

Leveraging English Learners' Identities in Game Design

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Abstract: This paper provides recommendations for game designers to facilitate Spanish-speaking English learner success. Authors draw upon literature that examines socio-cultural, educational, and identity factors impacting the academic achievement success of Hispanic English learners. The paper briefly describes how and why game designers should (1) leverage Hispanic English learners' Spanish-speaking ability to provide improved identity positions within content area classrooms and (2) draw upon and reinforce elements of Hispanic culture such as: *familismo*, *respeto*, and *allocentrismo* (as identified by Wilkins and Kuperminc, 2010) in order to improve students' learning.

English learners (ELs), especially Hispanic ELs, can struggle with academic success (Kuperminc, Darnell, & Alvarez-Jimenez, 2008; Ferreira, Harris, & Lee, 2006; Suárez-Orozco et al., 2011). There are several ways in which game designers may help Hispanic ELs to be successful. This paper recommends two primary elements that game designers might use to improve Hispanic ELs' success: (1) leverage Hispanic ELs Spanish-speaking ability for better *identity positions* within the classroom (see Norton & Toohey, 2011), and (2) draw upon significant elements of Hispanic culture as described by Wilkins and Kuperminc (2010): *familismo*, *respeto*, and *allocentrismo*.

Leverage Spanish-speaking Ability

It is most important for game designers to improve ELs' position in discourse in the classroom setting from marginalized to respected. This could improve ELs' academic identity, participation, and self-efficacy. This can be done by incorporating game play elements that require a Spanish speaker. For example, the participatory augmented reality simulation (PARS) *Alien Contact!* requires students to fill the roles of chemist, cryptologist, hacker, and FBI Agent (Dunleavy, Dede, & Mitchell, 2009). This game (and others like it) could offer a setup option to include a Spanish-speaking member. If this option were chosen, the chemist (or other academic) character would receive all (or most) information in Spanish and the NPCs whom the player encounters could be older Spanish-speaking academics. Legitimizing and necessitating the skills of a bilingual student validates the student's bilingual, bi-cultural identity in an academic context while promoting a better identity position in the class. This validation of bilingualism promotes academic and life success (Schwieter, 2011).

Draw Upon and Reinforce Hispanic Culture

Wilkins and Kuperminc (2010) indicate that *respeto* is an important cultural component of the Hispanic culture; *respeto* signifies respect for older members of the community. Game developers could tap into this cultural component by utilizing visibly older (graying) native Spanish speakers as NPCs in PARS and video games. This could serve to lower students' affective filters and support positive academic identity formation. Norton & Toohey's (2011) synthesis of literature indicates that students are constantly in re-imagining themselves and their place in the world; providing examples of Spanish-speaking academics will help facilitate students' perception and belief that Spanish speakers can be academics—further, such portrayals will serve to counteract negative stereotypes of Spanish speakers that students may be bombarded with in US culture (Lippi-Green, 1997).

The concept of *familismo* refers to an emphasis on the centrality of family. Researchers (Kuperminc et al., 2008; Suárez-Orozco et al., 2011) indicate that Hispanic ELs' alienation from school and academics is at least in part because they (ELs) do not perceive that school benefits their families. Therefore, it may behoove game designers to include elements that illustrate how science, math, and other content knowledge may benefit students' families and communities. For example, students might be called upon to fight the spread of disease, determine the cause/source of a poisoned water supply, or identify environmental toxins that could (in real world situations) impact their families.

Allocentrismo, the importance of group goals over personal goals (Wilkins & Kuperminc, 2010), complements games such as PARS, which utilize a jigsaw like structure requiring collaboration (Dunleavy et al., 2009; Rosenbaum, Klopfer, & Perry, 2007). However, Rosenbaum et al. (2007) indicate that while engaged in *Alien Contact!* certain students would 'help' other students to solve their

tasks. This type of 'help' might occur frequently when ELs are rushed to solve problems that require English fluency. A game play option which requires a Spanish speaker would limit such 'help' and require that ELs participate - while reinforcing and drawing upon notions of *allocentrismo*.

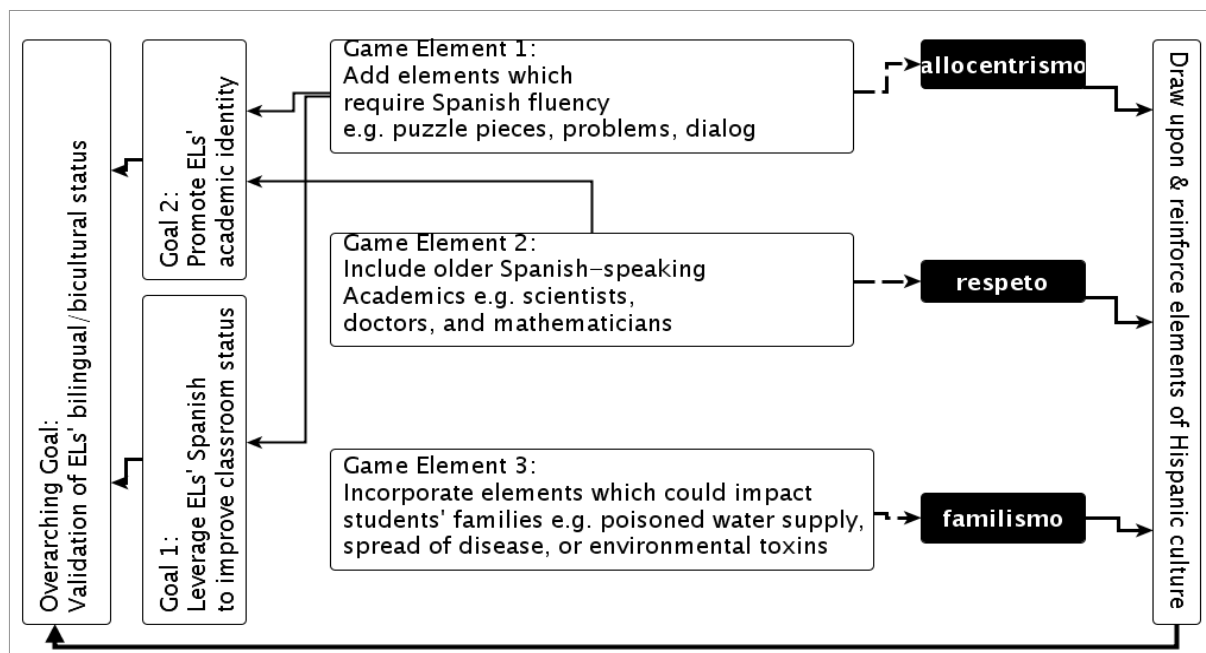


Table 1: Utilizing game elements to benefit Hispanic English learners

Conclusion

These recommendations are not without possible caveats. Spanish speaking ELs could be made to feel awkward in several ways (see Duff, 2002). They may be accustomed to being silent in the classroom or they might find it awkward to acknowledge that they speak Spanish. However, the aforementioned options offer collaboration, identity formation, and validation of bilingual status that provides a stark (and preferable) contrast to 'typical' science classroom environments, which can marginalize ELs' participation and identity.

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Gaming and Programming Affinities in Modding Communities

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Abstract: In this paper, I use JP Gee (2004)'s notion of affinity spaces to theorize the typology of divergent game modder identities. Studying varying routes for participation in modding observed within *Civfanatics*—an online *Civilization* based fan modding site, I investigate players' motivations to mod and thus, how they learn to mod. In this paper, I present a typology of varying modding inclinations as observed within an online modding community.

Introduction

Over recent years, a growing body of work in the field of education and the computer sciences has identified game modding as a “cutting edge” avenue for fostering a broad range of critical information technology practices. However, as we further research and design of platforms that can leverage game modding to teach computer programming, it is imperative that a mature theory of learning through modding and learning to program through modding, takes into consideration the varying motivations that sustain it and the trajectories of productive participation that are innate to affinity-based (J Gee, 2005) fan practices, like modding. Studying varying routes for participation in modding observed within *Civfanatics*—an online *Civilization* based fan modding site, I investigate how players characterize mods and mod-production processes, i.e. how do modders with varying levels of technical expertise learn to mod and how do their motivations (or affinities) shape the way they perceive mod-production? Through discourse analysis of player interviews, in corroboration with their mod-production activity online, I present a typology of divergent modder identities.

Theoretical Perspectives

Traditionally, from a sociocultural learning perspective, learning through participation in community of practice (Lave & Wenger, 1991) or through apprenticeship (Rogoff, 1995) has been characterized as learning within a community in which less experienced members are engaged in a culturally organized activity, eventually becoming capable of mature participation or “full membership”. From this perspective, the functional value of knowledge is exemplified by exemplar participation and better understood by characterizing what such participation entails (e.g. “becoming a mid-wife”, Lave & Wenger (1991)). Nonetheless, the source of motivations to engage in fan-based production practices, such as making game mods, machinimas or writing fan-fiction defy traditional viewpoints about exemplar expert identities, in that these practices are essentially amateur productions for fan-based or *networked audiences* (Varnelis, 2008); as such, these practices may be best depicted as being *affinity-based*. Gee (2005) describes affinity spaces as loosely knit participatory spaces where members of the online community coalesce around broad common pursuits, with ample mobility to pursue individual interest. In other words, affinity spaces can be thought of as niche networks of common goals, resources, and peer support. Players in these spaces engage in an intrinsically motivating activity, or fan-pursuit, to author game-based media artifacts as a way to remediate their game play experiences (Squire, 2006).

Research Context and Findings

Analyses presented in this short paper have been conducted on data drawn from a larger dataset collected in a 2-year discourse centered online ethnographic study of the online game modding community in *Civfanatics*. *Civfanatics*, one of the most popular *Civilization* gaming sites, is a central hub for numerous fan-produced artifacts and gaming discourses, and thus, can be thought of as a niche affinity-based modding space for *Civilization* fans (Durga, 2012). Player profiles included in this study were interviewed about their interests in modding and experience playing *Civilization*, a detailed account of which has been elaborated in Durga (2012). Through a critical discourse analysis (Gee, 2005) of three participant interviews excerpts, the three modding inclinations were characterized as: (a) mod-savvy, or displaying an eclectic disposition in selecting mods to play, (b) “improvisational play,” or constantly striving to become a better player or (c) being a hobbyist/amateur programmer who may have little or no intrinsic motivation to play the game, but seeks membership in the community, nonetheless, and leverage the community's collective capacity to encourage programming. The typology of modders (Durga, 2012) revealed that motivation to mod is an amalgamation of interest and abilities that get exemplified through six prototypical mod-production practices, evidenced in these three kinds of modder profiles, illustrated in Figure-I below.

Typological compilation of modder identities

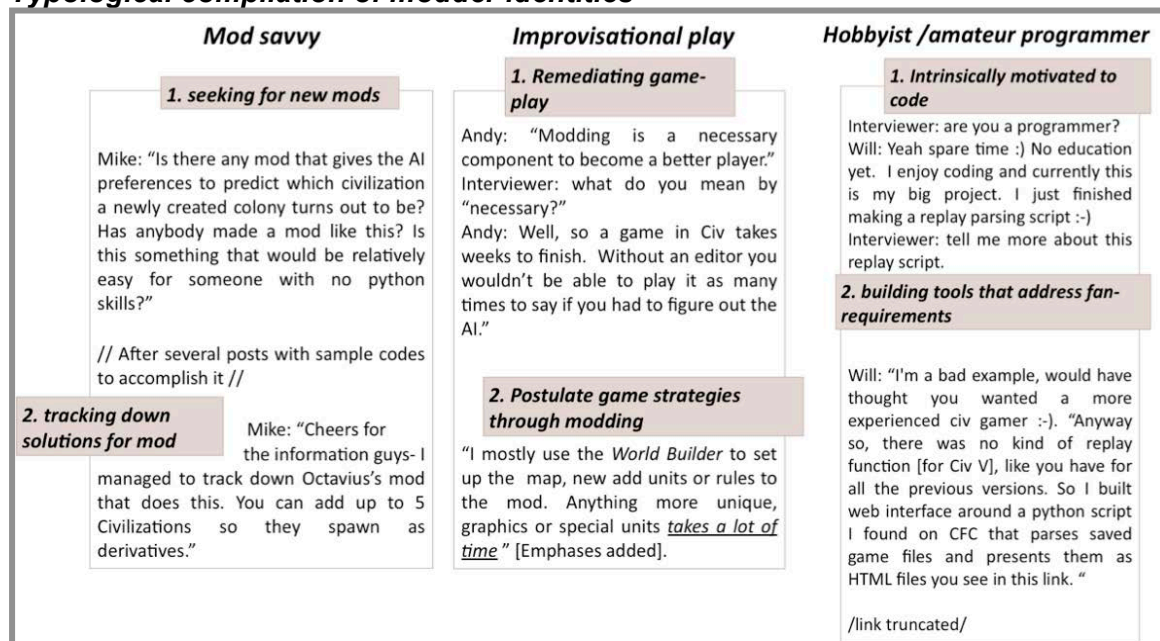


Figure 1: Corroboration of significant excerpts from interviews and forum activity depicting modding inclinations

Conclusions

In our attempts to find “productive” value of game modding we have perhaps remained shortsighted by focusing on the obvious and immediate “effects” of modding as a motivation to program that, at its best, has only resulted in superficial adaptation of “mods” as one of the several other project-based pedagogical approaches (for instance, game programming) to teach students to program (Kafai, 2006). However, as can be seen from this study, player motivation is a primary determinant of learning to mod within affinity-based contexts. In other words, since competence development in modding is contingent upon a player’s will to engage in modding, it is crucial that we draw attention to and elicit motivational contrasts that exist within an increasingly interdisciplinary practice, like game modding. Again, these inclinations must in no means be understood as being mutually exclusive; rather they provide ways in which players’ choices about “coding” approaches make sense in the context of modding, i.e. mod savvy players in their modding approaches, seek to understand the abstract models of the game and thus translate it into code. While, players already coming into modding spheres with a propensity to work with codes, such as Will (see figure above), seek for ways in which they can exercise and implement certain coding strategies to build something in-game or for game, drawing upon an abstract understanding of the game to begin with.

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“Are We Having Fun Yet?": Evaluation, Player Retention, and Lessons Learned from Vanished, the MIT-Smithsonian Science Mystery Game

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Abstract: Vanished was an eight-week long “curated game” modeled on ARGs and developed by MIT and the Smithsonian to draw middle-schoolers into thinking like a scientist. In an effort to understand how to attract and retain players throughout the run of future curated games, we will examine gender differences in engagement and which factors were positively associated with longer play times. Girls (who were nearly half our players) favored social and narrative based tasks, while boys favored achievement/social ranking based tasks. For both genders, accessing social data about other players and scoring high numbers of achievement points were positively associated with continued play. We recommend that designers of future curated games or other multiplayer educational games carefully design compelling narratives, “networked publics” and achievement systems that reward “science newbies” as well as experts in order to engage and retain players.

Description of Vanished and General Notes

Vanished ran in the spring of 2011 and was the first “curated game”—a collaborative game modeled on alternate reality games (ARGs), and designed to foster engagement and scientific thinking through collaborative mystery-solving. The design was inspired by conversations with Smithsonian scientists, who found that science instruction rarely modeled scientific practice. Whereas traditional scientific instruction focuses on rigidly defined processes, perfect prediction of results, and memorization, professional scientists’ work involves collaboration, experimentation, and the unexpected. To model these processes, we developed a set of diverse, collaborative activities that players would need complete to solve a science-based mystery. Middle schoolers logged into a website expecting a typical educational game, but instead found a video of MIT students saying that the site had been hacked. Embedded in this video were snippets of an encoded message. This “rabbit hole” led to broadcasts from scientists in the future, saying that an unknown disaster had destroyed the historical record and they needed the players’ help in figuring out what happened. Players had to engage in a variety of activities, all related to scientific inquiry, to unravel the mystery story. Activities included video conferences with Smithsonian scientists, in which they shared their hypotheses on what might have happened and asked for feedback; virtual archaeology digs, where players used a Flash game to navigate an area and dig up objects, some of them actual 3D scans of bones from the Smithsonian collection; collaborating with other players on the forums; and environmental data collection.

Gender Differences in Play and Demographics

Vanished players tended to come from zip codes that were slightly wealthier and better educated than the average. They were more likely to be rural and less likely to be from “majority minority” areas. Vanished attracted and retained nearly equal numbers of boys and girls, with girls making up slightly less than half of all players throughout the game. Gender and socioeconomic status was not significantly correlated with retention. Girls spent significantly more of their time than boys on social behaviors, such as composing forum posts, reading the forums, and filling out surveys. They also spent significantly more of their time accessing the secret document library, which contained “found documents” (letters, diaries) that revealed both scientific clues and narrative background to the game. Boys, on the other hand, were more likely to spend their time on achievement-oriented tasks, such as Flash games and accessing leaderboard and achievement point pages. While it appears that girls were less drawn towards these competitive behaviors, this should not be misconstrued as evidence of girls “checking out” of achievement based tasks. In fact, the average girl earned 15% more achievement points than the average boy. Given these differing preferences, we recommend designers include a variety of activities to engage a diverse player base.

Factors Associated with Player Retention and Design Recommendations

Of the 6,750 players that registered for Vanished, 10% logged in for the end of the 8-week game. While attrition is to be expected, we would certainly like to retain more players. Based on analysis of the activities that were positively associated with player retention, we feel that future curated games should emphasize two major design aspects. The first is the inclusion of skill-based tasks, with clear progress delineated by an achievement points/badge system, and significant support for players who may lack confidence or adequate background instruction in the sciences. The second is the creation of a “networked public” that allows a safe space for players to connect with their peers, learn about each other, share information about themselves, and form online identities. These activities align with two major categories (Achievement and Social, respectively) of motivating types of play as identified in massively multiplayer games by Yee (2007).

It appears that Vanished players of both genders have a strong desire to connect with and learn about their peers. Players spent approximately 12% of their time looking at each others’ online profiles, despite the fact that, due to privacy restrictions, these profiles were very basic. Furthermore, accessing player profile pages was significantly correlated with retaining players throughout the run of Vanished. At first glance, this interest in peers and community suggests that Vanished fills an empty niche for age-appropriate, science-focused “networked publics”, defined by Ito et. al. (2008) as social networks with a primary emphasis on “producing and circulating culture and knowledge” (p. 10). But, despite this apparent interest in understanding fellow members of a “networked public,” reading and commenting on the Vanished forums was negatively correlated with player retention. It may be that the limits placed of profiles hindered players in expressing their identity and connecting with others. Ito et. al. noted that “some of the drivers of self-motivated learning come...from youth observing and communicating with people engaged in the same interests, and the in the same struggles for status and recognition, as they are” (p. 11). If we could find a way for players to safely share more information about themselves, they may feel more comfortable with their identity and the community, and by extension, with communicating with and learning from their peers throughout the game.

Scoring a high number of achievement points was also significantly correlated with persistence in the game (see Table 2). This is unsurprising. An individual who excels at a task, game based or otherwise, is likely to persist. However, we want to reach less scientifically skilled players, so future games should strive to give “science newbies” that same sense of expertise and accomplishment—perhaps through a dynamic achievement system that values individual improvement over time compared to a player’s initial abilities, rather than predetermined benchmarks.

We hope that this analysis will both inform and inspire the design of improved curated games in the future. A teacher of at-risk 7th graders wrote to us about how his students developed a newfound interest in science after playing Vanished. It is our hope to create more experiences like the one his students had:

My students learned how to work together to solve problems they knew nothing about to start with. They learned how to assimilate knowledge and then apply what they had learned. They learned how science really works! I had one student...who even became very involved in cracking the codes using all sorts of different methods. Every day he would come into class thrilled to tell me what he decoded and how he did it. I overheard a few student [sic] mention that they now want to be scientists when they grow up.

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