israeli-Palestinian conflict designed to promote "dialog and understanding among Israelis, Palestinians and interested people around the world" (PeaceMaker, 2008).

Many scholars (e.g. Gee, 2005; Prensky, 2005, Squire, 2004) have touted the potential of games for learning both educational content (e.g. facts related to historical events) and process (e.g. scientific inquiry). Importantly, games are also powerful as elicitors of emotional reactions and influencing the affective dimension which can promote future learning (Squire, 2004) or new identities for learning (Gee, 2005).

3. **Social Impact / Social Issue Games**

Games as Political or Social Commentary. Some games are designed as intentionally unwinnable in order to make a persuasive or political statement. These games raise issues using the distinct properties of games to engage people from a fresh perspective. As an example, consider Newsgaming.com’s *September 12* Game (playable online at: http://www.newsgaming.com/games/index12.htm). September 12 is self-described as a simple “toy world” consisting of a village of civilians and terrorists. September 12’s introduction screen reads as follows:
“This is not a game. You can’t win and you can’t lose. This is a simulation… The rules are deadly simple. You can shoot. Or not. This is simple model you can use to explore some aspects of the war on terror.” (September 12 Game).

Clicking the mouse on a target launches a missile. As a terrorist is killed, a number of citizens grief over the deceased terrorist, and then several grievers become new terrorists as a result. As the player continues to launch missiles, this process continues indefinitely, presumably making a political statement on policies related to the war on terror.

Figure 2-6 NewsGaming.com’s political commentary game, *September 12*. 
Games to spread awareness about domestic and global problems. Similarly, some games have the goal of spreading awareness about global problems or to challenge the player’s assumptions on particular issues like poverty. In Ayiti: the Cost of Life, a game developed by Gamelab and the nonprofit organizations UNICEF and Global Kids, players manage a Haitian family of five, facing challenges related to poverty, education, and health (game playable at: http://ayiti.newzcrew.org/ayitiunicef/). Players must weigh tradeoffs and choose to go to work or try to get an education while overcoming disease, unpredictable events, and financial debt. The object of the game is to try to get the family as healthy, happy, and educated as possible. While a very difficult game, the game does offer a hint of optimism.

Figure 2-7 Ayiti: The Cost of Life (left) and Darfur is Dying (right).

A somewhat less optimistic game with the goal of spreading awareness of humanitarian challenges and recruiting involvement is Darfur is Dying, by mtvU (playable free at http://www.darfurisdying.com). This Flash-based game simulates life in a Darfurian refugee camp, faced with the dire challenges of avoiding disease and attack from Janjaweed militants. The game was intended to provide players with “a window into the refugee experience – offering a faint glimpse of what it’s like for the more than 2.5 million who have been internally displaced
by the crisis in Sudan” (Darfur is Dying, 2008). This game, along with many other social issue games as a way to encourage players to think about these issues or to get people to take action (e.g. to contribute financially toward a cause).

Other examples include the United Nations’ Game Food Force, a game about hunger in Myanmar. The UN’s World Food Program designed this game that features game elements including food airdrops over crisis zones and trucks delivering emergency food supplies struggling up difficult roads.

**Persuasive Games.** These games are intended to convince players of a point or influence players to take action through gameplay. Persuasive Games are specifically designed as “rhetorical tools” to “not only deliver messages, but also simulate experiences.” (Persuasive Games, 2008). Examples of these games include Fatworld (downloadable at http://www.fatworld.org/) which allows players to explore the relationships between obesity, nutrition, and socioeconomics in the United States. Players create and enact a character’s dietary and exercise habits and balance these actions with other kinds of decisions (e.g. how to run a restaurant business profitably), all of which lead to varying consequences.
Another example is the *PosOrNot Game* ([http://www.posornot.com](http://www.posornot.com)). In this simple web-based game that poses the question “Think you can tell if I have HIV?” players read the biographical profile of a person and chooses whether or not they think the person has HIV/AIDS. The purpose of the game is to challenge one’s existing assumptions about those who have HIV/AIDS.

![PosOrNot: A game that challenges assumptions about those with HIV/AIDS.](image)

Based upon these examples and Serious Game design patterns that I highlighted in the preceding section, I believe that a hybrid of social issue/persuasive game and edutainment can yield positive outcomes for increasing awareness of the issues highlighted in Chapter One and also for supporting identity. The following chapter will introduce Identity Supportive Games as
vehicle for theoretical advancement and a specific form of Serious Game that my dissertation study will test.
Chapter 3

Methodology

Identity Supportive Games: Towards a Design for Positive Identity Support and Social Change

Based on my review of the literature coupled with my pilot studies and recent work in this area, I have found using identity play in games and virtual environments to be a promising approach for exploring students’ conceptions of self and goals. There is a need for more descriptive and design-oriented work to understand how Serious Games can potentially support new possible selves and overcome stereotypes. I believe that if a certain form of identity play in Serious Games is done right, several positive outcomes could happen, which I will highlight below.

I define Identity Supportive Games (ISGs) as a new class of Serious Games that specifically address self-concept, identity formation and development. ISGs have the following defining characteristics:

An ISG is a game that is specifically designed to…

- Provide support for identity formation and development towards identity-achievement (past a moratorium or exploration period towards wholeness and a secure identity (Phinney, 1993; Marcia, 1966, 1980)
- Allow people to reflect upon (and express) their own self-concept and goals
- Allow people to try on new identities/refine their existing identity via fluid, malleable identity play (Turkle, 1995)
- Allow people to challenge assumptions and confront forces and pressures that cause unwanted behavior (e.g., limiting, damaging stereotypes)
- Help people be more secure in their self-concept and goals (e.g., increase positive perception of their self-concept and goals)
- Broaden possibilities of a person can potentially do or accomplish in the future

If an ISG is done well, I hypothesize that the following will happen: (1) self-empowerment and growth, and (2) new understandings and new ways of thinking.

1. Self-Empowerment and Growth

- **Increased understanding, refinement, and acceptance of one’s identity.** The player will reflect upon and refine his or her own identity and the important components of his or her ego identity (Erikson, 1950; 1968), as these games stimulate thought and reflection. Understanding one’s identity is important for a person to confidently utilize perceived gifts and talents and the unique skills that he or she possesses. Ultimately, the person has a positive self-concept and feels good about who he or she is. Gee (2005) observes that the real power of games “is in the ways in which they can allow people to reflect on their own identities, fantasies, and hopes in the world. Such reflection is absolutely crucial in a world where identity work and identity transformation is crucial for success, even for survival” (p. 114).

- **Increased sense of personal agency and control.** The player will reflect upon and renegotiate his or her own hopes, fears, and goals in the real world. Games naturally allow players to “explore, think laterally, and rethink goals” (Gee, 2003). The best games allow for open ended goals and “the marriage of personal goals and ‘in game’ goals”
They provide players with a space to develop a greater sense of control, meaningfulness, expertise, and agency (Gee, 2005). This affects self-efficacy beliefs (Bandura, 1977) and is then brought from the game and back into the world. Games allow users to feel a sense of “control, meaningfulness, and even expertise in the face of risk and uncertainty…they can empower the soul to find agency and meaning in other aspects of life (Gee, 2005, p. 4). Games can provide players with “pleasures [that] are connected to control, agency, and meaningfulness” (Gee, 2005, p.3).

- **Rejection of limiting forces that constrain selves.** The player, by considering alternate possible selves, will resist being forced into behavior or patterns of thinking that are damaging, limiting, or constraining.

- **New, positive possible selves.** In turn, players may broaden what is possible and achievable, including some new career paths.

### 2. New Understandings and New Ways of Thinking

- **Empathy and Affective outcomes.** The experiential nature of digital games combined with the emotional investment of identity play offer an opportunity to impact the empathetic and affective dimensions powerfully. Identity Supportive Games can provide alternate perspectives, which can in turn increase one’s empathy toward a group. For example, those who are not Asian-American can walk a mile in an Asian-American person’s shoes by experiencing the consequences of ethnic stereotypes firsthand. These kinds of games can raise awareness about important issues or persuade them to take a particular stance on various issues.

- **New perspective taking and changed ways of seeing the world.** Similarly, the role-play inherent to games is useful for allowing players to take on new perspectives. This is a
natural opportunity for people to change their values and ways of thinking, and open up new learning trajectories for the future (Shaffer, 2005).

- **Fewer misconceptions and naïve understandings.** Misunderstandings and naïve views can be clarified. Players may develop a heightened sense of cultural sensitivity as a result of these experiences.

- **Good learning will take place (knowledge-based outcomes).** As games feature active learning, they are a useful context for firsthand experiential learning (Prensky, 2003; Gee, 2003). People will learn about important issues related to the rhetoric or subject matter within the game (Bogost, 2007). Takes advantage of features of games that are good for learning: immediate feedback, safe environment for experimentation, proper amount of scaffolding, active learning (constructivist approach), high emotional investment, “embodied empathy for a complex system” (Gee, 2003), action-and-goal-directed simulations of embodied experience (Gee, 2003).

I designed and implemented two game prototypes to provide an experience to challenge assumptions and increase awareness of the Asian-American experience, including the effects of, and facts related to, various stereotypes. At the same time, the game allows for identity play and reflection. The research questions for my dissertation study are as follows:

*Overarching research question: In what ways do Identity Supportive Games shift and support identity (conceptions of self)?*

*RQ2. How do ISGs influence learning of facts related to Asian culture and stereotypes?*

*RQ3. What are participants’ stereotypes of Asian culture (explicit and implicit)?*

*RQ4. How do these games change opinions/perceptions of Asian culture and stereotypes?*
RQ5. How is self-identity defined by the participants, especially perceptions in relation to stereotypes?

RQ6. Do ISGs impact Asians, Asian Americans, and Non-Asians in different ways?

RQ7. What are design principles for Identity Supportive Games?

Design Based Research (DBR) Methodology

I adopt a Design-Based Research (DBR) approach to answering the aforementioned research questions. DBR offers a set of analytical techniques that balances the positivist and interpretivist paradigms, and in so doing, attempts to bridge theory and practice in education (DBRC, 2003; Barab & Squire, 2004). DBR is sometimes described as “understanding the world by trying to change it” (C. Hoadley, personal communication, March 2007). A blend of empirical educational research with the theory-driven design of learning environments, DBR is important for “understanding how, when, and why educational innovations work in practice” (DBRC, 2003, p.5). DBR methods aim to uncover the relationships between theory, designed artefact, and practice, with the intertwined goals of (1) designing learning environments and (2) developing theories of learning. It accomplishes research and development through continuous cycles of design, enactment, analysis, and redesign (DBRC, 2003).

Using DBR methodology, researchers are to systemically adjust various aspects of the designed context so that each adjustment serves as a type of experimentation that allows the researchers to test and generate theory in naturalistic contexts, leading to more robust theory, practices, and designs (Barab, 2004).
Characteristics of a DBR approach

DBR features a combination of characteristics that make it unique: it is pragmatic, contextual, flexible, theory-driven, generative, interventionist, iterative, and process-focused (DBRC, 2003). It is pragmatic in that it follows a line of inquiry in which theories are more judged by usefulness and their ability to do work in the world, rather than to their claims to truth (Barab & Squire, 2004). It is contextual in that the researcher does not attempt to minimize the role of context and all potentially confounding variables; instead, context is embraced and the goal is to generate “flexibly adaptive theories that remain useful even when applied to new local contexts.” (Barab & Squire, 2004, p. 11). DBR is theory-driven in that “interventions embody specific theoretical claims about learning” (DBRC, 2003) and generative in that the goal is to produce more robust theories of learning (Barab, 2004). DBR is necessarily interventionist in that the researcher plays a hands-on role in shaping the intervention as he or she observes and determines what is working and what is not. Finally, DBR is iterative and process-focused, as it involves multiple cycles of ongoing design, redesign, and evaluation.

Why DBR? Scientific Contribution of this Work Using DBR

In this situation, a DBR approach makes the most sense for several reasons. As Squire (2005) explains, many scholars turn to DBR because they want to “study a phenomena that does not yet exist” (p. 9). In order to investigate the plausibility of a new form of technology such as Identity Supportive Games, we need to understand the pedagogical potentials of the medium, the specific factors that make them effective among different populations, and what processes are taking place. Even if desired results are not attained, the process of iteratively casting a wide net and flexibly employing relevant methodologies at different stages of research will yield
theoretical and practical insights for others attempting similar research, as well as a well-designed artifact that in itself is a contribution. DBR’s ability to capture and tell a complete story of the process of iteratively designing, testing, understanding is especially important for providing valuable nuggets of truth, lessons learned, and design principles for new innovations that have not been attempted before. DBR is the most flexible approach in accomplishing this, as it “provides useful models for taking innovations from initial conception to implementation” (Squire, 2005, p. 10).

DBR is valuable in that it addresses some of the most severe criticisms of educational technology research: poor connections to existing research or theory, findings that fail to inform practice, etc. (Squire, 2005). As Squire (2005) points out, learning is messy, complex, and inherently contextual as it takes place in the real world, with an enormous set of interacting variables present in any typical situation: race, gender, class, socio-economic status, prior knowledge, self-efficacy toward a technology, self-efficacy in a subject area, leaning styles, etc. A DBR approach is unique in that it attempts to “build educational innovations and theories that, rather than minimizing, account for how and when these factors overlap” (Squire, 2005, p. 9). Squire (2005) explains how allowing these factors to exist actually allows researchers and practitioners to capture the most important parts of the story that is afforded by a DBR approach:

“In this case, simply measuring for a few variables and ironing out all extraneous variables would miss some of the most important parts of the story, from the perspective of generating better instructional programs and theory. What design-based researchers try to do is enter an instructional situation, with all of its complexity, and experiment until they have "working" prototypes and more robust theory (Cobb et al., 2001). From this perspective, we can think of every little researcher action as an experiment-changing the environment and observing the consequences. The good researcher makes these changes in a way that is informed by theory and will hopefully yield better theoretical insights.” (p. 13)
DBR is only one of many approaches to research, and like all methods it has its share of limitations. However, for the purposes of this dissertation study, it is especially useful in unpacking the impact and utility of ISGs.

**Study Design**

The overall purpose of this dissertation study is to obtain a broad, generative picture of the role ISGs can play in terms of identity support, reflection, and learning. As such, it is exploratory in nature, and also includes much descriptive work of what participants believe about ethnic stereotypes, how they view themselves in relation to ethnic stereotypes, and how they define their own self-identities. As a design-based study, it contributes an important first step of investigating how games can help participants learn (about cultures and about selves) and also offer a window into how technology may help participants move closer towards identity achievement, a complex multistep process.

I adopted a mixed-methods approach in order to triangulate my findings and to be able to capture and share a richer story of what occurred during the design and evaluation process of the Identity Supportive Games. This study was broken into two phases: (1) a requirements-gathering phase to help with the brainstorming and initial design of the games, and (2) a play-test and data-gathering phase. For the first phase, I used a survey, focus group session, paper prototyping techniques, and a campus-wide sticker poster activity to determine the ideal requirements and features of my game design. For the second phase, I employed three main data collection strategies: (1) a Pre-Post design; (2) thinkalouds, real-time feedback, and server-side game logs during gameplay, and (3) focused semi-structured interviews.
Phase One: Requirements-Gathering, Feedback and Brainstorming

In order to design the first set of Identity Supportive Games, I wanted to ensure that the games would capture the most important aspects of Asian issues and stereotypes. As can be found in Chapter 2, I previously reviewed much empirical research and other literature on Asian stereotypes and their consequences, but I wanted to work with real people to capture what they perceived to be the most important aspects of their ethnic and social identity and the most important ideas to be presented in a game format.

With this in mind, I used: (1) a survey with open response and Likert-scale items administered to 30 Asians and 30 Non-Asians to explore existing assumptions, conceptions, and stereotypes related to Asian issues and culture; (2) a focus group centered on Asian-American themes and issues, (3) campus-wide sticker poster booth activity to determine the ideal requirements and features of my game design. More details about the results and lessons learned from this stage of this design process can be found in the following chapter.

Phase Two: Play-test and Data-Gathering

Upon designing and developing two simple game prototypes based upon Phase One, I was ready to bring in participants to play the games and to determine their impact. I wanted to gather enough data and to triangulate from different sources in order to more objectively determine what was gained from such an experience. As a result, Phase Two consisted of multiple data sources: pre- and post- tests; (2) thinkalouds, real-time feedback, and server-side game logs during gameplay, and (3) focused semi-structured interviews. This section will highlight the details of the data sources of Phase Two.
Using an online survey tool, a pre-test was administered to each participant, consisting of several questions organized into three basic categories: self-concept, factual knowledge, and perceptions of attitudes. The self-concept questions investigated their identities, what is perceived to be important, self-esteem and pride in one’s ethnicity, and the role of stereotypes (e.g. how much they perceive specific stereotypes as applicable to their lives). The factual knowledge questions are content-based and explored how accurate participants score are in terms of facts pertaining to Asian-American issues and stereotypes. Finally, the attitudes questions explored affect and participants’ perceptions of attitudes towards specific stereotypes and empathy towards recipients of stereotypes.

The pre-test questions were broken down into the following sections: (1) eight open-response items that explored current thinking of Asian issues and culture (e.g. “What words come to mind when you think of people of Asian descent?” or “Do Asian Americans have it easier than members of other racial/ethnic groups? Why or why not? Explain.”); (2) thirty stereotype differential items that explored participants’ level of belief of a stereotype’s truthfulness pertaining to Asian American men; (3) thirty stereotype differential items that explored one’s self-concept in relation to stereotypes; and (4) thirty-two 7-point Likert scale type items that explored attitudes towards Asian culture (e.g. “Asian Americans are really good at computational fields like math, science, or computers.” or “I like being a member of my race/ethnicity.”)

Completion of the pre-test took approximately 20-30 minutes per person.

Typically within one to two weeks of completing the pre-test, individual participants were invited to play each game prototype. Participants were instructed to think aloud their thoughts, feelings, reactions, and reasoning process as they played both game prototypes. Using code written in PHP script and ActionScript 3.0, server-side game logs also captured game play behavior. On average, participants spent about forty minutes playing both game prototypes.
Upon playing each game, participants were asked various questions regarding the games and the content within the games (e.g. “Was anything surprising as you played this game?” or “Did you learn anything from this game?”). After playing both games, participants were asked general interview questions, including questions on the role of stereotypes in participants’ lives, thoughts on self-concept and Asian culture, design feedback, and thoughts on usability issues with the games.

Finally, participants were given a post-test (using an online survey tool) that very closely matches almost all of the same items on the pre-test. This post-test took approximately 20-30 minutes per person. See Appendix C for a sample copy of the post-test.

Participants

Several undergraduate students participated in this dissertation study during each of the two stages. During Phase One, the initial survey was administered (in an online format) to sixty-one students: thirty-one Non-Asian undergraduate students who were enrolled in a junior level Information Sciences and Technology course, and thirty Asian-American students, members of an Asian-American undergraduate organization. All survey participants were given a gift certificate for ice cream and were entered in a prize drawing to win a gift certificate for an online retailer. The focus group session of Phase One was in conjunction with an Asian-American undergraduate student organization’s social event entitled Asian Tea House: Identi-Tea, open to all members of the student population. Participants of the focus group consisted of 11 undergraduate students (eight Asian-Americans and three Non-Asians). They were not compensated for their participation. Finally, a campus-wide sticker poster booth activity was set up as part of a multiple student organization Asian-American cultural awareness event entitled
Asian Night Market. Over one hundred participants took a set of five colored stickers to mark on a large poster which Asian stereotypes were true of them and which stereotypes were not true.

During phase two of the study, a purposive sample was recruited consisting of twenty-eight college undergraduates of varied levels of Asian acculturation. The three categories consisted of: (1) high acculturation Asian-Americans (based on their score on the Suinn-Lew Asian Self-Identity Acculturation (SL-ASIA) instrument), (2) low acculturation Asian-Americans (based upon SL-ASIA), and (3) Non-Asians who are part of the majority culture with minimal level of Asian acculturation. The purpose of the three participant choices is due to a difference in values, preferences, and self-affiliation between the three categories, likely affecting the goals of the participants in playing the games. Of the twenty-eight participants, fourteen Asians and fourteen Non-Asians were recruited. All participants were entered into a prize drawing for a gift certificate to an online retailer. About one third of the participants received extra credit for a junior level Information Sciences and Technology course, while the other participants were volunteers who otherwise received no compensation. The next chapter will discuss the results of this study, including the development and evaluation of the initial design based upon Phases One and Two.
Chapter 4

Design Process, Findings, and Results

As described in the previous chapter, this study involved two phases: (1) a requirements-gathering phase to help with the brainstorming and initial design of the games, and (2) a first iteration play-test and data-gathering phase. This chapter will describe the results of both of these phases, including the design process and lessons learned throughout both phases. Analysis of the pre- and post-tests will be provided, followed by themes that emerged from qualitative data.

Phase One

For the first phase, I used a survey, focus group session, and a campus-wide sticker poster activity to determine the ideal requirements and features of my game design.

Survey to Explore Assumptions and Stereotypes of Asian Culture

The initial survey sought to investigate current assumptions, conceptions, and stereotypes of Asian culture. 31 Non-Asian participants were asked several open-response questions and Likert-scale items on their beliefs and thoughts regarding Asian culture. See Appendix A for a breakdown of responses by participant.

The first question tested survey respondents’ awareness of diversity in terms of Asian countries in the world, by asking: “In your estimation, how many Asian countries are there in the world?” The correct answer is 47. For the thirty-two Non-Asian survey respondents, the mean number of Asian countries was determined to be 23.07 (SD=12.86).
When asked, “What words come to mind when you think of people of Asian descent?” Non-Asian survey respondents listed their conceptions about Asian culture. Survey respondents described several words that were consistent with existing literature on Asian stereotypes (e.g. Mok, 1998; Kim & Yeh, 2002). Various themes emerged from the open response items, including Asians as a group that is considered smart, a Model Minority, having abnormal physical characteristics, good at math, science, or technology, foreign, and so on. See Table 4-1 for a breakdown of various themes from the survey respondents.

Table 4-1 Non-Asian survey response to words and beliefs related to Asian people

<table>
<thead>
<tr>
<th>Findings/Themes</th>
<th>Participants supporting this finding</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>smart</td>
<td>P2, P7, P8, P9, P15, P17, P19, P20, P21, P25, P31</td>
<td>“intelligent,” “very smart,”</td>
</tr>
<tr>
<td>lack of awareness of unique Asian countries beyond China, Japan, and Korea</td>
<td>P2, P4, P17, P18, P20, P23, P24, P30</td>
<td>“I think of China and Japan,” “China, Japan, and Korea”</td>
</tr>
<tr>
<td>Model Minority</td>
<td>P3, P6, P7, P12, P15, P21, P23, P32</td>
<td>“overachievers,” “hardworking,” “industrious,” “diligence,” “They study more than most people.”</td>
</tr>
<tr>
<td>abnormal physical features</td>
<td>P3, P7, P8, P12, P16, P22, P26, P27, P31</td>
<td>“squinty eyes,” “very skinny, short,” “slanted eyes,” “undersized penises”</td>
</tr>
<tr>
<td>good at math, science, or technology</td>
<td>P1, P3, P4, P10, P11, P12, P13, P29</td>
<td>“good at math,” “science,” “tech support,” “good at math and computers,” “math wizards”</td>
</tr>
<tr>
<td>strange/“other”/foreign</td>
<td>P2, P7, P16, P22, P26, P27, P29, P31</td>
<td>“accent,” “strange,” “immigrants,” “not as willing to assimilate into American culture,” “They eat very weird food”</td>
</tr>
<tr>
<td>Parental pressure/respect of authority/elders</td>
<td>P3, P4, P9, P16, P26, P32</td>
<td>“strict parents,” “respect of elders”</td>
</tr>
<tr>
<td>martial arts</td>
<td>P4, P5, P9, P27, P30</td>
<td>“martial arts,” “samurai,”</td>
</tr>
</tbody>
</table>
The next step was to engage in an in-depth focus group session with both Asian-Americans and Non-Asians to explore life experiences related to Asian-American culture and to investigate how these kinds of stereotypes play a role in one’s ethnic identity and self-concept.

As part of an Asian-themed social event (entitled *Asian Tea House: Identi-Tea*) sponsored by an Asian American Christian undergraduate student organization, I led a one-hour discussion time involving a focus group of 11 undergraduate students (8 male, 3 female). Of these students, 7 self-identified as Asian American (having mostly grown up in the Eastern cities and suburbs of the United States), 2 as African American, and 2 Caucasian (one Hispanic male from Guatemala and one non-Hispanic female from Pennsylvania). The focus group participants
were shown a short video of various Asian American depictions in the media (e.g. actor John Cho’s depiction of Harold from the film *Harold and Kumar Go to White Castle* and the character of Hideki played by actor Bobby Lee in MadTV’s *Average Asian* sketch). Afterwards they were prompted to discuss their personal experiences growing up as their race/ethnicity and also their perceptions of any issues facing those of Asian ethnicity.

In response to the question, “does anyone have any stories related to how they have been affected by any stereotypes associated with Asians?” Members of the focus group described feelings of “otherization”; i.e., several participants felt as though they were not considered normal (or equal) by others. Examples of this included remarks about physical characteristics received while growing up. Alyssa (*Asian American female, junior*) described the following memory:

“I remember back when I was in first grade, and this one girl goes like this [pushes eyes upward] and says, ‘Do all Asians look like this?. And she didn’t really know any better then, and I was sort of offended by that and I didn’t know why. I guess physical stereotypes are sort of the first thing that I see as portrayals of being Asian.”

Derrick (*Asian American male, senior*) agreed with the idea that Asian Americans are not perceived to be normal:

“And the American community we’re never really fully or truly accepted as ‘fully American’ because they associate us with the Asian community, so it’s kind of like we’re kind of stuck in between. We don’t really fit in either [camp].”

Bobby (*Asian American male, senior*) described personal experiences regarding expectations based upon external appearances and favorability toward acculturated people of Asian ethnicity:

“I think for some reason – maybe my appearance or the way I dress -- my professors think I am very foreign and that I have bad English, and so whenever I start talking and using perfect English, they show this very obvious sense of relief. But there is this sense that Asians are foreign and that this is a burden or not good.”
When asked, “When do stereotypes cross the line from funny to offensive?” Will (Caucasian male, sophomore) responded:

“It varies from person to person. A lot of it depends on intent. If people are presenting it in a way that they think is credible, then it can be offensive. If it’s ridiculous or over the top, then it’s humor, but if it’s something potentially credible when others can see it and potentially agree, then it’s offensive.”

Focus group participants described how fair or unfair common stereotypes held about Asians were. Will remarked (Caucasian male, sophomore):

“They’re pretty unfair. To say someone likes math because they are Asian is unreasonable since it’s clearly not an innate cultural thing.”

Jeff (junior, Asian American male) shared how failure to attain or meet the expectations of positive stereotypes can lead to negative effects including a sense of failure or inadequacy. He describes this from personal experience:

“Almost all stereotypes come from something. In terms of fairness, it doesn’t matter what race you are, you always enjoy it when someone says ‘you’re good at this, or you’re good at that, like you’re good at math.’ I think the unfair part for Asian Americans is if they find out you’re not good at math, like for me, I’m an advertising major, I hate crunching numbers, I hate science. If I could kill Darwin, I would. But I can’t. But I’m better at putting things together with Photoshop, photography, things like that. A lot of people see me as a failure as an Asian because I’m not good at math. So going back to the fairness thing, I think it’s unfair once they put stereotypes on you and that’s the only thing that qualifies you as an Asian American.”

Lauren (sophomore, Caucasian female) echoed this sentiment, describing a sense of frustration due to expectations placed upon her due to her height:

“I think it’s complicated, because I feel like I would get tired of the same old comments placed on me, like people assume I can play basketball just because I’m really tall. Which I guess is like tall people should be good at basketball, cause like, like you would think it would be a compliment when people assume you have a strength, but I don’t, no I don’t play, like, I’m really not athletic, I mean it’s not bad, but I’m sure it’s tiring. It’s overplayed I guess.”

Participants remarked how use of the label “Asian” often lacks an accurate understanding of Asian diversity. Alice (junior, Asian American female) remarked:
“Every single time the word ‘Asian’ pops into someone’s mind, they instantly think of Chinese, Korean, Japanese, but everyone tends to forget that there are Malaysians, Vietnamese, Indians, too. It’s really interesting when people forget that.

Participants also described how they observed others deliberately changing their behavior to counteract stereotypes. For example:

“I feel like when it comes to stereotypes and races, I feel like Asian Americans actually have it pretty good to tell you the truth. I grew up in Queens, NY and I’ve seen a large variety of people and how they treat each other based upon race. I don’t understand it fully, but from what I understand, it seems like – I don’t want to offend anybody – but it seems like a lot of people see white people as the racist ones, like, they have all the power, and for Asian Americans, it seems like a lot of the stereotypes are actually positive – they’re good at math, we’re smart, you know, good with our money. But for some reason, Asian Americans have a weird way of taking those kind of complements into negatives to the point where a lot of my friends, for some reason, they found it to be cool to pretend to be dumb in high school, and to not try and be stupid, and to try to be cool that way.”

Jeff (Asian American male, junior)

“I think that’s partly because there’s a little sense of disdain if it’s the Asians setting the 100%’s on the curves; there’s a sense that ohh, those Asians, they’re overachievers, they’re ruining the curve, and so what might be why your friend feels that he has to pretend to be dumb so that people won’t look down on me for having those qualities.”

Jack (Asian American male, senior):

Some participants described the consequences of pressure and the high expectations of parents or peers. In some cases, this led to depression, mental illness, or suicide:

I went through something similar and I’m still going through it today. My parents are not Asian parents in they let me do whatever I wanted to. It wasn’t that that caused me to go into depression. It was the fact that everyone sort of viewed me as this role model. It’s true, we really do feel this pressure to be a role model to society. And every single time they ask to compare your grade vs. theirs. And like, it just pressures you to do well because you’ll know they’ll put you down if you don’t do well. That was the sort of environment that I grew up in. It was actually my peers that ended up to, you know, depression. It was only after I got to college that I started to realize that you don’t have to be smart all the time. It doesn’t just go with Asians, it applies to everyone in general.”

Alice (Asian American female, junior)
“Usually Asian parents are really hard to please. They’re the hardest people to please. They never really fully approve of what you do. I mean I usually joke around, if I get a 100% on a quiz, I’ll say “Hey Mom, I got 100%!” and like my mom will say, “Oh! Congratulations! Do better next time!” Steve (Asian American male, freshman)

“Yeah, seriously, it’s like I got a 99. ‘Why didn’t you get a 100?’” Alyssa (Asian American female, junior)

“That kind of thing where you always want to please your parents. You want to make them proud and the fact they aren’t easy to please, leads us to look down on ourselves.” Steve (Asian American male, freshman)

“I’ve heard from my friends how I would hear a lot of stories from Korea about how the suicide rate is high because of high pressure from parents.” Shawn (Caucasian male, junior)

“Recently, the Virginia Tech tragedy happened and I wanted to know your reaction. I think it reminded me that Asians aren’t invincible to problems like depression. And people knew he had problems but no one did anything about it. One of friends Korean and he went to school at Virginia Tech. And his mom actually told him not to go to school the next day because she was afraid of what he might face, what might happen.” Alyssa (Asian American female, junior)

Participants were asked, “Why does it seem like these issues are kept under the rug or hidden or invisible?” Some believed that the stereotypes associated with Asians were generally positive. For example, Shawn (Caucasian, male) answered:

“I think it’s because a lot of stereotypes give positive attributes to Asians. I was born in Guatemala and most of the stereotypes are negative and so they stand out a lot, because the stereotypes are like, Hispanics are janitors, or whatever.”

An important question was centered on identity and how participants view their source of significance. Participants were asked: “Where do Asians and Asian Americans find their identity and their significance?” Parents, family expectations, and other sources such as religion were common responses:

“Parents, or rebelling against their parents. When you’re within proximity of your parents, they basically control you.” Steve (Asian American male, freshman)
“My dad is what you’d call a traditional Chinese person in the sense that growing up, I either had to be a doctor or an engineer or a lawyer. He actually wanted me to be a medical doctor really badly. You gotta be a doctor, you gotta be a doctor, you gotta be a doctor. He’d push it upon me every time. He forced me to apply to medical schools. But I just couldn’t do it, I just couldn’t live up to that. I just didn’t want to do that. My brother wasn’t so lucky. My brother ended up a medical doctor. I told him I wanted to do computers, but that was considered a step down. He was like, no. There was a little bit of a sense of failure because I wasn’t a doctor. I would be like, ‘computer science is a good job,’ but it’s not a doctor. There was a little bit of this sense of ‘not good enough,’ but I think for me, there can be other things that give you identity or significance. For me, it’s my faith as a Christian that gave me a new identity and significance, and all the pressures to be somebody for my parents or to be somebody based upon what TV says is successful, that became less relevant. But it’s different for different people.” Jack (Asian American male, senior)

Based upon the results of this focus group, I identified a number of issues that seemed to be of particular significance for Asian Americans regarding their identity in relation to stereotypes. These included: (1) the challenge and effects of attempting to meet high expectations or demands of parents and peers; (2) the tension that exists when a person’s self-concept does not align with societal or individual stereotypes that explicitly or implicitly label the person, including seemingly positive labels such as “smart” or “good at math”; (3) constrained possible selves as a result of stereotypes; and (4) the negative view held towards Asians in terms of acculturation and otherization.

Finally, the stereotypes gathered from the initial survey and focus groups were tested on a broader scale as part of a public, campus-wide event entitled Asian Night Market. The event was held in the student union of the campus. Fifteen of the most commonly cited stereotypes and issues were arranged on a large poster (see Figure 4-2 below). Over one hundred participants were given a set of ten colored stickers (five green and five red) and were instructed to mark on the poster which stereotypes they strongly agreed with as accurate in describing them (green sticker) and which they strongly disagreed with (red sticker). The resultant poster showed the
stereotypes that yielded the most positive and negative responses, which were kept in the initial game designs.

Figure 4-1 Campuswide stereotype poster activity.

**First Design Iteration**

Based upon the insights gleaned from the survey responses, focus group sessions, and campus-wide poster activity, I was prepared to brainstorm and create low fidelity prototypes of mini-games that aim to address the issues identified. Two game concepts were brainstormed that were specifically intended to allow players to reflect upon their assumptions regarding Asian American culture, to allow for identity reflection and play, and to explore the subtle consequences of Asian stereotypes.

Each game concept was given a one-line title in order to summarize the overall point of the game. Mini-Game One was tentatively entitled *Firsthand Asian Experience: Possible Selves of Asian Identity Construction and Learning Surprising Facts and That Stereotypes Have Unintended Consequences*. Mini-Game Two was tentatively entitled *How Asian Am I?*
Consequences of Otherization and Learning That You Can’t Really Tell Who is Acculturated or Not Based on Physical Appearance. These titles were eventually replaced with the actual game names later in the design process.

In order to demonstrate and get initial feedback about the game concepts, low fidelity prototypes were created using Microsoft Powerpoint, Ulead PhotoImpact, Ulead GIF Animator, and colored prints. Figure 4-2 below depicts a screen capture that mocked-up representation of Mini-Game One.

![Figure 4-2 Mockup of Mini-Game One.](image)

Four Asian-American undergraduate student volunteers were recruited to give brief feedback about the two game concepts and low fidelity prototypes. Two of the students were male, while two were female. These feedback sessions, which involved presenting mocked-up
images, brainstorming and discussing basic gameplay ideas, and asking questions to ensure that the main idea of these games were understood, took approximately thirty minutes. Participants were also encouraged to give suggestions for improvement and any additional ideas for the games. Participants remarked that the two game concepts were promising as an experience to educate both Asians and Non-Asians, and that the ideas seemed fun to play. Some suggestions for improvement were proposed. For example, the original layout of Mini-Game One was a side-scrolling platform game. One participant suggested a top-down 2D layout to allow for greater possibilities for exploration (e.g., being able to explore the environment in eight directions, rather than just left and right).

Based upon the feedback of the four volunteers, I proceeded to more fully flesh out the game designs and developed them using ActionScript 3.0 programming language in the Adobe Flash Creative Suite 3 platform. The following section describes the original design of each game prototype.

**Initial Game Design 1 of 2: Flying Asian Stereotypes!**

The original title of the first game was tentatively named *Firsthand Asian Experience: Possible Selves of Asian Identity Construction and Learning Surprising Facts and That Stereotypes Have Unintended Consequences*. This title was modified to *Flying Asian Stereotypes! A Digital Experience of the Reality of Asian American Issues and Identity*. Based upon comments given during the brainstorming and design feedback session, I chose to adopt a colorful, cartoonlike art style and a more humorous, lighthearted feel to the game.
Overview of Concept

The initial game design for Game One was an open-ended “sandbox” platform game entitled *Flying Asian Stereotypes!* *Flying Asian Stereotypes!* is intended to promote reflection and consideration of the implications of being labeled by stereotypes. Based upon Markus and Nurius’ (1986) notion of possible selves, the participant, playing as an Asian-American character in the game, must frequently make decisions throughout the game to determine what kind of identities he or she perceives to be realistic, desirable, or undesirable for himself or herself. These choices, which represent various strategies for identity refinement, affect the avatar’s appearance and abilities within the game.

*Design Propositions for Flying Asian Stereotypes! Game*

Based upon my pilot studies, four specific design propositions were tested in order to generate “theories-in-action” (Sandoval & Bell, 2004) about the *Flying Asian Stereotypes!* Game:

1. Letting people construct and enact identities relevant to ethnic stereotypes in an ISG can impact one’s self-concept positively.
2. Making stereotypes explicit is good for letting people take ownership of these stereotypes.
3. Awareness of possible selves via avatar play is good for identity support.
Basic Rules

The basic gameplay is relatively simple. Specific stereotypes related to Asian-American identity are reified within the game as projectiles thrown at the character that are to be avoided or internalized (i.e., the player can allow the stereotypes to hit the character, or he or she can dodge them). As stereotypes collide with the character, the character adopts those characteristics associated with the stereotypes (e.g. appearance and physical attributes change accordingly), and gameplay (e.g. how others view, speak to, and treat the character and the set of possible outcomes) are affected. The player can see the effects of these stereotypes and the choices made. For example, if the player is hit with “Parental Pressure,” then the character’s movement becomes slower as a result of less freedom and control, and he or she is constantly told to study harder or that their academic performance is not good enough. If the player is hit with “Nerd,” then the character is viewed as nerdy (e.g. avatar takes on thick glasses) and is constantly told remarks about Asian intelligence. Other stereotypes/forces within the game (chosen based on literature review and from survey and focus group results) include “Model Minority,” “bad leaders,” “lacks social skills,” “knows kung fu,” “perpetual foreigner,” “low self-esteem,” “evil gangster,” “bad romantic partner,” etc. (Lee, 1996; Mok, 1998; Lee & Zhou, 2004). The player must weigh these tradeoffs and choose how the identity will be constructed.

As a “sandbox” environment, the game world is open-ended in the sense that there are many ways to play. There is no predefined win or lose condition; the player can choose to create any identity as he or she wishes. Because there is no one solution that is clearly better than the other outcomes, the game is designed intentionally to allow players to reflect upon his or her self-concept, to explore different kinds of identities, and to decide how stereotypes may or may not play a role in their lives.
This first game design had three specific objectives: (1) allow for identity reflection and exploration; (2) educate players of all backgrounds about Asian and Asian American issues by addressing common misconceptions and presenting facts; and (3) to give a firsthand experience of what it is like to be labeled Asian stereotypes and assumptions that may not necessarily be true for the player.

**Design of Flying Asian Stereotypes! Experience**

Participants played the first game prototype three times, and were instructed to play the game differently each time. Each time corresponded to each of the three aspects of Markus and Nurius’ (1986) original notion of possible selves theory; i.e., “ideas corresponding to hopes, fears, standards, goals, and threats” of what a person might become, would like to become, and are
afraid of becoming (p.954). For the first time, the student played the game as though the avatar was himself or herself; i.e., while constructing an identity within the game, choices were made within the game based upon how he or she honestly saw himself or herself in real life. The second time, he or she constructed an identity of who he or she is afraid of becoming. Finally, during the third time, the participant constructed an ideal self – an identity that they would like to create, even if not necessarily who they actually are in reality.

Figures 4-4 through 4-8 below show sample images from the game prototype. Figure 4-4 depicts a simple set of instructions for how to play. Once the player begins the game, he or she is given a set of choices in the form of blue “Identity Choice” stars (Figure 4-5) that generally represent opposing traits that correspond to stereotypes of Asian and American culture. Throughout the game, the player is presented with messages associated with the Asian stereotype that the player has been labeled with. In the screenshot below (Figure 4-5), the player is asked “do you know kung fu?” Depending on the stereotypes that have been activated, the player may see messages such as “You’re Asian? You must be good at math!” “How come you’re so smart?” “You’re a bad romantic partner,” or several other messages associated with each stereotype.
Instructions for how to play *Flying Asian Stereotypes!* Game.

**Figure 4-4**

- Use the arrow keys to dodge or touch the stereotypes that people throw upon you!
- Collect smiley faces to earn happiness points!
- Construct your identity by choosing between blue Identity Choice stars!
- Read facts by touching the green Fact circles!

**Figure 4-5**

Player chooses between “Identity Choice” stars to construct identities.
Because there is no right or wrong way to play, players are free to explore the environment and to reflect upon their own identity goals as they create various hypothetical identities. Players can also earn “happiness points” by collecting smiley faces, although being hit with low self-esteem or parental pressure can lower one’s happiness score. Five lesser known facts about Asian culture, specifically chosen to debunk common stereotypes regarding Asian culture, were distributed throughout the environment (represented by the green letter “F”). The five facts address the following: (1) the innate diversity of Asian countries, comprising 47 countries each with its own unique traditions, customs, history, and values; (2) the perpetual foreigner phenomenon; (3) the unanticipated consequences of the model minority, increasing pressure and masking the problems and needs of underperforming Asian students (including some members of Southeast Asian groups); (4) the “bamboo ceiling” phenomenon; and (5) high rates of suicide and depression for Asian-American women (see Figure 4-8 below for an example of an in-game fact).
The game is meant to be beneficial for both Asian and Non-Asian players. For Asians, it is meant to promote reflection of their identities and the role stereotypes have played in their lives, with the goal of helping them come to terms with the stereotypes. For Non-Asians, the game offers a new experience of seeing what it may be like to be labeled various Asian stereotypes that may or may not be true for an individual.
I will now describe the design of the second game and then present the results of how participants played each game.

**Initial Game Design 2 of 2: The Fob Or Not? Game**

The second game prototype was based on the themes from the focus group session and survey responses of “otherization” and Asians as perpetual foreigners, unable to assimilate or be perceived as mainstream or normal. The original title was tentatively named *How Asian Am I? Consequences of Otherization and Learning That You Can’t Really Tell Who is Acculturated or Not Based on Physical Appearance.* This was subsequently renamed the *Fob Or Not? Game.*
Similar to the first game prototype, participants felt that this game should be kept lighthearted and fun in order to make the issues of race and stereotyping more approachable while still being effective.

**Overview of Concept**

The initial game design for Game Two was a guessing game format that involves real life Asian Americans who have been assigned acculturation scores based upon the *Suinn-Lew Asian Self-Identity Acculturation* (SL-ASIA) Scale. The game is intended to help players recognize their biases and stereotypes related to acculturation firsthand by letting them guess a person’s acculturation level and their personality traits, and then revealing what the person is truly like (i.e., their true acculturation score and a biography written by the person himself or herself).

**Design Propositions for the Fob Or Not? Game**

Based upon my pilot studies, specific design propositions were tested in order to generate “theories-in-action” (Sandoval & Bell, 2004) about the *Fob Or Not? Game*:

1. *Desirable difficulties (Bjork, 1994) and allowing people to make mistakes can be good for learning.* As Bjork (1994) defined it, desirable difficulties includes reduced feedback to the learner and using a test-format (rather than presentations) as a learning event. Desirable difficulties are considered desirable because responding to them (successfully) engages processes that support learning, comprehension, and remembering, and ideally, long-term retention and transfer (Bjork, 1994).
2. Immediate feedback allows players to realize their assumptions may be wrong, while delayed feedback is good for learning.

3. Making assumptions explicit and then challenging them is good for learning.

The game embodied these design propositions in order to determine the best way for people to realize how their own assumptions may not be accurate.

**Basic Rules**

The gameplay for the *Fob Or Not* Game can be described as a simple guessing game with two levels of feedback (immediate but simple feedback, followed by detailed feedback at the end). The photographs of ten people of Asian descent are presented to the player. The game asks the player to guess on a scale of 1 to 5 how acculturated each person looks, and the player also writes a brief description (e.g. adjectives, personality traits, etc.) of what he or she thinks each person is like in real life.

**Design of the *Fob Or Not* Experience**

The gameplay begins with an intro screen (Figure 4-9) with bright colors, bouncy animations and upbeat music. Based upon feedback from the brainstorming and paper prototyping session, the look and feel of this game was intentionally designed to be more positive and lighthearted, rather than dark and serious. This style seemed more appropriate given the subject matter of the game and to encourage players to not worry about political correctness.
Figure 4-9 Intro/splash screen for *Fob Or Not* Game.

Upon starting the game, the player is presented with a set of instructions for how to play (Figure 4-10).
The game asks the player to give his or her assessment of whether it is easy or difficult to determine how acculturated someone is just based upon physical appearance. Players enter a number from 1 to 5, where 1 is very easy and 5 is very hard.
Figure 4-11 Recording one’s initial thoughts on ability to judge based upon external appearance.

Figure 4-12 Basic gameplay of *Fob Or Not* Game.
Figure 4-13 Feedback and scoring mechanism of *Fob Or Not* Game.
**Person 2 out of 10: A. Yao**

You described this person like this: looks foreign, friendly, very smart probably, probably has not been in the US very long, appears to be a math major.

In reality, this is how A. Yao describes himself/herself: I'm a Chinese male, who was born and grew up in North Carolina. My main hobbies are basketball, video games and music. I grew up playing the piano but now my current instrument I'm trying to learn is Wii Music. I like the outdoors and pets. I enjoy driving. I graduated in a large public school in the South with a degree in chemistry. Interesting things about me off the top of my head are: both of my pinkies cannot be

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Figure 4-14 Game allows player to compare their first impressions and assumptions with biographical information of the person in real life.
Figure 4-15 Player reflections after playing *Fob Or Not* game.

Your final score:  -900

Better luck next time!!

Figure 4-16 Box with final score displayed at the end of *Fob Or Not* Game.
General Trends from Pre to Post

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Acc.level</th>
<th>Play game prototypes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size = 28</td>
<td>{1, 2, 3}</td>
<td></td>
</tr>
<tr>
<td>Pre-Test</td>
<td></td>
<td>Feedback and Game Logs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post-Test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interview</td>
</tr>
</tbody>
</table>

Figure 4-17 Diagram of procedure.

Procedure for Analysis of Pre- and Post-tests

Pre- and post-test questions involved one of three categories: (A) knowledge about Asian culture, (B) perceptions/attitudes towards Asian issues and individuals of Asian descent in relation to stereotypes, or (C) self-identity in relation to stereotypes.

- Questions involving (A) knowledge of Asian culture were found in Part I and Part IV. These consisted of five questions based upon facts including academic success rates for Asian Americans of Southeast Asian descent, suicide and mental illness rates, diversity statistics, and pay equity. Questions included: “What words come to mind when you think of people of Asian descent?” and “Do Asian Americans have it easier than members of other racial/ethnic groups? Why or why not?”

- All questions in Part II of the tests addressed (B) perceptions/attitudes towards Asian issues and people in relation to stereotypes. This section consisted of 28 stereotype
differential items, i.e. 7-point semantic differential Likert items in which the words are various stereotypes regarding Asian culture from the literature on Asian stereotypes and from Phase one (the focus group and requirements gathering phase). For example, items included “smart / not smart,” “active / passive personality,” and “overachievers / underachievers.”

- Part III of the tests was very similar to Part II, with the same 28 stereotype differential items as before. This time, however, all the questions in the section addressed (C) self-identity. Participants rated themselves in relation to Asian stereotypes.

- Part IV of the tests consisted of 32 7-point Likert scale items. The questions in this section were mixed up, covering aspects of (A-C).

In total, there were 5 questions/items for (A), 43 questions/items for (B), and 33 questions/items for (C). The questions can be found in the Appendix section.

38 of the 84 Likert-scale items were reverse-coded in order to prepare them for analysis. I grouped the questions from all four parts into the three categories listed above and identified the relevant variables of interest. The variables encountered in the analysis are listed in Table 4-2 below.

Table 4-2 Variable Descriptions.

<table>
<thead>
<tr>
<th>Independent Variables/Covariates</th>
<th>Description</th>
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<tbody>
<tr>
<td>Acculturation Level</td>
<td>1=Non-Asian; 2=High Acculturation; 3=Low Acculturation</td>
</tr>
<tr>
<td>preQ1</td>
<td>Mean scores of the items on pre-test involving knowledge of Asian culture</td>
</tr>
<tr>
<td>preQ2</td>
<td>Mean scores of the items on pre-test involving</td>
</tr>
</tbody>
</table>
The first set of analyses investigated the difference in pre- and post-tests to explore how the games affected learning facts related to Asian people and culture. This addressed RQ#2 ("How do ISGs influence learning of facts related to Asian culture and stereotypes?") and RQ7. ("Do ISGs impact Asians, Asian Americans, and Non-Asians in different ways?")

**Analysis for diff1**

Before any statistical model was used, exploratory data analysis (EDA) was done to visualize the data and check that the assumptions of statistical models are satisfied. An EDA procedure includes illustrating descriptive statistics and showing different plots for the smallest unit of measurements (in this case, the smallest unit of measurements is the participant).
**Exploratory Data Analysis Procedures for diff1**

To ensure my data was normally distributed, I plotted a histogram and *normal Q-Q* plot on the response variable *diff1* and also ran a *Shapiro-Wilk Test of Normality*. By inspecting the graphs and results of the *Shapiro-Wilk Test*, I confirmed that my data is acceptable as an approximately a normal distribution and therefore can proceed with my analysis.

![Histogram and Q-Q plot](image)

**Figure 4-18 Histogram and Q-Q plot.**

Tests of Normality
Table 1

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<tr>
<td>Shapiro-Wilk</td>
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<td>0.051</td>
</tr>
</tbody>
</table>

Figure 4-19 Tests of Normality.

Next, I needed to check the relationship between the pre-test items (preQ1) and the response variable (diff1). If there is a relationship between the pre-test and response variable, then the pre-test must be kept in the model as a covariate. I plotted a simple scatterplot using SPSS. From the scatterplot, one can observe a decreasing trend, and therefore, the pre-test must be treated as a covariate.

Figure 4-20 Scatterplot of response variable by pre-test.
Finally, I wanted to check the relationship between the response variable \((\text{diff1})\) and the categorical variable (groups by acculturation level). Using SPSS, I plotted a simple boxplot, which also generated a frequency table. The results are shown below.

<table>
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<tr>
<th>Group</th>
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<td>0</td>
<td>0.0%</td>
<td>4</td>
<td>100.0%</td>
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</tbody>
</table>

Figure 4-21 Boxplot.

The boxplot revealed no missing or extreme data points, and the frequency table shows that there is no missing value in the data set.

To summarize, using the EDA procedure, I checked that the response variable \((\text{diff1})\) is approximately normally distributed and that there is a relationship between the
pre-test \((preQ1)\) and the response variable \((diffI)\). By checking the frequency table and boxplot, I also determined that there is no missing or extreme values in the data set.

Learning Facts Regarding Asian Culture: Paired Sample T-Test

A *paired-samples t-test* was conducted to compare knowledge of Asian culture before playing the two mini-games and after playing the mini-games. There was a significant improvement in the scores for pre-test \((M_{pre}=3.44, SD=0.82)\) and post-test \((M_{post}=5.01, SD=0.81)\) conditions; \(t(28)=6.95, p < 0.00001\). These results suggest that the mini-games have a positive effect on learning facts regarding Asian culture.

**Paired Samples Statistics**

<table>
<thead>
<tr>
<th></th>
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<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
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<tr>
<td>Pair 1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>postQ1</td>
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<td>28</td>
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<td>preQ1</td>
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**Paired Samples Correlations**

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<tbody>
<tr>
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<td>-0.079</td>
<td>.691</td>
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</table>

**Paired Samples Test**

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<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>Lower</th>
<th>Upper</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>postQ1 - preQ1</td>
<td>1.5714</td>
<td>1.1959</td>
<td>0.2260</td>
<td>1.1077</td>
<td>2.0352</td>
<td>6.953</td>
<td>27</td>
<td>.000</td>
</tr>
</tbody>
</table>

Figure 4-22 Paired Sample Statistics.
Learning Facts Regarding Asian Culture: ANCOVA Model for testing differences in learning between groups

I applied a fixed effects *Analysis of Covariance* (ANCOVA) model with *preQ1* as a covariate to reduce the variance (since I found a linear trend between the response variable and *preQ1*). Before any further analysis was completed, I checked the residual plots to ensure that the basic assumptions of an ANOVA model were satisfied, i.e. normally distributed errors with constant variance. I plotted a histogram of the Standard Residual for *postQ1* to check for the normal assumption. The histogram was approximately bell-shaped, and so I was able to accept the normal assumption. I also plotted a simple scatterplot of the Standardized Residual for *diff1* vs. Predicted Value for *diff1* to check for constant variance. There is no sharply increasing or decreasing trend, and so I was able to accept the assumption that the variance is constant. I also used *Levine’s Test of Equality of Error Variance* to confirm that the Homogeneity of Variance Assumption was not violated \[F(2, 25)=0.208, \ p = 0.81\].

Figure 4-23 Histogram of Residuals and Scatterplot of Residuals vs. Predicted Values.
In my ANCOVA model, which examined learning of facts related to Asian culture, the variable \( preQ1 \) was found to be a significant covariate \([F(1,24) = 34.23, p < 0.001, \eta_p^2 = 0.59]\), meaning that it is able to account for a significant amount of variance in post scores. However, controlling for individual scores on the pre-test, the model revealed no significant effects for Group (level of Asian acculturation), \( F(2, 24) = 1.28, p = 0.30, \eta_p^2 = 0.096 \). Therefore, the acculturation level of the participant made no difference in terms of how much was learned.

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>22.848*</td>
<td>3</td>
<td>7.616</td>
<td>11.592</td>
<td>.000</td>
<td>.592</td>
</tr>
<tr>
<td>Intercept</td>
<td>41.696</td>
<td>1</td>
<td>41.696</td>
<td>63.461</td>
<td>.000</td>
<td>.726</td>
</tr>
<tr>
<td>( preQ1 )</td>
<td>22.492</td>
<td>1</td>
<td>22.492</td>
<td>34.232</td>
<td>.000</td>
<td>.588</td>
</tr>
<tr>
<td>Group</td>
<td>1.681</td>
<td>2</td>
<td>.841</td>
<td>1.279</td>
<td>.296</td>
<td>.096</td>
</tr>
<tr>
<td>Error</td>
<td>15.769</td>
<td>24</td>
<td>.657</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>107.760</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>38.617</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. \( \text{R Squared} = .592 \) (Adjusted \( \text{R Squared} = .541 \))

Figure 4-24 Results of ANCOVA analysis.

Analyses for \( \text{Diff2} \)

The next set of analyses investigated the difference in pre- and post-tests to explore how the games affected perceptions of Asian people and culture in relation to stereotypes (\( \text{diff2} \)). This addressed \( \text{RQ#5} \) (“How do these games change opinions/perceptions of Asian culture and stereotypes?”) and \( \text{RQ#7} \). (“Do ISGs impact Asians, Asian Americans, and Non-Asians in different ways?”)
Once again, I began by completing an Exploratory Data Analysis (EDA) to visualize the data and check that the assumptions of statistical models are satisfied.

**EDA for diff2**

To ensure my data was normally distributed, using SPSS I plotted a histogram and normal Q-Q plot on the response variable `diff2` and also ran a *Shapiro-Wilk Test of Normality*. The shape of the histogram and the appearance of the Q-Q plot indicate that the response variable is approximately normally distributed. Inspecting the results of the *Shapiro-Wilk Test*, I further confirmed that my data is approximately normally distributed and therefore can proceed with my analysis.

![Histogram and Q-Q plot.](image)

Figure 4-25 Histogram and Q-Q plot.

Next, I needed to check the relationship between the pre-test items (`preQ2`) and the response variable (`diff2`). As before, if there is a relationship between the pre-test and response
variable, then the pre-test must be kept in the model as a covariate. I plotted a simple scatterplot using SPSS. From the scatterplot, one can observe a decreasing trend, and therefore, the pre-test must be treated as a covariate.

Figure 4-26 Scatterplot.

Finally, I wanted to check the relationship between the response variable and the categorical variable *Group* (acculturation level). I produced a boxplot which showed that there are no missing values, and an individual in Group 3 who seemed to have a very large change in perceptions of Asian culture. I investigated this further in a later section. By completing the EDA procedure, I was able to move on to my main analyses for *diff2*. 
A paired-samples t-test was conducted to compare perceptions of Asian culture and stereotypes before playing the two mini-games vs. after playing the mini-games. There was a significant increase in the scores from pre-test ($M_{pre}=3.74, SD=0.38$) to post-test ($M_{post}=4.08, SD=0.43$) conditions, $t(27)=4.39, p < 0.0001$. An increase in score indicates a shift away from believing Asian stereotypes are universally true or accurate. These results suggest that the mini-games help participants understand Asian stereotypes in a more nuanced, less essentialist way, and that they are not universally true (e.g., there may be individual differences).

**Paired Samples Statistics**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>postQ2</td>
<td>4.081</td>
<td>28</td>
<td>.4275</td>
</tr>
<tr>
<td></td>
<td>preQ2</td>
<td>3.741</td>
<td>28</td>
<td>.3789</td>
</tr>
</tbody>
</table>
Paired Samples Correlations

<table>
<thead>
<tr>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>.486</td>
<td>.009</td>
</tr>
</tbody>
</table>

Paired Samples Test

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>Pair 1</td>
<td>postQ2 - preQ2</td>
</tr>
</tbody>
</table>

Figure 4-28 Results of Paired T-test.

**Perceptions of Asian Culture: ANCOVA Model for testing differences in perceptions of Asian culture between groups**

I applied a fixed effects *Analysis of Covariance* (ANCOVA) model with *preQ2* as a covariate to reduce the variance (since I found a linear trend between the response variable and *preQ2*). Before any further analysis was completed, I checked the residual plots to ensure that the basic assumptions of an ANOVA model were satisfied, i.e. normally distributed errors with constant variance. I plotted a histogram of the Standard Residual for *postQ2* to check for the normal assumption. The histogram was approximately bell-shaped, and so I was able to accept the normal assumption. I also plotted a simple scatterplot of the Standardized Residual for *diff2* vs. Predicted Value for *diff2* to check for constant variance. There is no sharply increasing or decreasing trend, and so I was able to accept the assumption that the variance is constant. One data point appeared to be an outlier, which I would investigate further below. I also used *Levine’s*
Test of Equality of Error Variance to confirm that the Homogeneity of Variance Assumption was not violated \[ F (2,25) = 3.06, p = 0.065 \].

Figure 4-29 Histogram of Residuals and Scatterplot of Residuals vs. Predicted Values.

My ANCOVA model, which examined perceptions of Asian culture in relation to stereotypes, controlling for individual scores on the pre-test, revealed significant interaction effects between Group (level of Asian acculturation) and preQ2, \( F(2, 22) = 3.91, p < 0.05, \eta_p^2 = 0.26 \). Group (level of Asian acculturation) was also found to be significant, \( F(2,22) = 4.21, p < 0.05, \eta_p^2 = 0.28 \). To see which group scored higher, I inspected the Estimated Marginal Means (EMM), which have been adjusted to take into account the effect of the covariate (pre-test scores).

Estimates

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
</tr>
</tbody>
</table>

Dependent Variable: diff2
The EMM table and plot indicate that Group 3 had the highest change from pre to post \( (M_3 = 0.69) \), followed by Group 1 \( (M_1 = 0.37) \), and then Group 2 \( (M_2 = 0.23) \). Thus, low acculturation Asians shifted their view of Asian culture in relationship to stereotypes the most, followed by a smaller shift by Non-Asians, and a still smaller shift by high acculturation Asian-Americans. Originally, in the pre-test, Group 3 held the highest mean value for perceptions of Asian culture in line with stereotypes \( (M_3 = 3.88) \), followed by Group 1 \( (M_1 = 3.83) \), and then Group 2 \( (M_2 = 3.55) \). Because Group 3 had the highest change and Group 1 had the lowest change, this may suggest that knowledge of existing stereotypes and/or the awareness of the reality of Asian culture in relationship to stereotypes were lowest for low acculturation Asians while high acculturation Asian-Americans were the most aware of the presence of these stereotypes.
Tests of Between-Subjects Effects

Dependent Variable: diff2

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>2.104a</td>
<td>5</td>
<td>.421</td>
<td>3.776</td>
<td>.013</td>
<td>.462</td>
</tr>
<tr>
<td>Intercept</td>
<td>1.199</td>
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<td>1.199</td>
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<td>.328</td>
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<tr>
<td>Group</td>
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<td>.470</td>
<td>4.213</td>
<td>.028</td>
<td>.277</td>
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<tr>
<td>preQ2</td>
<td>.849</td>
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<td>.849</td>
<td>7.614</td>
<td>.011</td>
<td>.257</td>
</tr>
<tr>
<td>Group * preQ2</td>
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<td>.436</td>
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<td>.262</td>
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<td>Error</td>
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<td></td>
<td></td>
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<tr>
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<td>Corrected Total</td>
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<td>27</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

a. R Squared = .462 (Adjusted R Squared = .340)

Figure 4-31 Results of ANCOVA.

Analyses for Diff3

The third set of analyses investigated the difference in pre- and post-tests to explore how the games affected perceptions of self-identity in relation to Asian stereotypes (diff3). This addressed RQ#1 (**“In what ways do Identity Supportive Games shift and support identity (conceptions of self)?”**) and RQ#7. (**“Do ISGs impact Asians, Asian Americans, and Non-Asians in different ways?”**)

Once again, I began by completing an Exploratory Data Analysis (EDA) to visualize the data and check that the assumptions of statistical models are satisfied.

EDA for diff3

To ensure my data was normally distributed, using SPSS I plotted a histogram and normal Q-Q plot on the response variable diff3 and also ran a Shapiro-Wilk Test of Normality.
The shape of the histogram and the appearance of the Q-Q plot indicate that the response variable is approximately normally distributed. Inspecting the results of the *Shapiro-Wilk* test, I further confirmed that my data is approximately normally distributed and therefore can proceed with my analysis.

![Histogram and Q-Q plot](image)

**Figure 4-32 Histogram and Q-Q plot.**

**Tests of Normality**

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>df</th>
<th>Sig.</th>
<th>Test Statistic</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>diff3</em></td>
<td>28</td>
<td>.119</td>
<td><em>preQ3</em></td>
<td>28</td>
<td>.949</td>
</tr>
<tr>
<td><em>diff3</em></td>
<td>28</td>
<td>.189</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*a. Lilliefors Significance Correction*

**Figure 4-33 Test of Normality.**

Next, I needed to check the relationship between the pre-test items (*preQ3*) and the response variable (*diff3*). As before, if there is a relationship between the pre-test and response variable, then the pre-test must be kept in the model as a covariate. I plotted a simple scatterplot, with *diff3* on the y-axis and *preQ3* on the x-axis. From the scatterplot, one can observe a decreasing trend, and therefore, the pre-test must be treated as a covariate.
Finally, I wanted to check the relationship between the response variable and the categorical variable *Group* (acculturation level). I produced a boxplot which showed that there are no missing values, and an individual in Group 2 who may be considered an outlier. I investigated this participant further in a later section. By completing the EDA procedure, I was able to move on to my main analyses for *diff3*. 

**Figure 4-34 Scatterplot.**
Perceptions of Self-Identity: Paired Sample T-Test

A paired-samples t-test was conducted to compare perceptions of self-identity in relation to stereotypes before playing the two mini-games vs. after playing the mini-games. There were no significant effects found in the scores from pre-test ($M_{pre}=4.41, SD=0.35$) to post-test ($M_{post}=4.41, SD=0.31$) conditions, $t(27)=0.069, p = 0.95$.

Paired Samples Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>postQ3</td>
<td>4.413</td>
<td>28</td>
<td>.3067</td>
</tr>
<tr>
<td></td>
<td>preQ3</td>
<td>4.410</td>
<td>28</td>
<td>.3524</td>
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</table>

Paired Samples Correlations
<table>
<thead>
<tr>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>postQ3 &amp; preQ3</td>
<td>28</td>
</tr>
</tbody>
</table>

**Paired Samples Test**

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Pair 1</td>
<td>postQ3 - preQ3</td>
</tr>
</tbody>
</table>

Figure 4-36 Paired Sample T-Test.

**Perceptions of Self-Identity: ANCOVA Model for testing differences in perceptions of self-identity between groups**

Next, to consider differences between groups, I applied a fixed effects *Analysis of Covariance* (ANCOVA) model with *preQ3* as a covariate to reduce the variance (since I found a linear trend between the response variable and *preQ3*). Before any further analysis was completed, I checked the residual plots to ensure that the basic assumptions of an ANOVA model were satisfied, i.e. normally distributed errors with constant variance. I plotted a histogram of the Standard Residual for *postQ3* to check for the normal assumption. The histogram was approximately bell-shaped, and so I was able to accept the normal assumption. I also plotted a simple scatterplot of the Standardized Residual for *diff3* vs. Predicted Value for *diff3* to check for constant variance. There is no sharply increasing or decreasing trend, and so I was able to accept the assumption that the variance is constant. One data point appeared to be an outlier, which I would investigate further below. I also used *Levine’s Test of Equality of Error Variance* to
confirm that the Homogeneity of Variance Assumption was not violated \( F(2,25) = 2.31, p = 0.12 \).

![Histogram and Scatterplot](image)

**Figure 4-37** Histogram of Residuals and Scatterplot of Residuals vs. Predicted Values.

<table>
<thead>
<tr>
<th>Levene's Test of Equality of Error Variances^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable: diff3</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>2.309</td>
</tr>
</tbody>
</table>

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Group + preQ3 + Group * preQ3

**Figure 4-38** Levine’s Test of Equality of Error Variances.

My ANCOVA model, which examined perceptions of self-identity in relation to stereotypes, controlling for individual scores on the pre-test, revealed significant interaction effects between *Group* (level of Asian acculturation) and *preQ3*. \( F(2,22) = 4.40, p < 0.05, \eta^2_p = 0.29 \). *Group* was also found to be significant, \( F(2, 22) = 4.63, p < 0.05, \eta^2_p = 0.30 \). To see which group scored higher, I inspected the Estimated Marginal
Means (EMM), which have been adjusted to take into account the effect of the covariate (pre-test scores).

Descriptive Statistics

<table>
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<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-0.071</td>
<td>0.1316</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>0.009</td>
<td>0.3479</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>0.250</td>
<td>0.1364</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>0.003</td>
<td>0.2503</td>
<td>28</td>
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</tbody>
</table>

Tests of Between-Subjects Effects

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>.897a</td>
<td>5</td>
<td>.179</td>
<td>4.966</td>
<td>.003</td>
<td>.530</td>
</tr>
<tr>
<td>Intercept</td>
<td>.099</td>
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<td>.099</td>
<td>2.732</td>
<td>.113</td>
<td>.110</td>
</tr>
<tr>
<td>Group</td>
<td>.335</td>
<td>2</td>
<td>.167</td>
<td>4.631</td>
<td>.021</td>
<td>.296</td>
</tr>
<tr>
<td>preQ3</td>
<td>.077</td>
<td>1</td>
<td>.077</td>
<td>2.123</td>
<td>.159</td>
<td>.088</td>
</tr>
<tr>
<td>Group * preQ3</td>
<td>.318</td>
<td>2</td>
<td>.159</td>
<td>4.403</td>
<td>.025</td>
<td>.286</td>
</tr>
<tr>
<td>Error</td>
<td>.795</td>
<td>22</td>
<td>.036</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.692</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Corrected Total</td>
<td>1.692</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .530 (Adjusted R Squared = .423)

Figure 4-39 Results of ANCOVA.

Initially, the pre-test scores revealed Group 2 with the highest value ($M_2 = 4.55$), followed by Group 1 ($M_1 = 4.44$), and then Group 3 with the lowest ($M_3 = 3.94$), which seems to indicate high acculturation Asian-Americans initially had the highest relative awareness of how stereotypes played a role in their self-identities. The EMM table and plot (see Figure 4-40 below) indicate that Group 3 (low acculturation Asians) had the highest change ($M_3 = 0.18$), followed by Group 2, or high acculturation Asians, ($M_2 = 0.10$), and then Group 1, or Non-Asians ($M_1 = -0.076$). Thus, low acculturation Asians
shifted their view of their self-identity in relationship to stereotypes the most, followed by a smaller shift by high acculturation Asian-Americans. Non-Asians had almost no change in their self-identity.

![Estimated Marginal Means of diff3](image_url)

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-.076a</td>
<td>.051</td>
<td>-.183</td>
<td>.030</td>
</tr>
<tr>
<td>2</td>
<td>.103a</td>
<td>.065</td>
<td>-.031</td>
<td>.238</td>
</tr>
<tr>
<td>3</td>
<td>.180a</td>
<td>.195</td>
<td>-.224</td>
<td>.584</td>
</tr>
</tbody>
</table>

Group Dependent Variable: \( \text{diff3} \)

\( a. \) Covariates appearing in the model are evaluated at the following values: \( \text{preQ3} = 4.410. \)

Figure 4-40 Estimated Marginal Means.

**Role of Researcher in Interpretation of Data**

It is important for the researcher to discuss his or her role during the interpretation of data as well as any sources of researcher bias. In this study, I designed the games, conducted all
interviews, and coded and analyzed all data. As previously mentioned in Chapter One (in the section entitled A Note on Researcher Identity), I approach my work with a cultural bias as a second generation Asian-American. It is important for the reader to take this into account while reading the analysis and findings.

Qualitative Analysis: Triangulation of Data with Maximal Variation Sampling Methodology

I adopted a purposeful sampling approach to seek information-rich cases which can be studied in depth (Patton, 1990). Some examples of purposeful sampling include extreme or deviant case sampling, typical case sampling, snowball or chain sampling, confirming or disconfirming case sampling, maximum variation sampling, and others (Patton, 1990, pp. 169-183). Lincoln and Guba (1985) identify maximum variation sampling as one of the most useful strategies. This strategy is useful in that it is good at “capturing and describing the central themes or principal outcomes that cut across a great deal of participant or program variation.” (Patton, 1990, p. 172). Patton (1990) discusses how a large amount of heterogeneity can be problematic for relatively small samples can be problematic because individual cases are so different from each other. A maximum variation sampling strategy transforms that limitation into a strength by assuming the following argument: “any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a program” (Patton, 1990, p.172).

A maximum variation sample is not representative nor does it claim to be. However, for the purposes of this study, a maximum variation sample makes more sense
than a random sample. Because the number of participants is relatively small (less than 30), there is a high chance of getting a non-representative sample if participants are chosen at random.

For this study, a maximal variation sampling strategy was used to focus in on cases (based upon the pre- to post-test results) that were particularly interesting, including those with high extremes.

**Participants Sampled**

Seven of the 28 participant interviews who demonstrated the most variation or other distinctive characteristics were selected and coded for themes. In the sample, characteristics such as gender, group, and acculturation level were approximately proportional to the complete group of 28 participants. The following is a brief description of each person, numbered Sampled Participant SP1 through SP8 (names have been replaced with same-sex pseudonyms) along with what appeared to happen and some central themes that were identified during their interviews.

**SP1. Holly Hunter**

Holly Hunter is a female, Caucasian undergraduate junior. Before playing the games, she rated her knowledge of Asian culture quite low (3 out of 7), citing her lack of meeting “that many people of different backgrounds…in high school” and having few friends of Asian descent. In the pre-test she exhibited several incorrect views of Asian culture (pre-test score in terms of knowledge of Asian facts, or $preQ_1 = 2.4$), and very stereotypical impressions of Asian people
(pre-test score in terms of perceptions of Asians in terms of stereotypes = 3.4). She was selected as part of the sample because she demonstrated the highest change (largest increase in pre- to post-test score) in terms of knowledge of Asian facts (\(diff1\), or the difference between post-test score and pre-test score for knowledge of Asian facts was 4.2). In terms of the overall sum of \(diff1\), \(diff2\), and \(diff3\), Holly also had the highest positive change overall (4.8).

Upon being asked what she learned after playing the *Fob Or Not* Game, Holly wrote, “I learned that not all Asian Americans fit the stereotypes that most people have for them and that they are proud of their culture and have varied interests...You can’t really judge people based off what they look like, or really, even what they’re wearing. There’s no way I don’t think by looking at somebody that you can guess what they can do.” During thinkalouds and in the interview after playing, she remarked about being saddened, angered, or shocked by what she learned. For example, upon reading the fact regarding Asian suicide, she remarked, “That’s really sad. I never would have expected that… the whole suicide thing, that was really shocking to me, because they always seem like happy people, I thought. I’m sure parental pressure has something to do with that too.” In that specific statement, she still demonstrated ‘they’ otherness, but she did exhibit new understandings that were not there before.

**SP2. Evan Chan**

Evan Chan is a male, Asian-American undergraduate senior who was identified as high-acculturation. He was selected as part of the sample because among the 28 participants, Evan demonstrated among the least amount of change from pre-test to post-test (\(diff1 = 0.4\), \(diff2 = 0.1\), \(diff3 = 0.2\)). Before playing the games, he also rated his knowledge of Asian culture quite low (3 out of 7).
Evan shared several personal stories of how stereotypes and his Asian identity played a major role in his life, describing instances in which his Asian qualities made him feel less than equal and pigeonholed. For example, he described his high school experience as being a painful time due to his ethnicity:

I think back in high school, I went to an all white high school. No matter how hard I tried to fit in, because of my appearance I'm always seen as Asian. I do have friend, Chris, who always treated me really well. Probably so well, in that he didn't really see the Asian appearance at all, he saw me as White as well. That's cool because that way he treated me as an equal as him. But other people in high school still saw the Asian appearance and probably didn't treat me as equal. And I just felt like I was pretty much defined as my schoolwork.

Evan described how these experiences provided a strong motivation to disprove stereotypes. For example, upon being asked if stereotypes played a role in his identity development growing up, Evan remarked:

Yeah, a lot of it was the academic part. I also did try to make an effort to disprove stereotypes. I did some non Asian things like wrestling. I did it because I like it, but I also realized later on that it's kind of cool, and I did it because it disproves that Asians can't do sports, or Asians can't be strong, or Asians can't do this.

Upon being asked what effect he felt the games had upon his identity or what he learned, Evan described a sense of empowerment:

I guess it makes me more aware of my surroundings more. And it gives me more motivation to disprove Asian stereotypes. I've always had that motivation, but now I'm using much more motivation and it makes me want to change things more now. Become more initiative and try to not be defined by my school so much.
SP3. Qing Lau

Qing Lau is a male, Asian undergraduate junior of low acculturation. Of the 28 participants, based upon the changes from pre- and post-test, both his perception of Asian people in relation to stereotypes and his self-identity in relation to stereotypes were among the participants with the highest positive change (preQ2 score from 3.1 to 4.7, and preQ3 score from 3.5 to 3.9). His overall change was the fourth highest of all participants (4.0).

Upon being asked how it felt to be labeled stereotypes in the Flying Asian Stereotypes! Game, Qing described a cultural difference in which he felt he was frequently labeled in nerd in America because he would not go to bars and go drinking, as per a perceived expectation, but in his native culture he would not be considered a nerd at all:

I think it's because we have different cultures. Like, when you think I'm a nerd, maybe I'm not, because in my culture it's actually not nerd. From American people, they think you're a nerd because you don't go to a bar, you don't drink. Back in China, like, I’m not a nerd at all. I like study [sic], but I actually do like sports and do other entertainment, but not drinking. They're like different cultures, so I think that's the main point. Because they think you're a nerd because you don't do something, you don't go to a football game, you don't drink, but it's actually a different culture, a culture difference between us, maybe.

Qing called the study “inspiring” and strongly believed that many people of all ethnicities would benefit from the game:

“Yeah, definitely I think [Non-Asians will learn something about Asian culture]. They’ll learn something maybe. I think they’ll change their feelings about Asian people. Like they might not want to do something like discriminate them, I think. Because I don’t think there’s much discrimination here but sometimes I just feel you’re different.”

SP3. Roger Matthison

Roger Matthison is a male, Caucasian undergraduate junior. Of the 28 participants, based upon the changes from pre- and post-test, both his knowledge of Asian facts and his
perception of Asian people in relation to stereotypes were among the participants with the highest positive change (preQ1 score from 3.0 to 6.4, and preQ2 score from 3.4 to 4.3). His overall change was the third highest of all participants (4.3).

He rated his knowledge of Asian culture quite low (3 out of 7), and during thinkalouds (particularly during the Fob Or Not Game), he remarked how off he was in terms of his initial conceptions of Asian culture. In the open response sections of the pre- and post-tests, Roger demonstrated a more nuanced view of the consequences of stereotyping, drawing upon specific facts that were presented in the games. For example, addressing the question "What aspects of Asian and Asian American Culture are negative?" he went from "Asians tend to only socialize with other Asians. This makes cultural adaptability an issue. It is also negative because it does not promote diversity, which leads to the best and brightest ideas," to "They are stereotyped in the workplace and are not given leadership roles. There is also a high suicide rate among young Asian women. This is very detrimental to society." For "Do Asians have it easier than other groups?" he changed his perspective, citing stereotyping in the workplace and family pressures. In the pre-test, Roger listed a number of stereotypical images of Asians, including the idea that Asians “are smart and hardworking people, just like in reality.” After playing the games, Roger indicated that common beliefs people have of Asians are "very inaccurate."

Roger believed he learned a lot, in terms of making judgments on people based upon assumptions and external appearance, and also aspects of self-identity:

I learned to not stereotype, because you're typically wrong. I'd say a lot of people wouldn't do well at this game. I learned that visual appearance has no help in telling how acculturated someone is... I will be very careful to stereotype because I now realize that my stereotypes were not correct. I should get to know the person before making judgments... I learned what type of person I want to strive to be, and what type of person I would not want to be viewed as.
**SP5. Alicia Liu**

Alicia Liu is a female, Asian-American fifth-year undergraduate student. Of the 28 participants, based upon the changes from pre- and post-test, both her knowledge of Asian facts and her perception of Asian people in relation to stereotypes were among the participants with the highest positive change (preQ1 score from 1.6 to 5.6, and preQ2 score from 3.6 to 4.4). Her overall change was the second highest of all participants (4.7). In the pre-test, she rated her knowledge of Asian culture and issues as average (4 out of 7) and her sensitivity to stereotypes held about Asians as below average (3 out of 7).

She remarked that growing up, stereotypes played a major role in her life, in generally negative ways. For example, upon being asked if stereotypes played a role in her life, past or present, she remarked:

> I think in high school I was definitely hiding the fact that I was an Asian because I think if you grow up in a white society, everyone makes fun of you for being Chinese, like you know Kung Fu, or because of your eyes, because you look different from everyone else. So I guess in high school and middle school it’s like, why am I different? I want to be like everyone else? I didn’t feel like I fit in, so I guess I wish I could be more like everyone else...Yeah, definitely, a lot in high school. Because I grew up in a mostly white and Muslim community. Me and my brother were the only Asians. So I guess a lot of people saw Asians as good at kung fu, really smart, everybody assumed that we knew all the answers and that we were just being quiet because I didn’t want to show off. Or that I knew the answers and just didn’t want to say it. Even if I didn’t know the answers people assumed I did. And they would assume I was ruining the curve for everybody because I must be acing all the exams.

Upon playing the games, Alicia described views on stereotypes that went against traditional views, such as the consequences of seemingly “positive” stereotypes. For example, upon being asked what happens if someone places stereotypes that seem good but actually aren’t true of you, Alicia remarked:

> I guess it feels like it puts on a lot more pressure because then it feels like people are expecting something else out of me so I feel like I have to measure up to that.
So I guess there’s more pressure when people think more highly of you than you really are. They think you can do really better than you really can. And that just means you have to spend a lot more time trying to attain that level I guess.

Alicia remarked she hadn’t heard of some of the stereotypes that were depicted before, but she described the games as being beneficial in terms of bringing the issues to light, changing perspectives, and bringing awareness:

I don’t think [my attitudes] changed…it’s more like more awareness. It’s like I know about the stereotypes and I know all these things by experiencing it firsthand or in the classroom, so it’s not like these are really new to me. But I guess being able to become more aware, being able to talk about them more freely, I could see something from this game. That’s not something people bring up every day about stereotypes… I think people who may not have known about these things, it would definitely change their perspective. Because I don’t think they’d run into something like this unless they take a class or the purposely want to seek out information. They’re not going to run into any of these issues. So I guess they might be ignorant about these issues if they grew up in a certain community where you don’t really have ethnic friends…It could be beneficial for people to change their minds and bring awareness.

Alicia also described these games as being helpful for people to be able to take ownership over these stereotypes:

I learned the different stereotypes that Asians struggle with. I guess after going through some of them and forgetting about some of the stereotypes that Asians go through, I guess this is a good reminder to show that these is what Asians struggle with. And this kind of helps in terms of being able to help to others and reach out to others, if you can relate to them on the same level. Like, I went through this before, and I can definitely understand where they’re coming from...It can help people deal with certain issues. Like if people can prevent certain things. If people know more about stereotypes, like being shy or passive, then maybe that’s something the person is used to, but because of their home environment or whatever caused it, how they grew up, because that’s what you’re supposed to do, to be obedient, and what not, and that pushes you to be more passive, then if other people knew about these stereotypes, maybe it can affect them to want to help you to speak more, maybe, maybe they can push you to be more outgoing. I mean, a lot of people go through certain phases, you know. Like if you’re shy at one point, those are things you can work through.
SP6. Jake Gorski

Jake Gorski is a male, Caucasian undergraduate junior. Of the 28 participants, based upon the changes from pre- and post-test, his perception of self-identity in relation to stereotypes changed among the least (a preQ3 score of 4.5 to score of 4.4). His gains in knowledge of Asian facts were about average (diff1 = 2.4) and the change in his perception of Asian people in relation to stereotypes was relatively low (diff2 = 0.2). In the pre-test, he rated his knowledge of Asian culture and issues as low (3 out of 7).

While playing the Fob Or Not Game, Jake discussed how he saw value in the game in allowing people to realize their subconscious biases, including his own, and to potentially encourage positive changes for the future:

This is pretty good, I like this actually…because I think this is a good way to actually see if you have some biases. It’s challenging to describe whether someone is more Americanized than someone else. That’s what I like about that… when people judge, they use their own biases when it comes to distinguishing people from who they are. Maybe it's subconscious type of biases they pick up. I think you put a label on people, which I don't think is right. I think by labeling people, you tend to ostracize them for who they are. In terms of doing that, you have a predisposed idea of what they may be like without even getting to know them… I think people have a set of biases already set up, maybe subconsciously, just from growing up, depending on what kind of environment they grew up in, or what they see in the media… In terms of who I am, I think definitely I do have some unconscious biases that I don't even realize. I’m not a biased person in any ways on a conscious level, but maybe on a subconscious level or something like that. Just by things I’d see in the past maybe through the media growing up or whatever. It’s hard to suppress those types not knowing ways of judging people, and also, in terms of playing this last game in particular, I think there's a little bit about myself that I think I would always like to be a little better at as well. There are things I definitely want to improve upon…A person might say they're not a biased or racist or stereotypical person, but at a subconscious level, by playing these games, you get a better idea that subconsciously, there's something going on. That you realize that as a person, you're not realizing what you're actually doing. I think that type of data that you get back is very valuable… People might tell themselves, I’m not like that, but…I think it will be helpful because people can stand back and say hey, you know what, I think I need to work on something a little more.
**SP7. Sam Allen**

Sam Allen is a male, Jamaican-American undergraduate junior. He was included in the sample because he provided a unique perspective as a first-generation immigrant from a country other than Asia. Of the 28 participants, based upon the changes from pre- and post-test, his gains in terms of learning facts regarding Asian culture were relatively high ($diff1 = 2.6$), his change in perceptions of Asian culture in relation to stereotypes and his change in self-identity was average ($diff2 = 0.5$).

Upon playing the games, Sam described examples of how he could relate to being stereotyped and how these stereotypes and assumptions have affected how others have treated him:

I mean, I walk into a store, and I’m black and automatically people think I’m going to rob the place. And I’m like, really? Like, come on man, I’ve been followed in stores all the time. It gets annoying but I’ve gotten to a point where I don’t let it bother me because every day it’s going bug you and you’re the one who’s going to lose sleep over it and you’re the one who’s going to be stressed about it. I don’t. Because until they say something to me, there’s nothing I can do, I can’t do anything legally, and they walking around the store. I can kinda tell. I don’t care. I know I’m not taking anything. You know what I’m saying? So, if they don’t say anything to me or anything like that, then I just don’t care. Let them walk. Let them do whatever they want. You know, stuff like that. I mean, when I tell people what my majors are, I tell them Information Sciences and Technology and Electrical Engineering. They’re not surprised, like, ‘wow, you’re doing two degrees.’ They’re surprised like, ‘I can’t believe you’re doing two degrees.’ You know, there’s a different type of surprise. And I’m like, ‘Why? Because I’m black? Because I’m from another country?’ In retrospect though, for my personal reasons, I still blame the black community in a lot of things in that, let’s be honest, not that many black people are in Engineering. In my years at [the university], I’m one of very few. So I understand why people have that misconception. But as long as you think certain things, but don’t let it determine how you treat me, is basically what I would say.
Sam continued to point to real life experiences while discussing the second game, *Flying Asian Stereotypes*. Upon being asked how it felt playing this game and to be labeled stereotypes in the game, he remarked:

I mean, having been labeled stereotypes in real life, it’s not good, because even if the stereotype is true, there is more to me. You know, no one thing defines me. If I were Asian and if I did actually know kung fu, it doesn’t mean I know anything else. I could actually know kung fu, but it’s not because I’m Asian; it’s because I’m interested in it. So I mean as I said before, a lot of these things aren’t that big of a surprise for me because I’ve had it before in real life.

Sam agreed with much of the information presented in the game. For example, in response to the *Perpetual Foreigner* fact that discussed the issue of otherization, Sam remarked:

I’m gonna be honest. For some reason, there is truth to that. I’ve gotten that impression too where Asians as a whole are always seen as more from somewhere else. Even though you guys might have lived here 10 years longer than me. But for some reason I’ve seen that too. I don’t know if I personally think that way. I would say I think that way just a little bit, but not much. You know, because I know people are born here or whatever so. If were to think that way, I don’t know, 5%. Just a little bit. But I’m not gonna pretend I’ve never thought it either. But primarily Asians, not other races. I don’t think as much like that for Middle Eastern people, people from Europe, from South America, I don’t think it that much, I don’t know why.

Sam discussed what he perceived to be differences in the way Asians are stereotyped and treated compared to other racial and ethnic minorities. For example, contrasting the black and Asian communities, Sam identified a distinction:

I think it’s weird because, in my opinion, the black community gets a lot of the racism in what I would say, more systemic or systematic ways, in the sense that, we’re fought against, oppressed, whatever, in that I go into a store, and I’m automatically monitored more. Or, I’m driving and my car has got tints, and I’m a drug dealer automatically. But I feel like, in my opinion, the Asian community now gets stereotyped or oppressed in a more verbal sense. Like there’d be more verbal attack, like people would come out and say something. And I think the difference is that the black community tends to be a little more aggressive physically, so, you come off incorrect, you will get a beat down (laughs) whereas it doesn’t seem like that for the Asian community. So I think people can think they can just go out and say anything. Which is weird, like, if there is a
stereotype that Asians know kung fu, you might get your butt kicked, but people don’t think about that.

Sam discussed what he perceived to be the value of the two games, including a benefit in forcing the player to confront existing stereotypes held in society and also within the individual himself and herself:

I mean, this game brings to light a lot of major stereotypes that are out there. The first game [Fob Or Not] kind of made you think of what stereotypes you had within you. But this game [Flying Asian Stereotypes], brings out a lot of stereotypes that are just out there, public, that you may know or may not know. And it forces you to be more realistic with what the stereotypes are, because, while I’m playing the first game, I can always try to pretend I don’t think certain things, but when you see the actual stereotypes that you know are out there, you can’t hide from it.

Codes Across All Cases in Sample

Open coding (Strauss, 1987) was performed on all seven cases using NVivo 8 software. The following codes were identified from the interviews, sorted by broad categories:

Table 4-3 Breakdown of codes.

<table>
<thead>
<tr>
<th>Code</th>
<th>A: Alicia Cheung</th>
<th>B: Evan Chan</th>
<th>C: Qing Lau</th>
<th>D: Holly Hunter</th>
<th>E: Jake Gorski</th>
<th>F: Roger Matthison</th>
<th>G: Sam Allen</th>
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<td>1 : Absent parent</td>
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Patterns and Themes

Themes were grouped into two broad categories (1) outcomes and insights gained upon playing the games and (2) reflections, observations, and design feedback. Outcomes and insights gained upon playing the games included: learning new perspectives, changes or realizations in self-identity, changes in and perceptions of Asian culture. Reflections, observations, and design feedback included: insights and the positive and negative aspects of the game design.

The following is a list of 23 themes that emerged. The next section will review each theme and provide evidence from the participants to demonstrate presence of the themes.

**Learning Outcomes**

T1. Gain of new perspectives, facts and realizations on Asian culture

**Identity Outcomes**

T2. Realization of misconceptions while judging acculturation by external appearance

T3. Greater awareness of one’s assumptions, biases, and misconceptions

T4. Identity definition while playing the games

T5. Ability to learn various things about self and identity

T6. Pride or affiliation with one's culture

T7. Empathy and/or comparisons to self
Outcomes Related to Perception of Asian Culture

T8. Increased awareness of Asian issues
T9. Increased sophistication in understandings of stereotypes
T10. Learning of the existence of certain stereotypes
T11. Shared battle

Observation/Reflection of Identity

T12. Tensions fitting in with a culture
T13. Sources of happiness, goals, possible and future selves
T14. Stereotypes’ major effect on participants’ identity development, both positive and negative
T15. Identification of struggles related to Asian issues and stereotypes
T16. Future behavior change

Design Outcomes

T17. Successful learning by metaphor
T18. Unique, unusual experience
T19. Agreement with game
T21. Games as fun, funny, cool
T22. Confusing aspects of the games’ interfaces
T23. Positive design aspects
Themes

T1. Gain of new perspectives, facts and realizations on Asian culture (Learning Outcome)

Participants gained new perspectives on Asian culture from playing the games. This included having new realizations and learning surprising facts (many of which debunked common beliefs regarding Asians).

A. Scope and severity of the issues

Participants expressed learning about stereotypes and having realizations on the widespread nature and importance of the problems facing Asian-Americans. For example, participants gave the following remarks:

I learned about all kinds of stereotypes and I learned more about these issues. Like I didn't realize how big this issue was... I didn't realize that there was that many stereotypes out there. (Evan)

I think I learned the different stereotypes, and I learned I think they well targeted the importance of the problems of Asian people, especially the parental pressures and low esteem and the other things like avoid[ing] risks, and it's really hard to think about it. (Qing)

Since numerous participants discussed the serious nature of the issues and none of the participants were coded as downplaying or describing the issues as trivial, we can presume that the games adequately captured the scope and severity of the target problems that went into the design. For this theme, I hypothesized that this occurred largely due to the game mechanism in both games that allowed participants to act out their assumptions and then by confronted with concrete facts that counteracted their original thinking. Future iterations of DBR can explore this further.
B. Not all Asians are achievers of academic and financial success

Participants expressed surprise regarding facts presented in the game that counteracted stereotypes. For example, when shown a fact that challenged the notion that all Asians are universally regular achievers of academic and financial success, participants acknowledged realizations or surprise:

I also didn't realize that Laos and Cambodians, the other group of Asians, that they don't all excel in school…this really reaffirms that. (Evan)

The other thing I'm surprised is the one with, I don't know about people from Cambodia or other countries but I think Chinese people can study pretty well here, like we can have academic success. I don't know about Cambodian people. That's why I was surprised that they actually fail school. That thing said they fail school. (Qing)

The other one, the one about Asians being more successful, but how some are actually in poverty, was really interesting. (Jake)

C. Diversity in Asian culture

Similarly, the fact on the innate diversity in Asia, spanning over 47 countries each with unique history, values, and tradition, seemed eye opening for participants of all ethnicities, but especially for Non-Asians who expressed little familiarity with Asian culture. Participants pointed to this as another item that they learned:

Yeah that’s one of those things I’ve always wanted to know. What are the Asian countries. Yeah I never thought that personally. I know there’s a lot of countries that comprise Asia. I know they’re very different. I didn’t know there were 47. Cause people mainly know the big ones, China, Japan. (Sam)

I really thought it was interesting. I think I put like 10 countries were Asian, but there were more like 40 something, so I would say I think I just would think of China, in Asia, I didn’t think of all those other countries where it’s not like that. I would say I definitely learned that. (Roger)
I learned that...not all Asian Americans fit the stereotypes that most people have for them and that they are proud of their culture and have varied interests. (Holly)

Wow. Going on with this fact here, I think most Americans when they think of Asian countries, they leave those countries out. They think of the bigger countries. (Jake)

I don’t really think about it that much, but if I did, I would have been like yea, people are interested in all kinds of things. (Roger)

D. High suicide and mental illness rates for Asian-American women

Based upon their remarks, participants seemed most impacted in an emotional way by learning about the high suicide and mental illness rates. Participants felt that this was especially sad, interesting, and/or significant:

I definitely learned from the facts. The suicide one was a big one for me. I mean, you don’t hear about suicide that much in the news, generally. Especially the female Asian community. Especially between 15-24, I would have thought it would not be that big of a deal. (Sam)

Yeah, definitely two of the facts, the suicide rate was very interesting, something I’d never think of. The other one, the one about Asians being more successful, but how some are actually in poverty, was really interesting...I think given the facts that were presented, yes, I think my stereotypes, what I think of what someone is a typical Asian changed a little bit. (Jake)

Yeah, I learned stuff about the suicide rate. I think I heard things about that before, I never thought about it though. And then the family pressures, I know a little bit about that just from talking to kids that are Asian. And I never really thought about, how it's a common stereotype that people think Asians are smart, but it talked about the Laos and Cambodians were some of the most disadvantaged Asians, and I never really thought about them as Asian, but they are. It just shows how you don't really know much unless you do your research. (Roger)

Interesting, I never knew that...I never would have expected that...Yeah, the whole suicide thing, that was shocking to me, because they always seem like happy people, I thought. (Holly)
Yeah, definitely two of the facts [were surprising]. the suicide rate was very interesting, something I’d never think of...That's something I didn't know about either, the high suicide rate among AA women. That's really sad I think. (Jake)

E. Asians are often recognized or treated as foreign, “other,” bad leaders, inferior, or gangsters

Participants were surprised to discover that people of Asian descent were often treated as foreign or other negative ways including perceptions of inferiority or poor leadership potential. Some participants never knew certain stereotypes existed, while others admitted to having these kinds of sentiments in the past:

I’m gonna be honest. For some reason, there is truth to that [idea that Asians are seen as perpetual foreigners]. I’ve gotten that impression too where Asians as a whole are always seen as more from somewhere else. Even though you guys might have lived here 10 years longer than me. But for some reason I’ve seen that too. I don’t know if I personally think that way. I would say I think that way just a little bit, but not much. You know, because I know people are born here or whatever so. If were to think that way, I don’t know, 5%. Just a little bit. But I’m not gonna pretend I’ve never thought it either. But primarily Asians, not other races. I don’t think as much like that for Middle Eastern people, people from Europe, from South America. I don’t think it that much, I don’t know why. (Sam)

Yeah, even for 2nd generation Asian people, they are still being recognized as foreigners, that's what I'm surprised. Because they're actually born in America, they just have this appearance and other people think they're Asian, but they're kind of like American, that's why I'm surprised because some Asians like myself, I'm not like 2nd generation or anything, I'm surprised because I thought those people can get along well with American culture, with American people. (Qing)

Bamboo ceiling. I didn't know that. (Jake)

I guess the evil gangster stereotype was really surprising because I guess Asians aren’t really seen as gangsters...The only big thing was the “evil gangster” thing. I guess I don’t really see many people labeling Asians as gangsters. (Alicia)

F. Surprising Elements That Changed Perspectives
The element of surprise appeared to be useful as a game mechanic that led to changed perspectives and learning. The games provided a space for players to set up and verbalize their expectations, which seemed to yield a greater impact when the players were presented with evidence that helped them realize that they were wrong. For example, participants felt surprised by the true characteristics and personality traits of the people of Asian descent:

Oh, Fob. That’s surprising… I guess I found out that every person can look fobby but not actually be. I guess like they may be more Americanized than I thought. Most of the people were more Americanized. (Alicia)

Some surprising ones were like the second person. I thought he was a fob because he dressed nicely and his clothes were bland, but he turned out to be Americanized, especially his interests. (Evan)

Yeah, I found out that some of the guys or girls, I really thought they were Americanized but they’re not, and some of them are very Asian and I think they’re Americanized. (Qing)

Surprising that I could be so wrong about some people. There are some things that seem to be true no matter what, like they all seemed really smart in that they were doing even though it always wasn’t technical, like the one girl said she was a visual communications major (Holly)

The only surprise for me is that his parents speak English at home. I know most families when their parents come from overseas, they tend to not speak English. Whatever language is the home language for them – this doesn’t have anything to do with Asians in particular – but that isn’t a surprise to me. Christian – a little bit. But I don’t know anything about religion in Asian countries. So that’s kind of a surprise, kind of not. This one, Chinese growing up in North Carolina. Maybe a little surprised he was born in North Carolina. I thought maybe he was born abroad. (Sam)
Another theme that emerged was that participants initially thought it would be easy to judge acculturation by external appearance, found it to be difficult, and realized their misconceptions as a result. This theme is based on an important game mechanic that was used in the game to help raise self-consciousness of what a player is learning about himself while playing.

A. Initial beliefs that it would be easy to judge

First, the game prompted players to reflect on their own ability to judge others and to rate on a scale of 1 to 5 the difficulty level of this kind of task. Almost all participants indicated that it would be easy to judge:

I think it is very easy because American people always have white skin and Asian people look yellow. And apart from that, even if a person is Americanized like Asian Pacific, it's very easy to tell from their appearance because they tend of have short hair and they tend to look very different. (Qing)

You see fobs all the time, ok, that sounds easy. (Alicia)

Well, I guess since I'm an American Born Chinese living here in America, from my American point of view, when Fobs come here, I can easily recognize them. But there are some cases where there are some fobs that dress American and fit right in, so I won't say 100%, so I'll say 2 [easy] (Evan)

Thought it was pretty darn easy to tell how Americanized someone is. (Holly)

How easy is it to tell how Americanized someone is? I would say 2 out of 5 [Easy]. I was just in Spain, and it was easy to pick out the Americans. I would say, about 2. (Roger)

How easy is it to tell? I think it’s 2 [Easy]. For the first one, I am able to determine it generally. (Sam)
B. Being wrong in the games helped participants realize they had misconceptions of Asians

After explicitly prompting players to evaluate how well they felt they could judge others, most players struggled while playing the games, leading to the following realizations:

I’m always wrong. This is pretty sad...I think I guess mostly the opposite for almost every person… I learned that my judgment of what a fobby person is isn’t always right, I guess it’s very off considering a lot of people in the game. (Alicia)

I did very bad (laughs)...So I kinda changed my opinion, because I thought it was very easy to judge a person from his appearance, whether he's Americanized or not, but now I think it's really hard. (Qing)

You can't really judge that much by appearance…even though I tried (laughs). It didn't work. Most people are probably overconfident [laughs] like I probably was. (Holly)

Well, I definitely did terrible. My score is negative 1000, so. (Jake)

Jeez, I was off (laughs)...I learned that I should not stereotype because my stereotypes were incorrect as a whole...Like, I was wrong a lot of the times in the first game. (Roger)

T3. Greater awareness of one’s assumptions, biases, and misconceptions (Identity Outcome)

Another theme and identity-based outcome that emerged was that participants became more aware of their assumptions, biases, and misconceptions.

A. Learning that you can’t judge a person by appearances

Participants said they learned that it was much more difficult than they thought to judge a person just by external appearances. On their own, some participants remarked that this new awareness would lead them to try to rely on stereotypes less in the future, as this can lead to mistakes in judgment.
You can't really judge that much by appearance…I learned you really can't judge people based off what they look like, or really, even what they're wearing. There's no way I don't think by looking at somebody that you can guess what they do. There's only a couple things that you can get, maybe not even that many that you can really get by looking at somebody's picture. (Holly)

I would say the overall lesson I got was probably from the first game, just to not stereotype because you're typically wrong. I would say a lot of people wouldn't do well at that game. (Roger)

But this game brings out a lot of stereotypes that are just out there, public, that you may know or may not know…I learned what I already knew – don't judge a book by its cover… I mean, you can't judge a book by its cover. You can't just box a person in to a certain definition just because of their skin color or ethnic background. I think that was the core of it. A lot of people look at people outwardly. You're going to see their race and ethnicity. You're going to see it. And because of that, a lot of assumptions come up in your head automatically. And the onus is on the person to say, alright even though the assumptions came, treat this person as a person. (Sam)

I learned that you can't judge a person by their looks… You can't judge a person by appearance, but other factors, what they like to do, their interests, and the way they talk too, especially…The first game was really good because it raised awareness among Asians that it's not so easy to judge a person's external appearance. (Evan)

I learned that...It is very hard to distinguish more Americanized individuals for that of people in their native countries. A person uses biases to determine who a person is really like which may judge them in a wrong way… What I learned was that, more from a standpoint of where I am as an individual, I would say, me as a person, it's difficult for me to dissimilate someone who is more Americanized than another, and I’m actually a third generation American, and even for me, it's hard for me to find out. So I think, for someone like me to do this, and to do as poorly as I did. I think most people would do the same. (Jake)

Yeah, I thought I could definitely look for instances in the photos that would give me a little bit more background on them. But the pictures themselves, the way people were dressed, there's nothing you can really pull out of the photos that you can say, this person's definitely is not that Americanized. (Jake).

I learned that from visual appearance there are stereotypes for Asians, but you really have no idea. On a couple things, based upon what they were, I could
maybe tell what their interests were. I had a couple of those right. Like the one
girl. But I learned that you really can't judge someone based on their looks. (Roger)

I guess I learned about my own self, as to not stereotype and to get to know a
person before you actually judge them. (Roger)

So I kinda changed my opinion, because I thought it was very easy to judge a
person from his appearance, whether he's Americanized or not, but now I think
it's really hard...It's really something like, maybe like, sometimes we have
opinions about how other people think you are, but they are actually not thinking
that way. Yea, that's what I was thinking. And about peoples' abilities to judge
other people; and about peoples' abilities to judge other people, people being
overconfident in their abilities to judge other people. That's something I learned
from this game. (Qing)

I learned that...It is very hard to distinguish more Americanized individuals for
that of people in their native countries. A person uses biases to determine who a
person is really like which may judge them in a wrong way. (Jake)

This is pretty good, I like this actually. Because I think this is a good way to
actually see if you have some biases, but it's challenging to describe whether
someone is more Americanized than someone else. That's what I like about that.
(Jake)

**T4. Identity definition while playing the games (Identity Outcome).**

Participants defined their identities in various ways while playing the games. Particularly
in the *Flying Asian Stereotypes!* Game, participants painted a picture of themselves as they
pursued various personality traits and reacted to various stereotypes.

I don’t want to be shy. I think you need an outgoing personality, especially in
today's world. Don't want to be an evil gangster. Don't want to be a passive
person. I think you miss a lot of opportunities. Definitely don't want to have low
self esteem... I’m being stereotyped as a foreigner? I don’t really like that. I
don’t like being stereotyped as a nerd. I like social skills. I like being
stereotyped as smart. It helps me get ahead in the world, even if I’m not smart.
Don’t want low self esteem. It’s important to have high self-esteem. I don’t
want to be classified as an evil gangster. Parental pressure. Do I just make way through here? I want to be humble. I want to be smart... Definitely want social skills, don’t want to be shy… Don’t want low self-esteem. Do want to be smart. Definitely want to be smart. I want to obey authority. Well, I question authority at times too. I don’t want to be an evil gangster… I don’t want to be classified as a foreigner. I want to take risks, not a whole lot, but some. I definitely want to show pride, and be humble. I want to be viewed as smart… Don’t want to become shy. Don’t want to be passive. Don’t want to be classified as a foreigner… Don’t want to become independent. Well, I do, but I don’t in some ways. Don’t want to have low self-esteem. (Jake)

Construct your identity by choosing between blue identity choice stars. Ahh, why are they coming after me? Yay, happiness… I’m definitely not a foreigner. Take risks. Um, what do I do? Ah, why is it coming at me? Whoa, I’m definitely not evil gangster. Ahh. Can I have both, work hard and have fun? Whoa. I guess Model Minority is a good thing? Okay here is another fact. Teamwork and independence. I’m not a foreigner. Ahh. Coming after me. I just got hit by it. There’s low self-esteem. Aw, that’s depressing. All the rooms are dark! Oh no. I don’t want to be an evil gangster either. Now I’m a nerd again. (Alicia)

Do you know kung fu? I don't want that stereotype. Oh, no! I don't like that! (laughs) I want social skills. Parental pressure. I hate that. What is the bamboo ceiling? ‘It has been shown that Asian American men with equivalent or superior education receive less income and are excluded from managerial jobs on the basis of subjective factors such as lack of leadership potential or inferior communication ability. This stereotype has also led the exploitation of Asian employees.’ Mmm. I don't like that. I dislike that. I think most stereotypes of Asians are pretty bad. Parental pressure. No, I don't like being pressured by parents to have do what I want. Stars, initiative. Yes, I like that. Ooh. Low self-esteem. I hate that really a lot. I think I suffer from that too. There’s one thing I value, I value working hard. I do like having fun. I do suffer from low self-esteem...Yeah, family pressures are pretty high.. I guess it's more important for me to be independent if I were to take care of my family. (Evan)

I don’t want to be a gangster [laughs]. No, I don't want to be a nerd. Yeah, but I think it's really easy for Asian people together even if they are from different countries. I know some Japanese or Korean guys or even from Laos, they're really easy to get along with. Take risks. I want to take risks. I don't want to be an evil gangster (laughs). I don’t want to be seen as a foreigner. No parental pressures. No, I don’t want to be a nerd…No, I don't want to be pressured by parents. I don’t want to show pride. I’d rather be humble. I don’t want to have low self-esteem…I think it's because we have different cultures. Like, when you
think I'm a nerd, maybe I'm not, because in my culture it's actually not nerd. From American people, they think you're a nerd because you don't go to a bar, you don't drink. Back in China, like, I'm not a nerd at all. I like study, but I actually do like sports and do other entertainment, but not drinking. They're like different cultures, so I think that's the main point. Because they think you're a nerd because you don't do something, you don't go to a football game, you don't drink, but it's actually a different culture, a culture difference between us, maybe.

(Qing)

T5. Ability to learn various things about self and identity (Identity Outcome)

Another theme was that participants were able to learn various things about themselves and their identities by playing the games. This linked to possible selves theory (Markus & Nurius, 1986) in that participants could articulate a clear goal for themselves to strive for and avoid in defining their self-identities, and these possible selves provided an evaluative and interpretive context for the current view of self, along with greater awareness of one’s plans and strategies to achieve these possible selves. For instance, participants discussed being able to explore their identities and learn about themselves:

I really thought this one was even more beneficial because it did actually make you think, like, what you want to strive for, and how at least you want other people to see you, or how you don’t want them to see you, yeah, it made you actually think about that, and a lot of different characteristics that you wouldn't think about every day. (Roger)

Yeah, I think so. I think especially when I played the second game, who you don't want to be, and I kind of liked to explore myself. I don't want to be pressured by my parents, I don't want to have low self esteem, and I don't want to be shy. I want to be social. So I think I learned those things from the game. (Qing)

What I learned was that, more from a standpoint of where I am as an individual, I would say, me as a person, it's difficult for me to dissimilate someone who is more Americanized than another, and I’m actually a third generation American, and even for me, it's hard for me to find out. So I think, for someone like me to
do this, and to do as poorly as I did. I think most people would do the same (Jake).

In terms of who I am, I think definitely I do have some unconscious biases that I don't even realize. I’m not a biased person in any ways on a conscious level, but maybe on a subconscious level or something like that. Just by things I’d see in the past maybe through the media growing up or whatever. It's hard to suppress those types not knowing ways of judging people, and also, in terms of playing this last game in particular, I think there's a little bit about myself that I think I would always like to be a little better at as well. There are things I definitely want to improve upon. (Jake)

I guess the kinds of characteristics that I strive for my personal identity and what I want to avoid. Just thinking from them, it's not like stuff's running through your head every day of how you want to identify yourself. (Roger)

I guess I learned about my own self, as to not stereotype and to get to know a person before you actually judge them. (Roger)

And I guess I learned from the second game that, I thought about characteristics that I would want to be. I guess deep down I think about them indirectly, but it's not like at home, I think about I want to have high self esteem. It's not something you think about, so I guess it brought it to light… From the second game, I just kinda learned what I would and would not want to be. (Roger)

I mean, this game brings to light a lot of major stereotypes that are out there. The first game kind of made you think of what stereotypes you had within you. But this game, brings out a lot of stereotypes that are just out there, public, that you may know or may not know. (Sam)

T6. Pride or affiliation with one's culture (Identity Outcome)

Some participants demonstrated pride or greater affiliation with their culture upon playing these games. For example, they indicated values that they appreciated or felt were unique:

A. Increased pride due to the game

I think [the game] makes me a little more proud because it’s like this is something that sets me apart from other people, like different ethnic experiences,
knowing the whole second language and being able to communicate with more people. I think it definitely makes me more proud I guess. (Alicia)

I learned that I'm probably more likely Americanized. I know I'm more Americanized, but I'm probably more Americanized than being Chinese...I am proud that I am Chinese… because I still hold to my culture...but I also like the American values. I'm proud of that too. (Evan)

B. Descriptions of valuing ethnic identity or ethnic values

I was born here. I am Americanized to some extent, but my family still celebrates some traditional Chinese things because my mom and dad celebrate all the holidays and they carry a lot of those values. So I still value some of the Chinese culture, but I’m still more Americanized because I’ve been in the public school system with more Americanized people. So I grew up in a more Americanized setting. (Alicia)

I think college made me more aware of my cultural values and more proud of being an Asian and having the background and seeing where my mom came from. I think senior year through all throughout college, I’ve been able to appreciate it more, being able to appreciate my cultural values and have these like, different experiences, being able to eat more ethnic food and being able to know the language is something I’ve become more proud of in college, but not in high school. (Alicia)

I don’t mind being Americanized, but if there’s one thing I could do, I wish I could speak more fluently in Chinese. That's the only thing. I'd be more acculturated but I'd still like to be labeled as Asian American. (Evan)

There's one thing I value, I value working hard. Actually I like the fact that Asians are humble. I think that's a good trait. I think more people should be like that. I think some Asian traits are valuable, like working hard, being humble. Those value systems are something I treasure as an Asian American. And sometimes I think some Americans should too. (Evan)

Primarily Jamaican. Cause that’s never going to go away in the sense that if someone’s going to give me a hard time for being Jamaican, then I’m going also enjoy the benefits of being Jamaican. Like the culture. Like everybody loves dance and music and stuff like that. I was born there, I lived there for 19 years. Gee, I’m more Jamaican than American. (Sam)
T7. Empathy and/or comparisons to self (Identity Outcome)

The games encouraged empathy and/or comparisons to the participants themselves. My hypothesis is that this outcome is due to the identity play and firsthand, interactive nature of the game-based experience. Future iterations of DBR can explore how empathy (and therefore more personally relevant learning) may be greater in this kind of approach compared to static text-based approaches.

A. Comparisons to participants themselves

Some of these are tricky for me because I’m from another country too, but I don’t spend time judging people. I’m from Jamaica...I am an exception to a lot of people you interview in the sense that I’m from another country also, so I understand that how I look doesn’t mean anything about who I am. (Sam)

‘Where are you really from?’ Yeah I’ve gotten that too. (Sam)

I mean, I walk into a store, and I’m black and automatically people think I’m going to rob the place. And I’m like, really? Like, come on man, I’ve been followed in stores all the time. It gets annoying but I’ve gotten to a point where I don’t let it bother me because every day it’s going bug you and you’re the one who’s going to lose sleep over it and you’re the one who’s going to be stressed about it. I don’t. Because until they say something to me, there’s nothing I can do, I can’t do anything legally, and they walking around the store. I can kinda tell. I don’t care. I know I’m not taking anything. You know what I’m saying? So, if they don’t say anything to me or anything like that, then I just don’t care. Let them walk. Let them do whatever they want. You know, stuff like that. I mean, when I tell people what my majors are, I tell them IST and Electrical Engineering. They’re not surprised, like, ‘wow, you’re doing two degrees.’ They’re surprised like, ‘I can’t believe you’re doing two degrees.’ You know, there’s a different type of surprise. And I’m like, ‘Why? Because I’m black? Because I’m from another country?’...I mean, having been labeled stereotypes in real life, it’s not good, because even if the stereotype is true, there is more to me. You know, no one thing defines me. If I were Asian and if I did actually know kung fu, it doesn’t mean I know anything else. I could actually know kung fu, but it’s not because I’m Asian; it’s because I’m interested in it. So I mean as I said before, a lot of these things [issues presented in the games] aren’t that big of a surprise for me because I’ve had it before in real life. (Sam)
As I said before, I know Asians get more flak. I think it’s weird because, in my opinion, the black community gets a lot of the racism in what I would say, more systemic or systematic ways, in the sense that, we’re fought against, oppressed, whatever, in that I go into a store, and I’m automatically monitored more. Or, I’m driving and my car has got tints, and I’m a drug dealer automatically. (Sam)

People assume because I’m from Jamaica, I know Bob Marley, I smoke weed, and it’s legal and they assume I know dance, that I live on a beach. I get that stuff all the time. And the worst part about it, is (A) that the people who have been abroad who should actually know better still say it. (B), when I try to tell people it’s not like that, and they try to convince me that it is. I mean I’ve had people try to argue with me telling me weed is legal. I’m like, I grew up in Jamaica, I think I know if it’s legal or not. It’s not legal, it’s not widely used as you think it is. I’ve had all of that and I’m like, come on man. It cracks me up because I feel like it’s just narrow mindedness. People don’t try to learn something new. (Sam)

B. Participant beliefs of the games’ ability to promote empathy

And I think it would be good not just for Asians to play, but for other cultures to play as well...I think they would get something out of it. This is one representation, what it’s like to be in our shoes. Because more Americans are trying to take Chinese, they want to be more acculturated with Chinese. But I think what they miss is that they get what it's like in a Chinese or old fashioned culture, like in China or Taiwan, but they don't know what it's like to be an Asian American. (Evan)

Yes, I think they [Asians and Non-Asians] would choose different things. I think most Asian Americans would choose the same stereotypes as the ones I did. But I think non-Asians might choose differently. I think they would learn a lot more than I would. Not that I didn't learn anything; I learned a lot. But I think they would get more out of it because I don't think they have any basis. (Evan)

T8. Increased awareness of Asian issues (Outcome Related to Perception of Asian Culture)

Participants believed the games helped raised awareness of Asian issues. For example, they suggested the following interpretations of the purpose of the games:
[The purpose was] I guess to open peoples’ minds…I mean, this game brings to light a lot of major stereotypes that are out there. The first game kind of made you think of what stereotypes you had within you. But this game, brings out a lot of stereotypes that are just out there, public, that you may know or may not know. (Sam)

I don’t think it’s changed at all. It’s more like more awareness. It’s like I know about the stereotypes and I know all these things by experiencing it firsthand or in the classroom, so it’s not like these are really new to me. But I guess being able to become more aware, being able to talk about them more freely, I guess I could see something from this game. That’s not something people bring up every day about stereotypes…It could be beneficial for people to change their minds and bring awareness. I think that. (Alicia)

The purpose of the game was just showing awareness of stereotypes. To show the different stereotypes people place on Asians. (Alicia)

I think the purpose was to raise an awareness that you can't be prejudiced…I think it was to raise an awareness, to me, as an Asian American…It makes me more aware of my surroundings more. (Evan)

The first game was really good because it raised awareness among Asians that it’s not so easy to judge a person's external appearance. (Evan)

I think this is a good way to actually see if you have some biases… People might tell themselves, I’m not like that, but subconsciously, it's just a reaction that you might have to a certain situation. Subconsciously from an environment you grew up in. I think it will be helpful because people can stand back and say hey, you know what, I think I need to work on something a little more. (Jake)

The purpose of the game was to see if there was any typical biases that maybe subconsciously somebody in terms of determining what someone of an Asian descent is, or stereotypical views. (Jake)

In terms of what you're going to be able to gather from using both of the games, a person might say they're not a biased or racist or stereotypical person, but at a subconscious level, by playing these games, you get a better idea that subconsciously, there's something going on. That you realize that as a person, you're not realizing what you're actually doing. I think that type of data that you get back is very valuable. (Jake).

I guess to see which stereotypes were out there and if they match up, like, to show the correlation between what people actually think and what's actually the
truth...It's not something you think about, so I guess it brought it to light. (Roger)

And it forces you to be more realistic with what the stereotypes are, because, while I’m playing the first game, I can always try to pretend I don’t think certain things, but when you see the actual stereotypes that you know are out there, you can’t hide from it. (Sam)

There is value there, but only to a certain degree. The person that is going to be racist or stupid no matter what they do, they’re never going to change. That’s one of those things I’ve pretty much accepted myself. You know, so there is value to it. There will be a little bit of eye opening, because I mean, again, I learned something too I didn’t know before. So I think there’s something to be gained by anyone who plays it, but whether they’ll use it is a completely different issue. (Sam)

**T9. Increased sophistication in understandings of stereotypes (Outcome Related to Perception of Asian Culture).**

Upon playing the games, participants demonstrated more sophisticated understandings of stereotypes and ethnic culture issues. For instance, stereotypes were not only seen as universally ‘good’ or ‘bad’; the adverse effects of seemingly positive stereotypes were discussed. These kinds of insights included the following:

But the other ones like nerd, parental pressure, you can joke about. I mean, it's true there's pressure from parents and if anything, if you're labeled as a nerd, people give you more respect and hold you in higher regard. But it's a double edged sword. If you don't accomplish a task well, then they'll be more in your face about it and have higher expectations of you. (Evan)

It probably wouldn't be that beneficial if you were always labeled smart, because then if you weren't actually smart, it would appear to be worse. But if someone's not labeled smart in the first place but then they end up being smart, then, 'wow, you're really smart," but if you're Asian and you happen to not be so bright, then that would really suck. (Holly)

Stereotypes in general, if I were to pick one or another, I would say they are bad, but there can be good sides to stereotypes. For example, if you're going to be a
stereotype that you’re smart or something like that, that could be good career wise. So in some sense, people can thinking that by default, can be kind of good, but in the grand scheme of things, it’s not good, because then there’s a higher expectation than maybe what’s necessary because, for example, if I were Asian, I don’t necessarily have to have a PhD. Maybe I don’t want to learn all of that. So, in a bigger picture down the road, it might be worse because then you know, you’re gonna be in a job in which your boss is gonna automatically assume you can do anything. Which is not the case. You have your personal interests which is what you’re gonna pursue. It might be a little bit good, but I think overall it’s going to be a bad thing. (Sam)

T10. Learning of the existence of certain stereotypes (Outcome Related to Perception of Asian Culture)

Some participants learned the existence of certain stereotypes for the first time, while others were familiar with several of them, but still learned new facets of them:

I guess it was interesting seeing all the different stereotypes. Some of them I’ve never heard of or never thought Asians were called before. Some of them were new to me. Some of them were ones I expected to see. And then it was interesting seeing the words that would pop up according to each of the stereotype. (Alicia)

I guess the evil gangster stereotype was really surprising because I guess Asians aren’t really seen as gangsters...I've never heard of that stereotype. I've never heard of that, that's something I learned from this. One stereotype I didn't realize was 'evil gangster.' I didn't realize that that was a stereotype of Asian Americans. (Evan)

I think I learned the different stereotypes, and I learned I think they well targeted the importance of the problems of Asian people, especially the parental pressures and low esteem and the other things like avoid risks, and it's really hard to think about it... The second game, I think, defined different stereotypes about Asian people, and I think it's actually really good because it points out what the stereotypes are and how people think you are when you choose different stereotypes. (Qing)

Well I learned that, it seems a lot of stereotypes in here are actually stereotypes that people actually do think of when they think of a typical Asian person...Going
back to the nerdy ones, or you're super smart, and you also have the ones I didn't really think of. (Jake)

**T11. Shared battle (Perception of Asian Culture Change)**

The games helped participants realize that these issues are a *shared battle* (i.e. not just an issue limited to the individual, but one that affects a group or for society). This seemed to be a comforting realization for participants of Asian descent. For instance, participants shared the following remarks:

I guess this is a good reminder to show that these [issues] is what Asians struggle with. And this kind of helps in terms of being able to help to others and reach out to others, if you can relate to them on the same level. Like, I went through this before, and I can definitely understand where they’re coming from. (Alicia)

I think [the point of the game] was to raise an awareness, to me, as an Asian American. I didn't realize that there was that many stereotypes out there, or, I didn't realize how, when I grew up, I always thought it was an individual thing, that it was just me. I already knew about the nerd thing, and I had an idea about the parental pressure, but I didn't realize it was so many [issues]. (Evan)

I think I learned the different stereotypes, and I learned I think they well targeted the importance of the problems of Asian people, especially the parental pressures and low esteem and the other things like avoid risks, and it's really hard to think about it. When you suffer as an Asian, you can't really think of something like that, but when I see the game, I see the different things. (Qing)

Yeah, even for 2nd generation Asian people, they are still being recognized as foreigners, that's what I'm surprised [about]. Because they're actually born in America, they just have this appearance and other people think they're Asian, but they're kind of like American, that's why I'm surprised because some Asians like myself, I'm not like 2nd generation or anything, I'm surprised because I thought those people can get along well with American culture, with American people (Qing)
**T12. Tensions fitting in with a culture (Observation/Reflection of Identity)**

As the game designs included mechanics that required players to weigh tradeoffs and to reflect upon the challenges of fitting between two cultural worlds, participants also described tensions fitting in with a culture.

I think in high school I was definitely hiding the fact that I was an Asian because I think if you grow up in a white society, everyone makes fun of you for being Chinese, like you know Kung Fu, or because of your eyes, because you look different from everyone else. So I guess in high school and middle school it’s like, why am I different? I want to be like everyone else? I didn’t feel like I fit in, so I guess I wish I could be more like everyone else. (Alicia)

Yeah, definitely [stereotypes played a role in my identity development], a lot in high school. Because I grew up in a mostly white and Muslim community. Me and my brother were the only Asians. So I guess a lot of people saw Asians as good at kung fu, really smart, everybody assumed that we knew all the answers and that we were just being quiet because I didn’t want to show off. Or that I knew the answers and just didn’t want to say it. Even if I didn’t know the answers people assumed I did. And they would assume I was ruining the curve for everybody because I must be acing all the exams. (Alicia)

I probably fit as an American better than I do as a Chinese, but I would like to fit in Chinese a little more, too...I think Asian Americans have it more tough than fobs and Americans because no matter what, in the US, you'll never been seen as an American. Because most people think of Americans as White. And then, in the fob's eyes, you'll never be seen as one of them, because to them you're always Americanized by your accent, no matter how hard you try, they're just still going to look at you because you still have American values. Unless you 100% give up everything and move to China and slowly assimilate. (Evan)

No matter how hard I tried to fit in, because of my appearance I'm always seen as Asian. (Evan)

I think it's because we have different cultures. Like, when you think I'm a nerd, maybe I'm not, because in my culture it's actually not nerd. From American people, they think you're a nerd because you don't go to a bar, you don't drink. Back in China, like, I'm not a nerd at all. I like study, but I actually do like sports and do other entertainment, but not drinking. They're like different cultures, so I think that's the main point. Because they think you're a nerd because you don't do something, you don't go to a football game, you don't drink,
but it's actually a different culture, a culture difference between us, maybe. (Qing)

Because I don’t think there's much discrimination here but sometimes I just feel like you're different. (Qing)

I’m fairly okay with blending in the environment, but I don’t think I’m fully American. And my accent is still pretty thick after 6 years…[I’m] primarily Jamaican. Cause that’s never going to go away in the sense that if someone’s going to give me a hard time for being Jamaican, then I’m going also enjoy the benefits of being Jamaican. Like the culture. Like everybody loves dance and music and stuff like that. I was born there, I lived there for 19 years. Gee, I’m more Jamaican than American. But I’m not going to choose between the two countries. I can be both. Cause I go to Jamaica, I speak the way I speak here, with a little bit of an American accent, I get crap about it, you know, ain’t nobody losing sleep over that. I get flak from both countries but not really in a bad way from my friends and stuff like that. People in the general public who might be racist, that’s their business. (Sam)

T13. Sources of happiness, goals, possible and future selves (Observation/Reflection of Identity)

While playing the games and immediately afterward, participants shared sources of happiness, goals, possible and future selves:

I like to live ‘carpe diem.’ Seize the day. I like to live out to my potential. I'm pretty sure most people do that. That's how I live. And try everything once. (Evan)

Good relationship with my parents and friends, straight A's, and maybe good work, good career after graduation, and some physical things like a car, a house, and I'll be more than happy if I can get along with American people. (Qing)

Owning a home, getting a good job, eventually starting my own company, whenever having kids someday, being able to stay home with them. Having free time. I don't want to be a slave to the corporate world. My dog. I have a dog, and he's a source of a lot of happiness. Graduating early, which I plan on doing. (Holly)
I like to travel. But I think happiness mostly comes from my accomplishments. Like for instance, I came back to school. I actually got a degree and I came back to school a year later. And now I’m actually doing something I think. My first degree I liked a lot, but it was more a hobby. And now I’m doing something I really love. And so, everything I’m learning gets better and better. And all the accomplishments I’ve done, getting through each level up, you know, has been made happier as a person. IST and SRA double major, now. I was a telecom major earlier. (Jake)

Long-term goals, I want to do well in school and get a good job, and that would bring me happiness, and have a healthy family. I don’t have to be a CEO, but I want to make something of myself, and do well, and I think that would make me happy. I think I’m a pretty driven person. I get satisfaction out of working hard and doing well. (Roger)

Friendship. Definitely, having good people around me. Doesn’t matter from what kind of background. I have friends from all kinds of countries. Definitely that kind of good camaraderie. I like sports. Family, I’m really close to them. Stuff like that. Just good people I can have fun with. That’s the kind of thing I like. (Sam)

T14. Stereotypes’ major effect on participants’ identity development, both positive and negative (Observation/Reflection of Identity)

Participants indicated that stereotypes have had a major effect on their identity development, perceived in both positive (e.g. motivation to disprove or fight stereotype) and negative (loss of control, pigeonholing) ways.

A. Desire to disprove or fight stereotype

And it [the game experience] gives me more motivation to disprove Asian stereotypes. I've always had that motivation, but now I'm using much more motivation and it makes me want to change things more now. Become more initiative and try to not be defined by my school so much. (Evan)

I also did try to make an effort to disprove stereotypes. I did some non Asian things like wrestling. I did it because I like it, but I also realized later on that it's kind of cool, and I did it because it disproves that Asians can't do sports, or
Asians can't be strong, or Asians can't do this...I mean, the stereotypes will still be there because I'm still Asian and I still fall into the stereotypes. I tend to ignore it actually. But I have the chance I would disprove it or try to. (Evan)

I mean, having been labeled stereotypes in real life, it's not good, because even if the stereotype is true, there is more to me. You know, no one thing defines me. If I were Asian and if I did actually know kung fu, it doesn't mean I know anything else. I could actually know kung fu, but it’s not because I’m Asian; it’s because I’m interested in it. So I mean as I said before, a lot of these things aren’t that big of a surprise for me because I’ve had it before in real life. (Sam)

B. Negative effects of stereotyping

Yeah, definitely [stereotypes played a role in my life] a lot in high school. Because I grew up in a mostly white and Muslim community. Me and my brother were the only Asians. So I guess a lot of people saw Asians as good at kung fu, really smart, everybody assumed that we knew all the answers and that we were just being quiet because I didn’t want to show off. Or that I knew the answers and just didn’t want to say it. Even if I didn’t know the answers people assumed I did. And they would assume I was ruining the curve for everybody because I must be acing all the exams. (Alicia)

I guess [the games] really reminded me a lot about high school and all the stereotypes from before, when I struggled with it more, in high school, reminding me of the stereotypes people put on me. And I think because I hang out with more Asians now, that I don’t see these stereotypes more. And it’s not as much of a problem. People don’t openly talk about these issues. But in classroom settings I definitely see it more. I definitely feel the stereotypes more when I’m working with mostly Non-Asian people I definitely see the differences more and definitely experience it more. But I guess your background and environment really affects things. (Alicia)

I think back in high school, I went to an all white high school. No matter how hard I tried to fit in, because of my appearance I'm always seen as Asian. I do have friend, Chris, who always treated me really well. Probably so well, in that he didn't really see the Asian appearance at all, he saw me as White as well. That's cool because that way he treated me as an equal as him. But other people in high school still saw the Asian appearance and probably didn't treat me as equal. And I just felt like I was pretty much defined as my schoolwork. (Evan)
T15. Identification of struggles related to Asian issues and stereotypes
(Reflection/Observation)

Participants reflected upon struggles related to Asian issues and stereotyping, such as the pressure living up to expectations, parental pressures, discrimination, and feelings of inferiority:

I guess it really reminded me a lot about high school and all the stereotypes from before, when I struggled with it more, in high school, reminding me of the stereotypes people put on me. (Alicia)

People don’t openly talk about these issues. But in classroom settings I definitely see it more. I definitely feel the stereotypes more when I’m working with mostly Non-Asian people I definitely see the differences more and definitely experience it more. But I guess your background and environment really affects things… I think I suffer from that too…I do suffer from low self-esteem…I don't like being shy. I do suffer from low self-esteem. (Evan)

T16. Future behavior change (Reflection/Observation)

The experience of playing the games led some participants to believe they would adjust their behavior in the future. It is unclear if these remarks would actually lead to true behavior change, but the participants made the following statements:

I guess not to judge or label someone right of the bat. When you see them. Definitely take more time in getting to know the person before just assuming something about the person. Because it’s so easy to look at them and say, ok, I’d rather not approach them because I think person must study all the time, or they’re just too fobby, I’d rather not, the person probably can’t speaking English. I’m not going to approach them. I guess it makes me take a second look and be like, okay well, she seems fobby, but maybe she’s not (laughs). (Alicia)

I'll probably be more careful to before I’m so quick to blurt out, hey, do you want to help me with my math homework? To one of my Asian friends. (Holly)

In terms of who I am, I think definitely I do have some unconscious biases that I don't even realize. I’m not a biased person in any ways on a conscious level, but maybe on a subconscious level or something like that. Just by things I’d see in
the past maybe through the media growing up or whatever. It's hard to suppress those types not knowing ways of judging people, and also, in terms of playing this last game in particular, I think there's a little bit about myself that I think I would always like to be a little better at as well. There are things I definitely want to improve upon. (Jake)

**T17. Successful learning by metaphor (Design Outcome)**

The game designs included much symbolism and metaphor to give players a meta-level representation of how stereotypes can alter expectations and perceptions of culture. Participants remarked how they were able to learn by metaphor in the games:

It was sometimes hard dodging stereotypes because you couldn't outrun them, which I guess makes sense, because you can't always choose the stereotypes people place on you. (Alicia)

I guess it's kind of cool how, when you have to choose what you want to be. And then the Asian stereotype comes at you. Because we go to those things because we want it or we choose those things... I thought that was interesting. Well represented... And the fact the stereotypes chase you, and because you don't want the stereotype, it would hit you no matter what. (Evan)

Not good [to be labeled a stereotype]. Especially when you couldn't change it [being labeled a stereotype] and you were kind of stuck, and it would get you no matter what. Yeah, and you kind of think, 'No, wait, I didn't want to be labeled that, but then you can't shake it the things tethered to you, so you kind of see the symbolism of that. (Holly)

How some of those stereotypes were flying at the person and they couldn't avoid them. That was interesting symbolism there, and it [parental pressure] had the ball changed to a person's foot and it made the guy go slower. That too. I guess I learned there's stereotypes and they can't be avoided. I guess I never really thought about it that way. That they are something that can't really be avoided...The ball and chain is annoying because it moves so slow, but it proves a good point. You explained well it's something you don't have to get through. (Holly)

Parental pressure is always around! (Holly)
I thought it was a good thing though because in the real world, people stereotype you quickly too, or are quick to judge you too. In terms of that, coming at you really fast, it's your job to react as quickly as possible, in the sense that whether you don't want to labeled as that. Sometimes it can't be helped. (Jake)

T18. Unique, unusual experience (Design Outcome).

Participants felt that the games offered a unique, unusual experience, including promoting new ways of thinking that were not ordinarily done. For instance, participants shared the following:

Being able to become more aware, being able to talk about them more freely, I guess I could see something from this game. That’s not something people bring up every day about stereotypes...Because I don’t think they’d run into something like this unless they take a class or the purposely want to seek out information. They’re not going to run into any of these issues (Alicia)

But it's not something I typically sit down and think about. (Holly)

I guess the kinds of characteristics that I strive for my personal identity and what I want to avoid. Just thinking from them, it's not like stuff's running through your head every day of how you want to identify yourself. (Roger)

I really thought this one was even more beneficial because it did actually make you think, like, what you want to strive for, and how at least you want other people to see you, or how you don’t want them to see you, yeah, it made you actually think about that, and a lot of different characteristics that you wouldn't think about every day. (Roger)

Yeah, I would think [my attitudes changed] a little bit. You don’t really think about what you want to be, but maybe [the game] would help some people to think about what they want to be and what they don’t want to be...It's not something you think about, so I guess it brought it to light. (Roger)
Specific elements of the game led participants to explicitly express agreement. This included a participant’s thoughts on the accuracy of a phenomena captured within either of the two games. For example, participants agreed with the following:

People of Asian descent are seen as foreign, even if they have been assimilated for many generations. They are constantly reminded that they are anything but normal. The consequences of otherization. Hate crimes and the murder of Vincent Chin, clubbed to death in Detroit by two autoworkers who blamed him for losing their jobs. You look kind of ugly. Aw. I agree with that. I think Asian Americans have it more tough than fobs and Americans because no matter what, in the US, you'll never been seen as an American. Because most people think of Americans as White. And then, in the fob's eyes, you'll never be seen as one of them, because to them you're always Americanized by your accent, no matter how hard you try, they're just still going to look at you because you still have American values. Unless you 100% give up everything and move to China and slowly assimilate. (Evan)

That's very interesting as well. When it comes to this question of 'where are you really from'? I think most people automatically see people of Asian descent and where they don't think they're actually American. (Jake)

I think it's an accurate description of what as an Asian American you can choose to be, whether passive or humble or initiative. And the things that hit you are also accurate. (Evan)

I liked to read that there were from 40 different countries, or whatever, and people lump them together, because I definitely think that's true. (Holly)

Wow. Going on with this [Asian diversity] fact here, I think most Americans when they think of Asian countries, they leave those countries out. They think of the bigger countries. (Jake)

I'm gonna be honest. For some reason, there is truth to that. I’ve gotten that impression too where Asians as a whole are always seen as more from somewhere else. Even though you guys might have lived here 10 years longer than me. But for some reason I’ve seen that too. I don’t know if I personally think that way. I would say I think that way just a little bit, but not much. You know, because I know people are born here or whatever so. If were to think that
way, I don’t know, 5%. Just a little bit. But I’m not gonna pretend I’ve never thought it either. But primarily Asians, not other races. I don’t think as much like that for Middle Eastern people, people from Europe, from South America. I don’t think it that much, I don’t know why. (Sam)

T20. Evoking emotion: injustice, anger, sadness (Design Outcome)

Participants exhibited emotion while playing the games, including, in some cases, a strong sense of injustice, anger, or sadness. Design elements including various stereotypes’ effects on gameplay (e.g. the darkening of the room upon being targeted with low self esteem) and the text presented in the game seemed effective in eliciting various emotional responses. Participants expressed the following:

Some of the other ones [stereotypes that affect the player], like, you know, low self esteem, stuff like that. It definitely made me feel a little bit, actually, depressed, I would say. I don't know if it's just the text coming at you saying, you have low self esteem. It doesn't make you feel good about yourself. And knowing that way. (Jake)

That's something I didn't know about either, the high suicide rate among AA women. That's really sad I think. (Jake)

Again, I always felt that pretty much people of Asian descent or Asians in general were typically a little more outgoing and non-depressive, and seeing that suicide rate actually bothered me a little bit. Really didn't realize that, you know? Seems like it's definitely a big issue. (Jake)

The Bamboo ceiling. I didn't know that. That most Asian men actually get less income to match status. That's not right. I think it's always important to be as smart as you can. I would say the more educated you are, the better you are in terms of educating other people and other cultures (Jake)

Some of the stereotypes, I guess how people perceive you as, it's not a good feeling. (Jake)

I hate that... Mmm. I don't like that. I dislike that... Ooh. Low self-esteem. I hate that really a lot... Yes, I hate that. (Evan)
No, wait, I didn't want to be labeled that, but then you can't shake off the things tethered to you… The ball and chain is annoying because it moves so slow (Roger)

That's really sad. Yeah, the whole suicide thing, that was shocking to me, because they always seem like happy people, I thought (Holly).

**T21. Games as fun, funny, cool (Design Outcome)**

Participants liked the games overall, describing them using words such as ‘fun,’ ‘funny,’ or ‘cool.’ None of the 28 participants were coded as perceiving the games as generally negative, boring, uninteresting, etc. Participants gave the following opinions on the games:

A. *Games as Fun*

The games are fun. (Qing)

The *Fob Or Not* Game, I could seriously see people playing this just for fun. It kinds of reminds me of the HotOrNot website, and I like how at the end, you can learn about them. (Holly)

I think those two games are really good. (Qing)

B. *Games as Funny*

I don't know, I think Asians probably would find it pretty funny. I can picture my friends at work, I work with a couple Asian people, laughing at this. (Holly)

C. *Games as ‘Cool’*

I think this game is pretty cool. (Evan)

No, I thought the study was really cool.

I think it's well done. (Evan)

I think the second game was a pretty cool learning experience. (Evan)
T22. Confusing aspects of the games’ interfaces (Design Outcome)

Some aspects of the games’ interfaces were seen as confusing. These items will be addressed for the next versions of the designs (for use in the next iteration of DBR). The following aspects were seen as confusing:

A. Confusion in how to enter number and text in Fob Or Not Game

Do I just press that? Do I delete what’s in the box first? Oh, okay. (Alicia)

Okay, I see what the red dot is for, now, I think. I was confused by that at first. (Holly)

B. Confusion in understanding rating system in Fob Or Not Game

I guess the first one was confusing because I didn’t know the ratings. Explaining the scores of the fob game would have been better. That’s about it. (Alicia)

C. Confusion related to elements in Flying Asian Stereotype Game

What are the identity choice stars? And what are happiness points? (Qing)

Oh, I didn't even notice the counter [that kept track of the number of happiness points collected] (Holly)

It’s hard to figure it out the first time (Qing)

I didn’t catch that blue stars were something I would choose from. (Holly)

How do I get out of this [exiting the fact screen]? (Roger)

D. Confusion due to open-endedness of Flying Asian Stereotype Game

Right away, I was like, where is the start?...It takes a long time to figure out what to do (Holly)

From an interface standpoint, I didn't understand where I was supposed to go. You could go anywhere...There’s no like direction, you don’t know where you're going, which might confuse the user. (Roger)
T23. Positive design aspects (Design Outcome).

Although some design elements were seen as confusing, others were seen more favorably. The following are some examples of the perceived strengths of the design, as described by participants:

A. Easy to learn (high learnability)

The other designs were self explanatory. It was really easy. (Alicia)

No, nothing confusing or hard to learn. I think learnability is pretty good. It's actually pretty easy to play. (Qing)

I think both games were very easy to use. The layout was simple, wasn't very complicated in terms of user input stuff. 1st one, you just type in the text box and drag the circle. In terms of the 2nd one here, just use the arrow keys (Jake)

The directions were helpful. (Holly)

B. Facts were interesting

I actually like reading these facts. (Evan)

I found the facts interesting as well. (Evan)

C. Delayed feedback is positive

I like how at the end, you can learn about them. (Holly)

D. Players enjoyed freedom in creating identities

I guess it's kind of cool how, when you have to choose what you want to be (Evan)

E. Aesthetics and graphic design was well received

Graphic design is pretty good. (Qing)

It looks fine, it's good, I like the font (Holly)

But the text below helps. The colors and everything is pretty good. (Holly)
It was colorful which I liked. (Roger)

F. Symbolism and metaphor understood and well received

How some of those stereotypes were flying at the person and they couldn't avoid them. That was interesting symbolism there, and it had the ball changed to a person's foot and it made the guy go slower. That too. (Holly)

I liked how the stereotypes followed you. (Holly)

I thought it was a good thing though because in the real world, people stereotype you quickly too, or are quick to judge you too. In terms of that, coming at you really fast, it's your job to react as quickly as possible, in the sense that whether you don't want to labeled as that. Sometimes it can't be helped. (Jake)

G. Good usability and feedback

In terms of usability, I didn't really have any problems with it. It was pretty simply laid out. (Jake)

I thought the feedback was good, it would tell you if you were right or wrong. (Roger)

I thought in Fob Or Not the pictures helped a lot. I don’t know if the purpose was for it to be fun, but it gave good feedback. (Roger)

H. Perceived as educational experience

It’s not horrible either. It was okay in that sense. I mean, it’s not a game in a traditional sense of you’re trying to ‘win’ something or whatever. It’s really a game of here’s a way to learn. It’s more what you’d see kids doing growing up or something like that. There’s value in it. (Sam)

I feel like it’s efficient. You have to kind of play to fully understand. I like the fact you use the keypad instead of the mouse. That’s actually a good thing. The doors make sense so it’s obvious you go through the doors. (Sam)
Chapter 5

Discussion

Revisiting the Research Questions

This chapter will revisit the research questions and provide some discussion on the findings on their implications. The following research questions were posed in this study:

- **RQ1.** *In what ways do Identity Supportive Games shift and support identity?*
- **RQ2.** *How do ISGs influence learning of facts related to Asian culture and stereotypes?*
- **RQ3.** *What are participants’ stereotypes of Asian culture (explicit and implicit)?*
- **RQ4.** *How do these games change opinions/perceptions of Asian culture and stereotypes?*
- **RQ5.** *How is self-identity defined by the participants?*
- **RQ6.** *Do ISGs impact Asians, Asian Americans, and Non-Asians in different ways?*
- **RQ7.** *What are design principles for Identity Supportive Games?*

I will now discuss each of these research questions and the major findings associated with each question.
Research Question 1

Research Question 1 inquired: *In what ways do Identity Supportive Games shift and support identity (conceptions of self)?* As discussed in the previous chapter, some evidence suggests that ISGs are useful in shifting and supporting identities. Pre- and post-test scores indicated that low acculturation Asians shifted their view of their self-identity in relationship to stereotypes the most, followed by high acculturation Asian-Americans, and a small shift by Non-Asians. As low acculturation Asians learn of stereotypes that exist in society, it appears that they are able to take ownership over these stereotypes and to see themselves as unique individuals not solely defined by these stereotypes. To a lesser extent, the same is true for high acculturation Asians, who may be more familiar with the stereotypes and issues but still benefit by addressing the issues head-on.

Qualitative data also suggest the games support identities and how participants come to understand their self-concepts in new ways. Examples include the descriptions found in Chapter 4 of how Asian-Americans were able to reflect upon how they define their identities – how they see themselves -- and who they are afraid of becoming, and who they want to become. Participants were able to enact and verbalize their sources of happiness, their goals, and possible and future selves. By making stereotypes and the issues associated with them explicit, participants were also able to think through and discuss the role of stereotypes in their past, present, and future. Some participants came to a new understanding of the characteristics of their selves and cultural group that they were proud of, and participants also expressed realizations that the struggles that they went through were not limited to themselves as individuals, but were issues shared by many members of their ethnicity and race.

For Non-Asian participants, qualitative data indicate that the games provided an experience that was somewhat useful in allowing for identity reflection, but more importantly, a
greater awareness of assumptions, biases, and misconceptions that exist both in society and in themselves. Participants acknowledged being surprised by facts presented in the games and expressed how their own preexisting notions regarding Asian culture (e.g. who is of low acculturation based upon external appearance and their attributes) can often be wrong. This sometimes led participants to describe areas of behavior change for the future, as illustrated in the preceding chapter.

**Research Question 2**

Research Question 2 posed the following: *How do ISGs influence learning of facts related to Asian culture and stereotypes?* As reported in the previous chapter, findings based upon the pre- and post-test data suggest that ISGs were effective in educating players about facts regarding Asian culture and stereotypes. The mean score for the items on facts related to Asian culture increased significantly, which indicates that participants successfully learned the targeted content that was chosen based upon the discussions and important themes identified from the original focus groups. The acculturation level of the participant made no significant difference in terms of how much was learned.

Based upon participant interviews that include several anecdotes and emotional responses, it appears that an ISG provides firsthand learning experiences that are unique and that provide affective responses that are likely categorically different from alternative (or traditional) learning. An ISG could be compared with non-game formats such as text-based articles with similar content to confirm whether ISGs have intrinsic properties that make them more effective. I hope to complete a follow-up study that would employ this form of control group, and then apply a crossed fixed effects ANCOVA model to see whether the effects due to treatment (game vs. article), group (level of acculturation), and their interaction are significant.
Research Question 3

Research Question 3 addressed the following issue: *What are participants’ stereotypes of Asian culture (explicit and implicit)?* While playing the two games, participants often invoked both explicit and implicit stereotypes. For the purposes of this study, explicit stereotypes were defined as images or assumptions regarding members of any ethnicity (e.g. those of Asian descent) that participants described to be a stereotype. For instance, explicit stereotypes included the following:

Two Asians who were hugging a stuffed animal and making the peace sign and taking a picture with it, and people were commenting and laughing because it's so stereotypical, and how Asian people make a XD face [a sideways smile with closed eyes], which is people laughing with Asian eyes. (Holly)

Implicit stereotypes, by contrast, were defined as assumptions regarding members of any ethnicity that were essentially treated as fact without any apparent recognition or verbal acknowledgement that a stereotype was being used. Implicit stereotypes were far more subtle. Participants would not always realize that their remarks contained implicit stereotypical thinking. For instance, Holly repeatedly mentioned Asian intelligence as a seemingly universal trait, as did Sam:

There are some things that seem to be true no matter what, like they all seemed really smart in that they were doing even though it always wasn't technical, like the one girl said she was a visual communications major, but she seems to be doing some pretty cool stuff that would require a smart person, so that didn't surprise me... The only non-smart Asians I've ever really come across are the ones that are adopted. (Holly)

I mean I do understand one common trend of most people who were in the STEM fields. Which is what we all kind of know or whatever. Which I’ve always wondered personally, why are they [Asians] so good at that stuff. I mean, we’ve got a lot of really smart people in the Caribbean. But you guys are really good at math, engineering, and science. (Sam).
While playing the *Fob Or Not* Game, participants’ stereotypes and assumptions of Asian Americans became more apparent. Participants were asked to indicate (on a scale of 1-5) how acculturated a person seemed and to describe why they felt that way.

Within the *Fob Or Not* Game, low acculturation Asians were described as: nerds, not good at expressing self, studious, dressed more nicely, not into sports, those who enjoy taking photos of themselves, weak/skinny build, more concerned about their appearance, knowledgeable, uncomfortable, people with accents. A newer generation “fob” described as stylish, colorful, dress like a pop star or dye their hair color, while an older generation “fob” was described as typically being dressed in more bland colors, not built, and more interested in schoolwork.

High acculturation Asians were described as: more into sports, less concerned about their appearance, outgoing, expressive, hardworking, intellectual, those who dye their hair a lot and keep it short, travelers, smart.

The following is a table with a subset of their remarks.

**Table 5-1 Conceptions of Asians During *Fob Or Not* Game**

<table>
<thead>
<tr>
<th>Accult. Level of Participant</th>
<th>Words participant used to describe low acculturation Asians</th>
<th>Words participant used to describe high acculturation Asians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Acc. Asian</td>
<td>He looks like a nerd. Nerd, backpack, clothes, no smile, not good at express himself. Most Asian people don't like football. (Qing)</td>
<td>This kind of hairstyle is definitely American. He wears suits...when you get a job you wear this kind of suit if you're a permanent resident...Hair-style, hair gel, clothes, smile, I think he likes to talk to American people. First impression. He looks really outgoing and good at expressing himself. (Qing)</td>
</tr>
<tr>
<td>High Acc. Asian</td>
<td>He looks like someone who'd study a lot. And someone fobby...Hard to tell. Maybe he's more fobby? ...This one looks like she could be fob because of her hairstyle. (Alicia) Looking at clothing, he seems dressed more nicely. I think fobs are dressed more nicely. More Americanized Asian Americans don't care as much about how they dress. I think fobs care more about their appearance... Overall this person is well dressed and groomed which FOBs like to do... I think this one is a fob, because I think fobby girls like to take pictures of themselves. And she's dressed pretty nicely...Okay, I think this one is straight up Fob. Because this green shirt. That color shirt. That green shirt is not something a normal American would wear. Older FOBs would like to dress in old and bland colors...Alright...she's dressed too nicely. She must be a fob. Fobs dress really Could be Americanized, I guess, just by her style.... Hmm. I guess this could go either way. Actually could be Americanized. Also by the way he dresses...think this person is in between. Seems like a hardworking person. Seems to be Americanized I guess by the way she dresses. I think this girl is Americanized because from when I saw when I went to Taiwan, is that most girls like to keep their hair dark. So, More Asian American girls like to dye their hair a lot. That's one indication...The glasses and the hair style indicate that he may be a FOB because younger FOBs are into styling their appearances... Alright, he's Americanized...Americanized Asians are more likely to work out and look muscular... This is kind of hard, because he could pass for either one. Because the way he dresses, with darker, more bland colors. I think fob women more</td>
<td></td>
</tr>
</tbody>
</table>
174

<table>
<thead>
<tr>
<th>Non-Asian</th>
<th>He’s probably a genius. I mean, he seems like a dork, but he’s probably very happy making a 6 figure salary... Born in America, grew up middle class. Now a student,... Shouldn’t be taking mirror pictures at her age. She looks Americanized and probably in HS - College... Americanized hair style and glasses. Trying to appear &quot;cool&quot;... Very stylish... more stylish than most Americans but not in a bad way. She reminds me of my friend who is very into fashion. The way she is holding her head and not smiling brought her down to a 4... Can't really tell much. Looks well dressed, so probably not &quot;FOB&quot;. (Holly)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate student possibly from an Asian country originally. Studying something technical. Smarter than me... Looks pretty FOB because of facial appearance. Other than that, her dress could be Americanized or not, can’t tell... I notice he is standing in front of 2 Hondas. Peace sign = ASIAN. But it has infiltrated a lot of American pics too, my sister does the peace sign. (Holly)</td>
<td>Looks more American in terms of dress... Typical outgoing, traveler... hard working, smart. (Jake)</td>
</tr>
<tr>
<td>A little fob... more professional looking... funny, crazy... more Asian than Americanized again more dressed up than what most Americans would be (Jake)</td>
<td>He, I’d say, is pretty Americanized. My impression is that girls are really into pictures, from what I’ve seen. I’ll still give her a 5... Overly confident. Reminds me of being at a career fair. So I said 4. (Sam)</td>
</tr>
<tr>
<td>You could probably look at him and say he probably knows a thing or two or whatever. Definitely seems friendly. Probably easygoing... This person I don’t think he’s Americanized. The way his face looks it’s like he’s uncomfortable smiling. It’s like I’m not okay with me being here right now, wherever he is... Just seems kind of clean cut. This one the person seems stereotypical to me. He has that uncomfortable stance. (Sam)</td>
<td>While playing the Fob Or Not Game, participants began to see how their stereotypes of people of Asian descent were often incorrect. Participants were able to compare their written assumptions (e.g., descriptions of the people presented in the game) with their true autobiographical profiles and also could see their score drop as they did poorly in the game. It appeared that the games did an adequate job in capturing participant stereotypes, as both the game logs and the interviews recorded a wide variety of stereotypical images.</td>
</tr>
</tbody>
</table>

Research Question 4

Research Question 4 focused on the following: How do these games change opinions/perceptions of Asian culture and stereotypes? Pre- and post- test results indicated a significant increase in the mean score of the items related to perceptions of Asian culture (part II of the tests). As discussed in detail in Chapter 4, this increase in score indicates a shift away from believing Asian stereotypes are universally true or accurate, suggesting that the games help
participants understand Asian stereotypes in a more nuanced, less essentialist way. Participants developed a more nuanced understanding of the implications of stereotypes, including how stereotypes can affect how others perceive them and how stereotypes are not always inherently positive or negative. Examples of this includes participants’ realizations that being seen as ‘smart’ or a ‘Model Minority’ can sometimes be beneficial in certain circumstances, but the higher expectations associated with the stereotype can lead to increased pressure and damaging effects in the long run. See themes presented in the previous chapter on Outcomes Related to Perception of Asian Culture for additional examples of changes in opinions and perceptions of Asian culture.

Research Question 5

Research question 5 raised the following issue: How is self-identity defined by the participants, especially perceptions in relation to stereotypes? The analysis presented in Chapter 4, which examined perceptions of self-identity in relation to stereotypes (part III), found significant effects by group: low acculturation Asians shifted their view of their self-identity in relationship to stereotypes the most, followed by a smaller shift by high acculturation Asian-Americans, and a still smaller shift by Non-Asians.

Based upon interview data, evidence suggests participants of Asian descent were able to reflect upon and define their identities while playing these games, especially in relation to societal stereotypes and issues raised in the games. Some participants expressed pride or affiliation with aspects of their ethnicity, and also remarked how the games allowed them to learn about themselves and their culture. Non-Asians benefited less in terms of reflecting upon their identities, although many indicated having new realizations and greater awareness of assumptions, biases, and misconceptions regarding Asian culture. Non-Asians also demonstrated
empathy and frequent comparisons to self upon encountering facts and key issues presented in the games.

**Research Question 6**

Research Question 6 asked: *Do ISGs impact Asians, Asian Americans, and Non-Asians in different ways?* As discussed in Chapter 4, I found that there were differences in the way ISGs impacted low acculturation Asians, high acculturation Asian-Americans, and Non-Asians. In terms of views of Asian culture in relation to stereotypes, low acculturation Asians shifted their views the most, followed by a smaller shift by Non-Asians, and a still smaller shift by high acculturation Asian-Americans. In terms of self-identity, low acculturation Asians shifted their view of their self-identity in relationship to stereotypes the most, followed by a smaller shift by high acculturation Asian-Americans, and a still smaller shift by Non-Asians. There were no significant effects for Group (level of Asian acculturation) in terms of how much was learned, and so there was no apparent difference in terms of how ethnicity affects the learning of facts presented in the game.

**Research Question 7**

Research Question 7 addressed issues of design with the question: *What are design principles for Identity Supportive Games?* I will now revisit the original six design propositions for the two game designs. The six design propositions that informed the design of the two games were the following:

1. *Letting people construct and enact identities relevant to ethnic stereotypes in an ISG can impact one’s self-concept positively.*
2. Making stereotypes explicit is good for letting people take ownership of these stereotypes.

3. Awareness of possible selves via avatar play is good for identity support.

4. Desirable difficulties (Björk, 1994) and allowing people to make mistakes is good for learning.

5. Immediate feedback allows players to realize their assumptions may be wrong, while delayed feedback is good for learning.

6. Making assumptions explicit and then challenging them is good for learning.

To evaluate the success of a design that embodies these design propositions, the following section will discuss what participants saw as the positive and negative aspects of the design and the issues that were raised during gameplay.

**Design Feedback and Principles**

Upon playing the games, the following design principles for social impact games emerged based upon evaluating participant gameplay and outcomes (e.g. how well the games yielded the desired effects).

- **To raise awareness of one’s biases, a hard game equals good learning.** In this case, as participants saw how difficult it actually was to determine a person’s acculturation level, characteristics, and personality, this increased their awareness that they held biases and misconceptions, and that they were unable to judge acculturation as well as they thought they could. The design included audio and visual indicators that they were doing poorly (e.g. a buzzing sound and a score that would go down upon judging incorrectly). As some participants may not readily acknowledge or realize biases they hold, the perceived
difficulty in succeeding in the task was useful in clearly and explicitly allowing them to learn about themselves and that they may not always be right.

- **Gradual and delayed feedback seemed to be a useful strategy for allowing participants to think through the issues.** As participants played the *Fob Or Not* Game, they would hear a successful “ding” noise indicating a correct guess or an unsuccessful “buzz” noise for an incorrect guess. Their score would go up or down depending on their performance. Feedback was gradual in the sense that players could see how well they were doing, but the game would not explain immediately why they were right or wrong. The game delayed feedback and did not provide details until later, allowing participants to make conjectures and think through why they were performing successfully or unsuccessfully, and why individuals were a certain way. After guessing ten times, the game then presented participants detailed biographical information for each person, providing participants with a more complete picture only after they wrestled with the issues of acculturation and appearances. This seemed to be a successful strategy in that participants were able to see for themselves their assumptions compared to reality after a period of uncertainty.

- **Trying on possible selves and reflecting upon new identities via avatar play is beneficial for defining self-identities.** Participants were able to define their identities while constructing various avatars in the *Flying Asian Stereotypes!* Game. They found this process to be beneficial in understanding their own possible selves – their goals and who they wanted to become, who they were afraid of becoming, and who they potentially could become. During gameplay they were also able to identify which stereotypes played a role in their lives, past and present.
- **Humor and lighthearted themes, when appropriately used, seem effective for presenting serious content.** Given the subject matter of race, ethnic stereotypes and other issues that can easily cross the line into offensive territory, a decision was made to use artwork and a game design style that was colorful, humorous and lighthearted. This decision seemed to be positive, as participants expressed opinions that the game experiences were enjoyable, fun, and still valuable as an educational tool.

- **Making assumptions explicit and then challenging them is good for learning.** Given the subject matter of the games, it was important for participants to see for themselves aspects of their identity. Both games allowed participants to express their assumptions of Asian culture, and then they were presented with reality (e.g., true biographies of the ten people of Asian descent in the *Fob Or Not* Game, and facts regarding Asian issues in the case of *Flying Asian Stereotypes!* Game) as a way to contrast their assumptions with fact. This seemed to be a better strategy than simply presenting participants with the facts immediately, because this allowed participants to see how the issues they were learning were personally relevant.

**Design Changes and Redesign**

For the current design iteration, participants found several issues and offered various suggestions for the next design. For the *Fob Or Not* Game, the interface was generally seen as positive, but some participants found the process of entering text and dragging the red circle counterintuitive and confusing. Based upon player feedback, the red circle will be eliminated and replaced with five clickable boxes with a depressed (selected) box. Also, a few participants expressed confusion over how people were assigned an acculturation value. A short tutorial and a
better explanation of the process by which people are assigned acculturation scores are needed. Other suggestions raised by participants included: greater variety in people and the ability to see video or hear the people featured in the game, and possibly the ability to identify what specific country they are from.

For the *Flying Asian Stereotypes! Game*, user feedback indicated that a greater incentive was needed to click on the facts on Asian culture, as the facts were considered interesting but indirectly related to the task of the game. Other suggestions were: to increase the size of the environment and to include several more Identity Choice stars to capture a broader range of identity choices.

Figure 5-1 Image of Game Redesign.

The next iteration will build upon the successes of the previous iteration, and also include more explicit opportunities for identity expression, reflection and action. Revisiting the early definition of an Identity Supportive Game, I will briefly describe how this will be accomplished for the next iteration.
ISGs were defined as game-based experiences that provide support for identity formation and development towards identity-achievement (past a moratorium or exploration period towards wholeness and a secure identity (Phinney, 1993; Marcia, 1966, 1980). In the previous iteration, this was tested with the mechanism of Identity Choice stars and various floating stereotype projectiles. In the next iteration, players will be given the opportunity to define their long-term goals, identify and define “success,” and will be able to have control in creating more unique identities within the game. Upon completion of the game, a screen will display the unique characteristics of the player’s identity, goals, and how he or she played, and players will be given the option to save a public profile/avatar to a website. The game will also be linked to more opportunities for real-world action. For example, mentoring and career resources will be provided based upon the choices made during gameplay, as well as the ability to connect with real people or organizations.
Chapter 6

Conclusions

This chapter will provide a brief summary of contributions, limitations of the dissertation, along with next steps and suggestions for future research.

Contributions of Research

This dissertation study employed a design-oriented approach to explore how to support and shift students’ conceptions of self (e.g. goals and self-definitions) and perceptions of an ethnic minority group. The study makes important contributions that are interdisciplinary in nature. In terms of game-based learning, the study’s findings provided evidence of learning and various benefits including new perspectives (e.g. changed perceptions of self and an ethnic group) using two game prototypes. The designs are, in and of themselves, a contribution to the field in that they provide examples of game features and mechanics that can be reused and repurposed for other scholars or practitioners with similar goals. This study provided design principles for social impact games, as well as lessons learned that others who wish to adopt a DBR perspective can review. The insights from the design process and study findings will likely be applicable to other groups who are affected by academic stereotypes (e.g. women in relation to computer science or math careers, African-Americans, Latino-Americans, etc.), and more generally, any student or game designer who wishes to employ an avatarized learning environment for non-entertainment goals. This study demonstrates one useful strategy for using games to promote identity reflection and learning about self and ethnic minority issues.

As discussed in Chapter 2, this work addresses gaps in the literature, as not much research yet exists on how to effectively use game-based technology to support identity
development, raise awareness about social issues, or foster positive social or personal change (Thomson, 2006). The choice to focus on Asian-American identity also provides a unique contribution, as research on Asian-American culture, especially in the contexts of Information Sciences and the Learning Sciences, is extremely limited. As more light is shed on the issues that Asian-Americans and other groups face, we will be able to design and test more technology-based interventions that can help foster more constructive identities for better learning and success in various academic domains.

**Limitations of the Study**

This study has certain limitations that need to be taken into account when considering the aforementioned contributions. First, as this study adopted a Design-Based Research approach, the researcher and a number of participants played a central role in the process of refining the design. As the game designer and a participant observer, I have made attempts to describe the existence of any possible biases and to be honest about expectations, goals, and how being a member of the Asian-American community affects my motivation to develop a useful artifact. I believe that my researcher identity (discussed at length in Chapter One) has helped me identify the core issues that needed to be addressed, increased validity, and also helped provide access and entrée to many more participants than otherwise would have been possible had I not been a participant observer. Still, both the interpretive and hands-on nature of this kind of work introduces a limitation that must be acknowledged.

Another limitation is that the results of this work are highly contextualized. Results from the study are “connected with both the design process through which results are generated and the setting where the research is conducted” (Wang, et al. 2005). As a result, this work has limited generalizability. Rather than viewing the findings as universally generalizable, this work should
be seen with the context as an inseparable part of the story. The artifact (two game prototypes), design principles, and findings are useful for those who are looking to build similar interventions; i.e., interactive experiences in the form of social impact games – in this case, raising awareness of ethnic minority issues and supporting identities.

A third limitation, also typically inherent to DBR, is that several variables in the real-world context were not controlled. In traditional experimental psychology, the goal is to identify a small number of independent and dependent variables and hold all the other variables constant. In DBR, as the design experiments take place in situ, the messiness of actual learning environments are embraced and multiple variables are considered in order to obtain a broader understanding of a design in practice. Occasionally issues related to the individual participants (e.g. factors that influence their motivation to participate in the study) with the technology (e.g. reliability and of the wireless internet connection) would surface. As a preliminary DBR study, additional work needs to be done to test whether the propositions or some other part of the intervention is having the measured effects. Although I have completed iterations of identity interventions as the designer, the games themselves are only on iteration one.

Another limitation is the length of time between playing the games (treatment) and measurement. In most cases, participants took post-tests and were interviewed the same day they played the games. Several participants believed the games changed their attitudes for the better, but longitudinal studies need to be performed to see the lasting effect of playing these games.

**Why Does This Work Matter?**

Many games and interactive experiences allow players to step into an alternate world or reality, or a “second life” of fantasy or fiction (e.g. a fourteen year old boy playing a brave warrior in a fantasy land with magic and monsters called Hyrule). More recently, with the rapid
growth of the *Serious Games* and *Games for Change* movements, games that provide a greater reflection or window into self and society are increasing in number and prominence. This is likely because educators, policymakers, and others have begun to see the value and potential of such technologies that are easily accessible and distributable – technologies that youth will willingly embrace and play, and technologies that may promote learning or social change.

This work also matters because informal learning matters. Only 18.5% of learning during a student’s waking hours from grades K-12 takes place in formal settings; the vast majority of learning (91.5%) takes place in informal learning environments (LIFE, 2009). Learning is lifelong, lifewide and pervasive. Increasingly, members of the ‘Nintendo Generation’ are learning through identity exploration and representation. As examples, consider the fact that 80% of active Internet users are predicted to have at least one avatar online by the end of 2011 (Pettey, 2007), and that over 16 million play MMOs, averaging 22 hours per week (Woodcock, 2009). Educators need to better understand and leverage avatarized environments, or at least the features within them that are good for learning, motivation, changing perceptions, and promoting useful possible selves. This study provides one example of a game-based strategy to support reflection and positive identities for learning.

This work is also timely as an opportunity for game designers and developers to consider the values and desired outcomes of the games that they create for an ever-expanding base of players. While games continue to become mainstream – a $40 billion videogame industry that is not merely a boy's toy, with more than 40% of all gamers women (ESA, 2008) – many games tend to embody or reinforce negative values (e.g. violence, individualism, reinforcement of limiting gender or ethnic stereotypes) (Glaubke, et al. 2001). There is no good reason why games need to consist of these kinds of values over others. Instead, one can harness games’ potential to promote constructive values (e.g. prosocial behavior, diversity, equality, creativity, teamwork) and new lenses to see the world – i.e., to promote new ways of thinking and new perspectives. As the caricature of “games as trivial entertainment” decreases, and the notion of “games as virtual worlds for learning” or “games for good” continues to grow, this kind of design-based work will become increasingly relevant for years to come. As Koster (2005) writes:

"Games thus far have not really worked to extend our understanding of ourselves. Instead, games have primarily been an arena where human behavior -- often in its crudest, most primitive form, is put on display…There is a crucial difference between games portraying the human condition and the human condition merely
existing within games...for games to truly step up to the plate, they need to provide us with insights into ourselves." (p. 174).
## Appendix A

### Initial Survey on Beliefs of Asian Culture

Quotes from survey

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Asian. Good in math, love to play WoW and counter strike.</td>
</tr>
<tr>
<td>P2</td>
<td>I think of China and Japan as being the two main Asian countries. Asians eat a lot of fish.</td>
</tr>
<tr>
<td>P3</td>
<td>Small, smart, clique, Anime, quiet, reserved, math, honor student, classical music, nails. Always studying, extremely smart, good at math and mathematical type problems, strict parents, love Anime, cell phones, and cars, own beauty (nail) shops</td>
</tr>
<tr>
<td>P4</td>
<td>China, Japan, robotics, martial arts. I don't know. Reincarnation, Respect of elders</td>
</tr>
<tr>
<td>P5</td>
<td>Dragon, samurai, discipline, communism</td>
</tr>
<tr>
<td>P6</td>
<td>Driven, hardworking. They are intelligent, especially in mathematics. They study more than most people.</td>
</tr>
<tr>
<td>P7</td>
<td>Smart, small, strange. They are hard working and very traditional.</td>
</tr>
<tr>
<td>P8</td>
<td>Eyes, smart, black hair, China, Japan, Buddha. They are smart and short.</td>
</tr>
<tr>
<td>P9</td>
<td>Intelligent, Martial Arts, Kind, tech support. They are all brilliant people who are all masters of a type of martial art with very strict parents.</td>
</tr>
<tr>
<td>P11</td>
<td>Black hair, cars, drifting, high tech, glasses. math wizards.</td>
</tr>
<tr>
<td>P12</td>
<td>Industrious and motivated, but pressured by society/parents. People think that Asians are generally short and tech savvy</td>
</tr>
<tr>
<td>P13</td>
<td>Cultural, tradition. people think that all of them are inherently good at math</td>
</tr>
<tr>
<td>P14</td>
<td>Vietnam, WWII, Chinese food, NSX, other awesome cars, communism. I think they are just as diverse as any other ethnicity so some are Christian, Buddhist, Islamic, and Jewish</td>
</tr>
<tr>
<td>P15</td>
<td>Smart. Over achievers, not very social. Very smart.</td>
</tr>
<tr>
<td>Page</td>
<td>Text</td>
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</tr>
<tr>
<td>P16</td>
<td>Honestly, recognizable faces, very skinny, bad drivers. Ancestors are very important, Buddhist</td>
</tr>
<tr>
<td>P17</td>
<td>China, Japan, Oriental, Philippines. Some common beliefs about Asian ethnicity is that they are smart and knowledgeable people.</td>
</tr>
<tr>
<td>P18</td>
<td>Chinese, Japanese, accent. Religious beliefs such as Taoism, Confucianism, Buddhist</td>
</tr>
<tr>
<td>P19</td>
<td>People who have ancestry in Asian cultures; such as countries like Japan, India, Malaysia, etc. Some common beliefs are that Asian people are very smart, they are bad drivers. Those are two stereotypes that I know of.</td>
</tr>
<tr>
<td>P20</td>
<td>Japanese, Chinese, Korean. They are smart.</td>
</tr>
<tr>
<td>P21</td>
<td>Smart, intelligent and hard-working people. Conservative people, moral values.</td>
</tr>
<tr>
<td>P22</td>
<td>Rice, anime, Sony, Honda. Slanted eyes, eat lots of rice, overpopulated.</td>
</tr>
<tr>
<td>P23</td>
<td>Chinese, Japanese. Eat rice, drive slowly, spend all of their time studying</td>
</tr>
<tr>
<td>P24</td>
<td>Chinese, Japanese. Lengthened eyes, basically every stereotype</td>
</tr>
<tr>
<td>P25</td>
<td>Smart. They are smart.</td>
</tr>
<tr>
<td>P27</td>
<td>Martial Arts, Sun Tzu, Zen Gardens, Uncle Chens, Pearl Harbor, Buddha, Dhali Llama, Exotic imports, Gojira. Isolationists. Several times (not all) I've tried to play b-ball and was excluded. I don't mean to be crude but undersized penises.</td>
</tr>
<tr>
<td>P28</td>
<td>Ancient, old, fireworks. They are smart at Math and Science; also that some of the Asian countries are over populated.</td>
</tr>
<tr>
<td>P29</td>
<td>Emigration onto Western Coast, general appearance. New immigrants, not as willing to assimilate into American culture, high technical skills</td>
</tr>
<tr>
<td>P30</td>
<td>Samuri, ninja, China. Play video games.</td>
</tr>
<tr>
<td>P31</td>
<td>Being short, being smart, being quiet, being strong. They all know martial arts. They eat very weird food.</td>
</tr>
<tr>
<td>P32</td>
<td>Humble, diligent. Respect to older people, and be humble</td>
</tr>
</tbody>
</table>
Appendix B

Semi-Structured Interview Protocol

Please read these instructions for how to play. As you play, think aloud and tell me your thoughts. What are looking at, doing, thinking and feeling as you play?

After playing
- How well did you think you did?
- Was it easy or hard to make these judgments?
- Did you find anything surprising?
- What are common beliefs people have related to those of low acculturation?
- What kinds of things did you look at to make the judgments?
- Did you learn anything by playing this game? If so, what did you learn?
- What did you think was the purpose of this game?
- [If an ethnic minority] What do you consider your own acculturation level to be, on a scale of 1-5, in which 1 is very low and 5 is very high)?
- How much do you know about Asian culture?
- Are you proud of one culture over another?
- Do you fit in more with one culture over another?

As you play, think aloud and tell me your thoughts. Please tell me what you are looking at, doing, thinking and feeling as you play.

First time: Create an identity based upon who you are in real life.
Second time: Create an identity based upon who you want to be. Not necessarily how you actually are, but who you want to become.
Third time: Create an identity based upon who you are afraid of becoming, someone you don't want to become.

After playing
- How did it feel to be labeled these kinds of stereotypes?
- What if the stereotype wasn't true of you?
- Did you learn anything by playing this game? If so, what did you learn?
- Did you find anything surprising?
- What did you think was the purpose of this game?
- Would Non-Asians play this game differently from Asians?
- How have stereotypes played a role in your life, past or present?
- Upon playing these games, do you think they have had any effect on your views of yourself as an Asian American?
- What are your general reactions or thoughts upon playing these games?
- Compared to before, have your attitudes changed regarding stereotypes?
- Did you learn anything about yourself by playing these games?
- What are the most important things about your identity?
- What people or things contribute to your identity?
- In the game, the happy faces represent the things that you pursue to bring you happiness. What are those things in your life?
- In terms of usability, what's good about each game?
- What's bad about each game?
- How can the designs be improved?
Appendix C

Sample Post-test

Please answer the following questions as completely and honestly as possible. Don't worry about what is the "politically correct" answer -- answer as you honestly believe. All responses will be kept strictly confidential.

Part I. Free response

1. After playing these two games, how many Asian countries do you think there are in the world?

2. What words come to mind when you think of people of Asian descent?

3. What are common beliefs that people have of the Asian ethnicity?

4. What aspects of Asian and Asian American culture are positive? Please explain.

5. What aspects of Asian and Asian American culture are negative? Please explain.

6. Do Asian Americans have it easier than members of other racial/ethnic groups? Why or why not? Explain.

7. On a scale of 1 to 7, where 1 is not at all and 7 is very much, rate how much you feel you know about Asian and Asian American culture.

8. On a scale of 1 to 7, where 1 is not at all and 7 is very much, how sensitive do you think you are about stereotypes held about your group?

9. Did you learn anything by playing Fob or Not? If so, what did you learn?
10. What did you think were the goals/purpose of the Fob Or Not Game?

11. Did you learn by playing the Flying Stereotype Game? If so, what did you learn?

12. What did you think were the goals/purpose of the Flying Stereotype Game?

13. Compared to before you played these games, have your attitudes changed about stereotypes or Asian American issues? If so, how?

Part II.

Please rate each of the following descriptions according to which side (of the two words) you feel is more true about Asian American men in general (relative to others.) There are no right or wrong answers. Your responses will be kept confidential. Please be honest.

Relatively speaking, compared to other races, I believe Asian American men tend to be: (mark with an “X”)

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<td>Unromantic</td>
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<td>Shy/Quiet</td>
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<td>Not Smart</td>
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<tr>
<td>Not good at math</td>
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<td>Not honest</td>
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<td>Romantic</td>
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<td>Smart</td>
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<td>Good at math</td>
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<td>Honest</td>
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<td>Ugly/Plain looking</td>
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<tr>
<td>Individualistic</td>
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<tr>
<td>Not good at computers</td>
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<td>Poor leaders</td>
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<td>Not good at public speaking</td>
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<td>Handsome/Good looking</td>
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<tr>
<td>Group oriented</td>
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<tr>
<td>Good at computers</td>
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<td>Good leaders</td>
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<td>Good at public speaking</td>
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<td>Physically Weak</td>
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<td>Physically strong</td>
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<tr>
<td>Humble</td>
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<tr>
<td>Boastful</td>
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<tr>
<td>Unique compared to other Asians</td>
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<tr>
<td>Similar to other Asians</td>
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</tbody>
</table>
### Part III.

Now, rate which side you feel is more true about YOURSELF compared to other Asian-American men (compare to men even if you are a woman). Relatively speaking, I believe I am: (mark with an “X”)

<table>
<thead>
<tr>
<th>Trait</th>
<th>Your Rating</th>
<th>Other Asians Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obedient/submissive</td>
<td></td>
<td>Rebellious/strong-willed</td>
</tr>
<tr>
<td>Lazy</td>
<td></td>
<td>Hard workers</td>
</tr>
<tr>
<td>Competitors</td>
<td></td>
<td>Partners</td>
</tr>
<tr>
<td>Underpaid based on their qualifications</td>
<td></td>
<td>Overpaid based on their qualifications</td>
</tr>
<tr>
<td>Underachievers</td>
<td></td>
<td>Overachievers</td>
</tr>
<tr>
<td>Weak personality</td>
<td></td>
<td>Strong personality</td>
</tr>
<tr>
<td>Frugal/Stingy</td>
<td></td>
<td>Generous/Wasteful</td>
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<tr>
<td>Effeminate</td>
<td></td>
<td>Masculine</td>
</tr>
<tr>
<td>Family/parents are supportive</td>
<td></td>
<td>Family/parents are controlling</td>
</tr>
<tr>
<td>Seen as unfavorable by society</td>
<td></td>
<td>Seen as favorable by society</td>
</tr>
<tr>
<td>Victim of negative discrimination</td>
<td></td>
<td>Benefited by positive beliefs</td>
</tr>
<tr>
<td>Invisible to society</td>
<td></td>
<td>Noticeable to society</td>
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<tr>
<td>Passive personality</td>
<td></td>
<td>Active personality</td>
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<tr>
<td>Uncool</td>
<td></td>
<td>Cool</td>
</tr>
</tbody>
</table>

### Unromantic to Romantic

Unromantic  <<<  <  >  >>  >>>  Romantic

### Shy/Quiet to Outspoken

Shy/Quiet <<< < > >> >>> Outspoken

### Not Smart to Smart

Not Smart <<< < > >> >>> Smart

### Not good at math to Good at math

Not good at math <<< < > >> >>> Good at math

### Not honest to Honest

Not honest <<< < > >> >>> Honest

### Ugly/Plain looking to Handsome/Good looking

Ugly/Plain looking <<< < > >> >>> Handsome/Good looking

### Individualistic to Group oriented

Individualistic <<< < > >> >>> Group oriented

### Not good at computers to Good at computers

Not good at computers <<< < > >> >>> Good at computers

### Poor leaders to Good leaders

Poor leaders <<< < > >> >>> Good leaders

### Not good at public speaking to Good at public speaking

Not good at public speaking <<< < > >> >>> Good at public speaking

### Sneaky to Trustworthy

Sneaky <<< < > >> >>> Trustworthy

### Physically Weak to Physically strong

Physically Weak <<< < > >> >>> Physically strong

### Humble to Boastful

Humble <<< < > >> >>> Boastful

### Unique compared to other Asians to Similar to other Asians

Unique compared to other Asians <<< < > >> >>> Similar to other Asians

### Obedient/submissive to Rebellious/strong-willed

Obedient/submissive <<< < > >> >>> Rebellious/strong-willed
<table>
<thead>
<tr>
<th>Lazy</th>
<th>Hard workers</th>
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<tbody>
<tr>
<td>Competitors</td>
<td>Partners</td>
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<td>Underpaid based on their qualifications</td>
<td>Overpaid based on their qualifications</td>
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<td>Unromantic</td>
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<td>Not Smart</td>
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<td>Not good at math</td>
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<td>Ugly/Plain looking</td>
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<tr>
<td>Underpaid based on their qualifications</td>
<td>Overpaid based on their qualifications</td>
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<tr>
<td>Underachievers</td>
<td>Overachievers</td>
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<tr>
<td>Weak personality</td>
<td>Strong personality</td>
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<tr>
<td>Frugal/Stingy</td>
<td>Generous/Wasteful</td>
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<tr>
<td>Effeminate</td>
<td>Masculine</td>
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<tr>
<td>Family/parents are supportive</td>
<td>Family/parents are controlling</td>
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</table>
For each question, please mark a checkbox in the appropriate box based upon how much you disagree or agree. How true are the following statements?

<table>
<thead>
<tr>
<th>Seen as unfavorable by society</th>
<th>Seen as favorable by society</th>
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<tbody>
<tr>
<td>Victim of negative discrimination</td>
<td>Benefited by positive beliefs</td>
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<tr>
<th>Invisible to society</th>
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<tr>
<td>Passive personality</td>
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<td>Uncool</td>
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<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Disagree a little</th>
<th>Neutral</th>
<th>Agree a little</th>
<th>Agree</th>
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<tbody>
<tr>
<td>1.</td>
<td>People have a positive overall impression about Asian Americans regarding leadership ability.</td>
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<td>2.</td>
<td>Asian Americans from countries like Cambodia and Laos are regular achievers of academic success.</td>
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<td>3.</td>
<td>There is not much diversity among Asian groups.</td>
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<td>4.</td>
<td>Asian Americans are really good at computational fields like math, science, or computers.</td>
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<td>5.</td>
<td>Compared to other groups, Asian Americans have poor nonverbal skills.</td>
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<td>6.</td>
<td>Compared to other groups, most Asian Americans tend to achieve high academic success.</td>
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<td>7.</td>
<td>Based on their education, degrees, and qualifications, Asian Americans get paid what they deserve compared to Whites.</td>
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<td>8.</td>
<td>Asian Americans tend to be quiet and shy.</td>
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<td>9.</td>
<td>Asian Americans have it easier than other racial/ethnic groups.</td>
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<td>10.</td>
<td>Asian Americans tend to look the same.</td>
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<td>11.</td>
<td>I don’t really understand why Asian Americans do what they do.</td>
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<td>12.</td>
<td>Asian Americans have traits that make them less capable of being a good President of the United States compared to other ethnic groups.</td>
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<td>13.</td>
<td>Compared to other races/ethnicities, Asian American men are less attractive.</td>
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<td>14.</td>
<td>Asian Americans’ behavior tends to be submissive and obedient.</td>
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<td>15.</td>
<td>Compared to other groups, Asian American men</td>
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Other Questions

1. On average, how long and how frequently do you play video/computer games?

2. What games do you play?

(Researcher will complete this section below:)

SL-ASIA number __________

Participant Number ________________
Appendix D

Sample Transcript

E. Chan Transcript

JL explains instructions. EC reads instructions.

EC: Well, I guess since I'm an American Born Chinese living here in America, from my American point of view, when Fobs come here, I can easily recognize them. But there are some cases where there are some fobs that dress American and fit right in, so I won't say 100%, so I'll say 2 (easy).

[1] Usually when I tell when someone is a fob is by their accent or by they talk. But I guess based on image it's a little more difficult. He's wearing a t-shirt, glasses, has short hair. I'm going to say he's a 4. Most Americanized are judging by his short haircut, because most fobs go for more of a popstar attitude, like in Taiwan, or more dyed hair. He has a short haircut and then his selection of clothing. [Clicks. Game beeps correct. EC laughs.] Correct. He's a 4?

[2] This dude. Seems fobbier than the last one. I don't know how to describe it. Looking at clothing, he seems dressed more nicely. I think fobs are dressed more nicely. More Americanized Asian Americans don't care as much about how they dress. I think fobs care more about their appearance. The way he dresses is a bit nicer. Fobs have a tendency to care about how they appear. But he could be Americanized too. Some American people dress nicely. I'll move this to 2. His hair is nicer and neater than the previous person. Overall this person is well dressed and groomed which FOBs like to do. [Clicks. Game buzzes incorrect.] Oh no! 2! Lose two hundred points!

[3] I think this one is a fob, because I think fobby girls like to take pictures of themselves. And she's dressed pretty nicely. Actually I'll say 3 because it could go either way. [Clicks. Game buzzes incorrect.] Ahh!

[4] Okay, this one is a little difficult, because anyone can wear a tie. Although, the tie and shirt look more like what an American would wear (color of shirt and tie). I don't know. Something about the tie seems a bit like American wear. [Clicks. Game buzzes incorrect.] Ohh.

[5] Okay, I think this one is straight up Fob. Because this green shirt. That color shirt. That green shirt is not something a normal American would wear. Older FOBs would like to dress in old and bland colors. Alright, straight up fob. [Clicks. Game buzzes incorrect.] Oh, I put it at two. Close.

[6] Hm. Let me think. Her hair is dyed. This person's hair is dyed. Actually, I think this girl is Americanized because from when I saw when I went to Taiwan, is that most girls like to keep their hair dark. So, More Asian American girls like to dye their hair a lot. That's one indication. 5 [Click. Game buzzes incorrect.] Oh. Close.
[7] The glasses and the hair style indicate that he may be a FOB because younger FOBs are into styling their appearances. Though he could pass for American too. Well, keep it 3. [Click. Game buzzes incorrect.]

[8] She's dressed too nicely. She must be a fob. Well, those boots. Those boots look rather fancy. She's dressed rather fancy. Actually, I think she's Americanized. Because I think fobs are dressed, like, I won't say odd, but she's dressed jeans and boots, something more an American would wear. Fobs dress more like, more colorful. FOBs dress really colorful. This girl dresses in a way that she could fit in any American town/city. [Click. Game beeps correct.] Yes!

[9] Alright, he's Americanized. FOBs are skinny and puny. Americanized Asians are more likely to work out and look muscular. [Click. Game buzzes incorrect.] What?

[10] He might be a 3. This is kind of hard, because he could pass for either one. Because the way he dresses, with darker, more bland colors. I think fob women more colorfully, but fob men, especially older men, dress like, more bland colors. And he's wearing a bookbag. FOB women dress colorfully while older FOBBY men dress in bland colors and looks like a science major. He doesn't look muscular. He looks like a science major or something because of the glasses. He looks intellectual. [Click. Game buzzes incorrect.] 4? No!

EC reads profiles and true biographies.

EC: It's pretty hard. I learned that you can't judge a person by their looks. Other factors such as a person's speech, name, and actions need to be taken into account in order to determine whether or not someone is a FOB. Negative 800! Laughs. I think this game is pretty cool! Because you give a set of 10 people, just based on external appearances only, and so it gives me a realization that, you know, I didn't realize it how hard it was to judge a person by external appearance. I guess I only see two extremes of Asians -- really Americanized, and really fob, but like, in between it's really hard to determine, like 3 or 4, especially 3's. I think those are the difficult ones.

JL: So how well did you think you did?

EC: I did pretty bad. Because like I said before, I can identify the extremes, but in between 2, 3, 4 it's pretty difficult.

JL: Was anything surprising?

EC: Some surprising ones were like the second person. I thought he was a fob because he dressed nicely and his clothes were bland, but he turned out to be Americanized, especially his interests.

JL: Do you think most people are overconfident about their abilities to judge other people?

EC: Yeah. People who are actually fob, I wonder if they can easily tell who is fob or who is not. I guess if it's difficult for me to tell who is a fob, I kind of wonder if it's difficult for them too. They may be overconfident.

JL: What are some stereotypes that exist related to fobs?
EC: I think for female fobs, they dress kind of very stylish. There's several types of fobs. I see old generation and new generation. New generation are very colorful, dress like a pop star or dye their hair color. I think older ones, especially graduate students, dress more bland. I do see fobs are not as built. They're more interested in their schoolwork, so they don't see a point in working out. Whereas an Americanized are more into sports.

JL: What kinds of things did you use to make judgments?

EC: Like the color of their clothing, and their physique.

JL: What did you learn by playing this game?

EC: I learned it's kinda, it just reaffirms what I believe, that you can't judge a person by appearance, but other factors, what they like to do, their interests, and the way they talk too, especially.

JL: What did you think was the purpose of this game?

EC: I think the purpose was to raise an awareness that you can't be prejudiced. You can't judge a person by appearance. You might miss a person who might be a better fit for the job.

JL: What do you consider your acculturation level to be, on a scale of 1 to 5, with 5 being more acculturated/Americanized?

EC: I consider myself 3, because I still hold to my culture.

JL: Are you proud of one culture than another?

EC: I am proud that I am Chinese, but I also like the American values. I'm proud of that too.

JL: Do you fit pretty well in both cultures, or in one culture better than another?

EC: I probably fit as an American better than I do as a Chinese, but I would like to fit in Chinese a little more, too.

2nd Game---- JL explains instructions for Flying Stereotypes Game. EC reads instructions out loud.

[First round: Construct identity of how you see yourself]

EC: Do you know kung fu? I don't want that stereotype. [Got hit with stereotype.] Oh, no! I don't like that! [laughs] I want social skills. Parental pressure. I hate that. What is the bamboo ceiling? It has been shown that Asian American men with equivalent or superior education receive less income and are excluded from managerial jobs on the basis of subjective factors such as lack of leadership potential or inferior communication ability. This stereotype has also led the exploitation of Asian employees. Mmm. I don't like that. I dislike that. I think most stereotypes of Asians are pretty bad. Parental pressure. No, I don't like being pressured by parents to have do what I want. Stars, initiative. Yes, I like that. Ooh. Low self-esteem. I hate that really a lot.
I think I suffer from that too. There's one thing I value, I value working hard. I do like having fun. I do suffer from low self-esteem. Asian American women have the most suicide among 15-24 year olds. Highest rate of depression so severe that they've contemplated suicide. Experts cite model minority expectations, parental pressures. Yeah, family pressures are pretty high. I like those, I really do. I guess it's more important for me to be independent if I were to take care of my family.

[2nd round: construct a different kind of identity; someone you're afraid of becoming, or someone who you don't want to become.]

EC: I don't like being shy. I do suffer from low self-esteem. You're a bad romantic partner. Smart? I don't mind, but sometimes that might get annoying. Whoa, what is that? Sometimes Asians are described as one homogenous group with little diversity. Fact, there are 47 unique Asian countries, just as French, Italians, Germans. Norwegians are all unique, though all Europeans. Asians are very diverse in their level of SES, and educational attainment and values. Hmong are much more recent immigrants, while many Japanese are 5th and 6th generation Americans. I actually like reading these facts. How come you're so smart? Nerd? Yes, I hate that. I think I suffer from that. No, where are you really from? People of Asian descent are seen as foreign, even if they have been assimilated for many generations. They are constantly reminded that they are anything but normal. The consequences of otherization. Hate crimes and the murder of Vincent Chin, clubbed to death in Detroit by two autoworkers who blamed him for losing their jobs. You look kind of ugly. Aw. I agree with that. I think Asian Americans have it more tough than fobs and Americans because no matter what, in the US, you'll never been seen as an American. Because most people think of Americans as White. And then, in the fob's eyes, you'll never be seen as one of them, because to them you're always Americanized by your accent, no matter how hard you try, they're just still going to look at you because you still have American values. Unless you 100% give up everything and move to China and slowly assimilate. Asians are all achievers of academic success. Far from it. Many Asians including some members of Hmong and Cambodian groups actually fall into the highest rates of poverty and lowest rates of academic success. The model minority covers the need, as Asians who are average or below average are often overlooked. Why do I have the chain thing? [laughs] B+, not good enough. Actually my parents used to hammer me about that. Nowadays they're more accepting. The longer they live here, the more they're accepting of Asian values. Plus, I already put a lot of pressure on myself to do well on school, so they don't need to tell me that. Actually nowadays they even encourage me. You know, Evan, a B isn't so bad.

[3rd round: construct an identity of someone you want to become.]

EC: I like to be happy a lot. Do you know Bruce Lee? No, I don't want to be a nerd! No! Evil gangster? What's that? I've never heard of that stereotype. Get away from me. Parental pressure. I can't escape.

I can't escape! I didn't know the evil gangster. I've never heard of that, that's something I learned from this. Maybe it's where I grew up, a mostly white community. And I went to a white school, so, I never really saw the gangster. Actually I like the fact that Asians are humble. I think that's a good trait. I think more people should be like that. I think some Asian traits are valuable, like working hard, being humble. Those value systems are something I treasure as an Asian American. And sometimes I think some Americans should too.
JL: I have some questions about the game you just played. How did it feel to be labeled different stereotypes?

EC: I guess the most prevalent one that I suffered was 'nerd.' I mean I don't mind Asian stereotypes, or at least the ones presented in this game. There's much more cruder ones. Is it appropriate to share? So Asian Americans having smaller penis size or something like that. I find that kind of awkward and choose not to answer that. That's the one I really get annoyed by. But the other ones like nerd, parental pressure, you can joke about. I mean, it's true there's pressure from parents and if anything, if you're labeled as a nerd, people give you more respect and hold you in higher regard. But it's a double edged sword. If you don't accomplish a task well, then they'll be more in your face about it and have higher expectations of you.

JL: Playing these games, what did these games bring out in terms of Asian stereotypes?

EC: One stereotype I didn't realize was 'evil gangster.' I didn't realize that that was a stereotype of Asian Americans. I also didn't realize that Laos and Cambodians, the other group of Asians, that they don't all excel in school. I've heard of that, but this really reaffirms that. I found the facts interesting as well.

JL: Was anything surprising as you played this game?

EC: I guess it's kind of cool how, when you have to choose what you want to be. And then the Asian stereotype comes at you. Because we go to those things because we want it or we choose those things, like we choose to be passive, we choose to be hardworking, or whatever. But the stereotype that comes and chases us is not what we choose. I thought that was interesting. Well represented. I learned about all kinds of stereotypes and I learned more about these issues. Like I didn't realize how big this issue was.

JL: What did you think was the purpose of the second game?

EC: I think it was to raise an awareness, to me, as an Asian American. I didn't realize that there was that many stereotypes out there, or, I didn't realize how, when I grow up, I always thought it was an individual thing, that it was just me. I already knew about the nerd thing, and I had an idea about the parental pressure, but I didn't realize it was so many. And I think it would be good not just for Asians to play, but for other cultures to play as well.

JL: Why?

EC: I think they would get something out of it. This is one representation, what it's like to be in our shoes. Because more Americans are trying to take Chinese, they want to be more acculturated with Chinese. But I think what they miss is that they get what it's like in a Chinese or old fashioned culture, like in China or Taiwan, but they don't know what it's like to be an Asian American.

JL: You mentioned low self-esteem is something that affect you sometimes. Can you talk a little bit more about that?

EC: Sometimes, because my parents are from Taiwan. I don't think it's by choice, but it so happens because of the culture. They probably do it without knowing, but sometimes they get
jealous of American families, because you have a mom that cares about you, and I mean my mom
does, but, the missing father. I had that a lot. Some of it had to do with Chinese culture, where
the man is always at work, and then he comes home. He just like provides and helps with
schoolwork. I think when I go home, I talk to my dad, and I talk about business only. School, or
what you're going to do. That's good, but nothing on a personal level. Not much of it at least.
That's something I miss. What else. Low self-esteem. I think back in high school, I went to an
all white high school. No matter how hard I tried to fit in, because of my appearance I'm always
seen as Asian. I do have friend, Chris, who always treated me really well. Probably so well, in
that he didn't really see the Asian appearance at all, he saw me as White as well. That's cool
because that way he treated me as an equal as him. But other people in high school still saw the
Asian appearance and probably didn't treat me as equal. And I just felt like I was pretty much
defined as my schoolwork.

JL: Do you think Non-Asians would play this game differently from Asians?

EC: Yes, I think they would choose different things. I think most Asian Americans would choose
the same stereotypes as the ones I did. But I think non-Asians might choose differently. I think
they would learn a lot more than I would. Not that I didn't learn anything; I learned a lot. But I
think they would get more out of it because I don't think they have any basis.

JL: Do you think stereotypes have played a role in your identity development growing up?

EC: Yeah, a lot of it was the academic part. I also did try to make an effort to disprove
sterotypes. I did some non Asian things like wrestling. I did it because I like it, but I also
realized later on that it's kind of cool, and I did it because it disproves that Asians can't do sports,
or Asians can't be strong, or Asians can't do this.

JL: Playing these games, do you think these games had any sort of effect on how you see yourself
as an Asian American.

EC: I guess it makes me more aware of my surroundings more. And it gives me more motivation
to disprove Asian stereotypes. I've always had that motivation, but now I'm using much more
motivation and it makes me want to change things more now. Become more initiative and try to
not be defined by my school so much.

JL: What are you general reactions or thoughts about these games?

EC: I think the first game, I learned a lot because I knew that you can't judge a person by external
appearances alone, but I didn't realize how difficult it was for me to judge only by their external
appearance. I knew you couldn't do it, but I didn't realize it would be that difficult. Especially
the in between ones. When you judge people by external appearances, it's either fob or American.
There's like black and white. But I never considered in between. I'm probably in between too.

JL: Compared to before, have your attitudes changed regarding stereotypes or anything like that?

EC: I mean, the stereotypes will still be there because I'm still Asian and I still fall into the
sterotypes. I tend to ignore it actually. But I have the chance I would disprove it or try to.

JL: So did you learn anything about yourself by playing these games?
EC: I learned that I'm probably more likely Americanized. I know I'm more Americanized, but I'm probably more Americanized than being Chinese.

JL: Do you like your identity, who you are as an Asian-American?

EC: I don't mind being Americanized, but if there's one thing I could do, I wish I could speak more fluently in Chinese. That's the only thing. I'd be more acculturated but I'd still like to be labeled as Asian American.

JL: In the game, the happy faces represent the things in life you pursue to bring yourself happiness. What are those things in your life?

EC: I like to live 'carpe diem.' Seize the day. I like to live out to my potential. I'm pretty sure most people do that. That's how I live life. And try everything once.

JL: Okay, I'd like to ask you about the game designs, in terms of usability and user experience. What did you think was good, bad, and could be improved?

EC: The first game was really good because it raised awareness among Asians that it's not so easy to judge a person's external appearance. I think it's well done. I wish there was more variety. Another thing would be to hear the way they talk. Or if you could identify what specific country they're from. I think the second game was a pretty cool learning experience. Like, what I want to be hit with and what I don't want to. And the fact the stereotypes chase you, and because you don't want stereotype, it would hit you no matter what. Although it was kind of weird that parental pressure was like a ball and chain. That was kind of interesting. I think it's an accurate description of what as an Asian American you can choose to be, whether passive or humble or initiative. And the things that hit you are also accurate.

JL: Any other comments?

EC: No, I thought the study was really cool.
References


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