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There's an App for That: Foreign Language Learning Through Mobile- and Social Media-Based Video Games

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To the Graduate Council:

I am submitting herewith a thesis written by Trenton Edward Hoy entitled "There's an App for That: Foreign Language Learning Through Mobile- and Social Media-Based Video Games." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts, with a major in French.

Sebastien Dubreil, Major Professor

We have read this thesis and recommend its acceptance:

John Romeiser, Ron Taylor, Awa Sarr

Accepted for the Council:
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(Original signatures are on file with official student records.)

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There's an App for That: Foreign Language Learning Through Mobile- and Social Media-Based Video Games

A Thesis Presented for
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Trenton Edward Hoy
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Abstract

There is no doubt that the video game industry is undergoing a major upheaval, yet in spite of the recent reconceptualization of video games, educational games as a whole remain the pariah of the industry. Very little has been done in the wake of recent social and industry trends to adapt instruction of academic subjects, especially foreign language, for delivery through video games. Prior studies discussing the potential of games developed specifically for language learning have focused primarily on general principles and have offered no recommendations for platform, genre, or other aspects of design. Through an online survey as well as qualitative analysis of gaming forum discussions and student evaluations of an existing educational language game, this study goes straight to the learners and players themselves in order to determine the opinions and behavioral intentions of potential customers. By synthesizing these insights into consumer demand with theory and industry trends, this study argues that mobile or casual games that are intrinsically social and communicative hold the most potential for success, both in academia and in the industry.

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Chapter I: Introduction

5.93 billion. The years that people have collectively spent playing *World of Warcraft*. 3 billion. The hours people collectively spend playing online games every week. Though some may balk at these enormous figures, denouncing the mind-boggling amount of time "wasted" in a virtual world, games researcher Jane McGonigal has quite a different take. In a 2010 TED Talks appearance, she argued that extended experience within virtual realms can encourage a host of positive qualities and characteristics to an extent that real life could never replicate. "In game worlds we become the best version of ourselves," she observed, "The most likely to help at a moment's notice, the most likely to stick with a problem as long as it takes, to get up after failure and try again." Real world daily life often overwhelms people in ways that leave them feeling anxious, cynical, or frustrated where games motivate and encourage, making players feel that they can achieve everything (McGonigal, 2010). It is no wonder then that playing games is often seen as escapism, but there is far more to the story than that. In the next ten years, the amount of people who regularly play some form of video game is expected to triple, reaching upwards of 1.5 billion people. This extreme growth is due in part to recent technological and social trends which are slowly beginning to reveal the full array of gaming's positive effects.

Many were highly skeptical of Nintendo when it unveiled the Wii. Simplifying graphics and focusing on unproven motion controls? Simply unheard of. The commercial games industry had built itself on the legions of hardcore gamers clamoring for more realistic graphics, higher frame rates, online multiplayer, and other features

that push the limits of technology. Targeting people of all ages and levels of video game experience? Commercial suicide. Everyone knew that gamers were a very specific subspecies of humans: young and even middle-aged males still dwelling in family basements, their skin blanched by the near total darkness which constantly surrounds them. Speaking a specialized “leetspeak” language, they execute rapid-fire button combinations with one hand and forage for long-stale cheese puffs with the other. Any video game system that not only aimed for “normal” people but also completely ignored the demands of seasoned game professionals was doomed.

The industry was turned upside down when in the first eight days following its November 2006 release, the Wii had sold more than 600,000 units in the Americas alone (Goldstein, 2006). Launch sales broke records in multiple countries and for more than a year retailers couldn’t restock shelves fast enough. Now, four years later, Nintendo has seen its revolutionary gaming system ship 84.64 million units (Nintendo, 2011) while competitors Sony and Microsoft scrambled to jump onto the bandwagon, finally launching their own motion-controlled peripherals in late 2010. With all of their experts and focus groups, how was the industry so caught off-guard?

The answer is simple - it underestimated the innate desire for play within everyone. Noted historian and expert on play, Johan Huizinga, argued that play was one of the most fundamental human characteristics, preceding society and culture (Huizinga, 1949). In spite of this, video games have long been an exclusive industry, only accessible to those with deep gameplay knowledge and a love for fantasy, big weapons, or some bizarre combination of the two. So deeply entrenched in its ways

was the industry that it completely lost sight of what playing a game even means. According to research by Parks Associates (Wallis, 2006), although traditional “power gamers” generate a disproportionately high 30% of revenue, they comprise only 11% of the entire game market. An overwhelming majority of gamers are not regularly targeted by most commercial game companies. Nintendo merely capitalized on this almost completely untapped market segment in a savvy business move. By not asking players to leave their comfortable social context and instead changing the games to more easily bring them to the player, Nintendo’s new campaign resonated deeply with a much wider audience.

The explosion of internet-based casual and social games further evidences that contemporary video games are serving as a newfound outlet for this innate desire for play. With their roots in Microsoft’s *Solitaire*, casual games offer simple, pick-up-and-play gameplay to players with little free time. With the internet and Flash software came a barrage of new casual games, which were additionally bolstered by the expanding mobile phone market. Though casual gamers are generally older and more heavily female than the traditional gamer market, nearly 88% of all gamers play some form of casual game (Brightman, 2011). This can be heavily attributed to the rise of social games, particularly those found on leading social networking site Facebook. With over 600 million members (Carlson, 2011), including 41.6% of Americans (Wells, 2010), Facebook has become a force to be reckoned with and a powerful medium for social interaction, including gaming. Social games giant Zynga, developer of games such as *Mafia Wars* and *FarmVille*, is now valued at $10 billion (Rusli, 2011). In comparison,

Blizzard, the company behind the world's largest MMO, *World of Warcraft*, is valued at $13 billion (Takahashi, 2010). Closing in on major developers at every turn, Zynga scored another hit when its latest game, *CityVille*, became the fastest growing game in history, amassing more than 26 million users in its first twelve days of release (Takahashi, 2010). With such great access to massive amounts of consumers, the majority of which play some form of video game, it comes as little shock then that Facebook games are now making more money than many traditional games (Tanner, 2011).

The accessibility of all varieties of games is additionally fueled by improving mobile phone technology and market penetration. Roughly 20% of Americans own smartphones (Speirs, 2011) and according to Nielsen (2010) predictions, by the end of 2011 that number will have more than doubled to 50%. Gaming trends forecast similar revolutions, showing that gamers are abandoning traditional handheld gaming consoles such as Nintendo's DS or Sony's PSP in favor of mobile devices as cheaper, app-based games flood the market (Brightman, 2010). Rovio Mobile's *Angry Birds* leads the pack with more than 100 million downloads (Alexander, 2011) and has spawned a whole line of products such as board games and stuffed animals. Sony is well on its way to releasing a gaming-specialized phone in 2011 (Graft, 2011) and Zynga is also looking to expand into the mobile market (Brightman, 2011).

There is no doubt that the video game industry is undergoing a major upheaval, with consumers shifting away from consoles in favor of casual and mobile gaming (Newzoo, 2010). This is not to say that the industry is any way suffering, for as of 2008,

72% of Americans played some form of video games (NPD Group, 2008). If anything, the redefinition of video games by new technologies and markets has led to a rapid industry expansion and the “normalization” of video games.

Far from being pure entertainment, this new generation of games explores uncharted territory, bringing with it a host of beneficial effects, both physical and mental. In addition to enhancing perceptual and motor skills (Green & Bavelier, 2003), video games promote reasoning and critical thinking skills. Motion controls have spawned “exergaming” titles such as *WiiFit* and *Just Dance 2* which promote physical activity, while *WiiSports* has been used in retirement homes as a fun way to keep seniors socially and physically active (Yam, 2007). Microsoft’s Kinect peripheral that foregoes controllers for physical movement has not only proven fun, but has also saved tens of thousands of dollars in equipment costs for doctors who have been able to use it to diagnose disorder symptoms in children (Orland, 2011). Massively multiplayer online games (MMOs) allow players to create unique communities centering on accomplishing in-game tasks through teamwork and cooperation and have proven to develop interpersonal (Peña & Hancock, 2006) and leadership skills (Yee, 2003). Additionally, MMOs can bring players from all over the world together, facilitating exchange of language and culture (Thorne, 2008). Casual games, which are often free, simple, and require little time to play, can help with depression and anxiety (Russoniello, Fish, O'Brien, Pougatchev, & Zirnov, 2011). Games can also find use in a classroom context. The use of games as texts within an English class can improve basic literacy skills

(Apperley, 2010) and many educational games focusing on math and science can allow students to learn in a fun, hands-on way (Kebritchi & Hirumi, 2008).

Yet in spite of the recent reconceptualization of video games, educational games as a whole remain the pariah of the industry. Scorned by academia and entertainment alike, this oft-maligned division has seen its fair share of ups and downs, and is now at a critical juncture. Does it return to its roots in simplistic, behaviorism-driven gameplay, or does it experiment with new technology and pedagogical theory? In this new era, what place do educational games have, if any, and what must be done to secure it?

While many academic studies have explored the potential of commercial video games in academic settings, relatively few have thoroughly examined games specifically designed for education (Kebritchi & Hirumi, 2008; Klopfer, Osterwell, & Salen, 2009; Qian, 2009). Fewer still are those who have sought to create a game for foreign language learning (Sykes, 2008; Kennerly, 2009; Purushotma, Thorne, & Wheatley, 2009; Zhao & Lai, 2009). None of them, however, directly addresses the ultimate target of such software – students. Through an online survey as well as qualitative analysis of gaming forum discussions and student evaluations of an existing educational language game, this study goes straight to the learners and players themselves in order to determine the opinions and behavioral intentions of potential customers. Furthermore, by synthesizing these insights into consumer demand with theory and industry trends, this study seeks to outline several principles of design for a foreign language learning game.

Chapter two summarizes the theoretical foundations of instruction, foreign language pedagogy, and game design. Chapter three examines the current educational game industry, analyzing and critiquing currently available games for foreign language education. The fourth chapter states the three research questions and reports the methods used to investigate them. Chapter five presents the results for the research questions based on responses from the three data collection methods. Chapter six looks at this study's implications and offers recommendations based on the findings with conclusions and directions for future research in chapter seven.

Chapter II: Theoretical Foundations

Theories of Instruction

When it comes to applying any new technology to learning, especially within an academic setting, it is crucial that its design and implementation be pedagogically sound. Though learning can occur as information "rubs off" on players, a game is a much more effective learning tool if it is properly designed with this goal in mind. With that being said, general instructional theory as it relates to game design can be divided into five basic categories: direct, experiential, discovery/inquiry, situated, and constructivist.

The Direct Instruction Strategy was originally developed by Englemann and Becker to improve academic performance at historically disadvantaged schools. This strategy relies completely on the teacher, focusing on scripted lesson plans and the efficient delivery of instruction (Englemann, 1968). As posited by Joyce, Weil, and Showers (1992), Direct Instruction draws heavily from stimulus-response conditioning found in behaviorist learning theory, generating and sustaining motivation through pacing and reinforcement (Hirumi, 2005). This approach has proven highly effective in a variety of school settings, especially in those with little access to quality, skilled teachers (Rebar, 2007). In spite of its success, its efficacy in the foreign language classroom is debatable. Furthermore, it does not take into account different learning styles and falls apart in self-taught situations, as there is no one to deliver instruction. Additionally, many critics argue that teachers lose creative control due to the method's inflexibility.

In contrast, experiential learning as initially defined by Dewey (1938) hinges on the learner's experiences as a result of interpersonal and environmental interactions. Kolb later popularized this method which encourages learners to derive meaning from the reflections, analyses, and interpretations of their own personal experiences with academic subject matter (Kolb & Fry, 1975). Because it engages learners on a much more personal level than direct instruction, it can be a highly effective means of instruction. Conversely, because this process is completely reliant on the student, it requires self-initiative and self-evaluation. In addition, incorporating experiential learning into traditional classrooms poses a hefty challenge, as few curricula allow for the time and environment necessary for this instructional method.

Similarly, discovery learning theory, introduced by Bruner (1961) and endorsed by Ormrod (1995), focuses on student-lead exploration and experimentation. Learners must draw upon their own experiences and knowledge in order to solve problems through interacting with, manipulating, and questioning their environment. When paired with inquiry-based learning (Joyce et al., 1992), players utilize inquiry strategies focusing on data gathering, rule formulation, and process analysis in order to learn from the experience, rather than by memorizing facts (Barab, Thomas, Dodge, Carteaux, & Tuzun, 2005). Many critics have questioned discovery learning's efficacy when compared to direct instruction, citing learners' need for some form of guidance in the initial stages of learning. It was noted, however, that learning via discovery is more viable as students gain confidence (Kirschner, Sweller, & Clark, 2006).

Grounded in the social development theory of Vygotsky (1978), situated cognition is another important instructional theory. Vygotsky argues that social interaction plays a fundamental role in the development of cognition. Furthermore, Brown, Collins, and Duguid (1989) note that the context, activity, and culture within which knowledge is developed and used greatly influences the resulting conceptualization. Knowledge and situation are essentially inseparable, co-determining how one should respond in any given context. Thus students should not be taught, but mentored in a doing/learning hybrid curriculum. The goal of Vygotsky's model is to establish a schema of self-regulated learning so that even outside of purely social contexts, students can continue to guide their own learning. Critics of this theory argue that because situated cognition is highly symbolic and representational, it is limited in its application to more complex tasks (Vera & Simon, 1993). Anderson, Reder, & Simon (1996) claimed that individual, non-social learning was also valuable and that abstract instruction, when paired with concrete examples, can be made effective.

Lastly, like most of the other theories, constructivism argues for learner-created knowledge. In constructivism, however, not only do students create and define their own learning experience, but the teacher supplies no knowledge, or is even completely absent (Bruckman, 1998; Piaget, 1967). This method allows students to acquire new knowledge by constructing personally meaningful products by themselves or situated in a supportive community context. Like the critiques of discovery learning, claims against constructivist learning argue that it is ineffective for novice learners who have not yet establish their own schema or framework for self-guidance (Kirschner et al., 2006). For

this reason it is crucial that social interactions and self-regulated learning work together to firmly establish learning techniques and habits.

Theories of Foreign Language Education

Because the majority of these theories focus on centering tasks and experiences on the learner, they can provide a strong starting point for any game design, whether it is for commercial entertainment or academic education. While the same instructional principles can generically apply to nearly any content, it is important to specifically examine the special requirements of individual academic fields. In order to make an informed critique of foreign language learning games, one must first understand the pedagogical principles and theories at work in today's foreign language classroom.

Second Language Acquisition Theory

Foreign language, unlike other academic disciplines, innately provides a set of challenges to its teachers as the process of language acquisition itself is unclear and much debated. The teachers themselves come from a myriad of backgrounds, being either native speakers who were never explicitly "taught" their language or non-native speakers who have most often formally studied language. On top of this dichotomy, the subject matter, language, is also the tool and plays into the ultimate goal: communication. This further confounds any attempt to hone in on the specific mechanisms or methods that aid in foreign language acquisition as well as makes the efficacy of these methods quite difficult to judge. In order to teach a foreign language, it is first necessary to determine how one learns a foreign language. A multitude of

theories abound on this topic, the most notable of which include Universal Grammar, Input Hypothesis, and Interaction Hypothesis.

The theory of universal grammar was first posited by Chomsky and suggests that the human brain is hard-wired for certain grammar rules in order to organize language. Therefore, learning a second language merely requires forming a separate set of rules which note various linguistic variations or differences in comparison to the native language (Chomsky, 1965). This theory has been extremely influential as it was in direct opposition with the then-popular behaviorist model of language acquisition in which children learned language by simple imitation. More recently, however, as more innovative and technologically-based approaches to the study of language acquisition have emerged, criticisms of universal grammar have multiplied. Many of these criticisms question the basic assumptions behind the theory, arguing that a strict rule-based grammar goes against the very nature of language itself, which is constantly evolving and changing at a rate much faster than that of the human brain (McDonald & Ramscar, 2001; Ramscar & Yarlett, 2007; Christiansen & Chater, 2008).

Another series of important language acquisition theories was put forth by Stephen Krashen. He first made the distinction between conscious learning and subconscious acquisition, arguing that only the latter can lead to full fluency. From this he developed his input hypothesis stating that the only way in which learners can intake new linguistic information is from direct contact with the target language. More specifically, this contact must be comprehensible input at a level slightly above that of the learner, described by Krashen as “i+1.” Thus both the amount and quality of input

are crucial to this theory (Krashen, 1982). Krashen also argues that comprehensible output is relatively unimportant and that a student's ability to accurately produce language is not indicative of their full level of linguistic understanding. Bialystok and Smith further examined this idea, noting a distinction between a speaker's "representation," or the ability to analyze the L2 using their linguistic knowledge, and their "control," or the ability to understand input and subsequently create output under stress or time constraints (Bialystok & Smith, 1985). However, according to Swain and Lapkin (1995), output is a crucial instigator in error "noticing" and language modification. Active creation of utterances, then, can play a very important role in second language acquisition.

A third important theory of second language acquisition is the interaction hypothesis. It argues that the negotiation of meaning facilitated by interacting in the target language greatly contributes to its acquisition (Long, 1980). The generative use of words, that is their use in new contexts via negotiation helps to foster a deeper understanding of their meaning (Nation, 2001). Whether with native speakers or fellow students, the negotiation of meaning through interaction is a valuable process that not only aids in subconscious acquisition, but also allows students to produce meaningful output and analyze their control in a lower-stress environment. This theory is closely related to Tomasello's (2003) usage-based theory of first language acquisition and development in which a child's language arises out of basic mechanisms such as joint attention, understanding the intentions of others, analogy, and analysis of the distributional patterns present in language. He also argues that child grammar is very

different from that of adults and that children first learn a structural pattern associated with specific words which later develops into more widely applicable generalizations.

Foreign Language Pedagogical Theory

Though there remain many more acquisition theories, these three have played important roles in the evolution of foreign language pedagogy. While teaching practices as a whole have changed little over the past century, practices in foreign language education have been altered drastically as new theories emerge and are tested. There are three principal views of foreign language pedagogical methods: the structural view, the functional view, and the interactive view.

In the structural view, language is treated as a system of structurally related elements that are used to code meaning. The two primary teaching methods within this view are Grammar Translation and the Audio-Lingual Method.

The grammar translation method has been around for centuries and requires students to memorize direct translations in order to learn vocabulary and grammar. Though most instructors have acknowledged that in and of itself this method is fairly ineffective and full of communicative shortcomings, it continued to see widespread use in schools into the 1960's. Today it remains used only in the traditional instruction of the classical languages (Rivers, 1981).

The other structuralist method is the audio-lingual method, sometimes referred to as the army method due to its popularization by the United States Army at the outbreak of World War II. Based heavily on behaviorist theory developed by B.F. Skinner and the linguistic work of Leonard Bloomfield, this method provides students with no explicit

instruction, instead drilling them in the memorized use of grammar. These drills, conducted exclusively in the target language, are static with teachers expecting one specific response, affording students little or even no control over their own output. Though it was questioned and dismantled by Chomsky in the 1950's and is in direct opposition with currently promoted communicative language teaching, it remains popular as it is very teacher-centered with limited input and output, allowing both teachers and students to know exactly what to expect (Richards & Rodgers, 1986).

The functional view of language, in contrast, sees language as a means of expressing or accomplishing a certain function. The only widely used method within this view is the Oral Approach or Situational Language Teaching. In this method, all language points are presented in "situations" such as making a phone call or ordering at a restaurant. Given that most languages have a core vocabulary of roughly 2,000 frequently occurring words, this approach focused on "vocabulary control," assuming that fully mastering these select items would lead to reading and listening proficiency. This concept was expanded to target common sentence patterns in "grammar control." Lessons taught by this method are highly organized, taking the difficulty, sequencing, and contextualization of concepts into great consideration. In the 1960's, many of its elements were questioned, causing modifications that ultimately lead to the development of Communicative Language Teaching (Richards & Rodgers, 1986).

Dominant since the 1980's, the third and final view is the interactive view which sees language as a means of creating and maintaining social relations through conversation. Within the interactive view are four main methods: the Direct Method,

Communicative Language Teaching, Language Immersion, and Total Physical Response.

The direct method was initially proposed around 1900 by Sauveur and Franke. They postulated that foreign language learning should imitate native language acquisition and therefore one should only use the target language for instruction. Vocabulary is taught through pantomime, objects, and other visuals. The teaching of grammar is done using an inductive approach, thus learners must deduce and formulate rules by examining sample sentences. The direct method was quite influential and served as the foundation for many other methods. It is quite demanding for the teacher, who must be patient and cast sentences at a variety of levels, as well as the student, who must constantly mentally participate, remain determined, and not get frustrated by not understanding (Krause, 1916).

Communicative Language Teaching was a response to the audio-lingual method and emphasizes interaction as both the means and the ultimate goal of learning a language. Its most current manifestation is in Task-Based Language Learning. This method argues that students learn best when they are using authentic language to do familiar, meaningful tasks, such as visiting the doctor. Success is not necessarily judged on correctness of linguistic forms, but on the outcome of the task. Unlike prior methods, task-based language learning is student-centered, leaving them free to use the grammatical constructs and vocabulary they want. In this way, students reinforce all of the language they know and not just the “target language” of a given lesson. This focus on the students and their interest allows not only for more meaningful communication,

but also encourages student engagement and motivation (Ellis, 2003). This method is not without disadvantages, however. One major disadvantage is that focus of task-based language learning is output. Beginning language learners often go through a silent period in which they absorb large amounts of comprehensible input without generating much of their own output.

Like the direct method and communicative language learning, language immersion instructs students exclusively in the target language. Unlike other methods or even traditional language courses, however, language immersion uses the target language as a teaching tool for other academic subjects as well as everyday out-of-class activities, literally immersing them in the target language. Such programs vary by participant age level and extent of immersion, but research has demonstrated that children in such programs achieve much higher levels of proficiency than those in traditional classroom models (Genesee, 1987). However, the effectiveness of immersion greatly varies. Due to the critical period, or time by which language onset generally must occur if truly native-level proficiency is to be easily achieved, students under the age of seven stand to benefit the most from this method. The progress of older learners is severely limited in these situations, though the development of such high proficiency, while uncommon, is not impossible (Lenneberg, 1967).

The last method within this view is Total Physical Response. Posited by Asher (1969), this method requires students to respond to spoken commands that require physical movement. It assumes that second language acquisition occurs much like that of a first language, being internalized and allowing for a long period developing listening

comprehension prior to production. Due to its limited use of grammatical forms, this method is most useful for beginners and has little application for more advanced learners.

Elements of Game Design

In comparison with education or second language acquisition, game studies as a field is still in its infancy. Drawing from a variety of disciplines such as cognitive science, education, art, and psychology, game studies breaks with past functionalist perspectives, examining video games through the lens of the humanities. This multidisciplinary approach has given rise to two opposing factions: narratology and ludology. Narratology is deeply entrenched in literary theory and criticism and sees all media as texts awaiting interpretation. In sharp contrast, however, is ludology, which argues that while narrative (i.e. storytelling) can be an important part of game design, the game itself needs to be understood in terms of its rules, interface, and the concept of play (Aarseth, 1997). As what is important to this study is how a game operates on a fundamental level, this section will focus primarily on ludology.

Game design, much like writing, is an art and not a precise science. What makes a game a game and a great game great is difficult to articulate. Each game genre has its own set of ingredients and play requirements to succeed and with the mass production of new technologies, additional genres continue to be created and old ones redefined. That being said, there are still several elements such as play, challenge, conflict, and interactivity which are common to all styles of video games.

Perhaps the most abstract of these elements is play. In order to be defined as play according to theory posited by Huizinga (1949), an activity must meet five conditions. First, it must be voluntary; 2) have fixed limits of time and place; 3) have rules that are freely accepted, but binding; 4) have no goal apart from play itself, and 5) be accompanied by feelings of tension, joy, and the consciousness that it is somehow different than ordinary life. Further defining play, Klopfer et al. (2009) suggest five axes upon which play hinges: the freedom to fail, to experiment, to fashion identities as well as the freedom of effort and interpretation. These axes are astonishingly similar to several key aspects of student-led instruction. Play is a safe environment in which one can test limits, learn from mistakes, and generate a new understanding of the world.

A key element of play and therefore of games is challenge. Challenge is in and of itself very complex, set by rules, augmented by difficulty, and hinging on reward and loss. What defines a challenge is not the goal, but the rules, which are imposed upon the player either by others or himself. A game's challenge can come in three varieties of increasing complexity: completion, compounding, and ultimatum. A completion challenge asks players merely to finish or complete the game, while a compounding challenge increases in difficulty as the player progresses. With an ultimatum challenge, the initial challenge is too great, so the player must gain ability by playing through the game (Crawford, 2003). Working hand-in-hand with challenge is difficulty, which helps create the structure of a game. Most people will inevitably learn and gain more skill when presented with a challenge and a chance to grow. Therefore a game must increase in difficulty as the player progresses in order to continue to be challenging, yet

it must be careful not to become too difficult or else risk losing its player. Cascading Information Theory argues that information should be released in the smallest possible snippets so that players can gain the appropriate level of understanding at each point during a game narrative (Schonfeld, 2010). This structure is nearly identical to instruction/assessment methods of teaching. By ensuring students or players have mastered a certain skill, the teacher or game allows them to move on to something new and more difficult. Furthermore, Krashen's input hypothesis for foreign language learning argues that target language input is most beneficial to learners when it is at an (i+1) level, or slightly ahead of the learner's knowledge. There can always be a challenge, but if the challenge presents no level of difficulty or too high a level of difficulty then the challenge is useless. Furthermore, without some form of risk there is no point in playing a game: If there is nothing to lose, there is no challenge and if there is nothing to win, there is no point in playing. Thus a challenge must not only be well-constructed, it must also give equal thought to the rewards and losses it presents. In general, to generate and sustain motivation, rewards should be greater than or equal to the effort needed to receive the award. Similarly, the scope of a loss should also be proportional to the challenge (Crawford, 2003).

Merely having qualities of play and challenge is often not enough to sustain motivation if a game is not personally compelling. By addressing the player directly, either as a skilled user or as a character within the narrative framework, a game can generate conflict. Conflict reveals player ability because it is unpredictable, requiring sudden, unsolicited action from the player. Because of this, conflict pacing is crucial.

Constant conflict exhausts users and can greatly lessen enjoyment. Well-paced games employ more indirect, less intense forms of conflict in order to lengthen gameplay (Crawford, 2003). One method of pacing games and mediating conflict is through narrative. University of Georgia professor Lloyd Rieber notes that "[a] good heuristic for starting the game design process is to write a short story that will situate the game's players and provide the objective of the game (Hirumi, Appelman, Rieber, Van Eck, 2010)." By investing players personally in the challenge of a game, designers can motivate them to continue playing.

Though last on this list, interactivity is far and away the most crucial aspect of video games. Thanks to the incredible processing speeds of computers, video games seamlessly internalize the rules, carry out calculations, permit immensely more complicated behaviors, and present the results to a degree that no other media can match (Crawford, 2003). Interaction between players and games is much like a conversation, with each partner contributing in turn to the discussion. Despite their astonishing potential to "converse" with players, games must also be adequate conversational partners. In addition to the all of the advanced technological processes that they carry out behind the scenes, they must also "listen" since players need to feel that their choices have an impact and make a difference. These choices can be based in a game's mechanical, i.e. pressing a button, or narrative aspects, such as choosing to follow one path instead of another. Either way, there are expectations as to how the game should react. If the player presses a button and there is a delayed reaction or even no reaction at all, after a point, this disparity between expectation and reality

discourages play. These expectations extend to the narrative of the game. If choices are without consequences or effects, why make them? These decisions may be limited, but they must be significant. The player must feel that they are in control of their destiny within the context of the game. In addition to providing motivation, this allows for a rich variety of player experiences (Lopez, 2010).

A game, however, is greater than the sum of its parts and must also be examined holistically, for in spite of the theoretical and technological formulae used to create it, a game elicits some form of emotional response from its players. Just as with other aspects of life and art, games can invoke very strong feelings: anticipation and subsequent joy from an “epic win,” camaraderie with fellow players, sorrow and heartbreak when tragedy strikes a character. Part of what makes games so powerful is their variety of motivational gameplay elements which, when mixed in just the right portions, challenge the player to push themselves to the verge of their capabilities on many levels. Though these elements cannot be directly reduced into specific design principles, they are useful in breaking down the abstract concept of a game into somewhat more tangible components.

Chapter III: State of the Industry

History of Educational Games

Before examining the current state of educational games, one must first consider their history. Klopfer et al. (2009) present a detailed summary of this history, aptly describing it as “a story arc that rises dramatically, and then plummets steeply (Klopfer et al., 2009, p. 15)”. Early educational games relied heavily on novelty, distracting from their mostly behaviorist drill-and-practice exercises with the then-new personal computer. In these early days nearly every venture was a creative one, as such products were completely unknown to consumers.

With the advent of CD-ROMs, games were able to integrate improved graphics and gameplay options, leading to an “edutainment” boom. Kids, parents, and teachers alike readily adopted these games which promised fun and learning for a wide age range. One would be hard-pressed to find someone who couldn’t recall Scholastic’s mail-order catalogs and their large selection of edutainment titles such as *Amazon Trail*, *Reader Rabbit*, and *Where in the World is Carmen San Diego*.

Yet this boom was shortly followed by a bust, attributable to three specific market conditions. First, developers lost sight of the “educational” and “game” parts, focusing more on the “product.” Marketing focus shifted away from creativity and learning, looking instead towards the technology panacea and pop culture tie-ins. It wasn’t long before consumers noticed and quickly became disenchanted with edutainment.

Additionally, the internet as a household technology opened the door for putting software online, eliminating the need for hard copy CD’s. With the increased pace for

online development came a decrease in quality of the games produced for this new medium. Instead of focusing on quality, many developers chose to churn out as many games as possible in order to attract customers to their sites.

Lastly, consumers, more specifically parents, demanded products that would directly target and improve their children's school performance. This gave rise to a brief resurgence in edutainment titles such as the *Jump Start* series which capitalized on parents' desire to prepare their children both sooner and faster for the increasingly competitive academic world of elementary school. Though peppered with legitimately promising games such as *The Incredible Machine* which was fun precisely because it was intellectually challenging, this short-lived revival quickly fell prey to earlier industry pitfalls, relying on character licensing and content recycling (Klopfer et al., 2009).

Although unfortunate, the downfall of edutainment was an important turning point in the history of educational games. It allowed for the purging of under-developed, low quality, money-grabbing titles from whose ashes would rise a new genre – the serious game.

Originally developed for applications in military training, serious games are intended for purposes other than entertainment, often designed to train people for specific tasks, teaching both physical and cognitive skill sets via game-like simulations. *America's Army*, for example, was developed by the United States Army as a public relations initiative to enhance recruiting and quickly evolved into a training tool for current and potential soldiers (Kennedy 2002). The success of this genre has lead to the development of serious games for a variety of new purposes including advancing

political causes, raising awareness of health and other social issues, and even promoting products.

Though serious games first appeared in the early 2000's, a means of classifying them was not addressed until an initial taxonomy was put forward by Sawyer and Smith (2008), containing forty-nine different potential purposes for serious games, of which only one is academic learning. With such a variety of purposes, the potential of serious games is far from being fully realized. Just as recent video game technology has revolutionized and completely redefined the industry, so too have serious games brought the educational potential of such products back to the minds of consumers and developers alike.

Overview of Current Educational Games

A cursory examination of available educational game titles by Kebritchi & Hirumi (2008) reveals much about this unique market segment's current state. Their study found that the pedagogical theories and methods employed for game design were expressly stated by developers in less than half of the examined games. They aptly note that "the problem is that like many rapidly growing industries, advances in video game technology are far outpacing research on its design and effectiveness (Kebritchi & Hirumi, 2008, p. 1731)." With such an abundance of instructional theories influencing both in-class teaching methodology and educational products, it is important for developers to cite which one or ones they are following so that further studies can evaluate their effectiveness across various media.

That being said, however, Kebritchi and Hirumi identified twenty-four games that clearly stated their instructional strategies and theories, most of which either could be classified according to direct instruction, experiential learning, discovery learning, situated cognition, or constructivism, with some games displaying a combination of these theories.

The only examined game to adhere to Direct Instruction theory was *Destination Math*, which, like many prior drill-focused edutainment titles, "oriented and presented learners with a mathematics concept, then facilitated learning through practice and feedback (Kebritchi & Harumi, 2008, p. 1732)." Despite its success in schools, this method does not translate well to games. The rigid sequence of instruction and practice leaves games designed with this theory feeling more like interactive lesson books than actual games.

On the other hand, experiential learning, which has often been difficult to integrate into the traditional classroom, works well in the video game medium. As many topics taught in schools cannot be directly experienced within the confinements of a classroom, video games offer a unique learning opportunity through experimentation in a realistic simulated environment. It comes as no surprise then that games such as *BioHazard* (environmental science), *La Jungle de Optica* (optical physics), *Daedalus' End* (civil engineering), and *Global Conflicts: Palestine* (history/politics) allow players to learn by doing in a context that is relevant, meaningful, and interesting to students.

Likewise, video games also lend themselves to the use of the discovery and inquiry approaches. An example of this pairing is the role-playing simulation game *The*

Monkey Wrench Conspiracy which is aimed at teaching industrial engineers how to use new 3-D design software by requiring them to design all of their in-game tools and accessories. Similarly, *Discover Babylon* (history) allows players to explore and discover at their own pace in realistic 3-D depictions of ancient temples.

Both the social aspects and the focus on real-world practicality of situated cognition theory have lead to the creation of several communities around educational games such as *Racing Academy* (engineering) and *Fizzees* (health/lifestyle). These games situate players in simulated authentic contexts and allow for online interaction and creative collaboration and therefore provide meaningful, student-centered learning experiences.

In constructivism, players learn by directly doing with little or no prior instruction. The game *SuperCharged!* (physics) adheres strongly to this theory, asking players to design their own game levels. While a player of any level can create a level, those with a more advanced knowledge of physics and electromagnetism will be able to create better levels. In *Hephaestus* (mechanical engineering), players design robots to colonize a newly discovered planet. Because the game is community-based, users learn from both trial-and-error and each other.

While the number of instructional theories displayed by these games is impressive, the subject matter addressed within them is far from varied, focusing mainly on math and science with an occasional game for history. With recent pushes from the government to improve American math and science education, it comes as no surprise that these subjects comprise the majority of both commercially available educational

games and academic learning-based serious games. In fact, as part of the “Educate to Innovate” initiative, the Obama administration announced the national STEM Video Game Challenge which offers separate prizes to middle school students and game developers who create new games fostering learning in science, technology, engineering, and math (Williams, 2010).

It is important to note, however, that the games examined in this study (Kebritchi & Hirumi, 2008) included only the twenty-four which directly expressed an adherence to a pedagogical theory, ignoring the remaining thirty-one whose instructional foundations were unlisted. Among these untreated games are a handful of language and literacy games such as *Shakespeare – Prospero’s Island*.

Also important is the target age group for these games. The games examined by Kebritchi and Hirumi were all aimed at users of at least middle school age, with many targeting high school and college students. Games for younger audiences, while maintaining a strong focus on math, tend to favor language arts and often target the building of basic reading skills.

While there are hundreds if not thousands of educational game titles available, preliminary searches of widely available games on Amazon.com as of March 2011 yielded some rather intriguing results. A search within the video games category for “math” returned 289 items, “science”, 523 items, “reading”, 381 items, “history”, 643 items, and “language learning”, 59 items. Such a search is admittedly far from perfect and can be skewed by a variety of factors. Games with unrelated topics but similar names can populate many of these searches, most notably in the search for “history”

which yielded such games as the fantasy role-playing game *Radiant Historia*. Additionally, it does not take into account non-commercially developed games such as many that were mentioned in Kebritchi's and Hirumi's study. Commercial educational games are often aimed at younger markets, which explains the large number of results for "reading."

Yet in spite of these flaws, this search does somewhat verify the aforementioned disparity in educational game topics. One academic area that stands out due to its nearly complete lack of presence is foreign language. Only two commercially developed game series, *My Coach* and *Mind Your Language*, are readily available in the U.S. market – a stark contrast to the plethora of math- and science-oriented games. Though it is by far the smallest category, games for foreign language education should also be subject to intense pedagogical scrutiny.

Assessment of Games Used in Foreign Language Education

Although proportionally foreign language learning games make up a very small percentage of available titles, there are a number of games that have found homes in foreign language classrooms or as individual study aids. Such games typically fall into one of two categories: commercially sold games that have foreign language applications or games specifically designed for language learning.

Commercial Off-the-Shelf Games

Commercial off-the-shelf (COTS) games have been popular for many years because they involve very little technological know-how or preparation on the part of the

teacher. These games can come in a variety of genres, but are often role-playing games (RPGs), massively multiplayer online games (MMOs), or synthetic immersive environments (SIEs).

Often story-driven and heavily concentrating on narrative, RPGs are full of spoken and written dialogue. Similar to reading books in a foreign language, exposure to authentic texts in the target language can be useful in acquiring new vocabulary and grammatical structures. In-game motivation to continue is rooted in both story-related aspects of the game, such as the player's emotional connection to characters and curiosity about how the plot will unfold, and gameplay aspects, such as increasing a character's strength and abilities through "leveling up" and obtaining new items.

One major drawback of RPGs, however, is that they are often very time consuming and require a lot of investment from the player. It is not uncommon for such games to require at least forty hours of gameplay just to complete the main story, ignoring side quests and other additional content. Furthermore, opportunities to save one's game and stop playing can be few and far between. Given the amount of dialogue that is usually encountered both in and out of cut scenes, not to mention actually "playing" the game while fighting or traveling between areas, the option, or rather lack thereof, to save one's progress can be extremely frustrating for those who cannot devote a considerable amount of time to playing at any one moment.

Additionally, RPGs are traditionally single player games. Occasionally there will be an RPG that is designed for up to four players to play through cooperatively, but the vast majority of games in this genre are designed, just like reading a novel, as a one-

person experience. As language learning is ultimately about interpersonal interaction, RPGs fall quite short in this area.

Despite this shortcoming, single-player RPGs can be useful in foreign language learning if played cooperatively. Piirainen-Marsh and Tainio (2009) observed two Finnish boys playing *Final Fantasy X*, a fantasy role-playing game. The children, both native speakers of Finnish and learning English, had previously played the game in Finnish and were now playing through the English-language version. Being familiar with the story, they would attempt to predict the English lines during dialogues, expressing delight or disappointment based on the accuracy of their translations. Additionally, the boys began to incorporate the English game terms into their separate Finnish conversations about the game. Though not an ideal foreign language learning environment, such collaborative gaming did create useful social interaction that demonstrated how players can use locally available resources to reinforce and even bolster their knowledge.

Another genre that has found its way into the toolkit of foreign language learning is the MMO, more specifically, the MMORPG. Unlike traditional single-player RPGs, MMORPGs combine character-driven gameplay with online social interactions. These immersive, often fantasy-themed online worlds have become the home of not thousands, but millions of players. Blizzard's *World of Warcraft* alone has over 12 million subscribers as of October, 2010 (Blizzard.com). The main educational draw of MMORPGs is the potential for interaction. Not only can foreign language learners

interact with each other outside of class through real-time conversations, but could also interact with native speakers in a casual, natural environment.

By playing an MMO such as *World of Warcraft* on a different regional server or using client software in a user's non-native language, there are many different opportunities for foreign language learning. Roy (2008) outlined three principal benefits of using MMOs for language learning: repetition, reading, and real-time chat. First, there is a set of recurring vocabulary related to character actions and abilities. Through constant exposure to this set of words and phrases, players easily and quickly expand their knowledge of common vocabulary. Second, players are often asked to take on quests which are accompanied by a few paragraphs of story. These brief reading exercises reinforce existing grammatical and lexical knowledge as well as introduce additional items. Lastly, because a single MMO server can be populated by thousands of people, players are surrounded by natural (in the context of the game), real-time speech by native speakers. Initially communication may be limited to written chat logs. However, groups of users who play together, often in communities known by a variety of names such as *guilds* or *linkshells*, often take advantage of voice chat programs such as Skype, Ventrilo, or Teamspeak. Such opportunities allow for the exercise and development of a greater range of foreign language skills in a relaxed, fun atmosphere.

While MMORPGs can be provide a unique and otherwise inaccessible environment for language learning, their effectiveness as a solo teaching tool is limited. Given that most players are well past the critical period, complete language immersion can prove problematic and as with several student-centered instructional theories,

complete beginners will reap very little from an environment with no directions or instructions. Furthermore, game-related vocabulary tends to be highly specialized and can prove problematic if not useless outside of the game's specific context. Additionally, the strong focus on written language can hinder learners' development of oral skills. Even so, for those who have achieved intermediate proficiency, the task-based and communicative nature of such games as well as the common vocabulary and large amount of natural input can be greatly beneficial, especially for those who would otherwise have no access to native speakers.

Unlike MMOs, a synthetic immersive environment (Sykes, 2008) is not a game, but rather a 3-D virtual space engineered to integrate many online game aspects. One of the most popular SIEs, *Second Life* is a virtual world developed by Linden Lab that is essentially created by its players. In this era of Web 2.0 where user-generated content is king, *Second Life* offers players a blank canvas and extensive toolset with which they can design almost anything. The game is not limited to the digital realm, but can cross over into the real world thanks to the in-game economy whose money is readily convertible into many international currencies, allowing for entrepreneurial players to make a livelihood from creating and selling in-game content. Additionally, players can set up entire communities by building houses, stores, and a variety of other social environments.

For language educators, *Second Life* provides the opportunity to create virtual classrooms in a relaxed online environment. Though it brings nothing new to the table in the sense that it does not allow for a new style of language learning, like other online

courses, it can allow people who are not physically near to interact on a more complex level, using imagery and sound in addition to text to enhance communication. Linden Lab Vice President of Platform and Technology Development Joe Miller noted that over fifty percent of *Second Life* players use voice over IP (VOIP) services to talk to each other, specifically noting that language educators were the fastest growing segment of VOIP users (Seiler, 2009).

In an attempt to design an SIE for Spanish language learning, Sykes (2008) created *Croquelandia* and filled it with linguistic-based tasks (quests) which focused on developing discourse competency. The study's findings, however, indicated that users' perceptions of learning and improvement did not match the results measured by the completion of these tasks. Thorne, Black, and Sykes (2009) postulate that SIEs develop different skill sets and strategies than those that can be measured through traditional instruments and suggest that future research be done in order to fully understand the impact of SIEs on pragmatic abilities, especially when engaging learners in complex collaborative activity.

It is important to once again note that SIEs are not in and of themselves games. They also have no innate educational qualities, but instead are user-defined worlds that players can use to create various "artifacts" such as stories, videos, or visual texts. As a virtual world, an SIE lacks key aspects of gameplay such as structure, goals, or paths to progress, therefore making any game-based learning objectives heavily teacher dependant.

In addition to these three main categories, several other genres have also been used to aid in the teaching of foreign language. deHaan, Reed, and Kuwada (2010) experimented with using the music video game *Parappa the Rapper 2* to teach English vocabulary to Japanese college students. They met with mixed results, however, as the students who actually played the game struggled with later recalling the lyrics on quizzes, while those who merely observed scored much higher. This was attributed to the discrepancy in the cognitive load on both groups of students. Pressing buttons on beat and performing other gameplay tasks seemed to distract players from the potential linguistic information within the game.

The Sims series has been popular with teachers of various academic subjects as it provides the player a "digital dollhouse" with which to reenact both simple and complex social interactions. Because of its focus on everyday life, the game can be used in the foreign language classroom to encourage reading and expand students' vocabularies. At a more advanced level, teachers have pushed students' creativity, asking them to write stories in the target language about their characters. One teacher even imported characters from French literature into the game, and then asked her students to continue to the novels by acting out the everyday lives of those characters (Purushotma et al., 2009). Like SIEs, the primary benefit of simulation games is the ability to create linguistic artifacts that can be used as class projects.

As these examples demonstrate, COTS games can be useful when used with a teacher's guidance or in the proper environment. Yet they are fundamentally flawed in that they were never designed with the intention of teaching a foreign language. In all of

these cases, language learning was a secondary effect of the primary purpose – entertainment.

Games Designed for Foreign Language Education

In contrast, there do exist several games specifically designed for foreign language education. Though all have the same goal in mind, their approaches and delivery are quite different, ranging from arcade-style games to MMOs.

When searching the internet for online foreign language learning games, the vast majority of results point to arcade or mini-game-style creations. This is easily understandable as they require little to no funding or even programming knowledge, thus just about anyone can put together an educational “game.”

The use of quotation marks here is quite appropriate, given that when further examined, many of them fail to meet some fundamental game requirements. Though some may look more game-like than others, utilizing programs such as Flash to make simplistic and user-friendly graphics, they are nothing more than glorified paper and pencil activities.

The website DigitalDialects.com, for example, offers games (Figure 1) to aid in the learning of sixty different languages. Closer examination, however, reveals that almost all of these games follow this simple formula: vocabulary list → point-and-click activity.

In addition to lacking any real element of game design, these programs often heavily rely on direct instruction and behaviorism. While such simple games may have an impact on short-term memory and therefore aid with traditional methods of

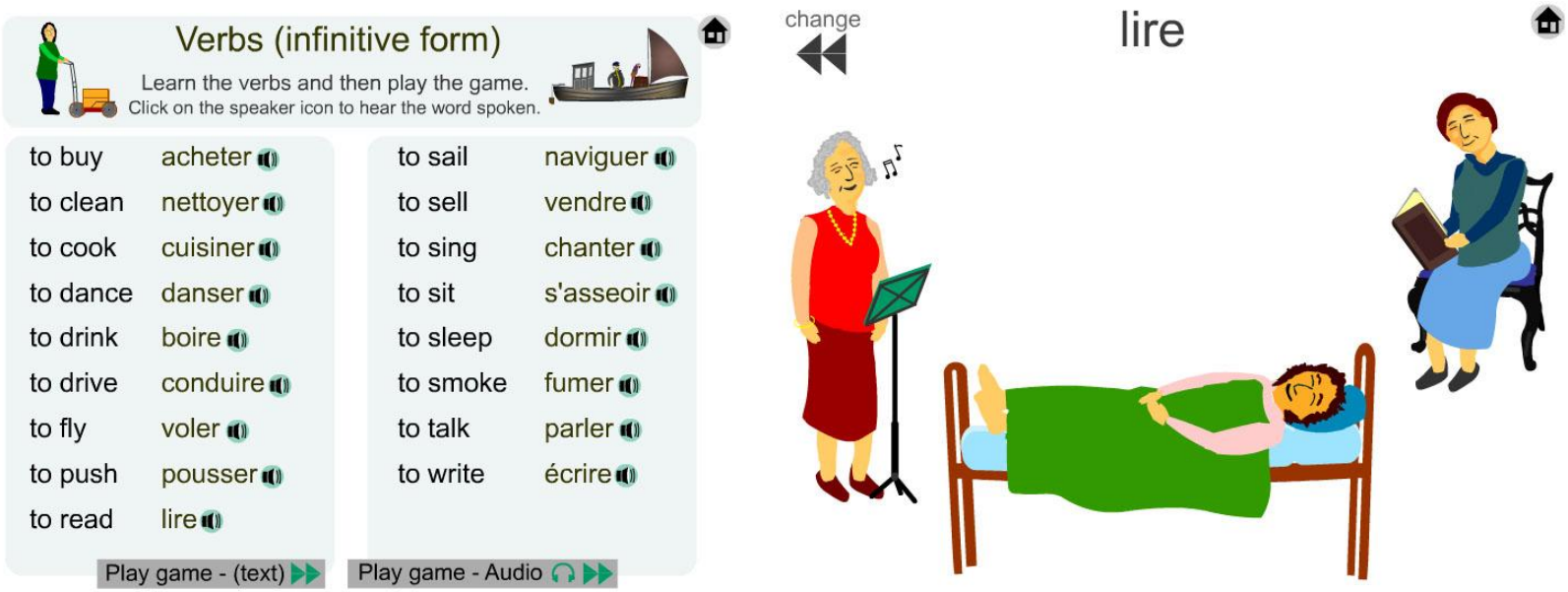

Figure 1. Flash Game from DigitalDialects.com – Verb Definitions

assessment such as tests featuring fill-in-the-blank or multiple choice questions, they provide very little lasting linguistic value.

Even more advanced gaming platforms are not immune to the barrage of ill-designed educational games. For handheld gaming consoles such as the Nintendo DS and Sony PlayStation Portable (PSP), there are a handful of commercially developed language aids which can be categorized in two ways: translation aids and digital tutors.

Translation aids such as THQ's *Just In Time Translations* (Figure 2) and Sony's *TalkMan Travel* (Figure 3) do not claim to be games, instead advertising helpful phrases in six different languages. Both offer instructional mini-games, yet the term is very generous as they are simple exercises in multiple choice with no foundation or real value as a teaching tool. Even more discouragingly, neither game offers a dictionary, so both vocabulary and linguistic reference use are extremely limited.

To its credit, *TalkMan Travel* does attempt to mix things up by using a microphone and voice recognition software. Unfortunately, the software is unconvincing as it seems to arbitrarily rate players' pronunciation, incapable of accurately evaluating actual user input. This problem is exacerbated in the game's main feature, the voice-activated translation. With a limited phrasebook and even more limited voice recognition, the game often fumbles, spitting back unrelated phrases. Since it was designed as a handy travel tool and not a teacher or game, some of its shortcomings can be given a bye. Even so, its failure as a translation tool doesn't help its case and its use of the microphone, while commendable, is sadly underdeveloped.

Figure 2. ***Just In Time Translations***

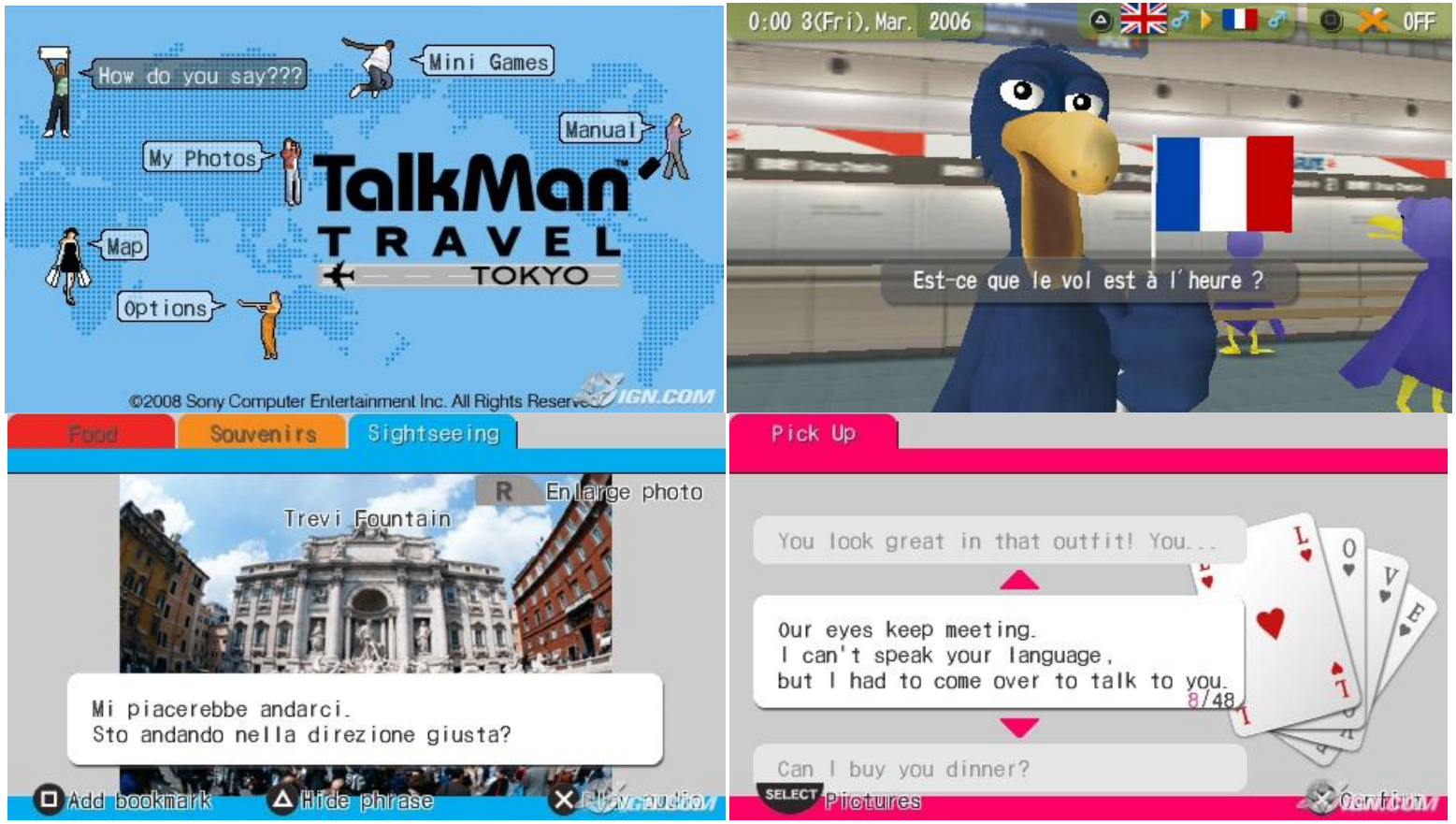

Figure 3. ***TalkMan Travels***

A different class of portable language games aims to create a digital tutor. By combining short lessons with mini-games, developers seek to make the learning process more enjoyable. Yet as many of the games in this category demonstrate, the result is usually quite the opposite.

Advertised as a fun way to learn, Activision's *Spanish for Everyone* (Figure 4) is a standalone game which may not in fact be for everyone. The first of this game's many problems lies in its gameplay, or rather, lack thereof. Four mini-games such as a word search and hangman along with several cut scenes make up the entirety of the game. Along with being extremely repetitive, the game has almost no pedagogical foundation.

At least with most internet games, the direct instructional method provides some explanation of grammar or vocabulary. *Spanish for Everyone*, however, offers nothing more than a dictionary which is essentially a fancy vocabulary list. Furthermore, how it achieved an "Everyone" rating is a mystery, given that the story cut scenes are full of racial stereotypes, suggestive innuendos, and the advocacy of unsafe practices to children. So in addition to lacking any value as a game or as a language teaching tool, *Spanish for Everyone* is culturally offensive and even harmful for the children to whom it is marketed (Sullivan, 2007b).

Next is the *Mind Your Language* series (Figure 5) developed by U.K.-based PlayV with the aid of the Berlitz language academy and bearing full accreditation from the international language school Inlingua. A press release announcing the games boasts that the series "revolutionises language tuition by constructing a detailed and fun-filled adventure in which the player learns interactively through exploration and mini-

Figure 4. ***Spanish For Everyone***

Figure 5. ***Mind Your Language***

games (GamersHell.com).” With impressive credentials and lackluster competition, *Mind Your Language* offers games for four different languages and certainly appears to be moving things in the right direction. Actual gameplay, however, reveals quite a different story. While there is some environmental exploration, the interface is labyrinthine and difficult to navigate. The eight mini-games each focus on a different part of speech and in addition to being repetitive, strip words from their context, even going so far as to remove gender-marking articles. Assessment is often determined by simply spelling words correctly, filling in blanks in sentences, or occasionally requires players to say a random word aloud (Fish, 2009). Though some form of oral output is progress, its implementation, like many of the other aspects of this game, went horribly awry. What promised a revolution was in fact nothing more than a fancier version of prior animated workbook exercises which sacrificed both gameplay and pedagogy.

Finally, the *My Coach* series (Figure 6) by Ubisoft offers a notable improvement with French, Spanish, Japanese, and Chinese games for both the Nintendo DS and Wii. The website for *My French Coach* boasts, “Playing My French Coach for 15 to 20 minutes a day is all you need to become fluent in French (Ubisoft.com).” Despite its claims of over 1000 interactive lessons, 10,000 words, and 400 phrases, the game is comprised of only eight touch-pad mini-games which consist mainly of word searches, matching, and fill-in-the-blank activities, though one does require aural recognition as well. The game even offers a pretest to allow more advanced players to skip ahead to a more challenging level. Unlike the other games, *My Coach* actually takes advantage of

Figure 6. ***My French Coach***

the DS's hardware. Players can record themselves using the built-in microphone to compare their pronunciation against native speakers.

Though the mini-games are repetitive, there is a much larger extent of direct instruction through structured grammar, vocabulary, and pronunciation lessons with explanations in English. Moreover, advanced lessons do not merely increase the number of items per lesson, stressing the player's cognitive load, but instead retain the same structure as simpler lessons, but this time allowing players to pick and choose the vocabulary they want to study. This approach more properly balances the extremes of direct instruction and discovery learning.

While the games met with generally positive reviews among journalists and consumers, their conclusions greatly differed than the grandiose claims offered by developers. IGN's Meghan Sullivan writes, "My Spanish Coach and My French Coach both deliver what they promise, which is to teach you the basics of a language in a fast and fun manner. And although you won't be able to talk politics or make a presentation to the U.N. in either language, you'll be able to order top-shelf tequila with your escargot (Sullivan, 2007a)."

In spite of the progress that has been made, the instructional strategies, both in general and towards foreign language, are still under-developed and unbalanced. On the one hand, the direct instruction found in several flash games and refined in the *My Coach* series is useful for complete beginners. As learners progress, however, more independent learning techniques should be incorporated. The self-chosen vocabulary lessons in *My Coach* are a nice touch, but do not go nearly far enough. *Mind Your*

Language's attempt at a somewhat discovery-style approach is laudable, but not well-thought out, causing that portion of the game to feel tacked-on and unintuitive.

From a foreign language perspective, none of the games follow any prescribed method, instead applying cookie-cutter formats used for teaching other subjects. As any experienced language educator can tell you, this simply does not work. As previously mentioned, language is unique and its teaching requires a unique set of approaches to match. Being asked only to spell and define decontextualized words does not lead to proficiency, much less fluency. The mini-games have nothing to do with the linguistic task being performed, leading to a decoupling of crucial linguistic content and context. As task-based learning argues, meaning and comprehension stem from the personalized use of language in accomplishing a personally relevant task. Asking players to complete a word search for points meets none of these requirements.

On top of all of this, token beret or sombrero aside, these games still remain woefully devoid of cultural context. Culture is an integral part of language and must be included in any foreign language study. It provides a context and means of negotiating dialogue and other social interactions. Anyone who works in product localization can attest to the importance of cultural nuances. Simply translating the language can create just as many problems as it solves. Only the translation aids even attempted to pair words and situations, and even then only through rotely memorized phrasebooks. Though some educators may disagree, in the real word, choosing the right word in the correct social context is more important than spelling it correctly.

While vocabulary translation drills disguised with music and dancing animals may seem more “fun,” they are nothing more than glamorous paper-and-pencil activities which completely ignore verbal communication. The most that can be gained from them are boosts in short-term memory which are only really helpful on traditional school tests. Unfortunately, this is all that the majority of consumers want – a tool to dull the pain of the inevitable language course. Those who want more, however, will be sadly disappointed.

On the opposite end of the scale is the government-funded *Tactical Iraqi* (Figure 7), an action/adventure-style game designed to teach soldiers in Iraq both the language and the culture of the country in which they will be serving. Begun in April 2003 thanks to a hefty $7.2 million budget furnished by the Defense Advanced Research Projects Agency (DARPA), the *Tactical Language and Culture Project* was developed over a two-year period in order to completely overhaul the linguistic and cultural preparation of troops being sent to the Middle East (Harz, 2006).

Headed by former University of Southern California professor W. Lewis Johnson, the project focused on the rapid acquisition of practical speech and non-verbal communication such as gestures. Task-based and rooted in guided discovery, *Tactical Iraqi*’s gameplay is split across three components: the Skill Builder, the arcade, and the missions. Within the Skill Builder, players learn basic vocabulary and are given the opportunity to practice pronunciation through an advanced speech recognition system. This direct instructional approach is well thought out with carefully organized lessons based on the task that players will be required to perform. In the arcade, players’

Figure 7. ***Tactical Iraqi***

memory and pronunciation are tested through arcade-style mini-games which allow players to earn points and set high scores.

After these skills are mastered, players may proceed on to the mission mode. In the mission portion of the game, players are placed in a 3-D immersive environment modeled after a typical Iraqi town. Through their avatar, they must meet various in-game objectives, ranging from making initial contact with a local chief to attending a dinner party, all of which require a certain level of linguistic and cultural competency. Players must not only pronounce Arabic words correctly, they must also select the most appropriate phrases and gestures for their situation. By adequately interacting with the simulated natives, the player increases their level of trust with certain characters and is able to gain new information and progress within the game (Johnson, 2006; Shaughnessy, 2010).

Though truly impressive on many levels, the *Tactical Language* project also has several drawbacks. First, the most advanced form of the project is only available to current military personnel and government employees. The widespread impact of this technology is greatly hindered by its inaccessibility to students and educators. Furthermore, without access to the products apart from controlled company blurbs, it is very difficult to evaluate their effectiveness or potential for integration within curricula. What is shown reveals a complex tool that results in rather lopsided language proficiency. As the goal of the initial project was to ready troops for deployment in Iraq, the vocabulary of roughly 500 words is limited and highly specified. Additionally, the game is designed for street-smart oral communication and completely ignores the

written language. While this fits the goals of the military, for academic purposes, it is insufficient.

In 2005 after mostly completing *Tactical Iraqi*, Johnson co-founded the company Alelo, Inc. in order to continue his research and create language learning products for both defense and non-defense markets. From *Tactical Iraqi* grew *Mission to Iraq*, a similar game designed for both personal and academic use and available to the public. Alelo's website claims that after completion of the games, users will have an ACTFL level of novice high, thus making it ideal for beginning learners without access to any other learning materials. Also in the works is *Mission to France*, a similar game designed to teach French to English speakers, as well as a new course for teaching Chinese (Alelo.com).

Despite its release in 2007 and subsequent awards, very little has been written about *Mission to Iraq* either praising or critiquing its methods or results. This could be attributed to both its price tag, which at $795 per copy is a bit hefty for an individual, and the relatively small market for Iraqi Arabic. In his 2009 MFA thesis, Ethan Kennerly, creator of *Runesinger*, a music game to learn to speak and spell Korean, criticized the decoupling of game rules from language rules present within the *Mission to Iraq*'s arcade mode, noting that puzzles and levels using out-of-context words are easier to design and score (Kennerly, 2009). In order to more fully evaluate the pedagogical and ludological foundations of *Mission to Iraq*, the game needs to be more widely advertised and available. Furthermore, those with access need to write about their experiences,

both positive and negative. Without more exposure, the amazing potential behind this game will likely go largely unnoticed.

A much more easily accessible offering, the web-based MMO *Zon* (Figure 8) further showcases what potential well-developed games can have. Originally outlined in a 2004 paper by Michigan State University Professor Yon Zhao, the goal of *Zon* is to teach Chinese language and culture in an immersive online environment. Thanks to $1.4 million worth of funding from the Office of the Chinese Language Council International (Hanban) and Michigan State University, a working version of the game was finally launched in April 2008 (Dirkin, 2011). Now with over 26,000 registered users from more than forty countries (Dirkin, 2011), *Zon* proves that new approaches to language learning games can work.

Zon begins as new players arrive as first-time tourists in China. Once they step off the plane, they are free to do whatever they choose, though initial goals such as exchanging money and reaching the hotel are suggested. As players progress through the variety of scenes and locations, they acquire knowledge of Chinese language and culture, eventually being given the option to become a Chinese resident, and ultimately, a citizen.

Firmly entrenched in discovery learning, *Zon* lets players explore at their own pace, deciding when and what to learn. Nearly every item on screen can be clicked, launching “the wheel” which offers players a variety of interactive options. These options may include cultural explanations either through text or video, audio samples of dialogues, or the opportunity to interact directly with non-player characters (NPCs) or

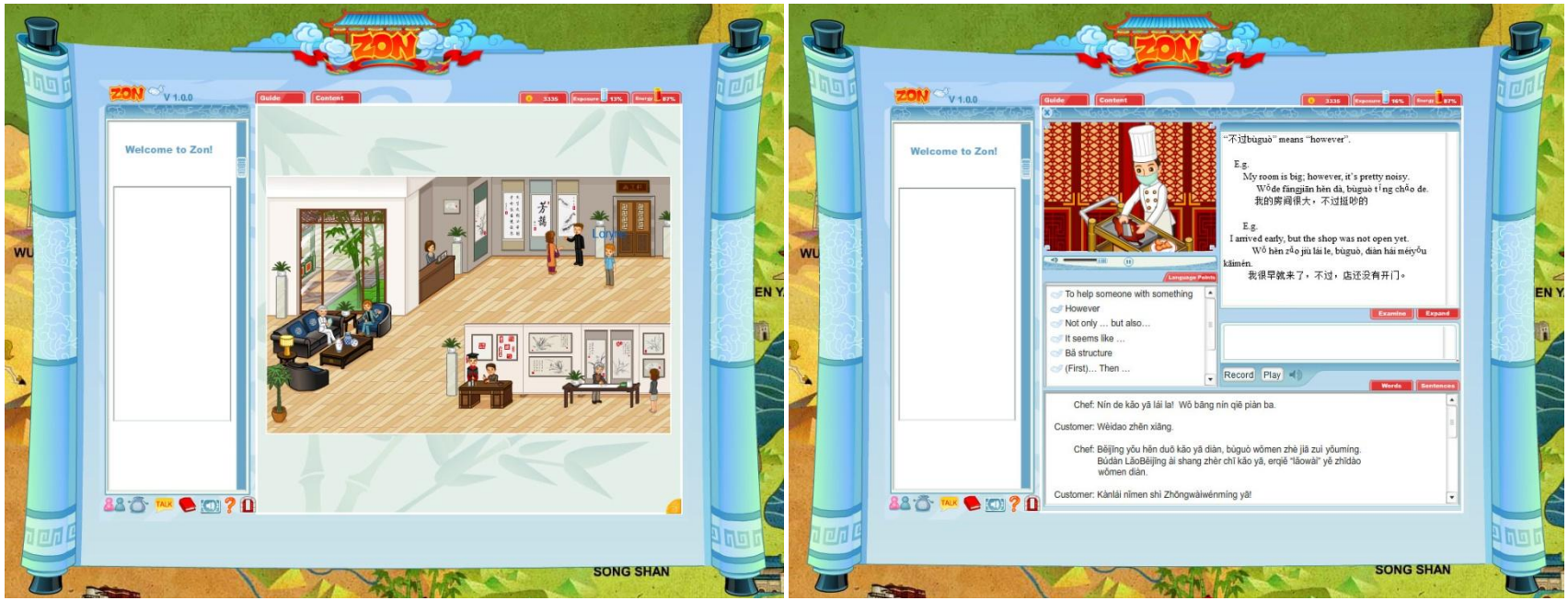
ZON
V 1.0.0
Guide
Content
Welcome to Zon!
Lobby
SONG SHAN
ZON
V 1.0.0
Guide
Content
Welcome to Zon!
"不过bùguò" means "however".
E.g.
My room is big; however, it's pretty noisy.
Wǒde fángjiān hěn dà, bùguò tīng chǎo de.
我的房间很大，不过挺吵的
E.g.
I arrived early, but the shop was not open yet.
Wǒ hěn zǎo jiù lái le, bùguò, diàn hái méiyǒu kāimén.
我很早就来了，不过，店还没有开门。
To help someone with something
However
Not only ... but also...
It seems like ...
Bǎ structure
(First)... Then ...
Examine
Expand
Record
Play
Words
Sentences
Chef: Nín de kǎo yā lái la! Wǒ bāng nín qiē piàn ba.
Customer: Wèidao zhēn xiāng.
Chef: Běijīng yǒu hěn duō kǎo yā diàn, bùguò wǒmen zhè jiā zuì yǒumíng.
Búdàn LǎoBěijīng ài shang zhèr chī kǎo yā, erqiě "lǎowài" yě zhīdào wǒmen diàn.
Customer: Kànlái nǐmen shì Zhōngwàiwénmíng yā!
SONG SHAN

Figure 8. ***Zon***

even other players via text or voice chat. In this way, different learning styles are considered and players can choose not only what they want to learn about, but how they want to learn it. Furthermore, *Zon* was designed for easy integration within a classroom setting. Numerous features such as practice activities in-game chat "classrooms" can all be incorporated directly into an academic curriculum.

From a foreign language perspective, the game's content empowers its task-based approach by providing both linguistically and culturally authentic resources that exercises all four aspects of learning. Pre-recorded natural dialogues by native speakers as well as short cultural videos allow learners to practice their listening skills while newspapers and dialogue transcripts train reading skills. Unlike the majority of internet-based games, *Zon* allows learner to work on the active language skills, speaking and writing. In addition to allowing players to record their voices for pronunciation comparisons, the game features voice chat, facilitating spoken conversation between learners and native speakers. Players can also communicate through text via the in-game chat system. Though the option to practice all four of these skills is available, learners are not forced to train any one skill and can focus on the aspects of language they feel are most relevant to them, creating individualized goals (EnterZon.com).

Since it is an MMORPG, *Zon* also seeks to address the various elements of game design. With a self-directed style of play, *Zon* provides players with many freedoms to construct their knowledge of the game world as they see fit. It poses intellectually stimulating challenges to players by exposing them to an unknown

language and culture, rewarding success indirectly with an increase of knowledge and ability as well directly with access to more complex tasks. The loss from failure is negligible, as players can repeat and practice all of the game's activities. *Zon* motivates and directly engages its users by offering them personal growth within the context of the game's story as well as encouraging a player's intrinsic desire to learn. And finally, it offers a unique level of interaction with NPCs and other players.

Despite its great strides as both a legitimate learning tool and game, *Zon* also stumbles, due in particular to the extreme freedom it gives its players. Though laudable, this structure creates problems for both gameplay and instruction. Game and lesson design both require balance and organization in order to successfully guide the player or learner to the end goal. As with all types of discovery learning, initial direct instruction is required for learners to establish a basic schema of how to process the information they will be encountering. Furthermore, the initial effort and cognitive load required of beginners in any discipline should be kept low to avoid discouraging them from continuing or inciting the use of unintended methods to succeed.

When assessing these concepts within games, critics refer to its learning curve which is mediated by built-in, often disguised instruction known as scaffolding. Within *Zon*, the introduction of grammar points is done through authentic dialogues. Upon selecting "Observe," players are met with a transcript of the dialogue as well an audio recording which immediately begins to play. Though English translations and explanations are available, they are hidden in the scene's submenus. This can create quite a problem for those who may have little to no experience learning a foreign

language. Additionally, players who have previously studied another language have not yet learned how to learn within the context of this game whose style is likely radically different than their prior learning environment. Thus dialogues that are encountered early in the game should be restructured so that beginners are better guided through the grammatical explanations. As learners progress and become more confident, the structure of these lessons can change in order to better challenge players.

Additionally, though allowing players to pick and choose what to examine does create an individualized learning experience, it can also be detrimental when it comes to assessment. Since *Zon* is mostly task-based, a player "succeeds" by accomplishing a given task through adequate interaction with an NPC or another player. In conversation, participants can negotiate any gap in knowledge through circumventing unknown grammatical structures or vocabulary, usually by rephrasing a sentence or describing an object. Yet certain tasks within *Zon* require players to draw upon knowledge that they may not have chosen to encounter. Though it can be argued that this encourages players to more thoroughly explore, it is more likely that they will randomly guess or make generalizations about game structure and gameplay based on past gaming experiences and skills in order to succeed and move on. Both of these methods, while effective to some degree in progressing through a game, circumnavigate any requirement to use language knowledge in order to succeed. Though these techniques are not fully avoidable, designers should aim users as much as possible down the intended path. Games with instructional goals should only reward players when they succeed using the skills the game has been designed to teach.

In spite of these few shortcomings, *Zon* should serve as an inspiration to educational designers of all types. In comparison to all other readily available alternatives, it is by far the most pedagogically and ludologically sound. Instead of applying a generic game formula to its academic material, *Zon* designed a game around the innate goal and fun found within its subject matter – communication. In this way, the gameplay and the learning are not at odds, but rather work together to achieve more than either could alone.

Though not without flaws, games such as *My Coach*, *Tactical Iraqi*, and *Zon* prove that tackling foreign language learning through games is indeed a viable approach. Moreover, each of these games chooses to approach the issue from a different angle. *My Coach* attractively packages direct instruction, appealing to consumers looking for a digital tutor to aid with coursework. By integrating advanced new technologies and realistic graphics, *Tactical Iraqi* successfully targets spoken language in culturally sensitive contexts. And lastly, *Zon* manages to combine all four aspects of language with culture through a unique MMO that encourages communication, both written and oral. If such diversity can not only exist, but also succeed, why then are there so few language learning games? Or, from a different perspective: With ever-increasing globalization and international interaction, why are there so few games aimed at teaching people how to communicate with people from other countries and cultures?

Barriers to Success

In spite of much progress, there are still many roadblocks to overcome if educational games are to find the respect and attention they deserve. Klopfer et al. (2009) specify twenty different barriers to the development and adoption of educational games, the sources of which can be found within academia, the commercial games industry, and players themselves.

Ironically, the widest range of barriers seems to come from the educators themselves. Under the pressure of curriculum requirements, teachers are quite hesitant to give up traditional materials in favor of unproven technology. Furthermore, many do not understand the technology itself, much less how to incorporate it into a curriculum and class time, especially when it comes to assessing student performance. Typical testing formats rarely measure the skills and competencies to which playing games most contributes. On top of this, many educators and parents reinforce social and cultural views that video games are only for entertainment. This is only compounded by a lack of research into games as effective teaching tools or alternatives. All of these factors contribute to the rigidity of pedagogical paradigms and hinder the adoption of educational video games within academia.

Further hindering the development of educational games is the commercial games industry. With the high development costs of many of times most popular titles, large companies are extremely wary of taking chances on unproven concepts. Small companies, who generally have more design leeway, have difficulty finding funding as already limited sources of financing are skeptical of such a game's success. Moreover,

the development process within the industry is usually inflexible, with preformed teams that leave little if any room for educational specialists. Additionally, rapid technology turnover means that developers who don't work quickly enough find that their once cutting-edge platforms are now outdated and undesirable with many consumers. For those who do decide to create an educational video game, their resources are often very limited. Not only is research to guide development minimal if it even exists at all, crucial target market playtesting with students is very difficult, given many schools' stance on games. Thus many developers have low expectations and ambition for their projects, which only serves to reinforce ideas on video games' effectiveness.

Lastly, the players themselves make educational game development difficult. Students rarely want an educational experience when playing a game and the limited variety of available games does nothing to alter this opinion. Gamers are also fickle. It is hard enough for commercial game developers to predict what will be a hit, even more so for educational game designers.

If all of these hurdles weren't enough, additional obstacles emerge for foreign language games. First, in comparison with math and science, language is seen as a less feasible subject for video games to tackle. This can be attributed in part to traditional models of game design which do not allow for the range of acceptable input, i.e. "right answers," that language allows. It is much simpler to program for one correct answer than to create an algorithm to judge the validity of creative free response. The complexity of language leads to a second obstacle: Technology is not complex enough to handle a language game's needs. Moreover, with four different language skills to

address, incorporating all of the necessary technology would be exceedingly complicated, not to mention expensive.

Yet even with these barriers, games such as *My Coach*, *Tactical Iraqi*, and *Zon* not only exist, but excel in their own respective categories. Each tackles a different aspect of the language learning process and does so in a unique way, creatively harnessing the power of both established and emerging technologies and teaching methods. In addition, they succeed with the people who matter: students. With positive and constructive reviews from thousands of players, why then have very few people heard of these games?

The greatest impediment to the widespread availability and success of these games specifically and the potential of foreign language games in general is not technology or game design, but rather the perceptions and attitudes of those in a position to distribute or further develop them. We should strive then not to convince them that it *can* be done, but rather that it *should* be done. As with any other business, the only argument that, unfortunately, truly makes any headway with industry heads is money. Is there a way we can profit from what we create?

In order to determine the profitability and thus the corporate appeal of such a venture, a target market must first be set. As newly independent consumers who not only lead the adoption of new game and communication technology, but who are also a vital part of the higher-education system, college students and young adults seem the most likely to invest both time and money into a prospective game. Furthermore, by targeting potential players directly, developers can sidestep the majority of potential

barriers posed by top-down dissemination strategies that are traditionally used with educational material. Thus to best design a product to appeal to this market, it is necessary to determine the attitudes of college students and young adults toward video games, language learning, and the synthesis of the two.

Chapter IV: Method

Research Objectives

The purpose of this study is threefold. The first objective is to determine and assess the attitudes and behavioral intentions of foreign language learners who are gamers for the following measures:

1) The importance of various aspects of gameplay
2) The personal interest in foreign language and culture
3) The personal effectiveness of several teaching tools and learning methods
4) The use of video games and other software in foreign language education

The second objective seeks to identify any significant differences in these attitudes and intentions between serious and casual gamers, with the third objective comparing American and French gamers.

Although an online survey was the primary data collection method used to address this study's research questions, two additional avenues provided further insight. In order to solicit a broader gamer sample for the survey, a thread was created on a gaming forum with roughly 19,000 registered members in which an invitation to participate and link to the survey was posted. In addition to electing to participate or not in the survey, forum readers could also choose to post comments within the thread and thus a brief discussion on the topic was established. Analysis of these comments proved insightful for all three research objectives.

A student evaluation of the game *Zon* was also carried out. Students within the author's courses were asked to play the game for a minimum of thirty minutes and then evaluate key aspects of the game in a short questionnaire (Appendix C). Students were offered extra credit as incentive to participate. These responses contributed further addressed for the first two research objectives.

Online Survey

Survey Design and Sample

This study implemented a brief web-based survey (Appendix A) among [a convenience sample of foreign language learners who are gamers] on SurveyMonkey.com. After the initial draft, the survey was pretested with the author's students and revised as needed. In order to acquire a diverse sample, four distinct sampling frames were used. First, instructors of elementary- and intermediate-level French and Spanish courses were asked to send a brief email, provided by the author, to their students, including a link to the survey and requesting participation. Students were encouraged to participate in the study as upcoming changes to foreign language courses would include online activities and part of the author's research would contribute to the development of these activities. Second, as mentioned above, an invitation to participate in the survey was posted on a gaming forum. The forum itself focuses on a variety of MMORPGs and, to a lesser extent, other video games. Though the de facto language is English, readers come from a variety of countries and language backgrounds. Third, the author solicited friends and acquaintances via Facebook, providing a link to the survey in his status. This convenience sample would include

individuals of a variety of ages and backgrounds, though the majority was American college students or recent college graduates. Finally, to ascertain specifically French attitudes and perspectives, the author translated the survey into French and it was subsequently reviewed by two native French speakers (Appendix B). These editors then solicited responses among their friends and professional contacts on behalf of the author. Responses to the survey were collected over a three-week period in March 2010.

In order to qualify for inclusion in the analysis, participants were filtered according to the following requirements: a) Participants must be at least eighteen years of age; b) a gamer, i.e. must use some device to play electronic games, and c) a foreign language learner. This latter category was determined on a case-by-case basis by a combination of 1) years of foreign language experience, 2) current student status, and 3) interest in foreign language, with the assumption that the sampling frames used would consist primarily of qualified respondents.

Survey Measures

The survey was designed to obtain a variety of information regarding attitudes toward video games, language learning, and their possible convergence. The survey led with assessing how much time the respondent played video games across various platforms in order to screen for inclusion. Then the survey measured importance of various aspects of gameplay on a 1 (unimportant) to 5 (very important) scale. Subsequent sections investigated respondents' interest in foreign language and culture as well as the effectiveness of various foreign language teaching tools and methods

based on personal experience. Finally, attitudes toward using video games for foreign language learning were also examined. All of the questions within these sections were measured using a 1 (strongly disagree) to 5 (strongly agree) Likert scale. The statements in the final section were designed to pinpoint shifts in attitude by beginning with generalizations and slowly narrowing in on the specific use of video games in foreign language education. In order to avoid potential survey bias, SurveyMonkey randomized the order of the ten statements within this section. Demographic information was also collected. See Appendices A and B.

Sample Profile

Two hundred sixty-nine participants completed the online survey to some extent, of which 225 completed enough to merit further examination. Of these respondents, fourteen (6.2%) played no form of video games and therefore did not qualify for this study's analysis. Thus, upon reviewing the key criteria for sample inclusion, an analysis sample of 211 (n=211) drawn from four different sampling frames resulted. Of these 211 respondents, 205 completely fulfilled the survey and 6 more completed all questions except for the demographics. Respondents had a mean age of 23.3 years with 96.1% falling between the ages of 18 and 30. Slightly more than half were male (54.6%) and nearly two-thirds (64.9%) were college or university students. Fifteen different countries were represented with most participants (75.1%) hailing from the United States, followed by France (13.7%). The majority (59%) of respondents had between 2 and 5 years of foreign language experience.

Table 1 provides an overview of respondents' daily game playing habits. The sample was almost evenly split between those who played more than an hour per day ("serious gamers," 54.5%) and those who played less than an hour per day ("casual gamers," 45.5%). The device most used to play games was a home video game console (67.8%), followed closely by personal computers, with 63% using them to play non-browser-based games and 62.1%, browser-based games. Results mirrored industry trends as more players used mobile phones (39.9%) than traditional handheld consoles (34.6%). Moreover, the two largest groups of gamers played for less than thirty minutes per day on either internet browsers (34.6%) or mobile phones (28.4%).

Table 1. Time Spent Per Day Playing Games on Various Devices (n=211)

	I do not use this device to play games	Less than 30 minutes	30 minutes to 1 hour	1 to 3 hours	More than 3 hours
Mobile Phone	129 (61.1%)	60 (28.4%)	13 (6.2%)	3 (1.4%)	6 (2.8%)
Personal Computer Internet Browser-Based Games	80 (37.9%)	73 (34.6%)	27 (12.8%)	16 (7.6%)	15 (7.1%)
Personal Computer Non-Browser-Based Games	78 (37%)	35 (16.6%)	22 (10.4%)	32 (15.2%)	44 (20.9%)
Home Video Game Console	68 (32.2%)	46 (21.8%)	42 (19.9%)	35 (16.6%)	20 (9.5%)
Handheld Game Console	138 (65.4%)	29 (13.7%)	19 (9%)	17 (8.1%)	8 (3.8%)
Other (e.g. iPod Touch, etc.)	200 (94.8%)	8 (3.8%)	1 (.5%)	2 (.9%)	0 (0%)

Chapter V: Results

Research Objective 1

This study's main research objective is to determine and assess the attitudes and behavioral intentions of foreign language learners who are gamers towards using video games to teach foreign language. This was primarily done through an online survey with four measures which addressed video games, foreign language learning, and the use of video games in education.

The first measure asked gamers to rate the importance of various aspects of gameplay. As Table 2 shows, the overall gameplay and playability, i.e. the enjoyment and entertainment based on game mechanics when playing alone or with others, was far and above the most important aspect ($\bar{x}$ =4.53). This is unsurprising given that if game mechanics are flawed and render the game unenjoyable to play, no other aspect can really redeem it. Though the ability to interact with others rated the lowest ($\bar{x}$ =2.93) of these six aspects, it had the most even distribution of responses with nearly equal percentages rating it unimportant (1 and 2), somewhat important (3), and very important (4 and 5). This implies that there is no one predominant view, but rather multiple factors such as social context or personal preference in game genre or gameplay style more greatly influence game choice.

Table 3 displays the results of the second measure, which asked gamers to note their level of agreement with statements about personal interest in foreign language and culture. Participant responses were overwhelmingly positive, with upwards of 84% interested in learning a foreign language (4 and 5) with an even greater percentage

Table 2. Importance of Various Aspects of Gameplay (n=211)

	1	2	3	4	5	Mean*
Ease of Use	11 (5.2%)	32 (15.2%)	55 (26.1%)	55 (26.1%)	58 (27.5%)	3.55
Graphics	11 (5.2%)	36 (17.1%)	82 (38.9%)	51 (24.2%)	31 (14.7%)	3.26
Gameplay/Playability	3 (1.4%)	0 (0%)	17 (8.1%)	53 (25.1%)	138 (65.4%)	4.53
Ability to Interact with Others	30 (14.2%)	48 (22.7%)	65 (30.8%)	42 (19.9%)	26 (12.3%)	2.93
Being Able to Play for a Short Time	13 (6.2%)	39 (18.5%)	68 (32.2%)	57 (27%)	34 (16.1%)	3.28
Story	13 (6.2%)	27 (12.8%)	54 (25.6%)	49 (23.2%)	34 (16.1%)	3.63

*****On a scale from 1 to 5, 1 being “Unimportant” to 5 being “Very Important”

Table 3. Personal Interest in Foreign Language and Culture (n=211)

	1	2	3	4	5	Mean*
I am interested in learning a foreign language.	3 (1.4%)	8 (3.8%)	22 (10.4%)	64 (30.3%)	114 (54%)	4.32
I am interested in learning about other cultures.	4 (1.9%)	3 (1.4%)	13 (6.2%)	67 (31.8%)	124 (58.8%)	4.44
I have studied/am studying/will study a foreign language only because it was/is/will be a school requirement.	61 (28.9%)	32 (15.2%)	36 (17.1%)	34 (16.1%)	48 (22.7%)	2.89

*****On a scale from 1 to 5, 1 being “Strongly Disagree” to 5 being “Strongly Agree”

(90.6%) interested in learning about foreign culture. Numbers dipped however when school was involved, with approximately 40% only pursuing the subject because it was an academic requirement. Even though most people find foreign language and culture interesting and want to learn more about it, many would not pursue it on their own or beyond intermediate levels required in many curricula.

As presented in Table 4, the third measure examined the effectiveness of a variety of foreign language learning activities according to gamers' personal experience. Because not all respondents had used or experienced all of the items, the size of the sample varied. Interacting with native speakers ($\bar{x}$ =4.4) and visiting a foreign country ($\bar{x}$ =4.63) were rated highly, with about 90% of those who had experienced them finding them particularly effective (4 and 5). As foreign language's goal is communication, it is to be expected that activities encouraging meaningful interaction would be found useful. In sharp contrast, however, were the other activities which do not generate discourse, yet are staples of most foreign language classrooms. Yet though they were considered the least effective of the tools and methods included in this study, grammar worksheets ($\bar{x}$ =3.25) and vocabulary lists ($\bar{x}$ =3.4) were both still considered effective (4 and 5) by approximately 45% of respondents. Considering the testing schemas employed by most formal education systems, it is unsurprising then that these tools which aid in memorization are considered valuable to some degree by a large portion of students.

The final measure combined the prior topics, requesting participants to rate their agreement with statements about the use of video games in foreign language education (Table 5). The first six statements sought to gauge any difference in gamers' attitudes

Table 4. Personal Effectiveness of Foreign Language Teaching Tools and Learning Methods

	n	1	2	3	4	5	Mean*
Grammar Worksheets	204	17 (8.3%)	32 (15.7%)	63 (30.9%)	66 (32.4%)	26 (12.7%)	3.25
Role-Playing Dialogues	201	11 (5.5%)	31 (15.4%)	41 (20.4%)	69 (34.3%)	49 (24.4%)	3.57
Vocabulary Lists	208	8 (3.8%)	27 (13%)	81 (38.9%)	57 (27.4%)	35 (16.8%)	3.4
Watching Foreign Language Films	201	10 (5%)	35 (17.4%)	47 (23.4%)	55 (27.4%)	54 (26.9%)	3.54
Listening to Foreign Language Music	203	29 (14.3%)	38 (18.7%)	44 (21.7%)	49 (24.1%)	43 (21.2%)	3.19
Interacting with Native Speakers	193	2 (1%)	8 (4.1%)	20 (10.4%)	43 (22.3%)	120 (62.2%)	4.4
Visiting a Foreign Country	161	0 (0%)	6 (3.7%)	10 (6.2%)	21 (13%)	124 (77%)	4.63

*****On a scale from 1 to 5, 1 being “Not Very Effective” to 5 being “Very Effective”

Table 5. Attitudes Towards the Use of Video Games in Foreign Language Education (n=211)

	1	2	3	4	5	Mean*
Computer software could be used to effectively teach a foreign language.	1 (.5%)	5 (2.4%)	34 (16.1%)	81 (38.4%)	90 (42.7%)	4.2
Computer software should sometimes be used to teach a foreign language.	1 (.5%)	6 (2.8%)	34 (16.1%)	92 (43.6%)	78 (37%)	4.14
Video games could be used to effectively teach academic material.	9 (4.3%)	13 (6.2%)	45 (21.3%)	83 (39.3%)	61 (28.9%)	3.82
Video games should sometimes be used to teach academic material.	10 (4.7%)	20 (9.5%)	61 (28.9%)	76 (36%)	44 (20.9%)	3.59
Video games could be used to effectively teach a foreign language.	6 (2.8%)	14 (6.6%)	49 (23.2%)	91 (43.1%)	51 (24.2%)	3.79
Video games should sometimes be used to teach a foreign language.	9 (4.3%)	13 (6.2%)	67 (31.8%)	79 (37.4%)	43 (20.4%)	3.64
Playing video games relevant to foreign language coursework would be a valuable use of class time.	16 (7.6%)	36 (17.1%)	61 (28.9%)	65 (30.8%)	33 (15.6%)	3.3
Playing video games relevant to foreign language coursework would be a valuable use of out-of-class time.	5 (2.4%)	11 (5.2%)	49 (23.2%)	87 (41.2%)	59 (28%)	3.87
I would play a video game if it could help me with my foreign language classes.	8 (3.8%)	10 (4.7%)	18 (8.5%)	77 (36.5%)	98 (46.4%)	4.17
Video games and school should be kept separate.	45 (21.3%)	61 (28.9%)	63 (29.9%)	32 (15.2%)	10 (4.7%)	2.53

*****On a scale from 1 to 5, 1 being “Strongly Disagree” to 5 being “Strongly Agree”

toward technology in education, distinguishing between whether it could effectively be used or if it should be used at all. Further attempting to pinpoint shifts in attitude, the statements also contrasted computer software with video games, and academic material with foreign language. Even though the statements were randomized to avoid survey bias, there is still a noticeable overall trend. With each successive statement, respondents were more apt to disagree. Though gamers agreed that computer software could be used to effectively teach foreign language ($\bar{x}$ =4.2), they were less convinced that video games should sometimes be used to teach a foreign language ($\bar{x}$ =3.64). In spite of this, however, 82.9% of respondents (4 and 5) said that they would play a video game if it could help them with their foreign language classes. It is also important to note that they believed that games, helpful as they may be, are best used outside of class time.

In addition to the survey measures, 35 comments were submitted which proved relevant and insightful. The majority was very receptive to the idea and excited about the potential, but cautioned that its design and implementation must be well done in order to prove effective. Though there was some dissatisfaction in traditional classroom teaching methods, many argued that games should not replace teacher-student interaction, instead being used to reinforce material outside of class. Additionally, they underscored the importance of daily, real-life use in language acquisition and retention.

A different perspective was provided by a discussion thread on a popular gaming forum. After the author's initial survey solicitation request, thirteen forum members recounted their personal experiences with learning a foreign language through the

MMORPG *Final Fantasy XI*. Unlike many other MMORPGs, its servers are not region specific, allowing players from all over the world to play together on the same server. Most posters had had some form of prior instruction either through formal education or self-taught lessons and thus praised the sheer amount of input available from interacting with native speakers of another language. Many noted a marked improvement in written conversational abilities and mastery of grammatical structures, but acknowledged the limitations of game-specific vocabulary, especially in an academic realm. One poster remarked, “Even though I can easily say that I have no problem functioning completely in Japanese in FFXI, how specialized the vocabulary and common phrases are became obvious when I started picking up literature and other sources.” For those looking only to expand their linguistic competencies within the confines of the game, however, this method seems reasonably effective. A player with non-typical gameplay hours commented, “I learned a small amount of Japanese in XI too. Nowhere near enough for me to move to Japan tomorrow or anything, but enough that I could get the general idea of what was being said […] I just wanted to be able to be able to make progress in the game when my English-speaking friends were asleep.”

Further insight into pre-existing games for foreign language education was gained from a student evaluation of *Zon*. Twenty-seven of the author’s 100-level French students played the game and critiqued its gameplay, language teaching, and presentation of Chinese culture. Like the author, students found the game too open, complaining that the instructions were unclear and that the lack of direction or perceivable goal left them unsure how to proceed. After slowly figuring it out, many

began to see the potential in the game, enjoying the wide variety of options. One student lost track of time and even after realizing that she had met the assignment requirements, decided to keep playing, remarking that the game was “a bit addicting in the most fun and healthy way.” Others found its enjoyment “minimal at best,” noting that even though they liked playing games, *Zon* was not engaging and only somewhat better than bookwork. Opinions were also mixed on the language teaching, with the majority once again commenting that more instruction, specifically a few basic lessons in Chinese, would be required to fully benefit from and enjoy the game. Additionally, many students noted that they would prefer an actual teacher to the game, as its instruction methods alone were not effective. The main area in which students thought *Zon* excelled, however, was in its presentation of Chinese culture. One student, who is actually Chinese, gave her approval, noting that “everything is well explained and very Chinese.” The only complaint against the cultural aspect was that there was almost too much and that it “may overshadow the language material being presented.” Despite the game’s flaws, most of the students thought that it had extreme potential. “After some fine-tuning, the game could be a miracle,” wrote one student. “Its potential as a substitute for immersion or as an intense preparation for immersion is very strong.”

Although there are few currently available products and those that do exist are flawed, the outlook for well-developed video games that teach foreign language is positive. Video games were played in some fashion by nearly all survey respondents, a considerable percentage of which use mobile phones or internet browsers to play games daily, even if only for a short time. Furthermore, almost all of those surveyed

claimed interest in foreign language and culture, but found traditional classroom methods of teaching these subjects less effective than using language daily for meaningful purposes. Language learners found regularly playing online games that offered access to native speakers a unique and invaluable resource, even if their interactions were not academic in nature. As many students who played *Zon* for just half an hour discovered, games specifically designed for language learning have come a long way and with the right adjustments can be legitimately fun and educational. From the opinions gathered across these three sources, it becomes quite clear that gamers in general are very open to using video games as language learning tools, especially in conjunction with teacher-led instruction.

Research Objective 2

The second research objective of this study is to identify any significant differences in the attitudes and intentions towards using video games to teach foreign language between serious and casual gamers. For the sake of this study, a serious gamer was defined as any gamer who played more than one hour per day on any device. Conversely, a casual gamer was defined as any gamer whose play time per day did not exceed one hour on any device. According to this definition, the sample was almost evenly split between serious (54.5%) and casual (45.5%) gamers.

Once again reflecting industry trends, two-thirds (67%) of casual gamers were female while approximately three-fourths (72%) of serious gamers were male. Both groups had a mean age of 23.3 years and a little more than five years of foreign language experience. The most noticeable difference in play styles between the two

groups was evident how many gamers played non-browser-based games. Only 34.4% of casual gamers chose these types of games as compared to 87% of serious gamers. This disparity is evident on other platforms, notably handheld (17.7% casual, 48.7% serious) and home game consoles (55.2% casual, 78.3% serious). Less obvious, however, is the difference in browser-based gaming. Though around 60% of both groups played browser-based games, 61.5% of casual gamers played for less than one hour, compared to 35.6% of serious gamers. Surprisingly, mobile phone use for gaming was nearly identical. Roughly 40% of both groups used phones to play games and the difference between those who played for less than 30 minutes per day was very slim, with only slightly more casual gamers (31.3%) than serious gamers (26.1%). The only device that casual gamers played more than serious gamers was an iPod Touch (7.3% casual, 3.5% serious).

Significant differences in the importance of various aspects of gameplay (Table 6) were unsurprising. Serious gamers found gameplay ($S\bar{x}$ =4.66, $C\bar{x}$ =4.38, t=-2.673, Sig.=.008), the ability to interact with others ($S\bar{x}$ =3.16, $C\bar{x}$ =2.67, t=-2.925, Sig.=004), and story ($S\bar{x}$ =4.04, $C\bar{x}$ =3.13, t=-5.689, Sig.=.0001) more important than casual gamers. Casual gamers placed stronger importance on being able to play for short periods of time ($C\bar{x}$ =3.59, $S\bar{x}$ =3.03, t=3.717, Sig.=.0001). Interestingly, no significant difference was found in the importance of graphics or ease of use. This could possibly be attributable to games such as those found on the Wii, whose simple graphics and motion controls have gained fans among both categories.

Table 6. Significant Differences for Serious Vs. Casual Gamers: Aspects of Gameplay

	Serious (Mean)*	Casual (Mean)	t-Value	Sig.
Gameplay/Playability	4.66	4.38	-2.673	.008
Ability to Interact with Others	3.16	2.67	-2.925	.004
Being Able to Play for a Short Time	3.03	3.59	3.717	.0001
Story	4.04	3.13	-5.689	.0001

*****On a scale from 1 to 5, 1 being “Strongly Disagree” to 5 being “Strongly Agree”

A few differences were also noted regarding foreign language. Casual gamers were more interested in learning a foreign language ($C\bar{x}$ =4.51, $S\bar{x}$ =4.16, t=2.934, Sig.=.004) and also found communicative activities such as interacting with native speakers ($C\bar{x}$ =4.54, $S\bar{x}$ =4.29, t=1.94, Sig.=.054) and visiting a foreign country ($C\bar{x}$ =4.74, $S\bar{x}$ =4.53, t=1.798, Sig.=.074) more beneficial in learning. The reasons for this difference are unclear, especially in light of the importance serious gamers put on interacting with others during gaming. It could be that serious gamers rely more on non-face-to-face interaction, recognizing the value of the communicative aspects of games while casual gamers, who have less interest in games in general, prefer in-person communication. Lastly, serious gamers more strongly agreed ($S\bar{x}$ =3.72, $C\bar{x}$ =3.43, t=-2.012, Sig.=.046) that video games should sometimes be used to teach academic material. Considering the amount of time and effort serious gamers put into games, this is relatively unsurprising. While serious gamers used a wider range of devices to play games and played longer than casual gamers, both groups used mobile phones equally. In addition, the same percentage of both groups played internet browser-based games. Though serious and casual gamers differed in opinion on game characteristics, their learning styles were mostly the same, finding current classroom activities less effective than authentic interaction. Furthermore, both groups considered video games valuable teaching tools and were equally likely to use a video game to aid with foreign language classes.

Research Objective 3

This study's final research objective seeks to identify any significant differences in these attitudes and intentions between American and French gamers. While the U.S. sample was mostly even with a very slight male majority (52.6%) and an even slighter majority of serious gamers (51.3%), the French sample was more pronouncedly unbalanced - predominantly female (60.7%) and with a more defined casual gamer majority (57.1%). Though the mean ages were close (22.9, American; 25.9, French), there was a large discrepancy in amount of foreign language experience between the two, as the average American had four years experience and the average French respondent, ten.

In spite of these differences, the gaming habits of both groups were nearly identical. Nearly equal amounts of Americans and French played games on mobile phones (40% Americans, 46.3% French), browser-based games (63% Americans, 64.3% French), non-browser-based games (58.4% Americans, 57.1% French), and handheld game consoles (33.8% Americans, 32.1% French). The same proportion of both groups (28.6%) played mobile phones for less than 30 minutes per day and roughly the same amount played home game consoles for less than an hour per day (40.9% Americans, 46.4% French). The only notable disparity came in the time spent playing browser-based games. Though the same overall percentage played these kinds of games, more Americans (50%) played for less than one hour than French (39.3%). Accordingly, a larger percentage of French (17.9%) than Americans (4.5%) played browser-based games for more than three hours. Although the overall internet

penetration rate is higher in the United States (77.3%) than in France (68.9%) (InternetWorldStats.com), of those who have internet, a much higher portion of French has access to high-speed internet (93%) (Bigot & Croutte, 2007) than their American counterparts (63%) (Horrigan, 2009). This disparity in access to high-speed internet needed to play online games could account for these differences in playing time.

Because of their similar game-playing habits, there were very few differences when rating the variety of gameplay aspects. The French found both graphics ($F\bar{x}$ =3.79, $A\bar{x}$ =3.2, t=-2.65, Sig.=.009) and the ability to interact with others ($F\bar{x}$ =3.36, $A\bar{x}$ =2.81, t=-2.175, Sig.=.031) more important. This latter fact is rather curious given that the prior research objective's analysis revealed that serious gamers cared more about interaction, but the French sample had a much larger proportion of casual players.

More differences emerged when comparing the effectiveness of various foreign language learning activities. As displayed in Table 7, the French found watching foreign language films ($F\bar{x}$ =4.38, $A\bar{x}$ =3.44, t=-4.721, Sig.=.0001), listening to foreign language music ($F\bar{x}$ =4.15, $A\bar{x}$ =3.15, t=-4.488, Sig.=.0001), and interacting with native speakers ($F\bar{x}$ =4.92, $A\bar{x}$ =4.3, t=-6.323, Sig.=.0001) all significantly more effective than Americans. Perhaps the greater presence and accessibility of foreign language multimedia in France and in Europe, more generally, has raised awareness of its potential efficacy in learning. Furthermore, the spread of American, i.e. English language, pop culture through music and film encourages many young people to seek out and learn some level English as part of a personal interest in cultural trends. These differences could

Table 7. Significant Differences for American Vs. French Gamers: Personal Effectiveness of Foreign Language Teaching Tools and Learning Methods

	American (n)	American (Mean)*	French (n)	French (Mean)	t-Value	Sig.
Watching Foreign Language Films	147	3.44	26	4.38	-4.721	.0001
Listening to Foreign Language Music	150	3.15	26	4.15	-4.488	.0001
Interacting with Native Speakers	140	4.3	25	4.92	-6.323	.0001

*****On a scale from 1 to 5, 1 being “Strongly Disagree” to 5 being “Strongly Agree”

also be due to the higher mean foreign language experience among French respondents. Authentic multimedia such as films and music are often more helpful the more you can understand. As for direct practice with native speakers, Europeans have more opportunities than Americans to interact on a daily basis with speakers of a foreign language, given the variety of languages and cultures represented in the E.U.

When it comes to combining video games and education, however, the French greatly differed on nearly every point from their American counterparts. Table 8 shows the eight statements that proved to be points of contention. While Americans seemed convinced that computer software, and to a lesser degree, video games, could be used for educational purposes, the French were more dubious, seeing games, even educational ones, for primarily out-of-class use. It comes as no surprise then that the French respondents agreed less ($F\bar{x}$ =3.68, $A\bar{x}$ =4.31, t=2.349, Sig.=.025) that they would play a game, even if it would help with foreign language coursework. These results should be considered with a grain of salt, however, given the small size of the convenience sample collected for this research. Only 28 French respondents completely answered the survey, with three leaving the demographic portion blank. By assuming that these three were indeed French citizens and therefore including them in the sample for this research objective, every single significant difference above disappeared. Further study with a larger sample is needed before drawing any solid conclusions.

Table 8. Significant Differences for American Vs. French Gamers: Attitudes Towards the Use of Video Games in Foreign Language Education

	American (Mean)*	French (Mean)	t-Value	Sig.
Computer software could be used to effectively teach a foreign language.	4.29	3.86	2.589	.01
Computer software should sometimes be used to teach a foreign language.	4.25	3.89	2.267	.025
Video games could be used to effectively teach academic material.	3.96	3.46	2.374	.019
Video games should sometimes be used to teach academic material.	3.72	3.25	2.151	.033
Video games could be used to effectively teach a foreign language.	3.93	3.32	3.192	.002
Playing video games relevant to foreign language coursework would be a valuable use of class time.	3.51	2.61	3.914	.0001
I would play a video game if it could help me with my foreign language classes.	4.31	3.68	2.349	.025
Video games and school should be kept separate.	2.4	3.18	-3.453	.001

*****On a scale from 1 to 5, 1 being “Strongly Disagree” to 5 being “Strongly Agree”

Sample size aside, these data do provide valuable insight into French gaming habits, namely that they don't much differ from American ones. Thus, if a game company were to create a game for foreign language education, the same instructional and game design principles would apply regardless of it was to be marketed in the United States or France. The main hurdle to overcome according to this research is once again not the game itself, but people's attitudes and perceptions.

Chapter VI: Implications

Though the commercial game industry may argue that educational games have little mass appeal, more than 80% of respondents agreed (4 and 5) that they would play a video game if it could help with foreign language classes. In light of this clear demand, our question should not be can or should we develop a game for foreign language education, but how. As noted in Chapter II, education and game design often rely on similar psychological and developmental theories to engage and instruct learners and gamers. Thus the starting point for any educational game should be to find the areas of overlap between instruction and gaming.

Principles of Educational Game Design for Foreign Language Instruction

Noted expert in the commonalities of games and learning, James Paul Gee lists thirty-six research-backed learning principles employed by commercial video games (Gee, 2007). Far from being exclusive to specific academic subjects, these shared principles can be directly applied to foreign language learning. Highlighting some of the previously discussed concepts, Gee underscores the important way that good games allow players to customize their gaming experience to fit their learning and play styles. He also argues that they allow players to be more than just mindless consumers, instead producing and co-creating their experience through unique actions and decisions. Survey respondents and task-based language learning both agree that personally meaningful interactions are more effective learning tools than decontextualized exercises.

Apart from these more general and overarching themes, several very specific principles also come into play. First, games must order problems well so that earlier ones lead to hypotheses that work well in solving subsequent, more difficult problems. As mentioned by many students, *Zon* did not address this principle very well and suffered because of it. This can be remedied by more firmly structuring the game, either through direct instruction or scaffolding. Which approach to take depends on the level of the student, with beginners requiring more explicit explanation both of game mechanics and educational content. That is not to say, however, that the game should just give new players the answers to problems. It should instead initially focus on teaching how to learn within the game environment before moving on to teaching the actual content. Because language learning video games are practically non-existent, learning in this medium will be entirely new to the vast majority of players. In order to fully benefit from all that games can provide, players need to know how to make the most of them as tools. Once this learning schema is established, players can move forward with the academic material. This portion of the game need not be fully separated from the linguistic content, however. In fact, combining the introduction to learning language through a game with the introduction to the language itself would give players opportunities to begin forging new concepts of learning while still making linguistic progress in the game. A tutorial should not be set aside from the game or even just feel like gameplay; it should be gameplay. Conversely, the more advanced the learner, the less explicit explanation they need in order to determine what needs to be done and how to proceed. Often, direct instruction can come across off-putting and infantilizing.

Furthermore, too much assistance can detract from the challenges, thus detracting from the learning experience itself. One feature that many reviewers of the *My Coach* series greatly appreciated was the option for experienced learners to immediately jump ahead in the material after taking a pre-test. This made the game immediately accessible, challenging, and enjoyable to more advanced players, allowing the same game to simultaneously reach two different audiences.

In addition to posing well thought-out and structured problems, games must allow players to practice the skills required to solve these problems until their mastery has become "routinized." Each successive challenge forces players to reconsider their mastery and consolidate it with newly acquired skills through repetition. In this way, players maintain and slowly develop expertise. Foreign language, like any other subject, requires repetition and practice to master. Unfortunately, most games rely too heavily on repetitive mini-games to ingrain vocabulary and grammar in learners' minds. Ignoring the challenge and restructuring of understanding phases of mastery leaves the cycle incomplete, making repetition an exercise in behaviorism. Using mini-games for repetition and practice is a good idea, but needs to incorporate and combine skills in new ways in each successive iteration in order to be effective.

Requiring players to achieve mastery through practice before moving on does not mean that all aspects of a particular skill must be mastered at once. Gee notes that good games acknowledge that performance comes before competence. Players are asked to complete tasks on a basic level in specific contexts long before they are required to spontaneously perform them in new ones. This cognitive process is

particularly true with foreign language, where learners internalize rules and understand complex input long before they are able to accurately or consistently produce it. Furthermore, beginners are often only able to reproduce such language within the context in which it was learned. Language learning games should therefore not expect or demand players to correctly reproduce linguistic forms within the first few stages of exposure. No matter the simplicity of the content, game challenges should not initially require complete replication in order to succeed.

Hand-in-hand with this idea is the “just in time” or “on demand” principle, described in Chapter II as “Cascading Information Theory.” Games should limit the amount of information a player is exposed to prior to its necessity. If a game provides players with all the information they need to solve a problem up front, it does not speed up the problem solving. It actually does the opposite, usually overwhelming the players who finds themselves quickly sinking in a sea of knowledge with neither a raft nor a map. By structuring and regulating the rate at which players receive skills or clues, designers can reduce cognitive load and create a more guided gameplay experience. Similarly, if language learners are given a regular verb class followed by the thousand-and-one conjugation exceptions, they will never acquire the basic skill of conjugating the verb at all. Only the information needed in the present or successive moment should be provided so that learners can master skills relevant to their task. Thus a language learning game should structure its presentation of new linguistic forms in such a way that players receive bite-sized and easily chewable chunks of information, a glass of water, and a chance to swallow before more forms show up. *Zon* completely ignored

this principle, placing the whole buffet on the player's plate at once. Too much overly-complex input plus zero guidance equals a frustrated, if not quitting, player. The goal is to challenge or gently push the learner, not shove them off a cliff.

Of particular relevance to foreign language learning, when games introduce players to new words, they often give them situated and not solely verbal meanings. For example, the official *Final Fantasy XI* website describes the job class "Black Mage": "Through devastating magic spells, black mages bring tremendous firepower to the battlefield." Using basic reading comprehension skills, it is easy to deduce that black mages cast powerful offensive magic spells. However, unless a player has directly played the game, thereby experiencing for themselves the results of selecting a particular spell and casting it on a specific monster, that statement holds very little extra intrinsic knowledge. Likewise, providing language learners a list of vocabulary items may allow them to fill in blanks on a test, but without allowing learners to use these words in a context, they will not fully grasp their connotations and uses. Learners, like gamers, must be "shown" and not "told." It is thus key that any language learning game situates vocabulary and grammar in meaningful contexts, organizing items by task instead of by taxonomy.

Finally, good video games offer players strong identities. These identities can be given to the player or generated by the player within the game. Several serious games ask players to take on the roles of different social or cultural groups in order to promote tolerance and understanding. MMO players often consider their avatars as extensions of themselves that are free to explore different personal identities. This quality is useful

for foreign language education as language and culture are inseparable. To some degree, one cannot learn a foreign language without learning about various cultural aspects of the country itself. A language learning game has two options. It can let the players be themselves, exploring a world they are not directly a part of. Or, it can require learners to play from a different cultural perspective altogether. Either way, games can be a helpful tool for promoting cultural and self-understanding. One example of such cultural learning comes from a series of interviews conducted by Bret Mayer. As an avid player of *Final Fantasy XI* and an influential member of the both English- and Japanese-speaking forum communities, Mayer sought to promote intercultural exchange and understanding within the game. He proposed that forum members from both communities submit questions for the other group of players. He then translated and posted these questions, followed a few weeks later by the translation of the responses. The topics covered ranged in levity from light-hearted questions on snacking habits to a deeper probing of cultural gameplay differences. Through the interviews, Japanese and English-speaking players alike were able to gain a better understanding of how and why cultural differences created gameplay differences – knowledge that many players were glad to apply in order to improve in-game interactions with foreigners (JPButton.com).

Though his points are very useful in their application toward educational game design, it is important to note that Gee does not argue that games should be used in educational settings. Rather, he merely observes already existing principles within commercial games that heavily overlap with academic instructional constructs. From

these overlapping characteristics Gee campaigns for the recognition of informal learning spaces as well as for the alignment of pedagogical praxis with lessons drawn from gaming. Purushotma et al. (2009), on the other hand, describe important features of task-based language learning and subsequently prescribe ten design principles for foreign language educational games.

Of these ten points, two have already been discussed above. Both the organization of learning content and the structure of introducing new concepts are extremely important in a game's educational and gameplay design. On top of this, designers need to consider "failure states" just as much as or even more so than "success states." Designers must realize that language learners will primarily fail... and this is a good thing! The mastery of complex morphology, syntax, and other features of foreign language is a long process and learners need useful feedback, though exactly how much and what kind is debated. Games already lower learner anxiety towards failure and by having creative and constructive failure states they can make the learning process more positive and effective.

Additionally, though instruction should primarily focus on meaning, it should also address form. Most games up until now have focused almost exclusively on one or the other, rarely combining approaches. Meaning-focused approaches ignore language errors as long as some form of communication is occurring. Form-focused ones, however, demand linguistic perfection, often to the detriment of communication. A balance between these two is needed, however, for language full of errors impedes conversation just as much as stopping a conversation to require adjective agreement

does. Since language's end goal is communication, form should be addressed if it becomes clear that a learner's lack of mastery is preventing understanding. As with other linguistic forms, grammatical, form-focused explanations should only occur when the player needs it. Or, taking a slightly different approach, activities within a game should focus on form as meaning, reinforcing grammatical correctness through the natural requirements of a linguistic task.

Likewise, metalinguistic descriptions and terminology should be available, but not the primary means of explanation. The effectiveness of such descriptions is ambiguous and their use within the classroom is hotly contested, with both sides drawing battle lines. Crystal clear, however, is that as soon as the average player saw "relative clause" or even "verb," a game would almost instantly become a "game." That is not to say that some learners would not appreciate such descriptions. Thus a language learning game should provide detailed linguistic explanations according to player preference, making these features hidden so as not to disrupt gameplay, but readily accessible for learners who would like or even expect more explicit assistance.

Assessment within games for language education is very tricky, as classroom methods of assessment rarely match up with their real world counterparts. In most testing environments, the only thing that is measured is the controlled production in the context of the exam itself. Free production within the classroom is almost never credited on such tests. Games, however, can more dynamically assess player competence, noting mistakes and failures in freely produced speech. Such analysis could more accurately predict a learner's skill level and tailor practice and instruction accordingly.

Furthermore, this allows for better observation of spontaneous language production which demonstrates true mastery and not just short-term memorization to pass a test.

All elements should have a relaxed, playful spirit to them, particularly communication and input mechanisms. Unfortunately, many games only allow for full-sentence creation via set phrases or pre-crafted sentences. Though *My Coach* attempts to enliven this process by turning sentence creation into a mini-game, it ultimately remains a limited point-and-click exercise which prevents students from experiencing the sentence construction process. While established phrases can be useful for beginners, the effectiveness of their use in later, more advanced production is questionable. Nonetheless, direct user input can be time consuming and clumsy, especially in early stages of mastery. It is imperative then that a creative design to language input be found for beginning players. One suggestion is to take both premade and direct input methods and create a hybrid form. Instead of pre-constructed sentences, players could have access to visual menus of sentence parts, color-coded by part of speech or sentence function. This would avoid metalinguistic terminology but still give learners hints as to how words naturally group and combine. This could be personalized by allowing users to modify their own interface with a list of most often used words, à la customizable toolbars in *World of Warcraft* and other MMOs. Taking this a step further, once players master certain linguistic forms or vocabulary items, the game may prevent them from being placed on these toolbars. This would not only allow the game to test for true mastery via spontaneous production, but given a certain level learner mastery, direct input of such forms would most likely be faster anyway. This

would not only make room for forms that are still in the process of being acquired, but also force players to practice them. Though this idea is far from perfect, it does offer a glimpse at the creative possibilities for engaging user input methods.

As instructional activities should ultimately be designed to foster an interest in foreign language and culture, games should also encourage play and learning outside of educational settings. Gee cautions that instructional designers should not "co-opt" young people's cultures for their own purposes, but instead establish learning principles that can be employed in many aspects of life. Games then should allow players to decide when and how to spend their time by letting them spend extra time with activities they enjoy or minimize time in ones they don't. One of *Zon*'s unique features is that players can decide which aspects of language they want to focus on. If one particular skill is more relevant to a learner's needs, they can choose to seek it out exclusively and participate in additional practice. On the other hand, if a skill is uninteresting or sufficiently mastered, the game does not force players to keep doing activities that focus on that skill. A learner's affective relation to the subject matter is often a very strong influence and predictor of success, so care should be taken not to negatively affect interest and desire to pursue language learning autonomously. Still, given that many assessment methods require higher levels of proficiency in certain skills regardless of student interest, games must carefully balance these viewpoints, finding creative ways to integrate and encourage acquisition of a range of skills.

Although language is by nature communicative, merely giving two people the opportunity to interact does not guarantee that they will do so meaningfully, or even at

all. By having clearly organized interaction direction towards concrete goals, classroom instruction makes students focus on specific linguistic forms and patterns. Real-world and in-game situations, however, are less specifically guided and usually occur due to real needs to communicate information between players. Therefore, any game that relies on multiplayer interactions should give players meaningful and distinct roles, where possible, in order to create situations that facilitate information exchange. Tasks should be engaging to the point where players want to do them in their free time and by capitalizing on the inherent characteristics of certain game genres or platforms, designers can naturally encourage interpersonal collaboration. For the desired level of exchange to occur, however, speakers of all levels must participate. A language learning game focusing on communication must therefore attract beginners and native speakers alike. This can be done in several ways, though one suggestion is to create the same content for all players, but allow the game to gauge individual language expertise in order to modify the presentation of the material accordingly. For example, if a particular goal of the game is to teach restaurant vocabulary, beginning players would be assigned the role of customers, intermediate players would be cooks, and more advanced players would be servers. Beginners would be required to read a simple menu, order using guided, pre-structured patterns, and notice cultural differences within this specific context. As cooks, intermediate-level players would receive direct input from advanced or native speakers, be exposed to a wider range of food vocabulary, and have more freedom of response and action though in the confines of a task with well-structured steps. Because native speakers do not need language practice, the job as a

waiter should focus more on creative gameplay that requires them to meet both the linguistic and task-based needs of their customers and cooks. *Diner Dash*-esque with communicative skills at its root, such a game not only directly supplies players with distinct roles, but also caters to different levels of language proficiency.

And finally, game designers should consider the full range of available gaming platforms. Similarly, careful consideration of game genre is also necessary. Some devices and genres, while popular or entertaining, may not be ideal for instructional goals. The first step in any educational game design process should be to identify the end proficiencies players are expected to develop from playing. If learners are to focus on spelling, then a stylus-friendly platform such as the Nintendo DS would be ideal. Likewise, the simplicity of puzzle-style games lends itself to the simplicity of the spelling task. Complex communicative goals, however, would require more complex platforms which could allow for online interaction through text, voice, or webcam chat. The task-based and communicative nature of MMOs lends this genre better to meeting such goals. Thus before any initial development and design decisions can be made, the instructional style and goals must be clearly articulated.

Recommendations for Game Design

Prior studies discussing the potential of games developed specifically for language learning have focused primarily on general principles and have offered no recommendations for platform, genre, or other aspects of design. The only exception comes from *Zon* developers who not only outlined design principles for foreign language learning MMORPGs, but went on to create and distribute an actual product (Zhao & Lai,

2009). Given the conclusions that it is not only possible to effectively connect video games and foreign language learning, but that a ready and ever-growing customer base awaits, it is time to stop theorizing and discussing potential, and finally set a course of action for developing a game. Based on the principles outlined above as well as industry trends and the results of this study's research, this section seeks to outline specific aspects of game design to not only create a legitimately fun and effective learning tool, but also to best target potential users.

As previously mentioned, the first step in design is to articulate specific instructional goals and decide on an instructional style. Many language learners are genuinely interested in foreign language and culture. The first goal should then be to encourage this interest by facilitating intercultural communication. The most common real world way of achieving this goal is to study abroad. In addition to directly involving learners in different cultures, it was also universally considered by survey respondents as the most effective way to learn language. However despite of its perceived efficacy, study abroad with no form of instruction usually leads to the development of a grammatically simple but communicatively effective interlanguage. Learners must in part focus on form and linguistic accuracy in order to fully benefit from immersive environments (Ellis, 2008). Studying abroad also surrounds language learners with native speakers and encourages meaningful interactions with them. Unsurprisingly, this was the second highest rated activity for foreign language learning. In spite of this overall interest, there are those who just want to pass a test and move on. Since part of the first goal is to encourage interest, these learners cannot just be ignored.

Additionally, not all learners want to become equally proficient in all aspects of language. Our second goal should then be to make the activities and interactions which comprise gameplay appealing to and effective for learners of all types. Whether their goal is to merely complete academic requirements or to eventually become fluent, the needs and desires of all players should be equally addressed. With these two goals in mind, the ideal instructional style for a game should blend direct instruction, guided-discovery, and task-based language learning. Players of all language proficiencies and learning styles could personalize their learning experience, focusing on material and aspects of language that help meet their personal goals, academic or communicative.

The second step is to decide on a game genre which best lends itself to the implementation of this hybrid instructional method. Since at its heart is communication, a language learning game would best be served by a genre that already encourages interaction, communication, and the development of interpersonal relationships. Unlike any other genre, MMOs operate exclusively on these mechanisms and therefore seem ideal for any communicative language game. As they currently stand, however, the typical MMO also poses several challenges to foreign language game developers. Purushotma et al. (2009) shy away from creating an MMO from the ground up, citing tremendous budgetary costs for research, development, and implementation. Yet Zhao and Lai (2009) were able to produce *Zon* for a fraction of what most well-developed game titles cost. Even *Tactical Iraqi* whose graphics and technology are arguably much more sophisticated had nowhere near *World of Warcraft*'s $60 million budget or even the $10 million budget of typical AAA games. Even so, such a game requires a

tremendous amount of financial investment to even enter development and even more time before its product becomes profitable given the typical subscription fee business model.

Any illusions of cutting-edge graphics and boundary-pushing technology need to be put aside up front, for the truth is that they are in no way necessary for a game to succeed. This study reinforces what many gamers have long known – graphics and gimmicks are no substitute for good gameplay. Current industry trends continue to prove this as the popularity of lower-budget titles designed for mobile and browser-based delivery explodes. In addition to drastically reducing the required financial costs, developing for mobile and browser-based platforms gives instant access to networking and communication tools. Within the framework of social networking sites and mobile devices, developers can integrate pre-existing messaging systems, lowering costs for initial development and implementation. In addition to written communication, all phones are innately voice-ready and a variety of free VOIP services not only exist, but are also teaming up with game designers to incorporate voice chat in new ways. Furthermore, built-in webcams for both computers and smartphones are becoming more prevalent, and the emergence of tablet devices such as Apple's iPad provides yet another potential medium for interaction. If this weren't enough, several companies and services such as Multiverse, RedDwarf Server, Idea Fabrik, and OpenCroquet.org offer free tools, servers, and support for the creation of MMOs and other social games. By setting more realistic goals and aiming not to replicate *World of Warcraft*, but *FarmVille*, many barriers to entry disappear and the market becomes a much more welcoming place.

Relative cost aside, game development still requires funding. Government and academic grants for language games are hard to come by and convincing investors that profit is possible using traditional MMO business models would be difficult, if not impossible. Thankfully, along with new gaming platforms and genres have come new profit models. Part of social and casual games' success comes from their low required initial investment. Players usually have access to a large portion of the game for free. However, certain features or content can only be unlocked after paying a small fee. Thus although each player may not pay a regular subscription fee to play, many will complete "microtransactions," paying for additional content. Additionally, many developers recruit sponsors who pay to place advertisements throughout the game. Mobile games are often sold through online stores such as Apple's App Store or Google's Android Market. By paying a low one-time fee, players can download games directly to their phones to play where and when they please. This model has proven wildly successful with Apple's App Store alone containing more than 350,000 available apps accounting for over 10 billion downloads in its first two and a half years (Apple.com). These new methods of offsetting development and maintenance costs have been used by many small developers to create and distribute new and unusual games.

In addition to these financial considerations, many additional factors have a direct influence on the potential adoption of educational mobile and casual games. From a marketing perspective, mobile and casual games appeal to a much wider audience than traditional MMORPGs. As found by this study, serious or casual, American or French,

gamers of all types played nearly identical amounts of mobile- and browser-based games, testifying to their universal appeal. Unlike many other platforms, smartphones are relatively inexpensive and internet browsers, apart from service charges, are free. They can also be played for any amount of time, and with phones and laptop computers, in almost any place. This would allow students to play on their own terms and at their leisure, a key component of the chosen instructional method.

The game content itself should conform to the guiding principles outlined in the prior section. A key component of game design, as with any other art form, is creativity, so to prescribe specific themes, story lines, or even activities would be counter-productive. Designers should instead let the material itself guide them, focusing on arranging linguistic content around tasks that their individual creations require of players. That is not to say, however, that there are not specific game mechanics that would greatly enhance a language learning game. As this study found, being able to interact with others is one of the least important factors in a game to many gamers. That is not to say that interaction does not matter, for the quality and diversity of interactive methods available to players certainly does influence gameplay. But expecting the opportunity to interact with others to solely motivate players would be a mistake. There are a multitude of game design elements, ranging in complexity and serving to motivate players, which should be taken into consideration. Several companies, including Zynga, have playbooks of gameplay concepts and techniques that make games appealing.

One such list comprised of nearly fifty elements comes from mobile game company SCVNGR. When tackling such a list, designers must be cautious and ensure

that the application of chosen elements is well thought-out and correlates with an aspect of language learning. Haphazardly tacking on aspects of gameplay just because they work well for other social games will lead to a disjointed experience where learning and play do not truly mesh together. With this precaution in mind, Table 9 notes several gameplay elements that should be strongly considered for inclusion in any form of language learning game, especially one that hinges on establishing a community of language learners.

All commercial games experience rigorous testing throughout the design and development phases and educational games should be no exception. Some ideas which work well on paper do not pan out when actually implemented. It is important that aspects of gameplay and language learning that are not engaging or effective be addressed prior to public release. Given the precarious position of educational games within the market as it is, a poorly designed game would only fortify the barriers that a foreign language video game is trying to tear down.

Upon satisfactory completion, a language learning game faces a tough battle with many educators. But even if instructors are wary of incorporating such a game into traditional curricula, if the game is well-designed and meets its instructional goals, it will have players, regardless. In some senses, a reverse, grass roots approach might in fact be the best way to infiltrate academia and prove that video games can be legitimately helpful with academic subjects. While there is always hope for a viral hit, focusing on other marketing and advertising methods will more likely prove effective in the long run. Partnering with text book companies to design a curriculum which integrates gameplay

Table 9: Important Motivational Gameplay Elements and their Language Learning Applications

Element*	Definition*	Application to Language Learning
Achievement	A virtual or physical representation of having accomplished something. These are often viewed as rewards in and of themselves.	Learners should be rewarded in some fashion with each success. Successful communication/task completion should not the reward in and of itself. Players want recognition.
Appointment Dynamic	A dynamic in which to succeed, one must return at a predefined time to take some action. Appointment dynamics are often deeply related to interval based reward schedules or avoidance dynamics.	Encourages routine play and can be applied to both linguistic and cultural content (holidays, daily routines), as well as instructional features such as practice and assessment.
Behavioral Momentum	The tendency of players to keep doing what they have been doing.	Establishing that routine play improves classroom performance reinforces pre-existing play habits
Blissful Productivity	The idea that playing in a game makes you happier working hard than you would be relaxing. Essentially, we're optimized as human beings by working hard, and doing meaningful and rewarding work.	Players must feel that what they are doing is useful and productive, but still fun. The game is an additional classroom, whether players realize it or not. Playing should be just as effective if not more so than other means of studying.
Companion Gaming	Games that can be played across multiple platforms.	Allows language learners with different play styles to interact. Care must be taken in designing a game that can address all aspects of language equally across supported platforms (mobile and browser).
Countdown	The dynamic in which players are only given a certain amount of time to do something. This will create an activity graph that causes increased initial activity increasing frenetically until time runs out, which is a forced extinction.	Though freely produced output should be observed, other means of practice and assessment should also be encouraged. Timed mini-games can be used for practice. More complex tasks can be given a larger timeframe for completion.
Epic Meaning	Players will be highly motivated if they believe they are working to achieve something great, something awe-inspiring, something bigger than themselves.	Go beyond individual language goals and encourage collaborative creation both of game content and linguistic meaning.
Fun Once, Fun Always	The concept that an action is enjoyable to repeat all the time. Generally this has to do with simple actions. There is often also a limitation to the total level of enjoyment of the action.	Simplicity of material should be paired with simple, yet enjoyable play, e.g. mini-games to practice spelling or vocabulary

Table 9. Continued.

Element*	Definition*	Application to Language Learning
Progression Dynamic	A dynamic in which success is granularly displayed and measured through the process of completing itemized tasks	Give learners a visual manifestation of their progress both within the game and linguistically, e.g. collecting words to complete a dictionary à la *Pokémon*. Focus should be on creativity.
Social Fabric of Games	The idea that people like one another better after they've played games with them, have a higher level of trust and a great willingness to work together.	Establish a language learning community, lowering the affective barrier and encouraging free language production in a safe environment.
Status	The rank or level of a player. Players are often motivated by trying to reach a higher level or status.	Hand-in-hand with achievement. Making certain aspects visible also encourages competition, further motivating some learners.
Viral Game Mechanics	A game element that requires multiple people to play, or that can be played better with multiple people.	Encourages communication and collaboration to complete a specific task.
Virtual Items	Digital prizes, rewards, objects found or taken within the course of a game. Often these can be traded or given away.	As with achievement, giving players some physical signal of their progress motivates them and others.

*Schonfeld (2010)

into lessons could not only help convince educators, but could also provide some funding for game development.

Once a game is adopted and establishes a player base, its development is still far from over. This is especially true of MMOs which often see updates to content and gameplay for years after their initial release. Thus a critical issue to address is a game's sustainability. Developers must be able to keep servers and networks running if players are to be able to continue playing. One tactic which serves to lower maintenance and development costs while also maintaining interest is to give the player base the ability to create its own content. User-generated content of many forms not only keeps the game fresh, but also lets learners further define their own play experience, synthesizing skills through the act of creation. *Zon* is beginning to implement such a system, with an official team monitoring user submissions to ensure their quality. Additionally, creating external communities of users through forums, fan sites, and social media connections allows users to communicate outside the game and even share it with others, potentially finding new players.

Though this is but a brief outline of design recommendations, the sources that inspired it should incite action among those with the resources to take it from paper to product. Though many purported barriers can be deconstructed by theory, technology, and trends, nothing can change attitudes like experience. Just as in learning and gaming, game designers mustn't tell, but show opponents how effective foreign language learning video games can be. Only through the creation of a viable product can these final hurdles be overcome.

Chapter VII: Conclusion

10,000. The hours the average young person in a country with a gamer culture will have spent playing online games by the age of twenty-one. It also the same amount of time the average American spends in school from 5th grade to high school graduation (McGonigal, 2010). Interestingly, it is also the same amount of time needed to completely master a skill according to Malcolm Gladwell's theory of success (Gladwell, 2008). Given these numbers, it is unsurprising then that recent years have seen the rise of games for purposes other than entertainment, with educators and instructors attempting to harness their power in order to teach specific skills. Furthermore, advancements in technology have not only made a wider array of games possible, but also accessible on a variety of new platforms to the general public who has openly embraced these non-traditional video games.

Though even with all of the interest mobile and casual games have already generated, the industry is nowhere near its peak. Many experts agree that the next few years will be critical in shaping the industry's future and that a mobile revolution is imminent. One of the main contributors to gaming technology, Japan has already experienced such a revolution, with 3G phone service having penetrated 98% of the country. By contrast, penetration in America is only 47%. Neil Young, CEO of mobile game developer Ngmoco, observed, "When Japan crossed the 40 percent threshold, that's when this explosion really happened. So we're crossing that threshold (Young, 2011)."

Choosing to develop for these two platforms comes with other, less immediately tangible benefits. Educational games have long been considered the outcast of the industry, garnering very little respect or consideration. For too long educational game developers have been passive bystanders, watching commercial games define and lead the entire industry. Yet there is clearly a nascent demand for well-made educational games. By choosing to help pioneer the field, directly participating in an expanding market, educational games would ride the wave to success rather than running along frantically behind it.

Educational games for learning a foreign language are particularly poised to benefit from such exposure. Though innovations such as Microsoft's *Project Natal*, the developmental codename for the Kinect, showcase the enormous potential of emerging technologies in simulating human interaction, they still cannot come anywhere near the real thing. The unique qualities of both smartphones and internet browsers as gaming platforms allow for person-to-person interaction in previously impossible ways. This study has attempted to convince both the academic community and the game industry that a language learning game is not only feasible, but profitable due to a multitude of potential buyers. Moreover, this study provided an outline of design recommendations in the hopes of encouraging developers from both realms to take full advantage of current trends before another revolution passes educational games by.

Due to the constraints of this study, several topics of future research remain. First and foremost, games of all scopes must be developed and tested in order to determine which designs are effective. Designers need not attempt to recreate *Zon* or *Tactical*

Iraqi on the first go, but a game of any scale cannot be refined or expanded if it does not first exist. In this same vein, designers from both academia and the industry need to collaborate and share ideas. As Kebritchi and Hirumi (2008) noted, not sharing the theories and principles behind design only hinders development of the field as a whole. Second, careful research should be done into whether students would actually play an educational game on Facebook. Developing an educational game solely for social networking sites is a risky venture. Though students may play such a game in another context, fusing the two could prove problematic. Based on this study's findings, games on other browser-based and mobile platforms do not seem to carry the same stigma as when they are combined with Facebook. Third, more investigation on this topic needs to be done on an international level. Not only would this provide important marketing data, but such a study would be better suited to finding ways to attract native speakers to participate in language learning MMOs. Lastly, more research should be done into what would convince non-gamers to give a language learning game a try. Though they are not the initial target market, non-gamers still take foreign language courses and may want additional avenues of practicing and learning. Expanding the market for a product is never a bad thing.

I was fortunate enough to attend the 25th Annual Game Developer's Conference (GDC) in San Francisco earlier this year and was rather dismayed, if unsurprised by the attitudes of those I encountered. An educational game for teaching foreign language? Simply unheard of. The video games industry had built itself on catering to gamers clamoring for new and innovative ways to be entertained, not taught. Targeting latent

interest in foreign language and culture among students? Commercial suicide. Everyone knew that gamers were normal humans: people of all ages who just want to dance or bowl with their families in between finding a lost pig and harvesting crops on the farm. Ironically, these comments were coming from the very people who a mere handful of years prior had had their own ideas scorned only to prove the industry wrong. They of all people should have known the industry's track record with innovation, yet still they called me the crazy one.

Game designer, author, and GDC founder Chris Crawford experienced a similar disillusionment with the industry in the early 1990's. Torn between commercial demands and his own desire for artistic expression, Crawford was eventually ousted from the GDC board and left the industry to create games as he saw fit. Likening his self-proclaimed insanity to that of a famed literary figure, he mused:

> "Don Quixote was a crazy old fool. But, you know, he was more honest about his dream than most people, and for that, I honor him […] I have never been one to shrink from hopeless quests, and I hope that you are similarly inclined. Recruit a Sancho Panza; the more Don Quixotes there are attacking this windmill, the better the chance we have of killing it." (Crawford, 1992; 2003, p. 36)

There is still much work to be done in the development of language learning video games, but luckily, the task at hand, though far from easy, is equally far from hopeless. It does require, however, that the dedicated, if slightly crazy pioneers, from academia to industry, work side-by-side to dispel preconceptions and further develop this very promising and much demanded market niche.

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Appendices

Appendix A
English Survey

[Screen 1]

Thank you for taking time to participate in this survey. This survey is being conducted in order to understand student attitudes toward game technology and foreign language learning. The information gathered as part of this survey will be used toward a Master's Thesis. Completing the survey should take approximately 5-7 minutes of your time.

Please read the following information before proceeding:

I hereby give my consent for participation in this research study. I understand that:

A. My participation is entirely voluntary. I may terminate the participation at any time prior to completion of the study without penalty.
B. My participation is completely anonymous.
C. I understand the probability of risk involved with me participating in the study is low.
D. The primary investigator is available to answer any questions you have regarding participation in this survey. You may email Trent Hoy at thoy@utk.edu for further explanation.
E. If you have any questions about your rights as a research participant you may contact a University of Tennessee Research Compliance Officer at (865) 974-3466.

I understand the above information and that by clicking "yes" below that I agree that I am 18 years or older and to participate in this study.

[ ] Yes
[ ] No

[If yes, move on to Screen 2, otherwise*:** Thank you for your interest in this survey. Unfortunately, you do not meet the requirements to participate.]***

[Screen 2]

Please remember that there are no right or wrong answers. There will be an opportunity at the end of the survey to express any opinions or topics not discussed in the following questions. Thank you for your involvement and your honesty is appreciated.

In the past month, have you used any of the following devices to play an electronic or video game?

Mobile Phone
Personal Computer – Internet Browser-Based Games (Facebook Games, Yahoo! Games, etc.)
Personal Computer – Non-Browser-Based Games (MMO's, The Sims, etc.)
Home Video Game Console (Wii, Xbox 360, PlayStation 3, etc.)
Handheld Game Console (Nintendo DS, PlayStation Portable, etc.)
Other (iPod, iPad, etc.)

[ ] Yes
[ ] No

[If yes, move on to Screen 3. If no, move on to Screen 5.]

[Screen 3]

In a typical day, how much time do you spend using the following devices to play games?

	I do not use this device to play games	Less than 30 minutes	30 minutes to 1 hour	1 to 3 hours	More than 3 hours
Mobile Phone					
Personal Computer – Internet Browser-Based Games					
Personal Computer – Non-Browser-Based Games					
Home Video Game Console					
Handheld Game Console					
Other					

If you marked "Other" above, please specify which device you use to play games.

_____

[Screen 4]

Please rate how important the following are when playing a video game, with 1 being "unimportant" to 5, "very important" :

	Unimportant	2	3	4	Very Important
Ease of Use (the premise and controls are simple, making the game easy to just pick up and play)					
Graphics					
Gameplay/Playability (the enjoyment and entertainment based on game mechanics when playing alone or with others)					
The ability to interact with others					
The ability to play for short periods of time					
Story					

[Jump to Screen 6]

[Screen 5]

Imagine that you were to play a video game. Please rate how important the following are when playing a video game, with 1 being “unimportant” to 5, “very important” :

	Unimportant	2	3	4	Very Important
Ease of Use (the premise and controls are simple, making the game easy to just pick up and play)					
Graphics					
Gameplay/Playability (the enjoyment and entertainment based on game mechanics when playing alone or with others)					
The ability to interact with others					
The ability to play for short periods of time					
Story					

[Screen 6]

Please rate the following statements on a scale from 1 to 5, with 1 being “strongly disagree”, 3 “neither agree nor disagree”, and 5 being “strongly agree.”

1. I am interested in learning a foreign language.

1 2 3 4 5

2. I am interested in learning about other cultures.

1 2 3 4 5

3. I have studied/am studying/will study a foreign language only because it was/is/will be a school requirement.

1 2 3 4 5

[Screen 7]

Based on personal experience, please rate the effectiveness of the following items for learning a foreign language from 1 to 5, with 1 being “Not Very Effective” and 5, “Very Effective.” If you have never experienced an activity, please select “N/A.”

	Not Very Effective	2	3	4	Very Effective	N/A
Grammar worksheets						
Role-playing dialogues						
Vocabulary lists						
Watching foreign language films						
Listening to foreign language music						
Interacting with native speakers						
Visiting a foreign country						

[Screen 8]

Keeping in mind that the term “video games” includes items such as console games, mobile apps, and Facebook games, please rate the following statements on a scale from 1 to 5, with 1 being “strongly disagree”, 3 “neither agree nor disagree”, and 5 being “strongly agree.”

1. Computer software could be used to effectively teach a foreign language.
1 2 3 4 5

2. Computer software should sometimes be used to teach a foreign language.
1 2 3 4 5

3. Video games could be used to effectively teach academic material.
1 2 3 4 5

4. Video games should sometimes be used to teach academic material.
1 2 3 4 5

5. Video games could be used to effectively teach a foreign language.
1 2 3 4 5

6. Video games should sometimes be used to teach a foreign language.
1 2 3 4 5

7. Playing video games relevant to foreign language coursework would be a valuable use of class time.
1 2 3 4 5

8. Playing video games relevant to foreign language coursework would be a valuable use of out-of-class time.
1 2 3 4 5

9. I would play a video game if it could help me with my foreign language classes.
1 2 3 4 5

10. Video games and school should be kept separate.
1 2 3 4 5

[Screen 9]

1. What is your gender?
    Male
    Female

2. What is your age?
    _____

3. What is the highest level of education you have completed?
    Some High School
    High School Diploma
    College degree (B.A./B.S./etc)
    Advanced degree (M.A./M.S./Ph.D./etc)

4. Are you currently attending college or university?
    Yes
    No

5. I am a citizen of:
    United States
    France
    Other (please specify)
        _____

6. How many years have you studied a foreign language? If you have studied more than one, please count only the one you have spent the most time studying.
    _____

[Screen 10]

If there are any other topics or opinions you would like to express regarding either video games and foreign language learning or this survey, please do so in the space below.

Thank you for participating in this survey.

Appendix B
French Survey

[Écran 1]

Merci de prendre le temps de participer à ce sondage. J'effectue ce sondage afin de mieux comprendre l'attitude des étudiants envers les jeux vidéo et l'apprentissage des langues étrangères. Les données que je rassemble seront utilisées pour ma thèse de Master. Cela devrait vous prendre à peu près 5 à 7 minutes pour répondre à ce sondage.

Veuillez lire les affirmations ci-dessous avant de continuer :

A. Je participe à cette étude de mon plein gré. Je peux arrêter de participer à tout moment avant de terminer le sondage sans aucune conséquence.
B. Toutes les réponses au sondage seront anonymes.
C. La participation à cette étude n'entraînera aucun risque physique, émotionnel ou psychologique à l'encontre des participants au sondage.
D. Je peux poser des questions sur tout aspect du projet que je ne comprends pas avant de décider de ma participation. Vous pouvez contacter Trent Hoy par courriel électronique à thoy@utk.edu
E. Si vous avez des questions à propos de vos droits en tant que participant à ce sondage, vous pouvez contacter un représentant de l'Université du Tennessee par téléphone à 865.974.3466.

Je comprends les affirmations ci-dessus et en cliquant « Oui », j'affirme que je suis âgé au minimum de 18 ans pour pouvoir participer.

[ ] Oui
[ ] Non

[*Si le participant indique « oui », passez à l'écran 2, sinon* : Merci pour votre intérêt pour ce sondage. Malheureusement, vous ne répondez pas aux conditions nécessaires.**]**

[Écran 2]

Toutes les réponses resteront anonymes et ne seront utilisées que pour les besoins de cette étude. Veuillez noter qu'il n'y a pas de réponses justes ou fausses. Vous aurez l'occasion à la fin du sondage d'exprimer votre opinion sur d'autres thèmes qui ne sont pas abordés dans les questions suivantes. Je vous remercie de nouveau pour votre participation et l'honnêteté de vos réponses.

Le mois dernier, avez-vous utilisé un des appareils de la liste ci-dessous pour jouer des jeux vidéo ?

Un téléphone portable
Un ordinateur personnel – Jeux sur navigateur internet (Facebook, Yahoo!, etc.)
Un ordinateur personnel – Jeux en ligne ou non, nécessitant l'installation d'un logiciel (MMO, Les Sims, etc.)
Une console de salon (Wii, Xbox 360, PlayStation 3, etc.)
Une console portable (Nintendo DS, PlayStation Portable, etc.)
Autre (iPod, iPad, etc.)

[ ] Oui
[ ] Non

[Si « oui », allez à l'Écran 3. Si « non », allez à l'Écran 5.]

[Écran 3]

Pendant une journée ordinaire, combien de temps passez-vous à jouer à des jeux vidéo sur des appareils de la liste ci-dessous ?

	Je n'utilise pas cet appareil pour jouer à des jeux vidéo	Moins de 30 minutes	30 minutes à 1 heure	1 heure à 3 heures	Plus de 3 heures
Un téléphone portable					
Un ordinateur personnel – Jeux sur navigateur internet					
Un ordinateur personnel – Jeux enligne ou non, nécessitant l'installation d'un logiciel					
Une console de salon					
Une console portable					
Autre					

Si vous avez marqué "Autre" sur la liste ci-dessus, veuillez préciser quel appareil vous utilisez pour jouer aux jeux vidéo.

_____

[Écran 4]

Veuillez classer les propositions suivantes de 1 à 5 selon leur degré d'importance, 1 étant "sans importance" et 5 "très important" :

	Sans importance	2	3	4	Très important
La facilité d'utilisation (la prise en main et les commandes sont simples, ce qui rend le jeu facile à utiliser)					
Les graphismes					
Le gameplay/La jouabilité (l'amusement et le divertissement basés sur les mécaniques de jeu en jouant seul ou avec les autres)					
La possibilité d'interagir avec les autres joueurs					
La possibilité de jouer pendant de courtes périodes de temps					
L'intrigue					

[Allez à l'Écran 6.]

[Écran 5]

Imaginez que vous jouez aux jeux vidéo. Veuillez classer les propositions suivantes de 1 à 5 selon leur degré d'importance en vous encourageant à jouer, 1 étant "sans importance" et 5 "très important" :

	Sans importance	2	3	4	Très important
La facilité d'utilisation (la prise en main et les commandes sont simples, ce qui rend le jeu facile à utiliser)					
Les graphismes					
Le gameplay/La jouabilité (l'amusement et le divertissement basés sur les mécaniques de jeu en jouant seul ou avec les autres)					
La possibilité d'interagir avec les autres joueurs					
La possibilité de jouer pendant de courtes périodes de temps					
L'intrigue					

[Écran 6]

Veuillez classer les affirmations suivantes sur une échelle de 1 à 5, 1 étant « pas du tout d'accord », 3 « moyennement d'accord », et 5 « tout à fait d'accord. »

1. Apprendre une langue étrangère m'intéresse.

1 2 3 4 5

2. Apprendre des choses sur les cultures étrangères m'intéresse.

1 2 3 4 5

3. J'ai étudié/étudie/étudierai une langue étrangère pour parce que c'était/c'est/ce sera obligatoire.

1 2 3 4 5

[Écran 7]

En vous basant sur votre expérience personnelle, veuillez classer l'efficacité des activités suivantes pour l'apprentissage des langues étrangères sur une échelle de 1 « pas très efficace » à 5 « très efficace. » Si vous n'avez aucune expérience dans ce domaine, veuillez choisir « NSP. »

	pas très efficace	2	3	4	très efficace	NSP
Les fiches d'exercices de grammaire						
Les jeux de rôles / Les mises en situation						
Les listes de vocabulaire						
Regarder des films dans une langue étrangère						
Écouter de la musique dans une langue étrangère						
Communiquer avec des locuteurs natifs						
Visiter un pays étranger						

[Écran 8]

Tout en gardant à l'esprit que le terme « jeux vidéo » comprend plusieurs éléments tels que les consoles, les applications mobiles, et les jeux sur Facebook, veuillez classer les affirmations suivantes sur une échelle de 1 à 5, 1 étant « pas du tout d'accord », 3 « moyennement d'accord », et 5 « tout à fait d'accord. »

1. Les logiciels peuvent être utilisés de manière efficace afin d'enseigner les langues étrangères.

1 2 3 4 5

2. Les logiciels devraient être utilisés de temps en temps afin d'enseigner les langues étrangères.

1 2 3 4 5

3. Les jeux vidéo peuvent être utilisés de manière efficace afin d'enseigner les sujets scolaires.

1 2 3 4 5

4. Les jeux vidéo devraient être utilisés de temps en temps afin d'enseigner les sujets scolaires.

1 2 3 4 5

5. Les jeux vidéo peuvent être utilisés de manière efficace afin d'enseigner les langues étrangères.

1 2 3 4 5

6. Les jeux vidéo devraient être utilisés de temps en temps afin d'enseigner les langues étrangères.

1 2 3 4 5

7. Jouer à des jeux vidéo pertinents pour l'apprentissage d'une langue étrangère serait une utilisation valable du temps passé en classe.

1 2 3 4 5

8. Jouer à des jeux vidéo pertinents pour l'apprentissage d'une langue étrangère serait une utilisation valable du temps passé en dehors de la classe.

1 2 3 4 5

9. Je jouerais à un jeu vidéo s'il pouvait m'aider avec mes cours de langues.

1 2 3 4 5

10. Les jeux vidéo et l'école devraient rester séparés.

1 2 3 4 5

[Écran 9]

1. Vous êtes :
    Un homme
    Une femme

2. Quel âge avez-vous ?
    _____

3. Quel est le niveau d'étude le plus haut que vous avez atteint ?
    Brevet des collèges
    Baccalauréat
    Licence
    Un diplôme de deuxième ou troisième cycle (master, doctorat)

4. Êtes-vous actuellement étudiant ?
    Oui
    Non

5. De quel pays êtes-vous citoyen ?
    La France
    Les États-Unis
    Autre (veuillez préciser)
        _____

6. Pendant combien d'années avez-vous étudié une langue étrangère ? Si vous en avez étudié plus d'une, veuillez choisir celle que vous avez étudiée le plus longtemps.
    _____

[Écran 10]

S’il y a d’autres thèmes que vous voudriez aborder ou d’autres opinions que vous voudriez exprimer à propos des jeux vidéo et de l’apprentissage des langues étrangères ou de ce sondage, veuillez utiliser l’espace ci-dessous.

Merci d’avoir participé à ce sondage.

Appendix C
Student *Zon* Evaluation Form

Zon Questions

Name: (type your name here)

Gameplay

1) Please discuss *Zon*'s gameplay. Was it fun? Were the instructions clear? Did you like the style? Was it newbie friendly? Etc.

2) List any pros/cons you experienced.

3) How could the gameplay be improved?

Language Learning

1) Please discuss how *Zon* teaches Chinese. Is it intuitive? Were the concepts well ordered, presented, and explained? Etc.

2) What did you like/dislike about how the Chinese language was presented? Consider all four aspects of language: reading, writing, listening, and speaking.

3) How could the teaching component be improved?

Culture

1) Please discuss *Zon*'s presentation of Chinese culture. Was it interesting? Did you learn anything? Etc.

2) What did you like/dislike about how Chinese culture was presented?

3) How could the culture aspect be improved?

Additional Questions

1) What are your thoughts on *Zon*'s potential? That is, if all of the above issues were addressed, do you think it would be a fun and effective way of learning Chinese?

2) One of *Zon*'s features is the ability for teachers to create virtual classrooms within the game using something similar to a "Friend List." If this could be integrated into BlackBoard, how would you feel about "attending" class in-game or receiving grades based on in-game interactions?

3) If this game could be integrated into Facebook, would you play with your friends just for fun?

Additional Comments

Vita

Trent Hoy was born in Oklahoma City, OK, but grew up in Knoxville, TN. After graduating from Christian Academy of Knoxville, he attended the University of Tennessee where he majored in French. Upon graduation in May 2008, Trent was accepted into the JET Programme and traveled to Japan, where he taught English and French at Ōita Higashi High School. When he returned to the United States in late 2009, he chose to continue his education, once again in French at the University of Tennessee where he accepted a graduate teaching assistantship. During June 2010, he studied abroad in Paris, France with professor and thesis committee member, Dr. John Romeiser. Teaching elementary French since Fall 2010, Trent is now shifting gears, aiming to obtain a career in educational game design.