

# **VIDEO GAMES AROUND THE WORLD**

**edited by Mark J. P. Wolf**

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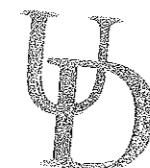
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## ARGENTINA

Graciela Alicia Esnaola Horacek, Alejandro Iparraguirre, Guillermo Averbuj, and María Lujá Oulton

35 - 55

In Argentina over the last thirty years, the consumption of technology in general, and video games in particular, has increased due to the new distribution platforms (social networks) and the massive use of mobile devices (such as tablets and smartphones). These “cultural products” (Garcia Canclini 1999) have allowed millions of users to be connected online simultaneously. These global technologies helped digital games become a mass-consumption product.

Argentine research from 2005 to 2011<sup>1</sup> discovered that video games account for 70% of the cultural consumption of youths age ten to eighteen years old. The profile of the typical gamer has changed and is no longer a computer-savvy young boy who spends many hours per day playing video games. Nowadays, video game culture has reached several generations and a broad demographic, and the experience of gaming varies greatly, depending on the type of application, platform, or device chosen. The video game industry developing in Argentina is focusing on this expansion, designing products according to this variety of platforms and user profiles.

Due to the expansion of the global market, activity in Latin America has increased, especially in Argentina, Brazil, and Chile. As a consequence, in 2000, the Asociación de Desarrolladores de Videojuegos of Argentina (Argentine Videogame Developers Association, ADVA) was founded by young Argentine dabblers. This association works actively in one of the most dynamic areas of Latin America: video games. This sector employs young professionals in charge of programming, design, illustration, script, and music.

In the beginning, Argentina's advantage in the development of video games was the low cost of production while keeping its high quality. Nowadays, the Argentine industry has become professionalized, and their services are better valued, achieving creativity and capacity.

Today, video games can be defined as a “multimedia environment of cultural convergence that requires the confluence of disciplines such as cinema, music, video, animation, in an immersive technological system” (Esnaola Horacek 2013). Video games can help connect generational interests among adults and teenagers, professors, and students because everybody shares this ludic environment. Video games are also a venue for transmedial storytelling, mixing fantasy and adventure in worlds where gamers identify constantly with their avatars.

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## From Gamers to Developers and Game Designers

In Argentina, the video game industry is very new, with rapid development as evidenced by the growth of employment: 156% from 2009 to 2012, with the annual income of the sector increasing 342% over the same period, according to the data of the National System of Cultural Statistics, Argentina.<sup>2</sup> Also, 95% of that amount is for export earnings.<sup>3</sup>

Since 1988, more than a few firms have established offices in Argentina, such as Sabarasa (1996, Javier Otaegui, <http://www.sabarasa.com>), Evoluxion (1996, Santiago Siri, <http://www.evoluxion.com>), CyberJuegos (1997, Ariel and Enrique Arbister, <http://www.cyberjuegos.com>), Codenix (1999, Ariel Manzur, Juan Linietsky, Alejandro Iparraguirre, <http://www.codenix.com>), LatDev (2001, Guillermo Averbuj, <http://gamester.com>), NGD Studios (2002, Andrés Chilkowski, Nicolás Lamanna and others, <http://www.ngdstudios.com>), and Moraldo Games (2003, Hernán Moraldo, <http://www.games.moraldo.com.ar>). Other companies that have established their offices in Argentina include Gameloft (2002), Globant (2003), Three Melons (2005), QB9 (2005), and Metrogames (2008). Some companies work exclusively in the video game industry and are strong exporters: 95% of national production is intended for the international market, and 80% of local companies have customers in the United States.

There are at least sixty-five companies that develop video games in Argentina, in addition to the community of independent developers (organized as the Comunidad INDIE). These companies are producing USD \$50 million in sales volume per year and generate more than two thousand jobs for highly skilled professionals. The games created in Argentina are sold to distributors and generate up to USD \$500,000 for large publishing houses. As such, Argentine developers are well recognized throughout the world.

Since 2000, the ADVA (<http://www.adva.com.ar/>) has annually organized an Exhibition of Argentinean Games (EXARGA, <http://expoeva.com/>). It manages CODEAR (Concurso Desarrolladores de Videojuegos Argentinos), and COREAR (Concurso de composición de música para videojuegos), a contest for new developers (CODEAR) and for video-game musicians (COREAR) whose winner receives an award for the best musical composition for video games.

The ADVA is now the leading international reference for any company or individual interested in finding new business opportunities and connecting with the community of game developers in Argentina. According to the ADVA's statistics for early 2013, the video game industry in Argentina has 90% of its games exported to the United States, Europe, and Asia. The ADVA estimates that there are seventy companies (most of which began operating after the year 2000) and 2,000 professionals (including designers, artists, illustrators, programmers, engineers, writers, testers, and musicians), with an average age of twenty-seven, working in different areas within the development process: mobile phones, the Web, advergames, PC games, edutainment, console-based games, and social games. In recent years, developers from other regions of Argentina have begun meeting in small associations linked to the ADVA, such as the Asociación de Desarrolladores de Videojuegos de Rorario (ADVR).

Also, talented Argentines working at game companies are able to offer creative and innovative ideas to complementary industries such as film, television, and advertising. Now that the video game sector has the support of the government, careers for future game developers can be found in the country.

## The Early Years of Video Games in Argentina, 1980–2000

Most arcade games of this period were introduced and licensed by foreign game developers, such as Atari's PONG (1972) or Taito's Space Invaders (1978). In the early 1980s, Namco's Pac-Man (1980) and Nintendo's Mario Bros. (1983) were the hottest games and the first ones played by many local players. Their unlicensed merchandise flooded the market. The first domestic production of a video game in Argentina was the popular "card-trick game" Juego de Truco (1982), developed by Ariel and Enrique Arbiser, and the 1986 version was updated to have CGA graphics (see <http://www.dc.uba.ar/people/materias/pf/truco>). This game had a great influence because it was based on a very popular Argentine card game.

Naomi Marcela Nievas, who used the pseudonym "Sharara," designed another early video game. She was one of the first national game developers who developed the game Scrunff (1985), programmed in Assembler 8086 on the Z-80 for MSX consoles, and even participated in the creation of a game compatible with the SEGA Genesis console in 1990. Her other works include digital jukeboxes, electronic bingo, and digital slot machines. Nievas was one of the first women to join the video game industry; today, others are working in this sector, but there are only a few women employed at the level of their male counterparts.

Arcade games were popular in the 1980s and 1990s, especially among young males. Some of the most popular games were Scrunff (1985–1988), Guip (1985–1988), the Arkanoid-like game Killers (1985–1988), Asteroids (1985–1988), Bichos (1985–1988), Gussy (1990), and Burbuja John (1992), a four-color labyrinth game developed for CGA monitors. Other games include Juego de Escoba 15 (1994), developed by Ariel Arbiser (see <http://www.dc.uba.ar/people/materias/pf/truco>); Regnum (1995) by the Conde Brothers, Paul Zuccarino, and Andrés Chilkowski; Cristian Soulos's fighting game Nemen vs Llovaca (1995); Regnum 2 (1996), which appeared on CD-ROM; and the massively multiplayer online role-playing game (MMORPG) Regnum Online (2007), published by NGD Studios (see figure 1). Caimán Company (<http://www.caiman.com.ar>) has developed software since 1996, including the Yo, Matías series of games (based on the comic strip) and the collection 6 Grandes Juegos Vol. I (release year unknown), which contains games such as Mahjong, Memotest, Tetris, El Ordenador, Generala, and El Recolector. A second volume, 6 Great Games Vol. II (release year unknown), contained games such as darts, submarines, puzzles, Reversi, Domino, Batalla Naval, and several educational games.

Among the great local productions, a few titles represent the history of Argentinean video games. One of the most memorable titles, Fútbol Deluxe 96 (1996) (see figure 1), was designed by Santiago Siri and published by the company Strategy First (<http://www.strategyfirst.com>). Fútbol Deluxe 96 was written in Visual Basic and Flash and was the first Argentine game to be publicized internationally. The game is a tactical football simulator and assumes the role of the trainer, while the player must direct a league team from Argentina. The

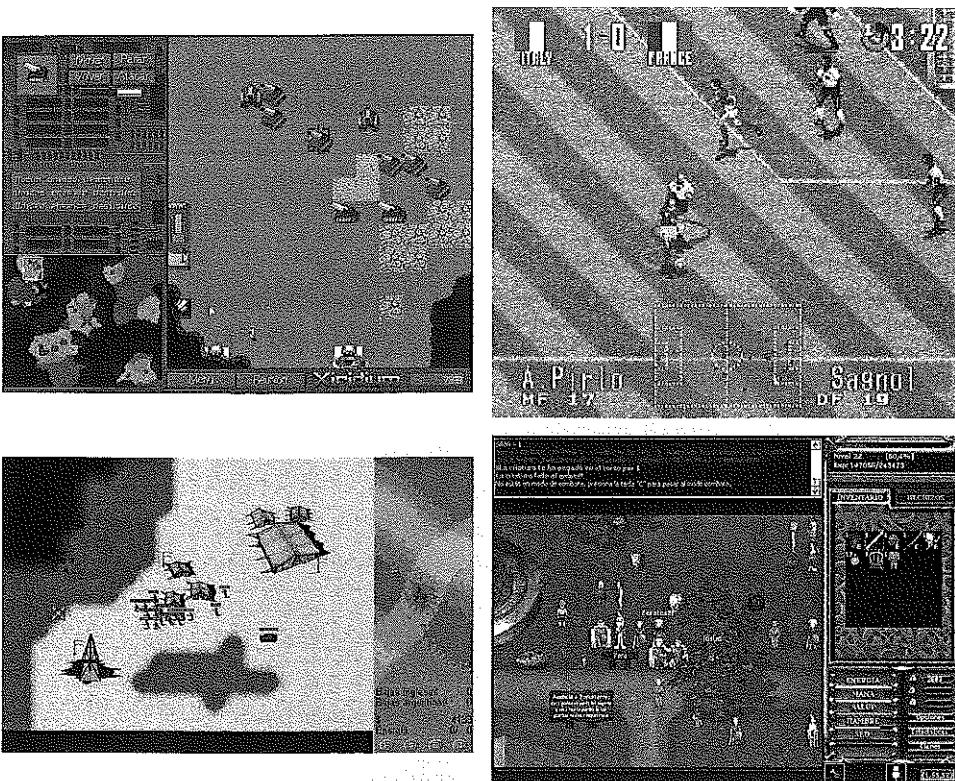


Figure 1

*Regnum* (1995) (top left); *Fútbol Deluxe 96* (1996) (top right); *Malvinas 2032* (1999) (bottom left); and *Argentum Online* (2000) (bottom right).

player can buy and sell players, make all kinds of decisions, and compete in the Copa Libertadores, Conmebol, and Intercontinental for maximum achievement.

Other games of note are *Nuku* (1997), a horizontally scrolling platform game compatible with Game Boy Advance, developed by Juan Linietsky and Pablo Selener ([see <http://reduz.com.ar>](http://reduz.com.ar)); *Bizarreh* (1998), a platform game, and *Edia* (1999), a ship-game for two, both developed by H. Hernán Moraldo; the platform/adventure game *Dapharen's Fear* (1999); *Malvinas 2032* (1999), a military strategy game developed by independent developer Javier Otaegui and rereleased in 2000 by Edusoft (see figure 1); *Cóndor* (2000), a platform game designed by Nicolas Vinacur, Juan García, and Marcelo Rubinstein (<http://www.sabarasa.com>); and *324—El chofer mercenario* (2001) and *Porko vs Dex* (2002), both designed by Leandro Barbagallo and Diego Trasante. Most of the video games developed in Argentina are registered at [http://le\\_porko.tripod.com/](http://le_porko.tripod.com/). (See [http://members.tripod.com/le\\_porko/historia/](http://members.tripod.com/le_porko/historia/) for examples of games developed in Argentina.)

Argentine history is represented in *Malvinas 2032* (1999), a real-time strategy game in which the player commands Argentine forces and tries to retake the Falkland Islands for Argentina. It was developed by Sabarasa Entertainment. *Malvinas 2032* takes place in 2032, the fiftieth anniversary of the Malvinas War. On that date in the future, there is a deep worldwide oil shortage, and the Argentine government has asked the British government to share oil exploration in the Malvinas. Given the refusal of the British, the Argentine president decides to retake the islands. There the action begins for the player, who will command the troops to destroy the enemy and reclaim the islands. The game has a total of twenty-three stages, which, if met, lead to the ultimate recovery of the Malvinas islands. The first stage is the landing at Puerto Argentino, and as the stages progress, the game's difficulty increases. The game ends when all the land is taken. While the graphics do not achieve excellence, they are still well done, and the game gives a historical account of the Malvinas War of 1982.

One of the most famous local games, *Argentum Online* (2000), a free, online, role-playing game, was developed by Pablo Márquez (alias "Gulfas Morgolock"), at age twenty, aided by Fernando Testa (a fellow university student in the city of La Plata) and Javier Otaegui. This was Argentina's first online game, and the test server used a domestic broadband connection. It was a 2-D medieval RPG drawn with oblique perspective, similar to *Ultima VII: The Black Gate* (1992) (see <http://www.argentumonline.com.ar>) (see figure 1). Many members of the community of gamers are committed to the project, participating in both the development and in the maintenance of the game. The project was developed with minimal (and personal) resources: computers and spare time. Since 2000, the game has been running continuously on the Internet. For almost three years, the community increased its size a thousand times, and as of 2013, thousands of people enjoy the game. The game takes place in a fantasy world called Argentum, with forests, mountains, rivers, seas, and cities. The fun of the game is that you are not alone; there are hundreds of people who represent characters with whom you interact, communicate, or fight (<http://www.argentumonline.com.ar>).

## The Rise of the Argentinean Video Game Industry

### The Argentine Videogame Developers Association (ADVA)

Beyond the first developments, a mailing list named "juegosar" was created in Yahoo! Groups in 2000 for news and discussions of the developing video game industry. Developers who participated in this list included Nicolas Massi, Javier Otaegui, Santiago Siri, H. Hernán Moraldo, Juan Linietsky, Daniel Benmergui, and Nicolas Lamanna. Lamanna also started a Forum named the ADVA, which today can be found at [www.duval.vg](http://www.duval.vg).

The first administrative committee of the ADVA included Andrés Chilkowski, Javier Otaegui, Hernán Moraldo, Santiago Siri, Nicolás Lamanna, Daniel Benmergui, Guillermo Averbuj, Sebastian Uribe, Juan Linietsky, and Fernando Mato. Also, Santiago Siri designed and Nicolás Lamanna programmed the first interactive website for the ADVA. The second and third versions were created by Santiago Siri, Guillermo Averbuj, and Nicolás Lamanna (for more information, see <http://www.youtube.com/watch?v=OttNgR9pkIU>).

The year 2004 saw the legal foundation of the ADVA (<http://www.adva.com.ar>), which remains formally registered in its historical articles as an association (see "Historical articles of Association," <http://www.adva.com.ar/public/downloads/estatuto.pdf>). Another point in this history was the organization of the Video Games Exhibition in Argentina (EVA-ADVA). As of 2013, this event has run for eleven consecutive years, becoming the largest event of the video games industry in Argentina. Since 2003, the ADVA has organized the Argentine Videogames Expo (EVA) in Buenos Aires. Every year, this event is visited by thousands of attendees, who come from all over the world. Like the Game Developers Conference (GDC), the EVA consists of a series of conferences about game development where people gather to learn about the latest advances in programming, game design, art, and business in the industry. The EVA is now a massive success, supported by more than forty sponsors, including Sony, Vostu, Cartoon Network, and Gameloft, among others. Guillermo Averbuj (<http://gamester.com.ar>) has been the committee chair of the organizing committee, centralizing the production and operative management of the EVA from 2003 to 2007.

### **The First Historic Steps in the Sector**

The history of Argentinean video game companies begins with Sabarasa Entertainment (based in California), which had a studio in Buenos Aires since 1996, with Javier Otaegui as the CEO. Sabarasa produced one of the first computer strategy games in the region, *Malvinas 2032* (1999), and was the first company to be licensed by Nintendo to create games for the Game Boy Advance, Nintendo DS, and the Wii, as well as for the Sony PSP. Their games include *Horizon Riders* (2010), *Save the Turtles* (2010), *ALT-PLAY: Jason Rohrer Anthology* (2010), and others. Inspired by Sabarasa's success, Evoluxion was founded by Santiago Siri in 1996 and became one of the pioneering game development companies of Argentina. Siri directed the production of *Fútbol Deluxe 96*, the first Argentine game to receive a worldwide distribution deal.

Since 1997, the Argentinean Cyberjuegos.com has been a gaming social network for Latin America and Brazil, producing and delivering casual multiplayer games. With Roby Krygel as creative director and CEO, and more than one million registered users, Cyberjuegos has created a strong Spanish-speaking community of social gamers. Another pioneer firm, Codenix (founded in 1999), was a company that participated in the creation of NGD Studios (see below), offering technology and then serving as a consultant to several companies. Currently Codenix is one of the few companies that provide technology and consultancy services. LatDev Games & Tech, founded by Guillermo Averbuj in 2001, has created many websites, games, and software. Today, Averbuj produces events around video games with Gamester and has helped PixOwl develop the first sandbox game designed in Argentina, *The Sandbox* (2012) (see <http://www.thesandboxgame.com/team.html>).

Other studios established in Argentina since 2000 include Gameloft, which was founded in 1999 in France and came to Argentina in 2002. Gameloft creates games for digital platforms including mobile phones, smartphones, and tablets (including Apple iOS and Android devices), set-top boxes, and connected TVs. Gameloft operates its own established franchises. Another of the historic firms registered is GlobalFun, founded in Sweden in 2000. To support their local markets, GlobalFun also operates in the United States, Argentina, Spain,

and Italy. GlobalFun is a publisher and developer of high-quality mobile games, and GlobalFun Argentina has produced games for various franchises including Ben 10, The Powerpuff Girls, Scooby-Doo, The Brak Show, and other games such as *Tank Racer* (2005), *Billy the Kid 2: Hunted* (2006), *Robin Hood* (2007), and *Great Legends: Vikings* (2008). GlobalFun Argentina was the result of Swedish company GlobalFun's purchase of the mobile games division from NGD Studios.

NGD Studios, located in Buenos Aires and founded in 2002, was started by Pablo Zuccarino, Andrés Chilkowski, Eugenio Insausti, Fernando Testa, Matías Pequeño, Nicolás Lamanna, Cesar Guarinoni, and Eduardo Gohyman. They were the creators of the game *Mis Ladrillos* (2002), a game for a construction kit toy similar to LEGO bricks. NGD is best known for *Regnum Online* (2007), the biggest MMORPG made in Latin America, and other games including *Regnum* (1995) and *Regnum Online* (2007), now known as *Champions of Regnum*, and the first Argentinean game made especially for Steam, *Bunch of Heroes* (2011), a cooperative action game (allowing for up to four players at once). *Champions Of Regnum* (<http://www.championsofregnum.com/>) is a free-to-play 3-D medieval fantasy MMORPG, with the option to pay for premium content. The game is based on battles between realms and brings together a global community of players. The game was published in Germany, Brazil, the United States, and other countries around the world. NGD's other game of note is *Bunch of Heroes* (<http://www.bunchofheroes.com/>), which is exclusive to the Steam digital distribution platform. Additionally, NGD made a game for Cartoon Network called *Maldark: Conqueror of All Worlds* (2011). NGD is using its extensive experience in building player-versus-player and cooperative gameplay to create intense, engaging, and high-quality games for the PC, consoles, and other platforms.

Globant, founded in 2003, is a Latin American company that creates software products for global audiences. Globant is focused on engineering, art and design, social networks, and game development. Since 2002, Globant has been doing outsourcing for Electronic Arts and has participated in the design of various important games, the most famous of which is *FIFA 12: UEFA EURO 2012* (2012).

Some companies lasted only a few years. Nucleosys Digital Studio, founded in 2003 by Agustin Cordes and Alejandro Graziani, specialized in adventure games. *Scratches* (2006), a graphical adventure game, was well received and later published on Steam, with *Scratches: Director's Cut* (2007) released the following year. On July 15, 2009, it was announced that Nucleosys would be disbanded, and Cordes went on to found Senscape in 2010, with another graphical adventure, *Asylum*, in the works. Moraldo Games (later known as Moraldo Tech), led by Horacio Hernán Moraldo from 2003 to 2008, developed advertising technologies that were used in some of the largest companies worldwide, including mixed and virtual reality technologies, computer vision algorithms, and many single-player and multiplayer games.

Three Melons was founded in 2005, with an office in Buenos Aires and a business development office in Los Angeles, California. They worked on successful *LEGO Indiana Jones* and *LEGO Star Wars* Web-based games, the game *Gardens of Time* (2001) (which won the "Best Social Network Game 2011" Game Developers Choice Online Award), and 3-D MMOGs with top advertisers and media companies, and also developed *MelonDaiquiri*, a 3-D Flash/Silverlight game development framework. In March 2010, Three Melons was bought by Playdom, which itself was acquired by Disney in August 2010.

Finally, casual game developer QB9 was founded in 2005 and has grown to have a team of more than thirty-five employees designing Web-based games, PC/Mac games, and games for the PlayStation Portable. They have partnered with some of the most successful IP holders, including Comedy Central, VH1, and Shockwave, and have created game design courses at the University of Palermo in Buenos Aires. QB9 is also a member of the ADVA's Education Commission.

## New Trends in the Industry

As of 2013, there are several trends regarding specific content and game development within the Argentinean video game industry, including advergaming and social games. Companies such as QB9, MetroGames, and others are developing social games that have been launched on Facebook and Orkut. The massive company Vostu landed in Argentina, betting on the local industry, with six hundred jobs. The first national advergaming event is registered at <http://www.advergaming.com.ar>. Another area of development is that of edutainment, with educational content used as support for teachers. Events and communities related to educational video games support this trend on the part of the national government, with series of thematic games. This section for players contains a series of events related to the theme, highlighting the International Symposium of Videogames and education in the Model 1-on-1 and the development of international groups of playful pedagogical researchers, such as *Grupo Alfas: Ambientes Lúdicos facilitadores de aprendizaje*, coordinated by Dr. Graciela Esnaola Horacek (the Web page for the conference Video Games in the Model 1-on-1 International Symposium of Edutainment can be found at <http://gamester.com.ar>) (see figure 2).

Video games have been declared a cultural industry by the National Culture Secretary (<http://www.cultura.gob.ar>), and nowadays this industry is included in the national events of MICA (Mercado de Industrias Culturales Argentinas/Market of Argentine Cultural Industries) (<http://www.mica.gob.ar>). MICA (with sectors in art, design, video games, publishing, and music) is the first space in Argentina to bring together different activities of the various cultural industries in order to promote business, exchange information, and show their products to the world. MICA gives producers and artists a chance to meet with leading industries' companies worldwide and open up new business opportunities. These gatherings extend to different zones of the country and promote the meeting of business associations, national institutions, and small- to medium-sized companies.

International game publishers such as Axeso5 (<http://www.axeso5.com>) and 6 Waves (<http://www.6waves.com>) have brought games for all platforms to Argentina, and other publishers, including Square Enix, Electronic Arts, and Riot Games, have their games imported into Argentina. This, along with the rise of local development, has led to greater decentralization. The ADVA also promotes the development of groups from other regions of the country outside the Buenos Aires area, including Jujuy, Santa Fe, Mendoza, and Cordoba. The first local group of developers landed in Rosario in the Santa Fe Region. Also, there are websites and initiatives, some of them supported by the ADVA, which run autonomously to provide support or services

to the local industry, such as Industria VG (<http://www.IndustriaVG.com.ar>), Desarrolladores Unidos de Videojuegos de América Latina (DUVAL) (<http://www.DUVAL.VG/>), VG Map (<http://www.VGMap.com.ar>), Gamejoint: Connecting Independent Developers (<http://www.game-joint.com>), Gamester (<http://gamester.com.ar>), and City Network (<http://www.citynetworkhosting.com.ar>). News of events and communities within the games sector can also be found at LatinGamers (<http://www.latingamers.net>), LocalStrike (<http://www.localstrike.net>), and more.

## Music and Video Games

One sector of the video game industry that is still small but growing is that of video game music, which began at the amateur level around 2005. One of the earliest composers is Christian F. Perucchi, who began doing freelance sound and music for games in 2005. Formally trained, Perucchi specializes in music composition and SFX creation for film, video games, movies, television, and other media. He won the Innovar 2008 award for Oniric Games's *Time of War* (2008) and a 2010 ADVA CODEAR award. Juan Cavagnaro, an indie composer who wrote music for Three Melons and currently for Dedalord, scored games including *Running Fred* (2012), which was the best-selling Argentine video game of 2012, and *Boorder X Battle* (2010) for Disney and ESPN through developer Three Melons. He was also the first musician to play live at the Exhibition of Argentina both in 2008 at the San Martín Cultural Center (EVA2008) and at the University of Belgrano the following year (EVA2009). Cavagnaro edited the EPs *Valvular* (ECC83) (2008), *Spontaneo* (2009), and *Steve Hyuga* (2009), which was a tribute to Nintendo's Japanese video game *Captain Tsubasa Vol. II: Super Striker* (1990), the soundtrack of the original game music in *Jazzecity* (2009), *Incestibleach* (2012), *TIC TOC* (2013), and *Songs of Impending Doom* (2012), which featured music from Dedalord's Fred video game saga (which includes *Falling Fred Z* [2011], *Running Fred* [2012], *Super Falling Fred* [2013], and *Fred Skiing* [2013]).

## Art and Video Games

The history of art and games goes back to the beginning of mankind, when art and games were part of a magic circle. As time went on, men broke down the circle, but it kept fighting back. Games and art have reunited on different occasions, most recently mediated by technology and under the shape of art games: an art movement that arises from two parallel sides, video games and new media art. In Argentina, we are still taking our first steps. Within the field of video games, the pioneer and main figure is Daniel Benmergui, an independent game developer renowned worldwide for his experimental and art games. His latest game, *Storyteller*, was recognized with the Nuovo Award at the Game Developers Conference in 2012.

The Argentinean indie scene is mostly recognized for developing experimental video games. There are a few developers toying around with the concept of art games, as is evident in such games as *Lumiere* and *Nycteris* (2010) from Martin Gonzalez; *Rabbit Fable* (2013) from Santiago Javier Franzani; *Panoramical* (2012), a collaborative project from Fernando Ramallo and David Kanaga; or the works of Agustín Pérez Fernández

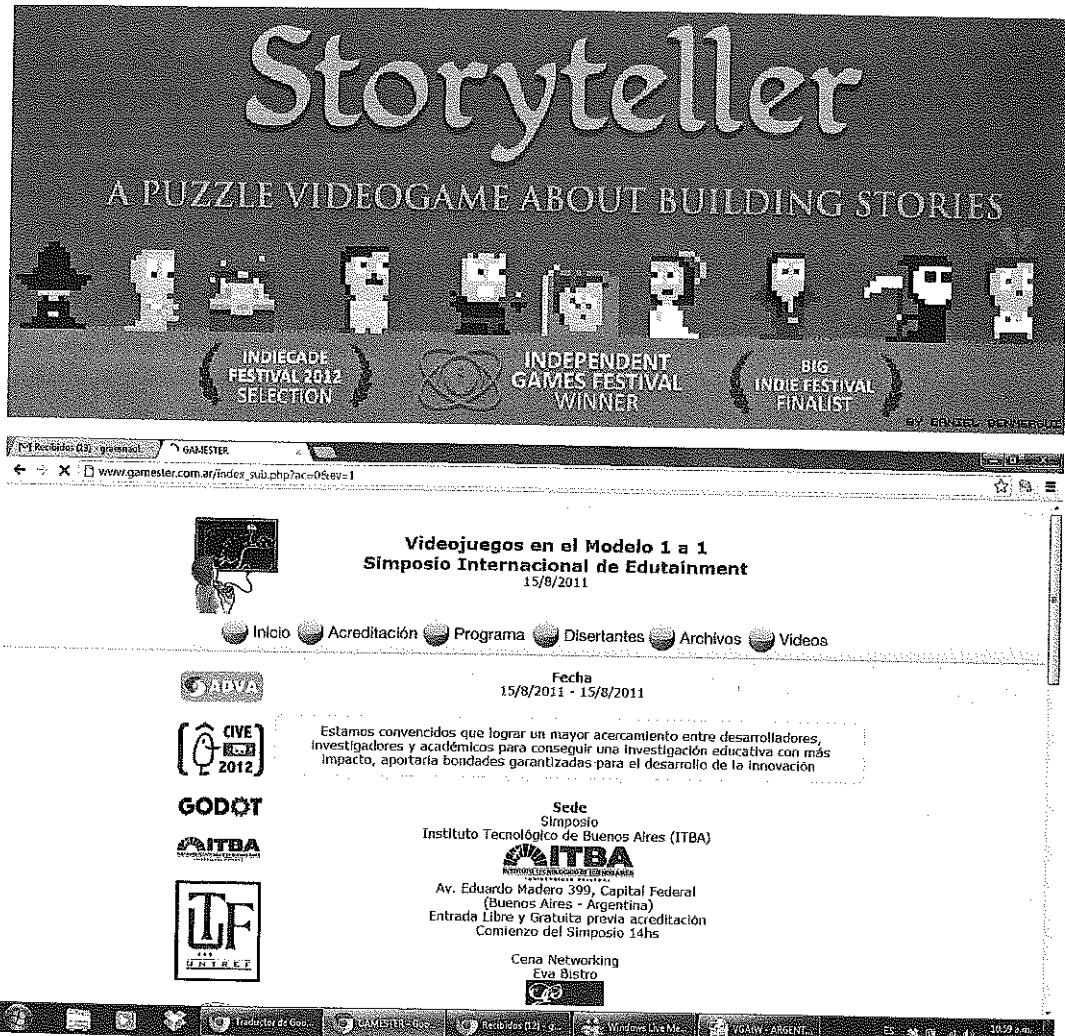


Figure 2

*Storyteller* (2011) by Daniel Benmergui, a puzzle game about the construction of stories (top), and the webpage for the conference video games in the Model 1-on-1 International Symposium of Edutainment (bottom).

(known as "Tembac"). While there isn't yet a common agreement on the meaning of art games, the term usually rests on the notion of conceptual proposals, meaningful subjects, and disruptive game play mechanics. Perez Fernandez's works are the closest to conceptual art; he usually relies on video games as a tool to convey some sort of statement, whereas Benmergui's works are more related to the history and language of games. As for commercial developments, there have not yet been any games that could be categorized as experimental or artistic.

The potential of video games as art was first explored in Argentina around 2004. The results were usually mods: subversions of existing works or precarious video games designed as sociopolitical criticism. The artists generally saw video games as a new medium, but they lacked real knowledge of the tools; their works weren't as engaging as video games, neither in their game mechanics nor in their aesthetics. However, most recently and since the popularity of tools such as the Kinect camera or the PlayStation Move controllers, there has been a new twist in the works of new media artists. They are creating interactive-ludic installations, new fancy games designed as artistic experiences, and a new wave of works is appearing.

According to the theorist and media artist Monica Jacobo (2012), the first experiment in the field was Ricardo Pons's *Pulqui II* (2004): the reconstruction of the first flight of an airplane prototype commissioned by Peron in the 1950s. Then came *Casa de Juegos* (2004), an online project coordinated by Andrés Oddone and commissioned by the CCEC, and *Batalla del Rio de la Plata* (2005) from Santiago Tavella and Agustín Blanco, an online version of the mythic marine battle. Jacobo herself started producing artworks related to video games in 2004, always creating mods, video installations, and altered photos, and her first work was *4 minutos 44segundos* (2004). Another famous work was *Cartonero* (2006) from Estanislao Florido, an attempt at a video game that conveys a harsh criticism of the economic downfall of 2001. Other examples of new media artists experimenting with video game concepts or technology include the work of Gabriel Rud (a pioneer in machinima), Federico Joselevich Puiggrós, Diego Alberti, Luciano Azzigotti, Joaquin Fargas, Yamil Burguener, Patricio Gonzalez Vivo, and Emiliano Causa and his artistic group Biopus.

Video games have been recently admitted within new media art career programs as another aesthetic possibility, acknowledged as a new tool, ideal for interactive developments. As a result, there is a new wave of young artists' collectives coming up with innovative proposals, such as Proyecto 032, SuperfluoLab, Glitch Studio, and some of the works of CCEBA Media lab. Art games have their own exhibition circuit. In Argentina the first experience was Game on! El Arte en Juego (<http://www.gameonxp.com>), an exhibition on games, art, and technology, created and run by Objeto a (a cultural producer specializing in art and new media). The first edition took place in 2009 uniting indie developers, renowned commercial enterprises, new media artists, digital visual artists, musicians, and a wide range of professionals related to the video game industry. Since its first appearance, Game on! El Arte en Juego has had two more editions and a variety of activities, and has visited different cultural centers and institutions. Different exhibitions around the country have started including video games among their selections. (There have also been some isolated small exhibitions focused only on games, but they didn't prosper.) Some contests such as BridgestoneArte 2013 (<http://www.bridgestonearte.com.ar>) have included video games as a new category, and in July 2013, Fundación Telefónica

launched the first Argentinean digital museum: Espacio Byte (<http://www.espaciobyte.org>). Among its first six exhibitions, two are covering video games.

But there has been very little theoretical production on the subject of video games and art produced in the country. The most relevant works have been the ones from Baigorri (2004), Diego Levis (2011), and Monica Jacobo (2012). Within an academic context, doctoral candidates are now writing theses that focus on the relationship between art and video games.

### **Edutainment in Schools**

In Argentina, from 2003 onward, the “Digital Agenda for Social Inclusion” (<http://www.agendadigital.gob.ar/>) has promoted the inclusion of digital media in education, aimed at the general population. In this scenario, mainly in the classroom, the Programa Conectar Igualdad, which is national in scope, contributes to secondary education (<http://www.conectarigualdad.gob.ar/>) as well as numerous provincial and regional programs. This policy initiative opened up the possibility of including video games in education. Since it is noted that “play” is the main activity of the students when they receive laptop computers, we have discovered two main areas of impact concerning these policy actions: an increase in teachers’ interest in including video games in their teaching activities, and the promotion of the national video game design industry. These video games are considered “multimedia resources that promote interactive activities to review and strengthen knowledge which contain various levels of complexity” (<http://juegos.educ.ar/>) and specifically include language content, mathematics, and education for citizenship.

In relation to this “playful” proposal, we noticed that most of the video games designed for teaching, for the development of skills, or for the acquisition of curricular content ended up losing their “playful” features, resulting in products that children find boring. Edutainment (games with educational aims) is boring for children because the games are often slow and have poor graphics lacking special effects; commercial games, on the other hand, developed with higher budgets and designed as entertainment, are usually more attractive. There is a new point of view in edutainment that considers the educational power of all games, including commercial ones. So, it became necessary for teachers to receive particular training to be prepared for the evaluation and selection of appropriate video games for their students. Edutainment as “learning by playing” is another point of view, which sees video games in school as something to play and enjoy. This is the direction in the latest research in ludic pedagogy (for more information about edutainment and gamification, see the papers at CIVE12 <http://www.uv.es/ordvied/> and CIVE 13 <http://cive13.blogspot.com.ar/>). Another initiative is the Observatory of Videogames (<http://portal.educ.ar/debates/videojuegos>) from the Argentine government. However, it only offers information and updates on the interactive digital games industry and doesn’t generate a teacher training area to include video games in education; this is a weakness in the program.

The latest studies of edutainment argue that digital games can be a form of education that develops complex thinking processes. This is achieved through problem solving and the incorporation of formal and

informal education to create interactive environments and develop skills such as the management of technology and digital information. This definition, however, does not consider the educational value implied by the playful proposal, which must be considered “an artistic, narrative pop-up, hypertext” (Horacek Esnaola 2009) in the technological environment. This definition focuses on the fact that in video games’ narratives, we must consider the mix of genres and styles as a product of multimedia convergence for the particular structure of immersion and interactive aesthetics. In this context, we wish to stress that games are narratives in the convergence of cultural stories, formats, and devices, typical of the “high-tech pedagogy” (Horacek Esnaola 2009), which allows the management of images and sounds through the digitization of procedures. Video games represent a junction of disciplines including film, music, video, animation, and immersion in virtual environments, thanks to the interactivity that facilitates their technological development (Horacek Esnaola 2009).

These, then, are the two approaches to the inclusion of video games in the classroom. These views explain the increase in the number of researchers and amount of postdoctoral research being done that focuses on the sociocultural narrative of video games and their educational potential.

### **The Video Game Industry in Argentina Today**

The beginning of the twenty-first century has seen the inclusion of more demographic sectors in the Argentine video game market. Until the end of the twentieth century, the typical user profile was a male, ten to fifteen years old. Currently, the audience for video games has expanded to children under the age of seven as well as adult men and women. In addition to their use in Argentina, many games are also exported: 95% of the games made in Argentina are destined for the European market, American market, Japanese market, and the markets in other Latin American countries, according to sources in the industry itself (ADVA Dossier 2004). The devaluation of the peso in 2002, along with the emergence (since 2009) of new venues for gameplay such as social network accounts (such as Facebook) and smartphones explains the increase in local industry and consumption in particular.

Some examples of recent successes of Argentine video games include *Bola* (2004), a football game on Facebook, a freemium social game with 100,000 gamers per day; *Más fútbol* (2010), a PC and console game in the FIFA series, which has sold more than 100 million copies in eighteen years and is manufactured in several studios from different countries (in Argentina, the Globant Company develops the menus and tests the final versions of the games before their release); and *Mundo Gaturro* (2010), a virtual world game for children that is played over the Internet. The Digital Media Company (CMD), the Clarín Group with The National Group DRIDKO, and cartoonist Nik with the company’s online game development QB9 decided to sign an agreement to launch *Mundo Gaturro*, which found success among Latin American children, with almost three million active users (see also <http://www.taringa.net/posts/noticias/12536697/Los-videojuegos-argentinos-conquistan-con-goles-y-heroes.html>).

With these products, the Argentine game industry is currently the fourth largest in Latin America—behind Brazil, Mexico, and Chile, according to the ADVA. The video game industry of Argentina already has a workforce of more than two thousand people including designers, artists, illustrators, programmers, engineers, writers, testers, and musicians, who, on average, do not exceed the age of twenty-seven. Currently in Argentina, there are some sixty-five companies linked to video games, the vast majority of which (85%) appeared after 2000. The annual revenue of the sector is around USD \$50 million (ADVA Dossier 2004).

Another fact to consider is the emergence of technical careers and other academic initiatives designed to train professionals for the video game industry. This is a sign of local industry growth. Teachers are mostly from developer companies, searching for original talents among their students. However, the participation of academics or consolidated researchers linked to video games is still very low.

The video game industry in Argentina is one of the country's fastest-growing and most dynamic industries. At the Universidad General Sarmiento (UNGS) in Buenos Aires, between September 2010 and February 2011, customized research of companies in the game industry as a whole was done and the following data was obtained:

- The level of formal education of video game industry employees is not only significantly above that of traditional sectors of industry in Argentina, but it also exceeds the average of university graduates who are working in firms engaged in the production of software in general. With the large number of companies that have done training in recent times, this activity identifies employers who value the establishment of connections, while nearly one in every two signatories has been associated with other organizations with technological and/or commercial objectives.
- The difficulties the sector is facing have to do mainly with the availability, rotation, and specific training of human resources. Also, access to financing is difficult for these companies, mainly due to the shortage of resources for acquiring new hardware and licenses for production.

This report is the product of fieldwork carried out at the national level and based on a survey of fifty-five Argentine game companies, covering a wide range of dimensions associated with organizational dynamics and economic and innovative performance. The participation of firms was supported by the ADVA and the CODEVISA (Cluster de Desarrolladores de Videojuegos de Santa Fe). The survey also had the support of the Industry Institute of the National University of General Sarmiento and was funded by the European Union through the EULAKS IdeI-UNGS grant project in 2008. The collected sample of fifty-five cases is very significant because it represents the census of the sector; the original base noted some sixty-five active companies, which formed after the fieldwork expanded in about twenty cases, forming one of the most important sources of information on the topic. The survey aimed to give a realistic view of the sector and for this reason incorporated companies down to the micro-sized ones, which are very important in the dynamics of the studies.

The video game industry in Argentina is mainly made up of small companies. While the average number of employees is thirty-three, half the companies in the sector have eleven employees or fewer. Thus, the companies can be divided into three categories; small-sized, which have between three and eleven employees

(30%); medium-sized, with between eleven and twenty-one employees (40%); and larger (30%), with more than twenty-one employees. The entire sector is growing, and the number of employees has increased in recent years; during 2010, about 1,200 people were employed in the industry—almost 10% of the employment generated by the sector of software and related services in Argentina. In terms of size of the development, the study shows that between 2009 and 2010 there was an average increase of 32% in the employment generated by these companies.

Nearly 85% of the companies emerged after the currency devaluation in late 2002, and there were very few gaming companies prior to 2003 (the oldest company dates back to early 2001). One of the characteristics of this industry is that of exportation: two out of three companies export, while more than half of the companies in this group are strong exporters, selling abroad more than 50% of their products or services. In general, the larger companies in the sample (defined as those with more than twenty-one employees) are more likely to be exporters. In spite of this, it is worth noting that very small firms have also specialized in supplying external markets. The United States is the main destination for exports, with about 65% of the firms that export (to a greater or lesser extent) shipping to that country. Alternative destinations are Mexico (18%) and Spain (18%), which are also important places receiving Argentine exports.

These were the most important conditions that allowed companies to develop games or parts of games (47%) and training for the development of products (51%). These figures express a strong tendency for these companies; in fact, 85% report having made some innovation in products or services between the years 2008 and 2010 (see <http://infouniversidades.siu.edu.ar/noticia.php?id=1437>). In this sense, the formal level of human resources, training activities, and workplace dynamics from an organizational point of view are essential. Almost 70% of the firms have done some training for their employees between 2008 and 2010. Another area of utmost importance is that of corporate connections, which enhance the organizations' experience and allow the sharing of technological, commercial, and strategic experiences. In the case of the production of video games, companies establish ties with other key firms mainly in three areas: commercial actions (performed by 49% of the companies surveyed), technical assistance (49%), and human resources training (47%).

Among the specific aspects that characterize the companies studied, it is remarkable how the companies need qualified applicants. This generates consequences not only at the level of formal education, but also in higher levels of study. On the one hand, 80% of companies have a high level of formal training. This means that 45% of businesses have at least one full-time employee with university-level education and that 34% have at least one employee with a postgraduate degree. On the other hand, the issues of training for HR and the supply of skilled labor available in the country have been a concern for entrepreneurs in video games. Other concerns are of significant importance: 38% of the surveyed companies mentioned the cost of the licenses and hardware, and 17% mentioned the strengthening of institutional connections (which allow access to promotional tools, public financing of the sector, and relationships among the areas of the sector).

In July 2010, the Center of Studies for the Desarrollo Económico Metropolitano (CEDEM) (see figure 3), which is dependent on the Municipal Government of the City of Buenos Aires, presented the partial results of

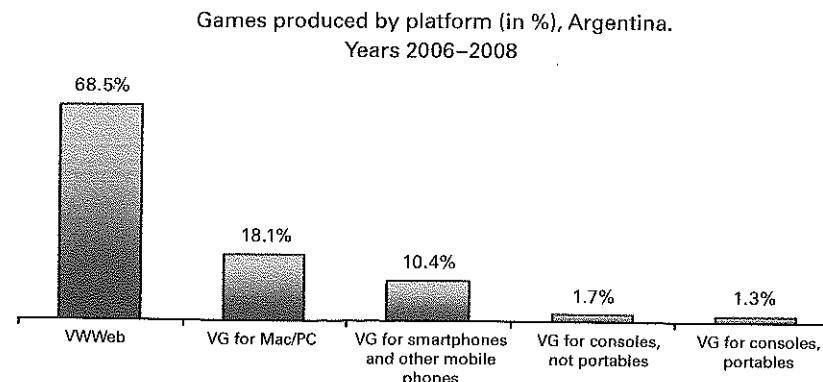


Figure 3

Games produced in Argentina by platform (in %), years 2006–2008 (CEDEM, 2010, <http://comex.mdebuenosaires.gov.ar/contenido/objetos/inforj.pdf>).

the survey conducted with the ADVA between June 2009 and February 2010 citing data on games and social networks that were very interesting.<sup>4</sup>

Even though Argentina has seen a great evolution of its gaming events, they are still not very popular. Probably the most important event is EVA (Argentine Videogames Expo), which has been held every year since 2002 and is a great reunion for video game developers in the country. While only 120 people attended the first EVA, it has been growing every year, gathering the most proactive people in video game development and establishing a good place to invite and bring over the most relevant speakers from around the globe, including Ian Bogost, James Portnow, Nick Fortugno, Raph Koster, Chris Taylor, and other business-related personalities from major video game companies such as Sony, Square Enix, and Microsoft. (In 2013, Tim Shaffer was invited to Tecnopolis for an event hosted by the national government). And EVA targets developers more than gamers. Commercial events in Argentina have boosted sales, with special launch events mainly targeting press and gamer communities, with companies such as EA, Square Enix, Riot, and others as hosts. Some of them are very well organized and are becoming more frequent and diverse in their nature and objectives.

Yet, for the general public, the video game scene itself is not enough. Commercial expos are aimed at that audience and are integrated mostly with comic books, manga, animé, and several TV series, although Argentina is far from E3-scale events. Also, the WCG (World Cyber Games) has frequent participation from Argentine players at several techie events. One player, Francisco Sotullo, has won the bronze medal three times in the FIFA competition (2008, 2012, and 2013).

Within the indie scene, Argentina has developed some self-organized events for indie developers like Tembac, who is pushing the indie local scene. These types of events occur mostly in art galleries or cultural clubs and are sometimes integrated with other art contents, such as new media installations or music performances.

One of the main events positioning the video game industry as a producer of culture, focusing on games and their public and presenting video games as art is “Game On! El arte en juego,” organized by a local art gallery called “Objeto a.” This event showcases games with deep messages and experimental concepts. Several events showcased the games of Daniel Benmergui, the first Argentinean to win the “Nuovo Award” at the IGDA (2012), as well as other local developers.

Recently, the national government has declared the video game a cultural product by adding an area dedicated to it in their series of events called MICA (Culture Industry Market from Argentina). At these events, they gather investors and developers from Argentina (and South America) in business rounds, conferences, and expos. Gamester is one of the local groups that organize and help produce these events.

## The Console Market in Argentina

The first game consoles arrived in Argentina in the late 1970s. They were different PONG-imitations built by Argentine companies in local factories. Telemacht's version of PONG had the largest number of sales. Due to the economic situation in the 1980s in Argentina, there was an extension of the Atari 2600 era but with a local version of the hardware also known as Dynacom, EDU games, and other minor clones. But there is no doubt about which was the leader in the console market in the country over all competitors: the ColecoVision, which had a great TV campaign and was considered a better but much more expensive machine, with plenty of games to play. We have established that for every ten game consoles of that era in Argentina, 7.5 were ColecoVisions.

In the 1990s, some changes in the economy allowed people to finally get the Nintendo Entertainment System (NES), but a version of the Japanese Famicom was already commercially available in the country, better known as “Family Game.” It was a big success, exceeding sales of all other consoles before it. There were plenty of versions of “Family Game,” outstripping the NES, which had much less success since it was really expensive; the “Family” console was half the NES’s price, and so were its cartridges. This led to a strange situation: the people who had the real NES would get an adapter in order to play cheaper “Family” games in their consoles. And it worked!

Without a doubt, the “Family” console began a new video game era in Argentina. Its competitor, the SEGA Master System, was much more expensive, with fewer games, and harder to find. As there were no Mario games, we can easily say that at the time, of the twenty consoles on the market, nineteen were “Family” systems. At the same time that the “Family” console appeared, 16-bit machines reached the stores. Of course, the powerful Super Nintendo Entertainment System (SNES) and the marvelous SEGA Genesis were nothing but expensive in 1992, so it would take a couple years for this generation to reach consumers. Nintendo didn’t win the market, and the SEGA Genesis was the leader, although this console never reached the numbers of the “Family” console’s success. Indeed, it was still present, dividing the market into a line of cheap and expensive consoles.

During the 1990s, piracy was a key factor in the appeal of the Genesis. This was the first time that Argentina witnessed a generational change: 70% of the people who bought a console got the Genesis, while the rest had the SNES. At the same time, in the 1990s, there were plenty of game consoles even more powerful—such as the 3DO or the Atari Jaguar, or even the SEGA CD—with no success or minimum public awareness due to the astronomical prices and the lack of games available.

The second half of the 1990s was the CD-ROM era. The CD-ROM was everywhere, on both PC and video game machines. In 1995, the most anticipated video game console was the 32-bit SEGA Saturn with a CD-ROM drive. But, as it happened in the rest of the world, the Sony PlayStation quickly surpassed the Saturn. People knew this new console was really expensive, but its innovation level was so outstanding that they didn't care. To the average person, the first PlayStation symbolized the mature version of a video game console. A great version of the most popular soccer game was launched in 1998, and piracy made this 32-bit title available at a much cheaper price than the old 16-bit or even 8-bit games; this was a key to the consolidation of the console in the market. The PS1 was everyone's favorite, even against the more powerful (but ten times more expensive) Nintendo 64, which still had cartridges with a price of about USD \$100 each. Because of this, Nintendo had only 20% of the market, the lowest position the company ever had. The SEGA Dreamcast was a middle-aged console, and in Argentina during those times, it was impossible to afford; almost nobody bought it, so it has been seen as a cult console ever since.

In 2000, the PS2 appeared and had a great start, and it became clear that the PS2 would continue the legacy of the PS1 or even surpass it. The PS2 almost eliminated the Nintendo GameCube and the Microsoft Xbox from the market, due to the higher price of those systems and the need to buy original games for them, whereas Sony's system was backward compatible with the PS1 and included new features such as a DVD player. During that period in Argentina (2002–2007), nine out of every ten consoles were PS2s, and the rest were divided between Nintendo's and Microsoft's consoles.

The success of the PS2 was only comparable with that of the "Family" console. In 2008, new consoles were launched: the Xbox 360 was the first, but consumers were concerned about the "three red lights" (a warning sign meaning high alert) issue, mostly because there was no official local technical support. The PS3 was now the new N64, regarding the excessive price of new games. But that wasn't all; the need for an LCD-based TV discouraged buyers, and the older PS2, with the biggest game library available, remained predominant.

Nobody imagined that the creator of Super Mario, which dominated the market in the 1980s, would find its way back inside every house once again, so the Nintendo Wii came as a surprise, captivating the Argentinean market with a great advertising campaign and the possibility of using the Wii in almost every commercial mall and store. The Wii entered into the market fast and furious, with people saying, "Get the Wii! It's better than the PS2." The idea of the gesture-based controller, plus the possibility of getting nontraditionally playful members of the family to play and have fun made the Wii the best option for gamers and new gamers from 2008 to 2012. Around this time, for every ten consoles sold, five were PS2s, three were Wiis, one was a PS3, and one was an Xbox 360. Finally, the PS3 enjoyed a legacy of almost fifteen years of customers' loyalty to the PS1 and PS2, and in the end it turned the machine into a leader within the Argentine console market at the end of 2013.

## The Portable Console Market in Argentina

The portable console market was much smaller compared to traditional, TV-based consoles. In the 1980s, Nintendo's Game & Watch series games were very expensive, and only the people who traveled abroad could buy them. In the 1990s, the Nintendo Game Boy found success, but the Nintendo Game Gear did not. In the late 1990s, the Game Boy Color enjoyed a sales bump thanks to the *Pokémon* game, giving the market an experience that wasn't available on the larger console systems. With Nintendo's monopoly in portable gaming, the fortunes of the Game Boy Advance and Nintendo DS were assured, and in the case of the DS, the possibility of getting free ROMs with a pirate cartridge put the system's sales at high levels. The Sony PlayStation Portable (PSP), the PlayStation Vita, and the Nintendo 3DS are still very expensive in Argentina, and while the 3DS is the clear leader, the portable console market is still behind that of TV-based consoles.

## The Most Popular Games in Argentina

People were confused about the difference between arcade games and console games, and this continued until the "Family" console era, when Mario appeared. Some of the most-played games from the first era include *PONG* (1972), *Space Invaders* (1978), *Pac-Man* (1980), *Donkey Kong* (1981), and sports games. These, plus *Pitfall* (1982) for the Atari 2600, were the only recognizable games for Argentines before "Family" console games, when Super Mario appeared.

In the 16-bit era, Sonic the Hedgehog stole some of Mario's audience, but the most popular genre of the time was fighting games, so *Street Fighter II* (1991) and *Mortal Kombat* (1992) dominated not only the arcades, but also the consoles with versions for the SNES and SEGA Genesis.

In 1994, the first *FIFA* game became popular, and the "Family" console version couldn't compete with it. This was the start of the great football/soccer video game phenomenon in Argentina. The *FIFA* series and *Winning Eleven* (*Pro Evolution Soccer*) series were the leaders in sales, not only during the first PlayStation generation, but up to the present. There were few blockbuster games, but soon games such as *Call of Duty* (2003), *Grand Theft Auto: San Andreas* (2004), *Guitar Hero* (2005), the LEGO Star Wars games, and a spectrum of great games for the PS2 revived the console and began a more successful era.

The Argentinean market is quite easy to read: the console with the most pirated games is the leader of the generation. As of 2014, the Xbox 360 is at the top. This is the result of the availability of pirated games for the console and picking up the market lost by the PS3.

## Publications

Argentina's dedicated magazines and TV shows about video games had moderate success. PC gaming has had dedicated gaming magazines since the 1980s in the Commodore 64 era, while for consoles, the main publication from the 1990s was *Action Games* and was published for almost a decade. Today, there are a couple

magazines with relative success such as *Loaded* and *Irrompibles*. On television, an old, cheap cable network known as "Nivel X" had some success worth mentioning.

## The Future of Video Games in Argentina

The success of the industry in recent years is due largely to the rise of casual games, which are designed to appeal to a wide demographic, with simple rules and free access. Casual games have expanded the concept of the video game and have brought video gaming to segments of the population that previously had no way to access video games. This new way of conceiving the game as a product of mass consumption was possible thanks to new developments in support platforms and storage capacity, resulting in more complex and faster games, but at the same time, games that are easier to play and which appeal more to the casual player. Such new and increased possibilities for online games have allowed them to grow from small businesses to what may become one of the great industry pillars. Casual games are expected to grow in the global industry in the coming years, along with developments in mobile phones, touch screen interfaces, and games for social networks based on the model of casual players and virtual communities. In the same way, casual games have encouraged new business models, including digital distribution and games that are free to play. In the area of free-to-play games, the key lies in the possibilities surrounding the product (allowing players to pay money to level up their characters or to buy accessories and virtual goods for their characters, and so forth). The large volume of players that these games attract means strong profit potential for the developers.

In the next few decades, it is expected that the Argentine gaming industry will continue to follow a path of development and consolidation, with good prospects for the coming years. Thus, the expansion of global demand for video games, international recognition of the quality and creativity of the Argentine industry, the potential opportunities in mobile gaming and games for social networks, and the flow of foreign direct investment that the industry receives today, all promise an encouraging future for video games in Argentina.

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## Notes

1. Sources consulted: National System of cultural statistics, Argentina: <http://sinca.cultura.gov.ar/>, Universidad Nacional de General Sarmiento; CEDEM, Center of Studies for the Metropolitan Economic Development (DGEyC—GCBA), and second nationwide survey of developers of Video Games.

2. Ibid.

3. See <http://www.eldiario.com.ar/diario/cultura-y-espectaculos/50626-el-pre-mica-centro-en-su-etapa-final.htm>.

4. Sources consulted: "Relevamiento a Empresas de Videojuegos de Argentina," Universidad Nacional de General Sarmiento; CEDEM, Centro de Estudios para el Desarrollo Económico Metropolitano (DGEyC—GCBA); and Segunda Encuesta Nacional a Empresas Desarrolladoras de Videojuegos.

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## BRAZIL

Lynn Rosalina Gama Alves

87-10

In Brazil, the history of video games began in the 1980s when the first video game appeared on store shelves. According to Chiado (2011, 26), the first Atari VCS (1977), "half mounted and half manufactured in São Paulo," reached stores in April 1980. Joseph Maghrabi, a 1980s entrepreneur, was instrumental in bringing video games to Brazil and created Channel 3, a pioneering club that manufactured game cartridges. As Maghrabi stated in an interview, "Before creating Channel 3, I founded the Atari Electronics Company. It was for the importing of devices and accessories of the Atari console. We imported the printed circuit boards and joysticks, ordered the supplier to manufacture the plastic box and paperwork (manuals, guarantee, etc.), we mounted the devices and we sold them together with a cartridge to magazines" (Chiado 2011, 26).

The first game produced in Brazil was called *Amazônia*, a text adventure game developed in January 1983 and published entirely by the magazine *Micro Sistemas* in its August 1983 edition (no. 23). As of 2012, *Amazônia* can be found online at the TILT club's website (<http://www.clubtilt.net/pags/clubtilt.htm>), which gathers tips for game developers. In the game's "Adventures in the Jungle," the player has to solve small problems whose main goal is, according to the game's manual, "to escape the dangers of the jungle after surviving a plane crash and find a paved road. To achieve this goal, the player must construct sentence commands, using a verb (action) plus objects. For example: GET THE BAG." *Amazônia* is considered the classic text adventure game written in Portuguese.

From 1983 to 2010, there were 105 games produced in Brazil. It is difficult to reconstruct the history of game development in Brazil because there is very little written on the subject—mainly only the work of Marcus Chiado and the Gamebrasilis (the Catalogue of Brazilian Electronic Games), both of which were instrumental to the writing of this essay. Researchers and experts in the field of games in Brazil were also consulted, as well as representatives of the two main institutions, the Brazilian Association of Electronic Game Developers (ABRAGAMES) and the Commercial, Industrial, and Cultural Association of Games (ACIGAMES), but unfortunately, neither association has data records about the history of games in Brazil.<sup>1</sup>

Thus, games listed in table 1 were produced from 1983 to 2010.<sup>2</sup> In 2009, there was considerable growth in the production of games in Brazil, mainly due to the action of Tectoy, a Brazilian video game and electronics company, which launched nine games that year (see <http://www.tectoy.com.br/>). Tectoy was established in



**Figure 1**

Screenshot from *Amazônia* (1983), the first video game produced in Brazil.

1987 in São Paulo with the purpose of developing and producing high-tech toys and later became the exclusive representative of SEGA in Brazil, making all the consoles the company launched in the West, from the SEGA Master System to the SEGA Dreamcast. In 1998, the company devoted its production to the video game market. In 2005, the Tectoy Móobile division was started, and in 2009 Zeebo Inc., a joint venture between Qualcomm and Tectoy, was created and produced the first Brazilian console, the Zeebo. In May 2011, however, Qualcomm, the leading investor of Zeebo Inc., decided to stop investing in the project, and Zeebo Interactive Studios (ZIS), located in Campinas, was closed.

The year 2009 also saw the release of Donsoft Entertainment's *Capoeira Legends: The Path to Freedom*, which deserves particular mention because it highlights and emphasizes Brazilian culture and history (see the promotional video for the game at <http://www.youtube.com/watch?v=WyF8dFMkTlY>). The game depicts the lives of black people, white people, and natives in *mocambos* (runaway slave communities) in 1828, and involves *capoeira*, a Brazilian martial art developed by the descendants of African slaves. The game is set in the surroundings of the city of Rio de Janeiro, in 1828. In the game, the black, white, and Indian races that form the ethnicity of the Brazilian people live in communities that were constantly threatened by advocates of slavery. In this context, the *capoeira*, a Brazilian martial art developed by the descendants of African slaves, emerges as a defense and fighting force.

**Table 1**

Year	Name of Game	Producer
1983	<i>Amazônia</i>	Micro Sistemas
	<i>Didi na Mina Encantada</i>	Philips
1986	<i>Em Busca dos Tesouros</i>	Micro Sistemas
	<i>O Enigma dos Deuses</i>	Ciberne Software
1990	<i>Zorax</i>	Discovery/Hitek
1991	<i>Mônica no Castelo do Dragão</i>	Tectoy
1992	<i>Ayrton Senna Super Mônaco GP II</i>	Tectoy
1993	<i>Barravento</i>	Discovery/Hitek
1995	<i>Casseta &amp; Planeta em Noite Animal</i>	ATR Multimedia
	<i>Master Multimídia</i>	ATR Multimedia
1996	<i>Desafino</i>	ATR Multimedia
1997	<i>Curupira</i>	Nixtron Interactive
	<i>Guímo</i>	Southlogic Studios
	<i>Planeta Vermelho</i>	Estelar Software
1998	<i>Incidente em Varginha</i>	Perceptum Informática
1999	<i>Hades 2</i>	Espaço Informática
2000	<i>Caxy Gambá Encontra o Monstruário</i>	44 Bico Largo Multimídia
	<i>Gustavinho em O Enigma da Esfinge</i>	44 Bico Largo
	<i>Show do Milhão</i>	SBT Multimídia
	<i>Solaris 104</i>	Apollo Entertainment
2001	<i>Christmas Magic</i>	Espaço Informática
	<i>Hades 2</i>	Espaço Informática
	<i>Micro Scooter Challenge</i>	Perceptum Informática
	<i>No Limite</i>	Continuum Entertainment
	<i>Outlive—A Era da Sobrevivência</i>	Continuum Entertainment
	<i>Putzgrilla</i>	Draft Marketin Esportivo
	<i>Qual é a Música</i>	SBT Multimídia
	<i>Super Mini Racing</i>	Perceptum e Canal Kids

**Table 1**  
(continued)

Year	Name of Game	Producer
	<i>Tainá—Uma Aventura na Amazônia</i>	VAT
	<i>Xuxa e os Duendes 2</i>	Continuum Entertainment
2002	<i>Aventura na Selva</i>	Shape CD
	<i>Big Brother</i>	Continuum Entertainment
	<i>Jogo do Banquinho do Raul Gil</i>	Rede Multimídia
	<i>Trophy Hunter 2003</i>	Southlogic Studios
	<i>Vampiromania</i>	Green Land Studios
2003	<i>Big Brother Brasil 3 D On-line</i>	Green Land Studios
	<i>Bola de Gude</i>	Icon Games
	<i>Brasfoot</i>	Scoop Software
	<i>Deer Hunter 2004</i>	Southlogic Studios
	<i>Futsim</i>	Jynx Playware
	<i>Impacto Alpha</i>	Oniria
	<i>Matchball Tennis</i>	Espaço Informática
	<i>Sandy &amp; Júnior Ameaça Virtual</i>	Green Land Studios
	<i>Smilingido em Desafio na Floresta</i>	Continuum Entertainment
	<i>Space Shooter</i>	Oniria
	<i>Trophy Hunter</i>	Southlogic Studios
2004	<i>Deer Hunter 2005</i>	Southlogic Studios
	<i>Die Ponryrancher</i>	Preloud
	<i>Dier Pferdebande</i>	Oniria
	<i>Erinia</i>	Ignis Games
	<i>Ryudragon</i>	Decadium Studios Game Developer
2005	<i>Coca-Cola Super Coach</i>	Oniria
	<i>Der Pferderennstall</i>	Espaço Informática
	<i>Die Pferdebande—Weiße Stute in Gefahr</i>	Oniria
	<i>Jessy: Ein Zirkuspferd in Not</i>	Bitcrafters Inc.

**Table 1**  
(continued)

Year	Name of Game	Producer
	<i>Outgun</i>	Sorvete Games e Nix & Huntta
	<i>Riding Ground</i>	Preloud
2006	<i>Ayrton Senna Pole Position</i>	Meantime
	<i>Fruzzle</i>	Icon Games
	<i>Fute Bolon Line</i>	Francisco Matelli Matulovic
	<i>Golds of Virtual Boards</i>	Devworks
	<i>Lissy—Und Ihre Freund</i>	Preloud
	<i>Traulian</i>	Canoasoft
	<i>Winguel</i>	Espaço Informática
2007	<i>Bingo de Letras</i>	Oniria
	<i>PillowFight</i>	Oniria
	<i>Torre de Hanoi</i>	Oniria
	<i>Torre Inteligente</i>	Oniria
	<i>Warbots</i>	Délirus
2008	<i>5-3-3 São Paulo Futebol Clube</i>	Tectoy Digital
	<i>8 Segundos</i>	Tectoy Digital
	<i>Lex Venture</i>	Interama Games
	<i>Snail Racers</i>	Icon Games
	<i>Super Vôlei Brasil</i>	Aquiris
	<i>Taikodom</i>	Hoplon Infotainment
2009	<i>Capoeira Legends</i>	Donsoft Entertainment
	<i>Chiaroscuro</i>	Tectoy Digital
	<i>Detetive Carioca</i>	Icon Games
	<i>Dreamer: Musicstar Popstar</i>	Overplay
	<i>Guitar Idol</i>	Interama Games
	<i>Pebolim do São Paulo Futebol Clube</i>	Tectoy Digital
	<i>PoChickenPo</i>	Tectoy Digital

Table 1  
(continued)

Year	Name of Game	Producer
	<i>Sam Power Footballer</i>	Tectoy Digital
	<i>Super Vôlei Brasil 2</i>	Aquiris
	<i>Zeebo Extreme Baja</i>	Tectoy Digital
	<i>Zeebo Extreme Bóia Cross</i>	Tectoy Digital
	<i>Zeebo Extreme Corrida Área</i>	Tectoy Digital
	<i>Zeebo Extreme Jet Board</i>	Tectoy Digital
	<i>Zeebo Extreme Rolimã</i>	Tectoy Digital
2010	<i>Invasão ET</i>	Oniria
	<i>Michael Jackson: The Experience</i>	Ubisoft São Paulo (Nintendo DS e PSP)
	<i>Zeebo F. C. Foot Camp</i>	Zeebo Interactive Studios
2011	<i>Bubble Up</i>	Insane Media
	<i>Christmas Jumper</i>	Riachuelo Games
	<i>Combate a Dengue</i>	Icon Games
	<i>Earth Under Siege</i>	Insane Media
	<i>Mahjong Max</i>	Icon Games
	<i>Paperama</i>	Braza Games
2012	<i>Deuces Wild Casino Poker</i>	Icon Games
	<i>Monte Bello</i>	Riachuelo Games
	<i>Vaca Maia</i>	Vaca Vitória

These data show that growth in Brazilian game production is still timid, although the international market indicates great potential. In the area of console technology, the twenty-first century saw the birth of the seventh generation beginning in November 2005 with Microsoft's Xbox 360, followed by Sony's PlayStation 3 and Nintendo's Wii in 2006. This generation of consoles is marked by greater storage capacity and a variety of accessories, such as a steering wheel for the Wii and a light gun for the Wii Remote, which accompany these technologies. They also possess greater processing power, graphics, and resolution, and other aspects that favor the creation and development of increasingly photorealistic games, with significant potential for immersion and navigation, increasingly complex narratives, and different degrees of interconnectivity. This whole scenario has favored the emergence of large companies that operate in the development, production,



Figure 2  
Screenshots from *Capoeira Legends* (2009), a game about runaway slave communities.

and distribution of technological devices. The Brazilian game industry includes the following players and segments:

- Developers who employ the professionals in charge of programming, art, design, script, and sound effects. In games focused on education, we also find specialists with expertise in this area. These professionals are present mainly in large companies.
- Publishers who are responsible for making possible the sale and distribution of video games produced by small businesses that struggle to reach customers directly, especially with mobile operators who work only with publishers. In Brazil, some of these operators have also been acting as publishers, for example Oi and Claro, which are considered major telecom operators in Brazil, just as Telefonica and Vodafone are in Europe.
- Distributors that are responsible for the dissemination of digital games for consoles and computers. Distribution usually occurs in stores specializing in IT (and/or digital games), big bookstore chains, supermarkets, and on the Web (mainly mobile gaming).

In national and international markets, the industry offers different types of games, from casual games to massively multiplayer online role-playing games (MMORPGs), resulting in an ever-growing typology of games, including those of social networking sites such as Facebook and Orkut, which attract an audience of very different players considered hardcore (experts, veterans, and experienced). Subjects who interact with these video games, especially Facebook's *Farmville* (2009), are typically female, over thirty-five years old, and have no experience as players.<sup>3</sup> But why do these games attract different types of people? Such questions have contributed to the emergence of another player in the field of electronic games: researchers. These researchers have oftentimes been concerned with the processes of interaction between players and games, particularly during the time when a player is immersed in the game world.

Researchers from the humanities and applied social sciences have mainly been working on the different matrices that permeate the relationships established by players and games, which can be seen in the results presented in the CAPES (Federal Agency for Coordination of Improvement in Higher Education) Bank of Theses and Dissertations. CAPES regulates and approves the programs of postgraduate studies in Brazil. After they are defended and approved, abstracts of dissertations and theses are available at the Bank of Theses (<http://bancodeteses.capes.gov.br/>). (In Brazil, the writing of a master's dissertation precedes the writing of a doctoral thesis, unlike in other countries, where the doctoral work is referred to as a dissertation.) This is discussed in further detail in the following section.<sup>4</sup>

## **Games Become an Object of Research in Brazil**

Investigations into video games began in the mid-1980s, when Atari was at its peak as a major publisher and distributor of games in the world and in Brazil. Elsewhere, early work in this line of investigation was done by Patricia Marks Greenfield (1984), who addressed the development of reasoning in the electronic age, stressing

television, computers, and video games. Another important researcher, Sherry Turkle, published *The Second Self: Computers and the Human Spirit* (1984), and later *Life on the Screen: Identity in the Age of the Internet* (1997), pointing out the significant contributions made by games in the area of cognitive development. From this period onward, researchers from Europe and the United States began disseminating research on video games, with issues related to ludology, narrative, learning, and so on. Ludologists such as Aarseth (1997, 2001), Frasca (1999, 2003), and Juul (2005) argued that the study of video games should constitute an autonomous discipline, with ludology distancing itself from discussions that emphasized narrative. From an opposing perspective, Murray (1998), Ryan (2004), and others emphasized issues related to the importance of narrative in games. For narratologists, these types of media have a specific form of storytelling, as do other media including cinema, comic books, and novels. In Brazil, these studies followed the same route as the foreign productions; work was divided between *narratologistas* and *ludologistas*, and more recently, in line with international trends.

Researchers interested in how learning is mediated by games can be divided into two groups. The first considers video games as a space for interaction, particularly early games with two-dimensional environments and simple narratives and gameplay; for example, the work of Antonietti et al. (2002) in Italy. Researchers belonging to the second group examine games that have more complex narratives, with higher levels of interactivity, gameplay, and interconnectivity, and greater graphical realism, all of which encourage greater immersion in the game environment. Also important to this group are games that are part of franchises, such as those of the Harry Potter, Lara Croft, Deus Ex, Counter-Strike, and Warcraft franchises. The work of Gee (2004), Shaffer, Squire, Halverson, and Gee (2005), and Johnson (2005) in the United States; Mendez, Alonso, and Lacasa (2007) in Spain; Torres, Zagalo, and Branco (2006) in Portugal, and others, deserves special mention for addressing games that do not have explicit educational content.

This work on the international scene has influenced and shaped research in Brazilian universities, allowing the construction of a different look at the cultural phenomenon of video games. In this context, the Periodicals Portal and the CAPES Bank of Theses and Dissertations has significant value for researchers in search of theoretical and methodological support to build the state-of-the-art objects of their research, as well as to disseminate their work. Thus, searching the database of the CAPES Bank of Theses and Dissertations (using the keywords "games," "digital games," "electronic games," and "video games"), it was possible to map the route that Brazilian investigators have followed to make electronic games an object of research, delineating them as a serious and relevant subject that requires theorizing beyond reductionist and Manichean readings.

Although the CAPES Bank of Theses and Dissertations was founded in 1987, Brazilian video game research began in 1994, when it appeared in the Department of Education at the Federal University of São Carlos–São Paulo. In "Game Over: The Child in the World of Video Games," researcher Vivianna Martinez Velasco Carola studied the relationship between children and video games, taking the play as the main activity that humanizes the child as a subject (Carola 1994). Her work constituted an important milestone for research in games and culture.

Ten years later, I defended a PhD thesis in education at the Federal University of Bahia in Salvador that also had "game over" as an expression in its title but with different intent. I used the expression for two reasons.

The first was to paraphrase the authors Corso and Corso (1999), who used it to refer to parents' feelings about the arrival of adolescence for their children—that is, the feeling of powerlessness against the emotions and situations that both generations will experience during this period. The second was because of the relationship of the topic with the dynamic present in video games; with the appearance of "game over," players experience a moment of impotence at the end of a game. In this research, the object of investigation was the violence in the world of games and how players construct meaning for violence. The researcher interviewed the subjects to identify if there was a transposition of violent content in games to real life.

In Brazil, then, the 1990s marked the initiation of research within the universities, with significant growth in the area as revealed by keyword searches (for the terms "games," "digital games," "electronic games," and "video games"). Games became a new object of research, combining *apocalyptic readings* (studies emphasizing only the negative and pessimistic aspects related to games) and *integrated readings* (studies highlighting only the positive aspects of games) into *critical readings* (studies that do not reduce the object to only one point of view but point out positive and negative aspects of games).

From 1994 to 1998, four master's dissertations on video games were defended in education, communication, and computing, and two doctoral theses on video games were defended in the fields of linguistics and sociology. The universities that housed these works are in the southeast (the Federal University of São Carlos [UFSCAR], Catholic University of São Paulo [PUC-SP], Federal University of Minas Gerais [UFMG], University of São Paulo [PUC-SP], University of São Paulo [USP], and the Research Institute of Rio de Janeiro and South Federal University of Santa Catarina [UFSC]).

The beginning of the twenty-first century marked the growth of video game research. From 2000 to 2009, a total of 111 works appeared: 93 master's dissertations and 18 doctoral theses in the areas of education (23 dissertations and 5 theses), communication (15 dissertations and 6 theses), and computing/IT (26 dissertations). Interestingly, there were also papers in the areas of design (10 dissertations and 1 thesis), sociology (1 thesis), electrical engineering (5 dissertations and 3 theses), literature/linguistics (5 dissertations and 2 theses), the arts (7 dissertations), and psychology (2 dissertations). Thus, we can see that education is the field of knowledge that currently has the largest number of papers on the subject (interestingly, only two dissertations from this period, one from 2006 and the other from 2009, actually dealt with the training of teachers). The immersion of students in the world of digital culture, and especially games, may have contributed to the growth of research in this field, and these studies have investigated both Brazilian games as well as foreign imports.

Another important point with regard to the period from 2000 to 2009 is the geographic location where the research involving games was carried out—significant numbers in the south (16 studies) and especially in the southeast (66 studies), with growth in the northeast (25 studies), the midwest (3 studies), and the north (1 study). Such data can be linked to market issues and initial training of the labor force; that is, the southeast region contains a significant percentage of companies and undergraduate (bachelor's and technological courses) in the area of games. The same can be said for the south; in addition to courses, Santa Catarina is now home to the largest "Game Polo" of Brazil—that is, a group of companies and universities

that together establish research and business relations. Pernambuco also has a development center, and other cities highlighted in the survey (Salvador, Fortaleza, Teresina, and João Pessoa) revealed timid development, that is, markets that are still expanding. However, the State of Bahia has actively promoted the implementation of a culture of games. These actions, involving the state government, are characterized by three points: The first is the Audiovisual Network created in 2008 by the State Secretariat of Culture, which brings together representatives of all segments of the industry that produce audiovisual products. This network coordinates actions at the level of training, funding, and infrastructure for all segments of audiovisual culture, such as movies, games, and music, among others. The Technology Park (a physical space designed to enhance the relationships between the industry and universities, investing in research and business) opened in 2012 and demonstrates that a demand for professionals and companies that produce interactive content already exists in Salvador, as does the need for qualified professionals to work in game development, simulations, interactive environments, augmented reality, and other fields. This park will be a place to train and absorb this labor. And finally, in September 2009, the Foundation for Research Support of the State of Bahia (FAPESB) created "Game Cluster," which, like the Audiovisual Network, aims to coordinate research and industry in the area of games, a network that brings together research groups from universities and companies working in games. The State of Bahia has allotted a space of 200 square meters for the installation of the Game Cluster in the Technological Park, strengthening the link between companies and universities developing games and games research. Such activity requires training and qualifications, the creation of new companies, and the existence of laboratories with shared technologies that support quality projects. As infrastructure develops, these labs will be used by the institutes of science as well as technology companies.

Parallel to the growth of academic research in the area of games was the emergence of research groups registered in the directory of the National Research Council (CNPQ), which studies video games. The earliest records began in 2002, when two groups were created: in the area of computer science, the Graphic Computer and Digital Entertainment at the Regional University Foundation of Blumenau (FURB) in Santa Catarina, and in the area of communication, Virtual Communities at the University of the State of Bahia (UNEB). Below is a record of the groups found in the directory as of 2010 (Source: Directory of Research Groups registered in the CNPQ).

## Research Groups Registered in the CNPQ

Although the list in table 2 includes only the research groups that registered in the CNPQ (using keywords such as "digital games," "electronic games," "games," and "video games"), these data represent a number of doctoral theses and master's dissertations that is much larger, and many of these are not linked to any of the groups listed above. There are theses and dissertations at PUC-SP with an emphasis on semiotics that have games as their object, but which are linked to research groups that are not registered or that are not within the field of game studies.

Table 2

Name of Research Group	Year of Creation	Area	State
Indigent—UFBA	2004	Computer Science	Federal University of Bahia (UFBA)
Visualization, Simulation and Digital Games	2006	Computer Science	Federal University of Mato Grosso do Sul (UFMS)
Games per Computer	2006	Computer Science	Federal University of Piauí (UFPI)
Edutainment	2007	Education	Federal Technology University of Paraná (UTFPR)
IT	2009	Computer Science	Federal Institute of Goiânia (IF Goiano)
Research Lab of Graphic Computing and Digital Games	2009	Computer Science	Education and Culture Foundation of Minas Gerais (FUMEC)
Humor, Comics and Games	2009	Communication	Federal University of Paraíba (UFPB)
Augmented Reality Lab, Digital Games and Digital TV	2010	Computer Science	Federal Institute of Bahia (IFBA)

Another important point observed during my research is in regard to alternative places used by researchers to disclose preliminary and end results with the academic community. Beyond journals, researchers exchange knowledge and participate in national events in the area of games, such as the Seminar on Electronic Games, Education, and Communication: Building New Trails, and SB Games (the Brazilian Symposium on Computer Games and Digital Entertainment), which is the largest of its kind in Latin America. Both of these events demonstrate the growth of research in games and make use of the data in the CAPES Bank of Theses and Dissertations.

## Theoretical Research Perspectives

Preliminary analysis of research at the levels of master's and doctorate degrees identified in the CAPES Bank of Theses and Dissertations in the areas of communication and education revealed that the authors took as their starting point the concept of play described by Huizinga (2001) and developed by Caillois (1958). According to Huizinga, a game constitutes a universal activity prior to culture itself, since "even in their least restrictive settings, [games] always [presuppose] human society" (2001, 3), and even animals perform recreational activities. Although Caillois (1958) admits the existence of a large number of games in our society, he suggests that they do not have important consequences in the real lives of human beings.

Using these classics to contextualize phenomena, game studies researchers establish dialogue with authors Janet Murray (1998), Espen Aarseth (1997, 2001, 2003), Jesper Juul (2005), and Gonzalo Frasca (1999), revisiting the debate between narratologists (who look at games as narratives) and ludologists (who are more concerned

with the playful aspects of games). From 2000 to 2005, this discussion was marked by a reductionist outlook but was later exceeded by the Brazilian researchers siding with Frasca (1999) and Juul (2005), who do not adopt one position or another but understand that both views are complementary and applicable to contemporary games. Also in regard to game studies, we can see the emergence of a state of the art, at least in quantitative terms (since the qualitative analysis of theses and dissertations is still in process), with reference to the CAPES Bank of Theses and Dissertations to contextualize the object of study and indicate the necessity and relevance of the work developed by Brazilian graduate students.

A common feature in discussions about games involves the concept of culture: the convergence culture of Jenkins (2008), with its emphasis on transmedial narrative; the media culture of Santaella (1996); the virtual communities of Rheingold (1997); and games' relationship with cinema, according to Machado (1997a, 2002).

Another interesting point to highlight is that while research in the area of education tends to focus on different learning spaces, studies based in communication have more of a theoretical tendency, outlining bibliographic research but without empirical field investigations. Researchers in the field of education are concerned with issues related to learning mediated by games and have thus established dialogues with Gee (2004), Shaffer, Squire, Halverson, and Gee (2005), Alves (2005), Moita (2007), Johnson (2003, 2005), Turkle (1989, 1997), Greenfield (1984), and classic authors such as Piaget (1978, 1983, 1990) and Vygotsky (1993, 1994, 2001). The authors Rushkoff (1999), Tapscott (1999), and Prensky (2001) are also often cited in discussions of the characteristics of the digital generation.

Authors Gee (2004) and Shaffer et al. (2005) are often mentioned in discussions about video games and education. For Shaffer et al., "Virtual worlds of games are powerful because they make it possible to develop situated understanding" (2005, 106). Thus, subjects who interact with different media experiences in multiple contexts can understand complex contexts without losing the connection between abstract ideas and the real problems they can solve. In other words, they learn by making sense and deriving meaning through information that emerges from the narrative of games, built in partnership between the game and the player. For Gee (2004), along with Shaffer, meanings in electronic games always have specific situations, with situated meanings, not general meanings.

Taking digital games into a school setting, therefore, does not mean that they are necessarily designed to develop math concepts, language learning, or the teaching of cognitive processes; they may only be designed for entertainment (after all, we cannot overload the kids). This understanding of the technologies, digital media, and their representations is reductionist, contrary to theoretical perspectives that discuss the presence of these elements in different learning environments, mostly at schools. They are also opposed to the classical psychogenetic theories (Piaget, Vygotsky, and Wallon, among others), which have existed for over fifty years and are thoroughly discussed in training courses for teachers. How far do we need to go to understand that play should be present in learning situations? That the school should be a space of pleasure? We need something closer to the semiotic experience of our students.

More work needs to be done regarding the training of teachers in this area, and as we saw earlier, this topic is still one that is underrepresented in the works found in the CAPES Bank of Theses and Dissertations.

since they deal with children and adolescents, teachers need to immerse themselves in the various semiotic fields that overlay the presence of technologies in contemporary society. Taking digital games to school because they involve our students without any prior exposure to them (and without the construction of meaning), and seeking to fit games into school programs as they are developed, will result in failure and frustration for both teachers and students. In addition, this repeats a path trodden in the 1990s when educational software was introduced into schools in Brazil, including e-books with animation and hypertext, which was soon rejected.

The intention should not be to transform schools into Internet cafés, as they are differentiated learning spaces with different logic. The intention should be to create a space for teachers to identify ethical, political, ideological, and cultural issues within the discourse of games or interactive material that can be explored and discussed with the students, all while understanding the relationships that players—our students—have with these media, while challenging, intervening, and mediating the construction of new meanings for the stories. Through these media, users can learn new ways of seeing and understanding cultural artifacts.

A closer relationship between teachers and developers of games can also help to encourage dialogue between these professional fields, to address differences, and open new perspectives in the production of games for educational use. Finally, understanding video games as cultural phenomena requires a new way of looking at media beyond Manichaean perspectives that associate games with violent behavior, inactivity, addictive behaviors, lack of motivation at school, school failure, and dropout rates. Such uncritical and reductive readings restrict the possibilities of dialogue between teachers, gamers/students, and the universe of games. Thus, the delineation of pathways between digital games and learning requires that once again we hearken to the invitation that Babin and Kouloumdjian (1989) made in the late 1980s when discussing audiovisual culture: facing the new scenario in which games play a part, we must simultaneously immerse as well as distance ourselves to develop critical methods for examining games and taking control of them.

This invitation is open to all those involved in the pleasurable investigative processes that contribute to the consolidation of new knowledge. I conclude this chapter emphasizing the importance of the CAPES Bank of Theses and Dissertations, which enables researchers from different parts of the world, especially Brazil, to build new skills, connect with the research community, and extend further investigations in different fields of knowledge, especially in the case of games. The panoramic view offered by the CAPES Bank of Theses and Dissertations enables researchers to explore new perspectives flagged in the work and go deeper into the studies that have already been initiated.

Finally, there is good news regarding the gaming market in Brazil as of late 2012. According to a survey by US consultancy firm PricewaterhouseCoopers (PwC), in 2011, the game industry in Brazil alone brought in BRL \$840 million (USD \$328,394,396) and could reach BRL \$4 billion (USD \$1,564,394,440) by 2016, growing on average 7.1% per year. These data indicate a significant growth in the Brazilian video game industry, compared with industries in countries such as the United States and Mexico.

Foreign companies have also become aware of the Brazilian market's success. Microsoft, for example, opted to nationalize the production of the Xbox console, with production taking place in the Zona Franca de

Manaus since the year 2010, resulting in a 40% reduction in price. Another significant factor is the growth of players: currently one in five Brazilians, or 45.2 million people, are frequent or occasional players, according to the Brazilian Institute of Opinion and Statistics (IBOPE).<sup>5</sup>

I have also highlighted the need for organizations such as ABRAGAMES and ACIGAMES to create communication channels between companies that produce games in Brazil, identifying needs and requirements, and to enhance the process of Brazilian game development as well as the conducting of studies to map the current state of the industry and the subsidizing of new activities and projects. All of these things indicate a very bright future for video games in Brazil.

## Notes

More on the history of video games can be found in Lynn Rosalina Gama Alves's book, *Game Over: Video Games and Violence*, New York: Futura, 2005; and the Discovery Channel documentary *The Video Game Era* (2007), which is available on YouTube at <http://www.youtube.com/watch?v=P4Iq3ZR5TH8>.

1. It is important to emphasize that I had great difficulty accessing data regarding the history of electronic games in the Brazilian industry. Unfortunately, there are no records other than those listed in this essay. ACIGAMES and ABRAGAMES have no data that could support the writing of this chapter.
2. Sources: From 1983 to 2003, Gamebrasilis (the Catalogue of Brazilian Electronic Games) and SENAC (edited by National Service of Commercial Apprenticeship [SENAC], published in September 2003). From 2004 to 2010, game websites and Wikipedia. Information was also provided by Senior Producer André Nogueira and Juliano Barbosa Alves, Oniria's business director.
3. This record is based on empirical observations ratified in Zagalo 2010.
4. This section was built from experience, reading, and research developed by the author, who coordinated a research group that also develops digital games.
5. See <http://www.midiamax.com/noticias/820892-mercado+games+cresce+abre+oportunidades+brasil.html> and <http://www.noticiasbr.com.br/mercado-de-games-cresce-e-se-torna-oportunidade-de-negocios-no-brasil-81347.html>.

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## COLOMBIA

*Luis Parra and Global Game Designers Guild (GGDG)*

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The history of video games in Colombia begins in the 1980s and 1990s, when a group of enthusiastic young people, motivated by classics like the Mario Bros. franchise, started programming short game experiences, recreating games like Tejo, a traditional sport in Colombia. Later on, they would write games using Symbian and Java for the mobile game market. Colombians have had access to the latest games and consoles almost as they appeared in the US market, giving the young enthusiasts the right motivation and role models to push their efforts. These young developers later became the pioneers of an entertainment industry that, although still considered to be in its early stages, is continually learning, growing, and becoming established, and is on its way to achieving international acknowledgment.

### **From Exploration to the Birth of a New Industry**

Two kinds of developers may be identified at the beginning of this story: those who worked at enterprises and developed projects for foreign game studios, responding to their demands, and those who, with great efforts, were able to carry out their own projects independently, making games that in most cases were highly creative but went almost unnoticed. During this first stage, production was naive and disintegrated, without a productive corpus and a representative name.

### **Some of the Relevant Studios in Colombia**

As of 2014, Colombia had roughly fifty registered video game studios; below are short descriptions of some of the most relevant ones.

#### **Immersion Games**

The beginnings of the video game industry in Colombia are linked to the curiosity of college students and their research groups. Such is the case of Eivar Arlex Rojas, founder of Efector Studios, who along

with Jesús Cardona created a research group in 2000 at the Universidad Autónoma de Cali, which focused on the study of issues related to virtual reality, augmented reality, and stereoscopy. Their student group developed 3-D applications, specifically, the design of a flight simulator for the Colombian Air Force, a project which, given its magnitude, became the origin of a company focused on the development of virtual interactive services. Immersion Software and Graphics was formed initially by Rojas, Ernesto Galvez, Miguel Posada, and Julian Castillo. The company would later shorten its name to Immersion Games.

Because of the graphical quality of its first projects, Immersion developed a promotional demo that caught the eye of the famous US company Artificial Studios, developer of the "Reality Engine." Thus was born the first phase of the game *CellFactor: Combat Training* (2006), which used Ageia PhysX physics acceleration cards, and thanks to them, Immersion managed to make an excellent technical demonstration that allowed the company to participate in the Game Developers Conference (GDC). Between 2005 and 2006, Immersion developed a small set of six levels called *CellFactor: Revolution* (2007), which can be considered the first representative of the emerging video game industry in Colombia. Once internationally recognized, Immersion had the opportunity to develop *Monster Madness: Battle for Suburbia*, a game for the Xbox 360 and PS3 that, despite the problems encountered because of their relative inexperience, was completed and released in 2007.

In 2008, Immersion helped to develop *CellFactor: Psychokinetic Wars* (2009) along with the Egyptian company Timeline Interactive and with the support of Ubisoft as a publisher. In 2009 and 2010, Immersion worked on the project *Lucha Libre AAA: Heroes del Ring* (2010) for PS3 and Xbox 360. Finally, due to financial problems, Immersion was liquidated. However, with the participation of Eivar Arlex Rojas, Julian Castillo, and Miguel Mateo Rojas Posada, a new game development company, Efecto Studios (<http://www.efectostudios.com>), was formed, which currently develops games for PC, PS3, Xbox 360, and iOS. The studio's latest creation is *Grabbity*, which was released on August 6, 2012, and published by Mexican media company Televisa.

#### NDiTeravision

Teravision Games was founded by Enrique Fuentes in 2005 in Venezuela, where it quickly became one of the main developers for entertainment companies such as Disney and Nickelodeon in Latin America, later creating products for video game companies including Atari and Namco, as well.

In 2010, Teravision Games moved its operations to Bogotá, Colombia, where its development center is currently located, and in 2012 a joint venture with the Canadian company NDi Media took place. Currently both companies operate under the name NDi Teravision (<http://www.nditeravision.com>). The company currently focuses on creating mobile and Web games, with an emphasis on the development of character-based intellectual properties, as it is also an interactive partner for entertainment companies such as Breakthrough, PBS, and Nickelodeon.

#### C2 Game Studio

C2 Game Studio (<http://www.c2gamestudio.com>) began operations in 2008, providing simulation services, entertainment, advergames, serious games, and motion-capture. From 2008 to 2011, the studio performed work for some of the largest companies in Medellin, Colombia, including EPM, Nutresa, ISA, El Condor, and SENA—always with the illusion of making games, but waiting for the right time to bet on this industry.

In 2011, a strategic shift took place, as the company decided to produce and market its own games. The first commercial game from C2 Studio was *Cowboy Guns*. It was rated the best iPad game in its launch week and won the national design award "lápiz de acero." In 2012, the game *Nitro Chimp* was released, which received good reviews and was a finalist for several awards including App Circus and "lápiz de acero." Both games were published by Chillingo.

Currently, C2 Studios is developing a new game based on the intellectual property of *Nitro Chimp*. This is the first self-published game and was designed from the start for the free-to-play business model.

#### Flamin' Lab

On August 1, 2010, Flamin' Lab came to life with just two members, a programmer and a designer, Hermann Vallejo and Felipe Rodriguez (<http://www.flaminlab.co>). After creating the company Web page and its first Unity engine game, about a character that had to catch a small flame that appeared randomly in a space, Flamin' Lab was officially launched on October 3, 2010.

In 2011, the studio developed six different interactive experiences for one of the most important museums in Colombia, "El Museo del Agua" of the EPM company in Medellin, followed by the development of five other experiences for three more museums. In order to get involved in the iOS market, in November of 2011 Flamin' Lab launched *MagTrap*, its first video game for the iPad, with most of the downloads being made from China. Since then, Flamin' Lab's main goal has been to create video games and mobile apps, and so in March of 2012 it launched *Roach n Roll*, its second game for iOS, which is available for iPad and iPhone.

Finally, in July of 2013, Flamin' Lab became part of the sixth round of the "YetiZen Accelerator Program" in San Francisco, motivating them to move the operation to the United States and continue with its objective of internationalization, expansion into other markets, and growth in the video game industry.

#### Press Start Studios

Another case study is that of the company Press Start Studios (<http://pressstart.co>), created in 2011 by Luis Ernesto Parra, Ivonne Tovar, and René Serrato, and initially focused on casual games for Facebook, publishing four titles and reaching over two hundred thousand players in more than fifty countries. Press Start Studios' first published game was *Doña Gloria: The Game* (2011), and despite being based on a local event (see <http://www.youtube.com/watch?v=c4XlFdLddI>), the game set a record of reaching one hundred and sixty thousand players in two weeks, all without any marketing budget. In 2012, the company changed its focus to the mobile gaming market with a project called *Drive Me Bananas*, and with this change, Press Start got its first



**Figure 1**

The logos for Press Start Studios, Flamin' Lab, and the Global Game Designers Guild.

angel investment. In 2013, Press Start opened offices in San Francisco, California, and was accepted into the prestigious video game accelerator YetiZen, which meant an excellent opportunity for recognition in the US market and growth for the Colombian gaming industry.

#### TN3STUDIO

TN3STUDIO (<http://tn3studio.com/en/>) is an interactive studio founded by Alvaro Felipe Bacca in 2010. It was not until 2011, however, that new members entered the company and began its consolidation as a developer of digital content in the city of Cali, Colombia. In October 2012, the studio became one of the companies winning funding the CREA DIGITAL grant, organized by the Ministry of Culture and ITC (Information Technologies and Communications). The result was the interactive story "Andrés y la Ballena," which is part of the reading plan of the Ministry of Culture and was published in 2014 for tablets. The studio's beginnings were

marked by the development of serious games, educational games for private platforms, interactive digital content, and games with Kinect technology.

Currently, TN3STUDIO works with production companies and public projects guided by the mission statement: "We are based on local awareness and the reality of the country, decid[ing] to make content with added value, focused on fun and creativity, rather than resorting to violence, the easiest argument and one of the most stigmatized for Colombians" (see <http://tn3studio.com/en/>). This is one of the main reasons why their portfolio highlights interactive stories, adventure games, puzzle games, and casual games in general. Some of the projects released in 2014 were: *Andrés y la Ballena* (for Colombian public libraries, in February 2013, and for tablets, in April 2014), *Kick it: Road to Brazil* (a casual game for the iPhone released in March 2014), and *Groove the Worm* (a PC game released in April 2014).

#### Boron Studios

Boron Studios (<http://boronstudios.com>), located in Bucaramanga, Colombia, in the Andes Mountains, was founded in 2012 by Sebastian Castilla, Carlos Arenas, and Oscar Salazar. The studio is currently working on *Aluna*, its first game and first IP, designed for mobile platforms. Recent work by the studio includes work-for-hire for the development of the application *Arkis*, aimed at children between two and four years old.

#### Kanazú

Kanazú S.A.S. (<http://kanazu.org>) goes back to Julio Enrique Aguilera Fandiño as coordinator of technology and instructional material at Maloka, an entertainment-learning center in Bogotá, where he directed the production of toys, video games, and interactive learning materials. In 2008, Julio Enrique won the "Lápiz de Acero" award for toy development at Norma and represented Colombia in the first "Bienal Iberoamericana de Diseño." In 2011, Kanazú was nominated for the "Lápiz de Acero" award in the digital category for the video game *Mission Bicentennial* (available online at <http://malokapro.org/juegos/fac/>). In 2012, thanks to the program of Based Technology Entrepreneurship (EBT) from Colciencias (a government agency that oversees higher education and academic and scientific research), Kanazú S.A.S. was established and that same year won the CREA DIGITAL grant from the ITC Ministry to develop the video game *Edutainment Croanak* (available at <http://www.croanak.com>). This coproduction features a frog that fights to save the environment.

Kanazú specializes in creating and sharing stories that materialize through video games and toys for education and entertainment. During 2014 and 2015, the studio will launch a line of interactive toys with augmented reality components. It is also developing mobile versions of video games made previously.

#### A Little Bit of Hardware

Searching for the origins of this industry, we should pause the story in order to mention the case of Carlos Anzola, an engineer who, in the 1980s, began programming small video games on the Commodore 64 but

made his real contribution in the area of hardware, with his creation of the HiE-D in 2007. His vision was of a system ahead of its time; a gesture-based interface that recognized body movements without the need for a physical, handheld controller. This new system was named HiE-D (Human Interface Electronic Device), which can be considered a predecessor of the future Project Natal or Microsoft Kinect (see <http://www.youtube.com/watch?v=FqNPrJhei0>). Indeed, some suggest that Microsoft, which requested a prototype of the HiE-D in 2007, may even be infringing on Anzola's patents with the Kinect (see Benchoff 2011). Since then, Anzola has been improving his prototype in order to obtain the necessary funding to fulfill his dream and put the HiE-D into mass production.

### Various Sectors with the Same Goal

Government support for the development of the game industry has been viewed positively by members of the gaming community. However, it is important to note that it is an accompaniment to various initiatives in many areas, specifically public relations and creating events, contests, and other activities. Thus, "This kind of support is invaluable to the growth of the game industry in Colombia," according to Jairo Nieto of Brainz Games, the developer of successful games such as *Vampire Season* (2012).

The year 2006 saw Loop, the first festival of animation and video games, organized by Oscar Andrade, who is a self-described game programmer by hobby and filmmaker by profession. This popular festival was one of the first entertainment media events that allowed the sharing of experiences through the showcasing of products and developments, and it helped to showcase the various players in the emerging leisure industry in 2009. With extensive experience in the audiovisual industry, Andrade highlighted his vision of designers, developers, and the work developed in the country, and it has been an excellent venue for the dissemination of industry experience.

The Colombian game industry received a boost in 2009 thanks to the roundtable discussions of the Telecommunications Research Center (Cintel), a center of technological development in information technology (ICT), which freely exchanged information and whose main objective was supporting the development of the ICT industry through consensus formulation of recommendations on technology, regulations, and business.

In one of these roundtable discussions, an analysis of the digital content industry called "Business Opportunities for Content Generation on Different Platforms" was presented, shaped by different actors in the industry and academia such as Cintel, the Ministry of Technology Information and Communications, the National Television Commission, the Ministry of Culture, Jorge Tadeo Lozano University, and Microsoft Colombia (Cintel 2011). The members of the roundtable discussed the potential for development of the video game and animation industry sectors in Colombia. Ernesto Galvez, the founder of Immersion, was chosen as a guest speaker at the first Forum of Digital Content for this reason. This first forum opened the door to several small studios, allowing them to see the positive growth of gaming and to consider the creation of a particular industry in this sector. From 2011 onward, the industry grew into various areas such as education, government, and industry.

From the perspective of Jairo Nieto of Brainz Games, however, the video game industry really began to evolve when companies such as Apple and Google opened their mobile platforms to independent developers, giving them the opportunity to work without a publisher, allowing Colombian developers to display their software directly to the world.

### Associations in Colombia

As for the presence of the associations of developers in our country, it is important to highlight three guilds that have facilitated the strengthening and dissemination of the Colombian industry nationally and internationally: SOMOS, the Game Developers Association in Colombia (IGDA), and the Global Game Designers Guild (GGDG).

#### SOMOS

SOMOS is a Creative Industries and Digital Content Guild founded in 2009 to establish connections with the government, education, and business sectors. It was founded by leaders of companies including Jaguar Taller Digital, Creative Connection, Caterpillar, ZIO Studios, and Naska Digital. Since its inception, SOMOS has promoted important initiatives, such as the first CONPES of Creative Industries, Digital Content Policy, the creation of the Short Films and Feature Films category of the FDC, and the CREA fund. SOMOS is also in the process of strengthening the industry and has participated in the creation of the Coalition of Creative Industries and Content and other activities that promote the development of the industry. As of October 2013, SOMOS had thirty affiliated companies, six chapters, and was continuing to strengthen its regional presence along with the industry.

#### IGDA Colombia

The Game Developers Association in Colombia is a well-known nonprofit association established in 2010 through the joint efforts of several companies, among which stand out Brainz (formerly part of ZIO Studios), XOR, Colombia Games, Immersion Games (now Efecto Studios, <http://www.efectostudios.com>), and NDiTeravision. IGDA Colombia brings together developers, academia, and government offices around the topic of video games and their applications.

#### The GGDG

The Global Game Designers Guild (GGDG) was created in 2012 by entrepreneurs Luis Ernesto Parra, Ivonne Marcela Tovar, and Rene Serrato from the vibrant company Press Start Studios. The goal of the guild is to discuss, learn, connect, and report on issues related to game design and the game industry in general. These

Colombian entrepreneurs decided to start several projects to create community in Latin America, including newspapers, newsletters, the first award for women in games in Colombia in 2013, brought four startups to San Francisco to a one month educational Bootcamp with YetiZen and another five startups took it online, where part of the leading team of the first LATAM gathering during GDC and podcasts with international guests. They also used social networks to broadcast specialized information about video games, specifically about the design process. This is coupled with an interest in promoting business opportunities for current and future gaming studios and start-ups. GGDG also has various chapters in different regions of Colombia including Bogotá, Medellín, Cali, Bucaramanga, and Barranquilla, and international chapters in Mexico, Australia, and France.

### **Government Support**

Since 2009, these measures of internationalization of the Colombian video game industry have been supported by Proexport Colombia, a government entity, and in January 2012, the Ministry of Information Technologies and Communications of Colombia included the sector in the Vive Digital Plan (Proexport 2013), which seeks to improve infrastructure. Finally, it can be said that the industry's progress has made it possible to create different dynamics of interaction between video game development companies and various government agencies, resulting in sustained growth.

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## MEXICO

Humberto Cervera and Jacinto Quesnel

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In this chapter we will explore the history of video games in Mexico. Given the lack of previously published information, this will be an exploration of the word-of-mouth side of this story. We will explore the retail industry, game journalism, and game development; there is little to no written record of Mexico's video game history, so this chapter is based on interviews with a few key players in the industry. There is still a lot missing in this tale; sadly, some key players couldn't be found or did not agree to be interviewed by the authors. This small piece is only comparable to the first relaxed steps at the bottom of a mountain before getting to the climbing. The authors hope you find this chapter as enjoyable as it is informative. The interviewees are:

Gonzalo "Phill" Sanchez, a game development teacher at the SAE Institute (School of Audio Engineering), UVM (Universidad del Valle de México), and other universities. He is also editor in chief at *Motor de Juegos (MDJ)* (<http://www.motordejuegos.net>). He has almost ten years in the video game market, and at *Motor de Juegos* he has created a community of devoted Mexican developers. He is well known for the support he offers to aspiring developers and is the Mexican authority on the state of the video game industry. *MDJ* publishes an annual report on the state of the industry.

Adrian "Carqui" Carbajal, editor in chief at *OXM (Official Xbox Magazine México)*. Carqui has been a journalist in the industry since its birth. He has worked at the major local publications, at *Club Nintendo*, and was the editor in chief at *Atomix* and later for *EGM en Español (Electronic Gaming Monthly)*. He has seen firsthand how the industry began and how it evolved to what it is now.

Jose M. Saucedo has almost twenty years of experience as a Mexican video game journalist; he was the founder of *Contacto PSX* (the first indie game magazine in Mexico) after he became the editor in chief of *Atomix* magazine. He now works at Team One as a sales representative for several publishers for the Latam region, and he is responsible for community management and support in marketing campaigns.

Gabriel Palacios has participated in nationwide education projects such with the SEP (Secretaría de Educación Pública), CONACyT (Consejo Nacional de Ciencia y Tecnología), among many other government institutions. He creates educational content, educational video games, and transmedial gamification strategies.

for education. He is also a digital artist whose work has been exhibited in several art galleries in the United States and MK&Gon Germany.

Ivan Chapela has much experience in the Mexican video game industry. He established Radical Studios in the late 1990s, one of the pioneer developing studios in Latam; in 2005 he directed *Atomix* magazine, the biggest video game publication in Latam at the time; and in 2007 he founded 3nMedia, a consulting agency for the Latam video game industry. He has positioned himself as a key player within the industry and as a leader in PR and marketing, experience which gives him unique and broad insight into game development and the retail industry.

## The Market

Video games are deeply rooted in Mexican pop culture. As the southern neighbor of the United States, it is easy to understand why our consumption habits have grown in parallel with our northern neighbor. Only a handful of people had heard about video games at the beginning, and even with piracy and contraband, there is much evidence of the Mexican upper class importing consoles, such as the Magnavox Odyssey or the Atari, for personal use as soon as they were released in the United States. Almost any gamer over the age of thirty-five will remember that period. Up to this day, you can still find such consoles in thrift shops all over the country. Due to a lack of a formal retail industry in Mexico at the time, gamers in the country could only buy their original copies of the games they wanted on gray markets that sold smuggled goods. Gamers had the money to buy their games, but a lack of availability forced the consumers to acquire them through said markets.

One cannot speak of video game consumption in Mexico without addressing our northern border; at least half of the video game consumption in this country was illegal back then (there is no data about this and we can only estimate through observation). Whether it was through smuggled imports (called "fayuca" in the local slang) or piracy, a lot of gamers got hooked into video game culture through the informal market. Without recorded data, game consumption in our country is hard to put into numbers, but according to *El Universal*, a nationwide newspaper, the growth of video game consumption is three times larger than the growth of any other industry ("Videojugadores Invaden El País" 2013).

The black market (piracy) is different from the gray market (smuggled imports) and the formal (legitimate) market, and we can only infer that the growth in the formal market might not have been as much as it is now without these other markets, since there is a migration of a significant percentage of consumers from black or gray market games to the consumption of legitimate copies. This has been fueled by tighter control of game piracy, availability, and the status quo derived from the ownership of formal market games, as opposed to the social stigma created by owning pirated, black market, illegal copies of games. Again, there is no official data, and probably our next step should be to start quantifying it.

## "Las Maquinitas"

To make a long story short, Mexicans, given a low enough price, thrive on playing video games; the widespread success of arcade machines on the market is proof of this. It was on arcade machines, called "chispas" (sparks), "maquinitas" (little machines), or "electros" in the local slang, that a huge number of young consumers had regular access to video games. Beginning with arcades, video games started to gain ground as the preferred form of entertainment for some people, but video games still had a long way to go to achieve critical mass. Some popular arcade games at the time were *Pac-Man* (1980), *Centipede* (1981), and *Frogger* (1981); popular games in Mexico were the same as in any other country, just not as popular in the mainstream.

People thought of video games as things that were meant for children, at least until the 1990s, when avid gamers started to include adults in the demography. When arcade games began their decline in North America, arcades were still big in Mexico, but as soon as consoles became more accessible in the mid-1990s, arcades in Mexico followed the same fate as in the United States.

Countrymen in Michoacan, a state famous for its continuous illegal migrations to the United States, still tell an unverifiable story about them being the first to—illegally—import *PONG* (1972) and hundreds of arcade machines back in the 1970s. Some gamers used these machines for gambling, a common sight in the many years to come, regardless of the game so long as it was competitive. To this day, one can see dozens of arcade machines among small populations, places where there is still no Internet or cell phone communication, and yet, video games prevail. Perhaps the reason for this is that many gamers in said areas still don't own a console. Many corner shops in poor city neighborhoods and rural areas still operate arcade machines. A common sight is either an old 2-D fighting arcade game or a newer one that holds a plethora of games running over an internal emulator (called "maquinitas multijuegos"). Over the last couple years, some of these machines have been replaced by "Perla de Oriente" (Orient Pearl), soccer-themed, illegal, gambling arcades, since they obviously provide a better business.

Chuck E. Cheese restaurants never came to Mexico, but their main competitor, Show Biz Pizza Place, opened up a Mexican branch, rebranded as Show Biz Pizza Fiesta. It was located in a high-income urban area of Mexico City, but many people remember their first experience with video games happening at Show Biz Pizza Fiesta, despite its affluent location, since their price range was still accessible. Two other arcade parlor chains, Coney Island and Recorholis (their main differentiating factor being that neither of them was a restaurant), followed. Coney Island closed in the early 2000s, but Recorholis, a Mexican-owned company, still operates (as of 2013) and has extended its operations to Spain.

Parallel to the growth of the arcade parlors, one could find arcade machines at the entrance of corner shops and drugstores. Of course, most of these cabinets were illegal and unlike those in the retail industry, there was never a trade association regulating the arcade business. It was because of these arcade cabinets that people could start experiencing games such as *Centipede* (1981) or *Space Invaders* (1978) right in the corner of their neighborhood; little by little, video games were taking over other forms of entertainment.

The arcade business in Mexico was a vibrant market even during the late 1990s. Near Metro Insurgentes in Mexico City, as many as ten arcade parlors were next to each other, constantly competing for customers and trying to offer the newer games. Some even paid the best players to hang out at their places to attract hard-core fans of certain games. Even with piracy, there was formal importation of Neo-Geo MVS boards, and official launch events were held in Mexico City each time a new *King of Fighters* game was released (with launch dates very close to those in Japan). As noted before, *El Universal*, reporting on video game consumption, stated that gamers in rural areas were excluded. With 52.26 million people who play video games in the country, versus 40.6 million with Internet access, we are a gaming country; there is no doubt about that (“Videojugadores Invaden El País” 2013).

The only companies that had official representation for their arcade business in Mexico were Nintendo, SEGA, Capcom, and SNK, which was because the Japanese arcade games of these companies were more popular than Atari consoles. This could be the reason why Atari never opened up an office in the country, even though it was geographically much closer, in California. A troubled market forced Nintendo and SEGA to retire at the end of the 1980s, probably because of the North American video game industry crash of 1983, and this fate would soon be followed by Capcom and SNK in the late 1990s; they managed to survive longer because of the popularity of their fighting games, but they closed their offices in the 1990s when home consoles became more popular than arcade games in the Mexican market.

In the 1980s and 1990s, the main player base for video games in Mexico existed within the arcade space; there were many more video game players in the arcades than players who owned or had access to a home video game console (sadly, there are no numbers to back this up, but this information comes to us from our interviewees’ experience and what we can infer from our own experience). This was mostly because of the high price of home console systems and because of the fact that since the effort to bring the Atari 2600 back in the 1980s, there hasn’t been another large-scale effort to legally bring consoles to Mexican consumers. Most if not all of the consoles in Mexico were imported by individuals who had the financial capacity to travel to the United States and buy one for their relatives.

In the Mexican arcade scene, SNK’s *The King of Fighters* (1994) has remained present since its release. One could say that in Mexico the national sport is lucha libre, and if one were to define a video game genre as the national video game genre of Mexico, one could easily say that fighting games are this genre, for in Mexico they have a whole subculture of their own. To this day, one can always find a couple Mexicans in the final round of international tournaments such as Evolution Championship (EVO). Some of the Mexican champions are Cesar Garcia (also known as TA Frutsy, 2012, fifth place on *Ultimate Marvel vs. Capcom 3* [2011], Antonio Medrano [a.k.a. Kusanagi], 2010, third place on *Melty Blood: Actress Again* [2008]), and Armando Velazquez [a.k.a. IGL Bala], 2012, second place on *The King of Fighters XIII* [2010]). *The King of Fighters* is currently played mostly on illegal emulation-enabled arcade machines. KoF remains one of the most-played video game series in the country.

As of 2013, one can still find arcade cabinets in grocery stores and drugstores, but the only chain of arcade parlors that survives is Recorchoolis. There have been continuous efforts to bring back the arcade parlor, with

franchises such as Dave & Busters or Gameworks, but they keep failing; these franchises always open their arcade parlors in the country’s high-income zones, so one could infer that the reason for this constant failure is the fact that gamers in these areas have access to consoles; arcades were successful in Mexico because the people without access to consoles sustained the parlors.

## The Retail Titans

As early as 1973, a local engineer, Morris Behar, produced his own PONG-like console. The NESA-Pong (NESA standing for “Novedades Electronicas, S.A.”) was marketed and distributed all across Latin America and achieved considerable success in the market. Even though there are no sales figures available, the NESA-Pong console was still a fair success for it had a great impact within Mexican video game pop culture, and even the original PONG (1972) was referred to as the “NESA-Pong” by Mexicans. The NESA-Pong helped create awareness of the existence of video games, but it was still a luxury item that many lower-class Mexican families could not afford. The lack of TV or radio publicity proved crucial in NESA-Pong’s failure to appeal to a mass market and not just a niche.

It was not until 1980 that the first shipment of the Atari VCS 2600 came to Mexico as the first console to legally appear in the Mexican market. Curiously, it wasn’t an electronics company that chose to bring the Atari to Mexico; it was a meat packaging company (no one seems to remember the name of said company). They held the right permits to import the Atari, and they decided to try bringing this funny new electronic entertainment product to Mexico. From a business perspective, it made sense; the company was exporting meat to the US, but the trucks were empty when returning to Mexico. In order to maximize the use of the trucks and make more money, importing something was the logical thing to do. Liverpool, a department store targeting high-income individuals, attained the exclusive rights to sell the Atari 2600, and importation of the consoles began.

The Atari 2600 did not enjoy the levels of success it had in the US, but in the 1980s, Atari opened up an office in the country with Mexican engineers dedicated exclusively to the production of Atari video games; like most people working in the game industry at that time, these engineers had little to no interest in video games. It was because of Liverpool’s high-income target market that the Atari did not achieve deeper penetration into the Mexican market, but as it happens with any form of media in Mexico, video games would soon be pirated and illegally imported. Due to the extended piracy and contraband in Mexico, more people had the chance to get their hands on this form of entertainment.

During the early 1980s, there was a void within the console market, a void that would not be filled until the Nintendo Entertainment System appeared in 1985. A lot of illegal importation of Famicom (the Japanese name for the console) from Asia occurred during the 1980s. The console was sold alongside an electrical adapter for the NES and multigame cartridges. You could buy the Japanese console on gray markets such as Pericoapa or Lomas Verdes around the country, and this smuggled console was cheaper than the legal one, for it avoided

import taxes. The retail price for the NES in Mexico was around USD \$250, while the pirated version was USD \$199.

During the late 1980s, Mexican bazaars, like the nationally known "Bazar de Lomas Verdes" and "Bazar de Pericoapa," were the focus of attention for gamers hungry for new releases. Smuggled imports were desired, and even though we have no sales figures, many remember that copies of new releases sold out after only a few days.

Some years later, Teruhide Kikuchi opened up the first "Mundo Nintendo" store in Mexico, the first legal retail shop dedicated exclusively to selling video games. Kikuchi worked at C. Itoh, the official distributor for Nintendo products in Mexico. He was charged by his company with opening official Nintendo retail stores, and so "Mundo Nintendo" opened up in four locations within Mexico City. Seito opened up a Mexican subsidiary in Mexico under the name Gamela, which would operate successfully until 2002. There was no formal structure for the legal taxing and distribution of video games in Mexico; Kikuchi was the one who did all the necessary lobbying to create the legal structure for the sale of commercial video games in the country, and this would make Abraham Bautista's job much easier when he decided to become legitimate and expand his business.

Bautista, a businessman, noticed that there was a high demand for video games and that no one was supplying that market, so in 1987 he started bringing video games as personal imports from the United States to sell on his bazaar stand in Pericoapa. As a result, he was able to sell original copies of games at a more accessible price, eventually absorbing all of his local competition. He would start business relations with the first-party distributors, and, eventually, every non-Nintendo game in the country was brought in by Bautista's operations. Bautista would soon be importing millions of copies.

In 1995, Bautista founded Game Express, a store selling legally imported original games. With the foundation of Game Express, Bautista successfully moved the core of his business from personal imports into successful full retail stores that are now present in most malls across the country.

Kikuchi and Bautista both looked at video games as a business opportunity, and their goal was to make video games a viable business. These two men would come to define the retail industry as we know it today.

## Media and Marketing

Meanwhile, Kikuchi, in an effort to get the industry to be taken more seriously, commissioned the creation of a Nintendo-dedicated magazine, *Club Nintendo*, in 1991. His idea was that a monthly publication would give an image of formality and seriousness while also functioning as a marketing device for Nintendo products; better yet, the magazine would turn a profit. The founders of the magazine were Gustavo "Gus" Rodriguez and José "Pepe" Sierr, and for years to come, Rodriguez would be the public face of Nintendo in Mexico (and some Latin American markets that get Mexican TV). The market penetration of Nintendo was unlike what anyone

had ever seen in the video game industry in Mexico, and even today, one can hear casual gamers refer to any game console generically as "El Nintendo."

*Club Nintendo* had humble beginnings, but in time the magazine changed its style and format. It was top-notch and marks the turning point for the video game retail industry in Mexico. *Club Nintendo* created a sense of community between gamers in Mexico, one that you couldn't find before. This was the only magazine available for the industry and gamers. Even if you couldn't afford a console, once a month you had access to insider information about video games. Many people who didn't even own a game console would buy a copy of the magazine, and of course it was because of this magazine that Nintendo became the leader in the Mexican market, a position it would hold until Sony's release of the PlayStation 2 in 2000.

The "Family" consoles (local slang for the illegal Famicom consoles) were a big issue for Nintendo at the time, but it was because of these pirated consoles that people had such deep brand loyalty to Nintendo. This situation would repeat for the PSX, the PS2, and the Xbox, since pirated CD-ROMs flooded the gray market. Many would buy a console while owning only a pair of legal games and dozens of illegal ones, and this created a very strong user base and market for the PS3 and the Xbox 360 when they were released.

In Mexico, piracy often works as a marketing device for companies, even though it does not help the market grow. It makes certain products accessible to a segment of the public that otherwise would never buy them. Even if the people acquire the products illegally, they will still develop a deep sense of brand loyalty, and if possible, in the future, they will strive to become legitimate customers for their brand.

By the mid-1990s, video games were already a legitimate hobby, and the Mexican consumer was starting to look for more mature experiences. The problem was that Nintendo didn't grow up with the consumer, and their marketing was still aimed at children and teenagers. *Club Nintendo*, while still a household name for the Mexican gamer, failed to offer what consumers were looking for, information about other consoles apart from Nintendo, and more mature content. Some entrepreneurs saw the opportunity and started publishing their own magazines, with the sole objective of offering better and different content than one could find in *Club Nintendo*. The magazines that actually achieved this were *Atomix* in 1997 and *Contacto PSX* in 1999.

*Atomix* started as an Internet forum for gamers and became the first serious competitor for *Club Nintendo* when it launched as the first multi-console magazine. It would become the most successful magazine in the Latin American market. *Atomix* retired from print media in 2009 but continues to operate successfully online. *Contacto PSX*, on the other hand, was a print magazine directed by José Saucedo, specializing in PlayStation content.

There were many other magazines, but none of them experienced the levels of success achieved by *Atomix* and *Contacto PSX*. As José Saucedo pointed out, "The main problem of video game journalism is that the journalists are mainly video game fans. They often lack objectivity and professionalism." Saucedo believes that this is still a problem in the Latin American media, and this opinion is also shared by Adrian Carbajal, who told us, "Video game journalism in Mexico is produced by fans, not by professionals." This is one of the reasons why not a single Latin American magazine has achieved the level of success of say *IGN* or *Kotaku*. English-speaking gamers would rather go to these international magazines than read the locally produced

ones, mostly because of the quality and the objectivity of the content. There were other efforts to license some European magazines for the Mexican market; the problem with these magazines was that the information was completely localized for the European market and totally out of date when it arrived in Mexico.

Grupo Televisa, a leading mass multimedia company, had acquired the rights to distribute a Spanish version of the US magazine *Electronic Gaming Monthly*, and Carqui was chosen as editor in chief for this initiative. Most of the content was a translation of its US counterpart, but *EGM en Español* still had local and original articles, and the magazine was in circulation until January 2009, when the US edition stopped circulation. In April 2010, when the US edition resumed circulation, the Mexican edition did not. Grupo Televisa also held the rights for *Club Nintendo* and would later buy the rights for *OXM (Official Xbox Magazine)* in the mid-2000s, when the rise of online magazines rendered the video game print magazine business unprofitable. The magazines that do continue are part of big publishing companies.

As of 2013, there are many print magazines on the Mexican market, most of them offering single-platform content like *OXM* has since 2011. The only multi-console magazine left is *GameMaster* (founded in 2010 by Eduardo Aké, Hugo Juárez, and Edgar Alarcón), which also happens to be the only printed magazine that covers national game development.

The second significant factor in the consumer maturation process was the PSX. This console offered a more grown-up experience and was more accessible than any Nintendo console; better yet (for the consumer), the game CD-ROMs were much cheaper and easier to copy illegally than the Nintendo cartridges. One could buy a PSX game for MXN \$10 (less than USD \$1.00), so if you were a really hard-core gamer, you could buy more than a game per week and your personal finances would not be affected. For hard-core gamers, the main appeal of the Super Nintendo was the JRPGs (Japanese role-playing games), but when PlayStation obtained the exclusive rights to *Final Fantasy VII* (1997), the hard-core gamer segment of the market migrated permanently to PlayStation consoles.

Today, many gamers have retired from buying pirated games, as is evident from the sales spike that the retail industry has seen in recent years; there are not only more gamers, as noted earlier, but gamers are changing over from buying pirated copies of games to buying original copies.

In terms of console games, the most-played game series in the country is *FIFA*. The desire to play it is rooted in Mexican soccer culture and the inner need to see Mexico win the World Cup at least once. Today, there are people who buy the console and only the yearly installments of *FIFA* games to play on it.

The PlayStation would continue to dominate the Latin American market until the release of the Xbox 360 (2005). One of the decisive factors in this market domination was that when the PlayStation 2 was released, Sony Computer Entertainment of America (SCEA) formalized relationships with Mexican distributors and kept a very close relationship with the members of the press. Neither Nintendo nor SEGA had attempted to do so. Following Sony's example, Microsoft did this from day one for the release of their Xbox console. Of course, it was much easier for them because they were just entering the market, whereas PlayStation had to deal with hardware modifications of their consoles and the pirated versions of their games in the Mexican market. Microsoft was able to avoid these issues.

## The Dormant Giant

Apart from the NESA-Pong console mentioned earlier, there was little video game development in the country during the 1980s and 1990s—as far as we know, not even hobbyists programming home computers. But a few museum edugames were being made at Universidad Nacional Autónoma de México (UNAM) for their museum Universum, open since 1992, and as mentioned earlier, there were Mexican engineers working for Atari, but somehow the industry never managed to grow and mature as it did in the United States. It was up to the fans to make the video game development industry a reality, and to this day we continue to struggle to make this happen. The people working in the industry in those days were just businessmen or engineers who saw in video games an opportunity to make a prosperous business, and only through the importation of foreign systems and games rather than indigenous productions.

Those children who stayed up late playing video games or who went every Sunday to Show Biz Pizza Fiesta, however, would soon grow up with a dream: the dream of making video games. As noted by Gonzalo “Phill” Sanchez, people realized that they could actually produce video games themselves when *Club Nintendo*'s forty-fourth issue featured a special report focusing on the DigiPen Institute of Technology, a Canadian school for video game design. This was the first time that Mexican fans noticed that there were schools that could teach them how to make their hobby a professional reality. Some Mexicans tried to go to DigiPen, but the expensive tuition left many more with only a dream and almost no tangible way of making it happen.

Three companies, Evoga, Aztec Tech Games, and Radical Studios, were the pioneers of Mexican game development. As Chapela points out, “When the pioneer developers started in the early 2000s, the local industry was not established yet (which is to say, no retail video games, formal distribution channels, or local publisher representation). There was no support from the government. The worldwide industry didn’t look at Latin America, and academically, the closest thing to video games was computer science. Therefore, most of the funding had to come from personal relations, and the workforce had to learn through experience, which in most cases was not enough.” Each company had a very different business model; Evoga (2000–2004) did art outsourcing work for SNK. Considering the very high status that *The King of Fighters* games had in Mexican culture, this gave the studio a great sense of pride.

Initiating what is still struggling to become a formal industry, Aztec Tech Games (established in 1998) started the development of *War Masters* and *HeliCopters*, although neither game was ever released. This was due to inexperience and production problems within their development; nevertheless, the efforts that Aztec Tech started would soon help the industry in another way with the foundation of the Aztec Tech Institute. The institute was founded with one core principle: to be a learning center for video game industry professionals. The Aztec Tech Institute was the only school in Mexico where one could go if one was interested in the creation of video games and didn’t have the resources to go to DigiPen. The school operated for five years (2003–2008), but the directors of the project wanted it to be a full-fledged university with international recognition. They didn’t have the means to make this happen, and soon enough, the project was out of control and spiraling downward. Of course, it wasn’t a complete failure; some people managed to take courses at the

institute, and those people would become the start of the third generation of developers within the industry. Also, Aztec Tech proved to the Mexican video game fan that making video games at a professional level was an actual possibility.

Last but not least in this group of pioneers is Radical Studios (2000–2004). At the time of the studio's founding in September of 2000, massively multiplayer online games (MMOGs) were starting to become popular with PC gamers, so Radical chose to develop a simple 2-D MMOG as its premiere game. This turned out to be *Eranor* (2003), an MMOG tailored for the Latin American market and completely in Spanish. Radical Studios had a very talented team, but with little experience creating an MMOG; it ended up being much more complicated and expensive than what they had originally thought. After two years of intense learning and financial struggles (no one in the team earned more than USD \$200 per month), the investment the studio had available for the game ran dry. They did achieve some respectable things for the time, such as having some players as beta testers and getting one server up and running while also engaging with a small, devoted community of fans that was heavily invested in the release of the game. Considering the inexperience of the team and the funds available to them, this was something great. Sadly, *Eranor* never became a reality, but it is still highly regarded as the first large-scale attempt at developing a commercial video game in Mexico.

The directors and ex-employees of Evoga, Aztec Tech Games, and Radical Studios moved on to other ventures, but they still have a great presence within the video game development community in Mexico. If it were not for them, the video game landscape would not be what it is today. As they say, the hardest step to take is the first one, and this is what they did.

Many little studios emerged from these first initiatives, most of them amateur studios or student groups that were finally realizing they could make their passion a reality. There were no other big developments until the foundation of Sabarasa México in 2009. Sabarasa was a very big international company from Argentina that worked mainly with licenses or did outsourcing for triple-A studios. The man behind the bringing of Sabarasa to Mexico was none other than Abraham Bautista, the retail mogul, who finally decided to take a shot at development.

Sabarasa worked as an outsourcing company, but soon enough, Bautista decided that they wanted to start producing triple-A console titles, and so Sabarasa became the first Mexican triple-A development studio and was renamed Slang. (Full disclosure: the authors could not get interviews with ex-employees of Slang/Sabarasa. They are still bound by nondisclosure agreements, and so our knowledge of what happened at the company comes from other sources and casual conversations between the authors and the parties involved.)

In the short years that Sabarasa was operating in Mexico as Sabarasa-Slang (from June 2009 to April 2012), the company acquired all the licenses and permits needed to develop games for consoles and the licenses to create games based on the AAA (a Mexican wrestling federation), *Atrévete a Soñar* (*Dare to Dream*, 2009–2010, a high school-oriented "telenovela" with musical features, aimed at children and teens), and *El Chavo del Ocho* (1971–1980, one of the most influential TV sitcoms in Mexico since its appearance). These three intellectual properties were the most popular at the time in the Latin American market, and it was difficult to get licenses as popular as these. *Atrévete a Soñar* (2011) was released for the Nintendo Wii and seemed influenced by the

*High School Musical* game franchise. It found mild success in the market. *El Chavo del 8* (2012) was a *Mario Party* (1998) clone and was not that well received; it was also released for the Wii console. *Lucha Libre: Heroes del Ring* (Xbox and PS3, 2010; Wii, 2011) was the game with the biggest IP and was expected to be very successful. Millions of dollars were spent on the game marketing campaign. Adrian Carbajal remembers that the launch party for that game was the biggest he had ever seen. Everyone was there; they had live music, lots of drinks, and lots of food. This comes from a seasoned journalist, someone who has been at many release events, parties from international studios and well-established franchises; he still remembers this party as the biggest one. But after years of development, the team delivered a product that didn't sell as well as expected; even after all the effort, it was not able to compete with the existing WWE franchise games.

Even today in Mexican game development forums, there is much talk about what happened at Slang. Some say the studio had a lot of internal communication problems, others that there were toxic employees in positions of leadership who were not cut out for the job and were only looking out for their own interests. Perhaps what happened was a combination of all these issues, and the inexperienced employees were unable to develop for consoles as a result. The truth is that until one of the ex-employees decides to speak up, we will never know what truly happened there. Nevertheless, one thing we know for sure is that the endeavor failed, and after two years of operation, Slang Studio closed its doors while Slang Publisher still operates.

As noted in the annual report published by *Motor de Juegos* (Sanchez 2012), today we have around seventy-five video game studios operating in the country. Gonzalo Sanchez suggests that probably only fifty of these studios actually operate or have video games in development. Most of these studios are run as a side business of a parent company or by students with no financial responsibilities. There is not a single game studio that operates with video games as its main line of business, and the people at the head of these studios struggle day to day to keep them alive. As such, the Mexican video game industry knows how to make video games but is still learning how to make money off of the games it makes. We have yet to see the first Mexican studio that can operate with video games as its main business.

Triple-A development might still be far from a Mexican reality, but the growth of the mobile market has opened a huge window of opportunity for most. There is a thriving indie player community among IT and video game making programs in most universities.

Advergaming is a very popular business model for Mexican studios. A great example of this is Artifactory Studio (see <http://www.artefactostudio.com>), and having started in 2003, it might be the oldest video game studio operating in Mexico. Its main line of business is advergaming, and it has worked with companies such as Nissan, and Huevocartoon (a very popular Mexican comedy animation show). Sometimes it produces original content of its own, but taking care of the business side of the company always comes first. Currently the studio is the largest advergaming company in Mexico. Some of its games include *Kunana Island* (2013, Windows Phone and Blackberry), *Takis Air Challenge* (2013, iOS), and *Toxic Balls* (2008, iOS). Some advertising companies, such as Squad, have taken the leap from advergaming to the creation of original, intellectual properties; *Kerbal Space Program* (2012, PC), its first original title for gamers, has achieved worldwide success and was a top seller during the 2013 Steam "Summer Sale" and has since received widespread attention.

There are studios that have government support and have advergaming business as the core income for the company. Larva Game Studio, with more than twenty-five employees, is recognized as one of the biggest and most successful game studios in Mexico (see <http://www.larvagamestudios.com>). Larva is located in Guadalajara and has five years of experience in the industry. As its website states, the studio is developing *Last Day on Earth* (TBA, intended for Xbox Live Arcade and PlayStation Network), *Night Vigilante* (TBA, for iOS), and *Red Bull Crashed Ice Kinect* (2012, Xbox).

Educational games are also a very recognizable line of work. As a wonderful example, Enova, a company whose main line of business is operating communal learning centers, produces dozens of learning games. The company distributes the games for free on its "Chispale" portal. Some of its games are *Cibers* (2012, PC), *El Circo* (2012, PC), and *Topo-Tops* (2012, PC).

There is also much out-of-the-box thinking among game developers in Mexico. A particular example is Karaokulta Games's approach to video game development (<http://karaokulta.com/>). It has around ten teams in different cities, and ideally, each team produces about one small casual game every month. It creates more quantity than quality, but as the company's founder Jorge Suarez told us, "At this moment, our main goal is to produce as many video games as we can, so we can learn and grow as a community of developers. In the future, we can augment our quality, but first comes the learning." Some of its games are *Run Zombie Run* (2013, iOS), *Bee Rush* (2013, iOS) and *Popcorn Adventure* (2013, iOS).

## Waking the Giant

What does the future hold for the Mexican industry? Many agree that we have the talent and the passion. So why can't we just start an industry?

First of all, some point out a lack of cooperation within developers: there are many associations that claim to be the "official video game developer association of Mexico." If we want the industry to grow, we will have to learn how to work together, how to achieve common goals, and communicate with each other. As of this moment, the industry is very small. If any of the studios would stop developing their current video game projects in Mexico, no one outside the country would notice. There would be no actual difference.

We might be fighting for a cake that hasn't yet been baked. We need to understand that we have to start with a plan that grows from small to big. Each studio has to focus on their own goals, as the biggest and most successful studios do. Many Mexican developers are driven by nostalgia; they want to recreate the games that they loved when they were young, but we need to create a shift. We need to wake up from that dream and change it to a drive to innovate. Maybe it's better to stop asking, "How can I recreate the good games of the old days?" and start asking "How can I move the medium forward? What can I do for video games as a whole? What can I explore that hasn't been explored yet?"

If we are to wake up the dormant industry, we also need professionalization. A significant quantity of studio teams are composed mainly of animators and programmers who have the passion to make games but lack

a lot of other abilities and the production knowledge it takes to actually make a game. They do not know how to make a game project budget, and they do not know how to organize or lead game-making teams. We have the technical talent, but we need good project managers and game industry understanding to lead the team in a successful direction.

Last but not least, we need businesspeople who believe in the Mexican video game industry; we have yet to see game studios able to survive solely by making video games. To create an industry, we need entrepreneurs who are willing to take risks, people able to do what Bautista and Kikuchi did for the retail industry, business-driven individuals with a passion.

Let's hope that in a decade we can reread this and see how the industry has grown, but as of this moment (summer of 2013), the only thing that we can do is work hard and keep moving forward, together. Only then will we have a Mexican industry relevant on an international level. Ten years ago, none would have thought this was even possible, so perhaps we are on our way to waking a giant.

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## PERU

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393-398

The adoption and expansion of video games in Peru has been relatively slow, mainly due to the hard economic situation the country was going through during much of the 1980s and the first half of the 1990s. Video game history in Peru basically starts with the introduction of arcade machines during the beginning of the 1980s. At that time, a small number of businesses appeared, ranging from medium-sized arcade game centers, which deployed tens of machines, to small stores that had just a handful of them. The majority of arcade machines was provided by Japanese manufacturers such as Namco, Konami, and so on, and their games proved to be very successful among high school students and young adults. Among the most popular ones were Namco's *Pac-Man* (1980), Konami's *Super Cobra* (1981), Taito's *Phoenix* (1980), Irem's *Moon Patrol* (1982), and Williams Electronics's *Defender* (1980).

By the mid-1980s, home computers and game consoles started to appear, with the Atari VCS 2600 being the first to gain popularity among gamers. These devices were not always affordable to everybody or easy to buy inside the country, since there were not many import businesses interested in that kind of hardware at the time. Commonly, people would just purchase the console/computer and its cartridges/software when they traveled abroad, either for their own personal use or for sale to others. Examples of systems from this time are the Magnavox Odyssey, the Atari VCS 2600 console, the Coleco Gemini, and the Sinclair ZX81 (including their upgrades and variants such as the Sinclair ZX Spectrum, and so on). When the first systems with cartridges began to appear, several businesses offered their customers the opportunity to rent those cartridges, much like they would rent a movie in Betamax or on VHS. The most popular were the cartridges made for the Atari 2600, whose influence endured well until the end of the 1980s. The end of that decade was mainly characterized by the appearance and subsequent popularity of personal computers for gaming, with the Commodore 64/128 being its key representative. Although computer hardware stores were increasingly interested in offering this affordable computing alternative to average users, the software aspect was not covered in the same way. Games (which were the main reason people bought these computers) could only be purchased either through the same store where the hardware was bought or through "second-hand" dealers—in other words, people who would just copy the games for a price. Despite these limitations, devices such as the Commodore 64/128 started to increasingly appeal to home users because of their capability to offer a better

gaming experience in terms of graphics and sound. The first Intel-based PCs started to gain acceptance in the market, but their main focus was not oriented to gamers. Soon, that would change dramatically.

The beginning of the 1990s was characterized by a revolution in terms of PC and game console development. Since the introduction of the Intel 286 processor in Peru in 1990, computers were made much more affordable for home use because of the appearance of small businesses focused on assembling computers from generic hardware. Due to the fact that there was still no software culture in Peru, most businesses would just offer unauthorized copies of software (including games), contributing to the quick adoption of the technology. In addition, this decade was also characterized by the renaissance of the game console hardware led mainly by Nintendo and its NES (Nintendo Entertainment System) family of consoles. Much like what happened with Atari, cartridges became one of the main limiting factors for the expansion of this technology, again because of economic issues. Although game-related imports had increased substantially by this time, people would still find it prohibitive to pay quite a lot of money to purchase one single game cartridge.

With Sony's PlayStation coming on the scene by the end of the 1990s, interest in game consoles started to flourish again, mainly due to the fact that PlayStation games could be obtained not only legally, but also through unauthorized copy dealers, which might have constituted the bulk of games sold in the country. By the beginning of the 2000s, however, the government began to encourage a software culture that would mainly try to deal with software piracy, motivating people and businesses to purchase software (and games) legally. These efforts have been met with encouraging success, leading to a huge economic increase in terms of imports for gamers. For example, in 2006, the value of imported game-related goods (including consoles, games, gamepads, etc.) was almost USD \$2 million, but in 2010, this value increased to more than USD \$10 million.<sup>1</sup> This trend is explained by the fact that the Peruvian economy has been enjoying a period of solid growth since approximately 2007 (up through the time of this writing [2013]), and, if this increase continues, it is expected that the growing trend of game-related product acquisition will also continue.

## Domestic Video Game Production

Although video games enjoyed a rather early start in Peruvian computing history, video game production has not seen the same kind of success. Since early adopters were usually people with solid economic status, this would represent a very small number of users that could potentially be interested in the construction of games themselves. However, with the exponential increase of PC users and a growing interest in game software development for its economic benefits, computer programmers have started to polish their skills in this area. The easy availability of game construction tools, going from Adobe Flash kits to commercial 3-D engines, has greatly contributed to the minimization of the learning curve, and good examples of game initiatives have begun to appear, coming from for-profit companies, academic institutions, and individuals eager for public recognition. One of the first games that was developed in the country was a 3-D race simulation game

called *Full Speed* (2009) from ArtiGames.<sup>2</sup> *Full Speed*'s development began in 2006, and it took almost three years before it was deployed in its earliest version. Although its concept was very simple for a racing game, it was the first attempt for a small Peruvian company to develop a full-fledged game that would try to mimic the characteristics of established commercial racing games.

The promotion of activities or projects dealing with historical settings and events has always attracted the attention and funding of governmental organizations which, in the case of Peru, are the only institutions that can actually finance these kinds of research activities. One of the first academic institutions that showed a strong interest in combining game development with historical topics is the Pontificia Universidad Católica del Perú (PUCP), a leading Peruvian university. Formed by a group of students, professors, and professionals from PUCP, the Grupo Avatar (Avatar Group)<sup>3</sup> started, in 2011, the development of the first strategy game based on a Peruvian historical event known as the "1814 Rebellion in Cusco."<sup>4</sup> The first version of the game was completed in March 2013 and was based on *Age of Empires* (1997), a strategy game from Microsoft. By the end of 2012, the game had been tested by high school students, and the results of those studies were utilized as feedback to improve game playability. This project will be sponsored in its final version by the Peruvian Ministry of Education for its final release to all interested academic institutions eager to implement this learning tool in their curricula.

## Indigenous Video Game Culture

Recently, there has been growing interest in game creation as a means to express the designer's own views and beliefs, particularly in the subject area of politicians and showbiz celebrities. Most of these games are constructed using very simple Flash-based sprite techniques and are meant to present these well-known public figures in a sarcastic way rather than provide a realistic game experience. For instance, in March 2013, during the electoral period when citizens were recalling the mayor of Lima, a game called *Revoca-game* (*Recall-game*) was developed as part of the political campaign favoring the incumbent.<sup>5</sup> Its premise was very simple: the player controls the mayor's character, who is inside a car, while there are two types of balloons falling down the road. The "yes" type (meaning "yes to the recall") and the "no" type. The player must catch the "no" balloons while avoiding the "yes" ones. The game, despite its simplicity, became quite popular with young people. (An increasing number of these games can be found on sites such as that of Inka Games (<http://www.inkagames.com>)).

Other initiatives aim to encourage people to show their skills either in game programming or competitive game playing. The Lima Game Jam 2013 (see <http://www.limaginejam.com>), implemented as part of the Global Game Jam, included as many as sixty participants, among them programmers and artists who developed sixteen games in total. Although this event has only been held twice, it is expected that for future events the number of participants will increase based on the current interest in video games in general. Recent years have seen Peru's continued participation in the World Cyber Games (WCG), with the country occupying the

thirty-ninth position overall and fourth in South America. In the 2012 WCG events, the two Peruvian representatives (professional gamer Jian Carlo Joan Morayra, aka “Fénix,” and Andrés Gutiérrez, aka “Andrucas,” a lawyer and five-time FIFA 2012 Peruvian champion) achieved meritorious positions in the *StarCraft II* (2010) and *FIFA 2012* (2011) games.<sup>6</sup>

## Video Game Companies

The rapid advancement of social networking tools and the increasing user base of smartphones in Peru has made several people consider establishing their own companies to develop video games, through which it's possible to reach a considerable number of potential customers/users without a huge economic investment. Among the most established companies in Peru, we could mention the following:

- 3S Games (see <http://3sgames.com>). Based in Lima, 3S Games is a company whose objective is to design and implement video games for entertainment and media communication purposes. It emphasizes conceptual art, animation, and user interface design in its works. The most representative game from this company is *Corre Chasqui Corre* (*Run Chasqui Run*) (2012). In this game, the player takes control of a messenger (Chasqui, in the Quechua language), whose objective is to take messages to and from different regions in Peru. This game was published as part of the new platform of Smart TVs from LG.
- ArtiGames (see <http://www.artigames.com>). ArtiGames has offices in Lima as well as Barcelona, Spain. It is mainly dedicated to the implementation of applications for the entertainment business, particularly in the areas of marketing and advertising. According to its profile, it specializes in “programming and game design, 3-D visualization and real-time applications, digital animation, virtual reality simulations, and augmented reality.” Recently, the majority of its projects are essentially focused on animation for marketing. Thus, they have very few projects dedicated to video games. The only known video game developed by this company is the *Full Speed* racing game mentioned earlier.
- Pariwana Studios (see <http://www.magiadigital.com/principal/categoría/pariwana-studios/167/c-167>). A subsidiary company of Media Digital, Pariwana Studios is in charge of video game development for mobile devices. It was established in 2012 and focuses on the development of “creative digital industries using Peruvian cultural heritage as their main resource, designing world-class video games.” So far it has released two video games:
  - *Inka Madness* (2012), which is the first video game developed for mobile platforms in Peru (specifically for Windows Phone 7). The player controls Atuq, a great Inca warrior whose mission is to save his people from chaos and dispel a curse cast by an evil sorcerer over the heir of the Incan empire. The development of this game took five months, and it is expected to be released for other platforms as well (including the Xbox, iOS, and Android).
  - *Tadeo in the Lost Inca Temple* (2013), which is an endless-running type of game. Here, the player tries to help Tadeo, an explorer, leave a lost temple of the Incas before it collapses. To accomplish this, Tadeo must

sort out a series of obstacles and collect as many coins as possible to purchase extra lives, which help him reach his goal. This game was released for iOS, Windows Phone, and Android.

- Bamtang (see <http://www.bamtang.com>). This company is exclusively dedicated to the development of video games, not only for mobile platforms (including Android, iOS, and BlackBerry) but also for PC and PlayStation platforms. A great deal of its games (such as *Ben10 Forever Defense* [2011], *Blockade Blitz* [2011], and *Teenage Warriors* [2011]) were developed in Flash and distributed through the Cartoon Network's Web site. Bamtang was founded in 2002, and one of the first projects it developed was *Boxing Box*, a boxing game prototype with a haptic interface. This game was never released commercially, but, thanks to it, the studio was recognized by publishers such as Novint and the Cartoon Network for its creativity, quality, and skills. A complete list of games released by the company can be found at <http://www.bamtang.com/games>.
- Inventarte (see <http://www.inventarte.net>). This company is dedicated to the development of video games for the Web and social media sites (such as Facebook). Its most well-known game is *Crazy Combi* (2009), which was initially developed for Facebook. In this game, you are a combi (minivan) driver who must avoid other vehicles on the road (either by dodging them or jumping over them) and gain points by making it to the next bus stop before time runs out. The success of this game caught its developers by surprise since it was only expected to reach around 50,000 people in total, but five days after its debut, the number of players was around 120,000. The majority of its currently developed games is available on Facebook. For a complete list of games, visit <http://www.inventarte.net/quienes-somos/chicha-games/>.
- Toy Catz (see <https://www.facebook.com/toycatzoficial?filter=1>). This company develops video games mainly for Facebook, iOS, and Android platforms. One of its most representative games is *Cuy (Guinea Pig)* (2010), released for iOS. In this game, the player must help Cuy, the protagonist, climb Machu Picchu collecting the ancient treasure of the Incan empire in the form of Golden Tumis (ceremonial knives).

The academic study of video games in Peru is almost nonexistent. The few essays available deal mostly with the effect that overplaying has on children's lives. CEDRO (Centro de Información y Educación para la Prevención del Abuso de Drogas) (the Information and Education Center for Prevention of Drug Abuse) has been the first to release such a study, raising tangible concerns over the possibility that online gaming is starting to show symptoms of addiction in more than 30% of young players.<sup>7</sup>

## The Future of Video Games in Peru

Due to the great progress in 3-D graphics technology and its increasing usage in the entertainment business, people in Peru are starting to take more seriously the idea of developing business strategies in which delivered goods are not physical but digital in nature. In this context, educational institutions, mainly led by private universities, have tried to fulfill the need for digital content creators by implementing courses and programs specializing in video game development,<sup>8</sup> digital art,<sup>9</sup> and even virtual worlds.<sup>10</sup> Although the economic impact of video game production is still small compared to more traditional areas such as mining and

manufacturing, its steady evolution will aid in the diversification of the economy and boost the technological drive necessary for the development of the country as a whole.

## Notes

1. See <http://blogs.peru21.pe/inserteficha/2010/11/la-importacion-de-productos-pa.html>.
2. See <http://videojuegos-peru.com/2009/07/primer-juego-3d-creado-peru/>.
3. See <http://avatar.inf.pucp.edu.pe/>.
4. See <http://elcomercio.pe/actualidad/1548172/noticia-1814-primer-videojuego-estrategia-sobre-historia-peru>.
5. See <http://elcomercio.pe/actualidad/1543189/noticia-revocagame-revocacion-susana-villaran-llego-videojuegos>.
6. See [http://www.localstrike.net/peru/noticias-313/fenix\\_y\\_andrucas\\_en\\_wcg\\_grand\\_final\\_2012-3575](http://www.localstrike.net/peru/noticias-313/fenix_y_andrucas_en_wcg_grand_final_2012-3575).
7. See <http://publimetro.pe/actualidad/2486/noticia-32-gamers-juega-mas-4-horas-diarias>.
8. See <http://avatar.inf.pucp.edu.pe/diplomatura-en-desarrollo-de-videojuegos-siguen-abiertas-las-inscripciones/>.
9. See <http://www.eadperu.com/>.
10. See <http://agenda.pucp.edu.pe/educacion-virtual/mundos-virtuales-para-la-educacion/>.

## URUGUAY

Gonzalo Frasca

609-612

Uruguay is a small country squeezed between two giants, Argentina and Brazil. Unlike its neighbors, Uruguay never produced consoles or computers but benefited from their hardware endeavors. Circa 1975, Argentina created the Telematch de Panoramic, a hacked Magnavox Odyssey clone that removed many of the superfluous original games. It even added a brand new game that was almost a cultural requirement of the region—soccer—and incorporated extra buttons to control the goalies. Little is known about this machine, but it is very likely that a few made it to Uruguay. Brazilian clones had a bigger impact in the mid-1980s, when the TK90X—a Sinclair ZX Spectrum clone—made the 8-bit computer the most popular game machine in Uruguay.

With only 3 million people, Uruguay was never an attractive market for hardware sales. This led to the importation of broken machines that would be later refurbished in the country. Such is the case for thousands of malfunctioning Coleco ADAM computers that arrived in the country and were fixed or completed with local parts. The machines were very affordable, and this led to the popularity of the platform in Uruguay, even after it was discontinued in the United States. Most of the software and games that were imported lacked manuals and, since this was before the Internet, they had to be rewritten from scratch. My first game-related job ever was quite original: playing unlabeled games and writing down their instructions. In many cases, I even had to come up with backstories and christen the main characters with made-up names.

The first professional Uruguayan video game studio was Iron Byte, a seven-member team developing 8-bit and 16-bit games during the late 1980s and early 1990s. During its brief existence, the studio managed to launch a series of relevant games in the 8-bit and 16-bit European market, including *Freddy Hardest in South Manhattan* (1989) and most notably, *Narco Police* (1990). Iron Byte was based in Uruguay's capital city, Montevideo, and worked with Spanish publisher Dinamic Software, which was a major player in the European ZX Spectrum market but had trouble adapting to the 16-bit era. *Narco Police* was a highly polished game for its time, and the game received good reviews and sold well mainly because of its third-person perspective and 3-D maze levels. Unfortunately, its publisher went out of business in 1992, which led to the disbandment of the Uruguayan studio.

The advent of the World Wide Web in the mid-1990s helped a few Uruguayans to freelance in production jobs, but it was not until 2002 that the current local industry took off. It was in that year that Powerful Robot

Games—which I cofounded with Sofía Battegazzore—began creating Web-based games for American animation studios including the Cartoon Network, Disney, Pixar, Warner Bros., and Lucasfilm.

The Powerful Robot team was also behind several serious games. One of them was the Newsgaming.com project that included *September 12th: A Toy World*, a game that went viral after its launch in 2003. While it was highly controversial at its launch, this online critique of the US-led “War on Terror” became a popular example of both political and news-based video games. The game offered a top view of a Middle Eastern town and allowed the player to control a sniper rifle target. The main goal was to kill the terrorists without hitting the civilians. However, once the player clicked the mouse, she realized that the target did not fire a bullet but a missile. The large area of impact caused huge amounts of so-called collateral damage among the civilian population. Once civilians died, their relatives would turn into terrorists. After a few shots, the town would be thriving with terrorists, hence making the game impossible to win.

The following year, the Newsgaming team launched *Madrid* (2004), a whack-a-mole-style game that was crafted in less than forty-eight hours as a response to the Madrid train bombing attacks. The game featured a candlelight vigil where the player had to click on the candles to prevent them from fading. The player would win if all the candles were shining at their maximum strength. In 2009, the Knight Foundation awarded the Newsgaming team a Lifetime Achievement Award for its contribution to the genre of newsgames.

The Powerful Robot team also codesigned and developed *The Howard Dean for Iowa Game* (2003), the first commissioned video game in the history of US presidential elections. It was launched on Christmas Day, 2003, and generated a large buzz in the media and among the candidate’s supporters (Bogost and Frasca 2007, 237). The game was codesigned and published by Ian Bogost’s Persuasive Games studio. That game was followed by *Cambiamos* (2004), another official online presidential campaign game for the 2004 Uruguayan elections. The three-level puzzle game was commissioned by the Encuentro Progresista/Frente Amplio political party, which ended up winning the presidency.

In 2007, Uruguay began the “Plan Ceibal,” the world’s largest experiment in educational online connectivity. As of 2013, Uruguay is the only country that has fully implemented the One Laptop Per Child project, providing free laptops and connectivity to all grade-school and high-school students in the public education system, resulting in 75% of all children in the country having access to Wi-Fi within 300 meters of their homes. The project closed the digital gap and the gender gap in technology among local children and teenagers. However, based on a study commissioned by the authorities in 2013, it had no relevant academic impact in mathematics, reading, and writing.

The massive penetration of the XO laptop computer (the OLPC XO-1, the laptop used for the One Laptop Per Child project) led to the development of educational video games created by studios such as Batovi Games Studio (established in 2005; see <http://www.batovi.com/>) and Trojan Chicken (established 2008; see <http://www.trojanchicken.com>). Because the laptops are underpowered and relatively unfriendly as a developing platform, the number of games available for them remains limited. However, for these same reasons, the system’s video games are extremely popular among Uruguayan and international XO users. The vast majority of XO games has been either commissioned by the state or created through commercial sponsorships.

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In 2011, a Flash-based tower defense Web-based game was launched on the Armor Games portal. Its name was *Kingdom Rush*, and it was developed by a three-member studio named Ironhide Games (no relation to Iron Byte). It quickly became Uruguay’s first international commercial hit. The game gathered a large fan base and became a hit when it was ported to the iPad in 2012. Both the original game and its sequel, *Kingdom Rush: Frontiers* (2013), generated rave reviews. The *Kingdom Rush* series is currently being developed and published by Ironhide Games on both iOS and Android platforms. The first game in the series received a score of 89 (out of 100) in Metacritic and was called “an instant classic” by IGN (Davis 2012a) and “one of the best tower defense games released ... ever” (Davis 2012b). Its sequel was number one in sales in the App Store in over thirty-five countries, including the United States.

Although Uruguay still lacks a local chapter of the IGDA, the community is quite active. In addition to the Global Game Jam, programming jams are often organized for creating games and software for the XO platform. Since 2006, the professional community has organized the annual Uruguayan National Videogame Creation Contest (<http://www.ConcursoVideojuegos.com>), which encourages amateurs to submit their games and to participate in conferences and workshops.



Figure 1

The *Kingdom Rush* series for iOS and Android became the first Uruguayan international commercial hit.

In 2010, Uruguay became one of the first countries in South America to offer an undergraduate university degree in video game design. The program is offered by the Universidad ORT Uruguay (disclosure: I am currently employed there) and will release its first class of graduates in 2014.

In spite of its small size, Uruguay has historically been one of the largest developers of nonentertainment software in its region, in part because of its good educational system and computer science schools. Another Uruguayan asset—at least when compared to countries in its region—is that its tiny local market forces startups to aim at the international market from the very beginning.

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## VENEZUELA

Thomas H. Aupperley

*There is also exclusion of people and territories which, from the perspective of dominant interests in global, informational capitalism, shift to a position of structural irrelevance.*

—Manuel Castells (1998, 162)

The central role of information in the global networked society creates and entrenches regions of inclusion and exclusion, thus establishing classes of locations and people that are not valued by, or fully connected to, global networked society. Two worlds are emerging: “one is information as well as economically rich, the other is information and economically poor” (Yar 2008, 617). However, new forms of communication that are emerging on the same networks also offer feasible strategies for economic and social inclusion (Martin-Barbero 2011, 47). In Venezuela, digital games are one of these technologies that potentially both increase and mitigate forms of exclusion. Compared to other areas of the world, digital games in Venezuela have largely remained a form of public—or semi-public—entertainment. While popular, only the wealthier middle-class Venezuelans have been able to afford to purchase the latest, contemporary gaming consoles. Despite recent controversies that have led to somewhat draconian laws governing the publication and importation of digital games, they remain a common form of entertainment, and cybercafés are an everyday feature in the country’s urban landscapes.

This essay examines the role that access to digital games has in facilitating social and economic inclusion by providing access to knowledge, literacies, and skills that are considered useful, even essential for inclusion in cultures and economies of the global networked society. Digital games’ status as entertainment media often positions them as an irrelevant concern for social inclusion projects in the developing world, which are often more interested in more practical or directly didactic programs. It is important, however, to consider the undervalued and underacknowledged role that digital games have in building basic technological efficacy with computers, as well as supporting the development of key informal knowledge, literacies, and skills. They do this by providing opportunities to play as well as make participation in online gaming communities possible. They also have the potential to contribute to grassroots development and social inclusion.

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Latin American communications scholarship traditionally has been focused on "alternative and participatory communication" (Barranquero 2011, 156). The influential work of Paulo Freire was pivotal in establishing a commitment to grassroots participatory praxis in Latin American communications scholarship (Barranquero 2011, 165). The influence of Latin American tradition on global scholarship of alternative media was recently acknowledged by Leah A. Leivrouw (2011, 227–229). She singles out the work of Jesús Martín-Barbero, who is particularly concerned with understanding how digital media and technologies offer marginalized communities strategies for social inclusion. He states:

New technologies multiply, in every country, the presence of global images and intensify the globalization of the images of the local. But at the same time, democratization movements from below find in technology—of production as in the portable camera, of reception as in parabolic antennae, of postproduction as the computer, of diffusion as in cable—the possibility of multiplying the images of our society, starting from the regional or municipal level, or even from the barrio. (Martín-Barbero 2003, 100)

Digital media greatly enhances the possibility of the inclusion of local movements in the production of global culture. He also points to the ambiguous manner that digital networked media distribute power; while in many ways inequalities are amplified, these technologies also produce considerable scope for enhanced democracy.

So although the technological revolution in communication aggravates the *breach* in terms of inequality between social sectors, cultures and countries, it also mobilizes the social imaginary of communities, strengthening their capacity for survival and association, protest and democratic participation, for defending their socio-political rights and activating their expressive creativity. (Martín-Barbero 2011, 44–45)

Through a discussion on ethnographic fieldwork in a cybercafé in Caracas, Venezuela, this chapter examines how digital gaming is situated in relation to this breach that simultaneously aggravates inequality and creates potency for inclusion. After providing a background to Venezuela and a description of gaming practices there, this essay will focus on examining how digital gaming can contribute to more inclusive forms of citizenship and literacy. The chapter constantly returns to the issue of digital piracy, which in the context of Venezuela, is thoroughly imbricated in digital game play and must be reconsidered in light of its contribution to social inclusion.

## Background: Venezuela

The regulatory environment surrounding the media in Venezuela is characterized by an anti-neoliberal and antiglobalization stance. The politics of the *Revolución Bolivariana* (Bolivarian Revolution) platform of the current *Partido Socialista Unido de Venezuela* (United Socialist Party of Venezuela) government, led by Nicolás Maduro since the death of Hugo Chávez (1954–2013), are commonly portrayed as being socialist- or communist-leaning. Political analysts have characterized the government's stance as a broad anti-neoliberal agenda that posits an "alternative economic orientation" (Azicri 2009, 100; Al Attar and Miller 2010, 341). Under Chávez, Venezuela became the instigator of several notable "South-to-South" regional collaborations,

spearheaded by the *Alianza Bolivariana para los Pueblos de Nuestra América* (Bolivarian Alliance for the Americas), typically referred to by its acronym, ALBA. The organization—led by Venezuela and including Antigua and Barbuda, Bolivia, Cuba, Dominica, Ecuador, Nicaragua, and Saint Vincent and the Grenadines—"puts forward a cohesive counter-vision of international law" (Al Attar and Miller 2010, 347). Two key ALBA initiatives that are considered to have significant regional impact are: the *Banco de Alba*, a regionally funded development bank; and *TeleSUR*, a regionally funded public news network built on a model similar to *Al Jazeera* (Azicri 2009, 100; Cedefio 2006). While the *Revolución Bolivariana* has met with considerable positive economic, political and social success, both locally and regionally, these achievements have been criticized for being relatively slow-paced and having little impact on the diversification of Venezuela's oil-dependent economy (Ellner 2010, 92–93).

The current government has challenged the perceived pro-United States and anti-*Revolución Bolivariana* stance of many global and local media outlets operating in Venezuela. Of particular significance for digital gaming are the steps that have been taken to regulate the telecommunications industry and the play of digital games. Plans to nationalize the telecommunications industry were first unveiled after Chávez's reelection in December 2006 (Apperley 2007, 171). This decision challenged the otherwise increasing consolidation of the Latin American mobile sector—across the region generally, by 2009, the Spanish company Telefónica and Mexican-owned Grupo Carso Telecom together controlled 64% of the telecommunications market (Mariscal 2009, 25). Overall, the typical experience of media markets in Latin America is that digital networked infrastructures have led to remarkable market concentration dominated by a few large stakeholders (Martín-Barbero 2011, 51).

The widespread ownership of mobile devices in Venezuela has made Internet-based services more accessible. However, there are still relatively few domestic connections; by the end of 2009 only 33% of the population of Venezuela had access to the Internet at home.<sup>1</sup> Consequently, many Venezuelans rely on privately owned, semi-public cybercafés for access to computers, software, and the Internet (Lugo and Sampson 2008, 102–118). Cybercafés are popular, social locations, not just because they provide access to digital services, but because they are also relatively cheap compared to other forms of communication and entertainment (Apperley 2010; Powell 2003). The phenomenon of cybercafés providing democratic and grassroots community access to the Internet in Venezuela and other areas of Latin America is called *cibercafezinhozación* (Horst 2011, 45–46; Lemos and Martini 2010; Powell 2003, 173–175; Uxo 2010, 12.6). The prohibitive cost of owning a dedicated gaming console or even a home computer has meant that the cybercafé has a central role in providing general access to digital gaming.

Digital games are a popular form of entertainment in Venezuela, even among marginalized and impoverished groups (Márquez 2002). The key scholarly analysis of the digital games sector in Venezuela suggests that—like many other countries in Latin America—Venezuela had more potential for the global digital games industry "as a low-cost producer and exporter" than as a "consumer market" (Lugo, Sampson, and Lossada 2002). While digital gaming did create economic opportunities, these were largely confined to the informal sector of the economy through the provision of services pertaining to digital games—particularly

the distribution of pirated copies of software and access to computers and the Internet through cybercafés (Apperley 2010; Lugo and Sampson 2008). In 2002, Lugo, Sampson, and Lossada's study noted that there was potential for Venezuela to become an exporter of hardware, and that producing export quality software would be extremely difficult, primarily because of the need to pay developers competitive salaries (Lugo, Sampson, and Lossada 2002). In the years since this study, Venezuelan-based game development has not occurred extensively. Most work is done by way of cheap outsourced labor for North American companies, although one success story has emerged: the (originally) Caracas-based studio Teravision (Rodríguez 2011). In 2008, Teravision announced that it had been approved by Nintendo to develop games for the Wii and the DSi, making it the first Venezuelan-based studio to become a third-party developer for a major game publisher (Teravision Games Team 2008). Another notable accomplishment for Venezuelan-based developers was *Battle Tennis*, an XBA game designed by a team of university students led by Jose Alberto Gomez that was awarded second place in Microsoft's 2008 Dream-Build-Play competition (IGN Staff 2008).

By 2008, locally organized support for the games industry had developed. That year, Venezuelan-based independent developers and studios established INVENTAD, the *Industria Nacional del Videojuego, Entretenimiento y Artes Digitales* (National Industry of Video Games, Entertainment and Digital Arts) with the goal of fostering relationships within the industry and establishing stronger relationships with universities (Rodríguez 2011). The year 2009 saw two important developments for the Venezuelan games industry. First, the Caracas Game Jam was initiated and has continued to run annually (see <http://www.caracasgamejam.com/>), and second, an annual conference, Gamexpo, was held for the first time, bringing together representatives from the industry and academia (see <http://gamexpo.org/>). While the national film industry has enjoyed government support in recent years, through Villa du Cine, there is currently no support from the government for the Venezuelan digital games industry (Rodríguez 2011).

Subsequent to the fieldwork, there were two other—possibly related—developments that shaped consumption of digital games in Venezuela. The first erupted in 2007, when publicity announcing the development of *Mercenaries 2: World in Flames* (2008) by Pandemic Studios caused a scandal among Venezuelans and US-based Venezuelan expatriates (Apperley 2010, 115–116). The game positioned Venezuela as a rogue state, whose leader was threatening the United States by withholding oil. By capitalizing on US President George W. Bush's announcement that Venezuela (along with North Korea and Iran) constituted an "axis of evil," the game effectively dramatized the War on Terror (Riegler 2010, 54). When the game was finally released in 2008, its content had been modified to avoid close association between Chávez and the game's antagonist, but it still included a sandbox-style destructible portrayal of the cities of Maracaibo and Mérida, as well as much of the Venezuelan countryside. At the time of the release the Venezuelan government and Chávez himself denounced the game and "imperialist toys" more generally (Apperley 2010, 118–119).

The above events set the stage for the announcement of tough new laws on digital games and toys. In December 2009, the National Assembly banned the importation, distribution, sale, and use of "bélicos" digital games and toys in Venezuela. Bélicos is typically translated to "war," making the prohibition quite specific. Article 3 of the legislation, "Ley para la prohibición de videojuegos bélicos y juguetes bélicos" (Law for the

prohibition of war video games and toys), focuses the ban on digital games that "que contengan información o simbolien imágenes que promuevan o inciten a la violencia o al uso de armas" (contain information or images that promote or incite violence or the use of weapons), and toys that imitate weapons used by the armed forces of Venezuela. One notable aspect of the new law was the extremely high penalties that could be applied; a sentence of three to five years of imprisonment could be imposed on people importing, producing, selling, renting, or distributing illegal games or toys. The law was enacted in early 2010 and has been in effect since then; however, as of mid-2013, there have been no high-profile prosecutions under this law. The broad definitions supplied in the legislation, however, have caused a great deal of uncertainty for Venezuelan-based studios, leading at least one studio—the celebrated Teravision—to relocate most of its headquarters to Colombia (Rodríguez 2011).

During the fieldwork period, an additional, localized issue that framed the use of digital games arose at Cybercafé Avila. In response to concerns from local parents and the administration of the nearby high school that the cybercafé was being used by truant students, the owner of the café (who we will refer to as "Xavier" to protect his identity) banned the wearing of school uniforms inside the premises. This was done through a rather toothless notice which effectively allowed students to control the issue, since, despite the heat, it was necessary to wear a t-shirt under their flimsy uniforms.

#### ATENCION ESTUDIANTES

Por disposición de Autoridades  
NO podemos permitir el ingreso al  
Local estudiantes uniformados  
Amigo Estudiante: Si necesitas de los servicios del Cyber,  
Favor ven a nuestro local sin tu uniforme.

#### [ATTENTION STUDENTS

By arrangement with the authorities  
We cannot allow entry to  
Local uniformed students  
Student Friends (customers): If you need the services of the Cybercafé  
Please come without your uniform.]

Even so, the stipulation not to wear the uniform in the cybercafé was often overlooked by Xavier and his employees. The ban, then, was largely of symbolic value; in essence, nothing changed.

### Case Study: Cybercafé Avila

From late March through mid-July 2005, I conducted an ethnographic study of digital game play in Cybercafé Avila in the suburb of San Bernardino in the Libertador district of Caracas. The site had been selected during a previous research trip to Venezuela to scope out feasible fieldwork sites. The cybercafé was selected for two reasons: first, because it was representative of a typical small, community-oriented business model often

found in the inner city and suburbs of Caracas (and indeed elsewhere in Venezuela); and second, because it was located in a—relatively—safe area of San Bernardino, the suburb in which I had arranged long-term accommodation. For my institution's research office, the potential risk faced by the investigator was a key concern.

Martin-Barbero has suggested that “the inclusion of Latin American countries in the challenges and possibilities of digital technology” involved both an appreciation of new forms of literacy and a detailed understanding of

the ways in which local cultures, whether towns, ethnic groups or regions are making use of or appropriating virtual culture, that is, the means of interaction with information networks which communities select and develop, the transformations that their usage introduces into community life and the new resources, both technical and human, that are required in order to render those interactions socially creative and productive. (Martin-Barbero 2011, 59)

Consequently, the following discussion focuses on examining players' use of digital games in Cybercafé Avila to understand the resources that are required for a “socially creative and productive” engagement with the global network society.

The goal of the fieldwork was to gather data that supported a detailed understanding of the “cultures of use” of digital gaming technologies in Venezuela (Sassen 2006, 347–348). I had particular interest in two issues: first, the role that location and local consumers might have in shaping which games were played; and second, how informal, local arrangements shaped the skills and literacies that were developed. This chapter builds upon the second issue, in order to extend the argument beyond just literacies to also consider how such literacies can be put to use. There is something qualitatively different at stake in the strong connection between gaming and literacies in the developing world; these literacies are meaningless without a more thorough integration with the infrastructures and economy of the network. This chapter will examine what is at stake, arguing that an examination of the cultures of use demonstrates how digital games support the development of contemporary literacy practices and therefore social inclusion.

Cybercafé Avila is a grassroots assemblage of commercial and community interests run as a business by Xavier, who had begun the business in partnership with his brother after losing his job in the petroleum sector. Now the sole owner, Xavier had built up the café to an eleven- or twelve-computer business, which provided printing, typesetting, and computer repair services, as well as snacks and drinks to patrons and passersby. The café was also a crucial part of the community, with local small business owners—including a nearby McDonald's—using the computers and other services as part of their day-to-day work practices. Teachers from local schools used the café's computers to prepare classes and do their administration, university students did their coursework there, occasionally begging Xavier to stay open all night so that they could make an important deadline for an assignment. The café employed one full-time staff member and up to three part-timers, who provided customer support for the operation of any requested software. Xavier and his employees would often do maintenance on computers at peoples' homes or places of business, occasionally forgoing cash payment in favor of the rendering of a reciprocal service. While Xavier was happy when this

meant maintenance for his car, the time he negotiated a week's worth of lunch from the canteen of the local elementary school for himself and his employees in return for upgrading the software on their computers was not considered to be a success.

Crucial for the business were the students from the local high school. While Cybercafé Avila offered a variety of services, people paying to use the computers were the cornerstone of the day-to-day trade, and a large proportion of these people were students. High school students—who were easily identified by their uniforms, with white (junior), blue (middle), or brown (senior) identifying their grade—attend school in shifts, some in the morning, others in the afternoon. Daily routines at Cybercafé Avila were shaped by this particular rhythm. Students from the morning shift would be the first customers in the morning, before classes started; students from the evening shift would linger at the cybercafé on their way home. In the middle of the day, Cybercafé Avila was one of several neighborhood locations where the students mingled, some on their way to, others on their way from, school.

This cybercafé was characterized by sociality. It was used by a remarkable cross-section of locals, and a large number of visitors to the district, particularly through the large number of hospitals and medical specialists, and the military bases on an adjacent street. Gaming contributed a great deal to this sociality, forming a mutual interest between many of the customers. This common interest allowed talk about games and displays of skill with games to occur between different peer groups and between locals and visitors. In turn, this engendered transfer of knowledge about different digital games and specific practices within them—for example, the use of hotkeys in *Grand Theft Auto: Vice City* (Rockstar Games, 2002) or *Counter-Strike* (Valve, 2000). It also facilitated cooperative and antagonistic group play, establishing connections between people that potentially endured beyond the café (Apperley and Leorke 2013).

Observing the—relatively—free exchange of information and knowledge about games led me to wonder: how exactly were these skills and literacies acquired? Clearly experience with digital games was a major factor. Research on the Internet, using paratexts—defined as “both texts and the surrounding materials that frame their consumption, shape the readers' experience of a text and give meaning to the act of reading” (Apperley and Beavis 2011, 133)—was also crucial to finding out about particular techniques within a game, including hotkeys, cheats, and shortcuts (Consalvo 2007). General research into digital games themselves was also a factor; patrons often found out about new games and informed the staff about them, who then downloaded and installed them. In some cases they would bring digital games to the cybercafé to install, and staff would make copies if they believed the game would generate sufficient interest. The availability of pirated copies of digital games was crucial for this flexibility.

Piracy, because it both permitted and multiplied access to digital games, was a crucial factor that shaped the experience of digital play (Apperley 2010, 50–110). Piracy is considered crucial for the sustainability (and profitability) of this type of business in Venezuela (Lugo and Sampson 2008, 109–110). Small businesses operating in the ICT (Information, Computer, and Technology) sector were relegated to the informal or gray sector of the economy. This gave operators effective permission “to overcome the technological, financial and political obstacles to the importing of this media technology and its content” (Mattelart 2010, 313). In terms

of digital gaming, piracy is not a part of play but is essential to it as it establishes the possibility for play. Thus, understanding the operation and implementation of pirated software in a technical sense is an absolutely crucial element of the informal literacies circulating in cybercafés. At Cybercafé Avila, piracy provided material access to otherwise closed networks that were supported by a grassroots community of common interest, which provided a fuller experience of inclusion in global networked culture (Mattelart 2010, 309). The remainder of this chapter focuses primarily on evaluating what is at stake in that inclusion, and also—with Martin-Barbero's point in mind—considering the resources that are necessary to utilize this inclusion in productive and creative ways; first, by elaborating the notions of civics and citizenship in relation to digital gaming, and second, by examining the connection between gaming and literacy.

## Play, Civics, and Citizenship

Citizenship and play have a historic connection. Huizinga's foundational cultural history of play, *Homo Ludens: A Study of the Play Element in Culture* (first published in English in 1949) maps out how the inclusion in sacred forms of play was a key indicator of citizenship status in Ancient Greece (Huizinga 1970). The close ties between play and citizenship have also been noted by scholars of digital games. Ian Bogost's work on procedural rhetoric focuses on digital games as rhetoric or persuasion, establishing a clear segue between digital play and contemporary citizenship. He states, "Procedural rhetoric is the practice of persuading through processes in general and computational processes in particular" (Bogost 2007, 3). However, he carefully traces the notion of "rhetoric" back to Plato to establish its roots in "public speaking for civic purposes" (Bogost 2007, 15). Procedural rhetoric is at its core a discussion of how games can be meaningfully deployed for civic purposes, and as Bogost points out, "Procedural rhetoric is precisely what is missing from current uses of technology for political and civic engagement" (Bogost 2007, 135). His more recent work continues to elaborate on the underdeveloped civic role of digital games, for example, how they could be deployed by the fourth estate (Bogost, Ferrari, and Schweizer 2010). Other research on digital games makes a strong case for the need to understand the role that they play in fostering civics (Gordon and Koo 2008; Raphael et al. 2010). Early ethnographies of massively multiplayer online worlds noted the way that players, both individually and collectively, contributed to the governance of the game world (Humphreys 2005; Taylor 2006). A wide-ranging study funded by the MacArthur Foundation found that

teens who have civic gaming experiences, such as helping or guiding other players, organizing or managing guilds, playing games that simulate government processes, or playing games that deal with social or moral issues, report much higher levels of civic and political engagement than teens who do not have these kinds of experiences. (Kahne, Middaugh, and Evans 2009, 30)

Existing studies of civics gaming experiences have focused on classroom-based social learning experiences, leading some researchers to explore the question of whether social and individual play can foster the same levels of civic engagement (Raphael, Bachen, and Hernández-Ramos 2012). Certainly, a strong link between

digital gaming and civics has been established, which will no doubt develop into more nuanced understandings that are able to pinpoint specific practices and texts within this sphere in years to come.

In the discussion of the connection between digital games and citizenship, the issue of consumption is a key concern. If gaming has civic potential, this potential is constrained by uneven access to digital games and gaming infrastructures. An early study of digital play by Marsha Kinder earmarked a similar issue; while she noted that the children in her study gained a sense of personal empowerment through their play of digital games, this was substantially mitigated by how this empowerment was enabled through consumption (Kinder 1991). More recently, there has been a recognition that in the convergent media environment, as access to media becomes more crucial for basic participation in public life in developed economies, the notions of the "citizen" and the "consumer" become conflated (Trentmann 2007). Henry Jenkins's model of convergence culture—where content is coproduced by the audience through creation and remixing—addresses this issue, arguing that as the audience gets more actively involved in creating content, the issue of content creation and consumption becomes increasingly politicized (Jenkins 2006).

The work of Néstor García-Canclini anticipates this issue. In *Citizens and Consumers: Globalization and Multicultural Conflicts*, originally published in Spanish in 1997, he argues for a radical reformulation of the notion of citizenship vis-à-vis consumption. Cultural consumption, which very much includes media consumption and production in García-Canclini's formulation, is "an ensemble of practices that shape the sphere of citizenship" (García-Canclini 2001, 22). Core to his argument is that access to information through media and other cultural channels (such as libraries, museums, etc.) is a right of citizenship because it is crucial for individuals to have access to information in order to make informed decisions, and thus "act autonomously and creatively" (García-Canclini 2001, 45, 130–131). The creation, circulation, and storage of information is not exclusively the realm of the government; it is supplemented by market forces. This requires a reevaluation of the role of consumption in civic life. García-Canclini argues that as a consequence of consumption becoming imbricated with citizenship and human rights, the *rights themselves* should be redefined in terms of contemporary consumption rather than enduring as abstract ideals (García-Canclini 2001, 5, 21).

This reframing of access to media and digital networks as a civic right mounts two important challenges to the exclusivity of global networks. First, it shifts discussion of media piracy away from one of absolute *criminality* toward its potency to provide access to networks. Second, it suggests that issues of access to networks are underpinned by key skills and literacies that allow them to be used autonomously, productively, and creatively (García-Canclini echoes Martin-Barbero in this respect). In light of convergence culture, it is essential that both skills and literacies are understood in a manner that includes access to technologies that allow citizens to *consume, remix, and create* content.

This suggests the right to access information is underpinned by an expanded notion of literacy. Martin-Barbero's reevaluation of citizenship in the contemporary media environment suggests that citizens should have "access to information not only as receivers, but as producers" (Martin-Barbero 2011, 57, original emphasis). Thus he has called for an examination and understanding of "virtual literacy," which he describes as a "set of mental skills, operation habits and interactive spirit without which the presence of technology

among the majority of the population would go to waste" (Martin-Barbero 2011, 58, original emphasis). Virtual literacy thus points to the skills and literacies that allow people to use media productively and creatively. The rest of this chapter will explore how the skills and literacies that gaming and gaming cultures provide may contribute to Martin-Barbero's virtual literacy project. Particularly important is how these readily available engagements with popular culture contribute to informal literacies that many individuals in Venezuela, and throughout the developing world, might not have the opportunity to learn through more formal means.

Accounts of gaming cultures indicate two important ways that the literacies developed through gameplay align with what it means to be literate in convergence culture. First, the relationship between digital games and paratexts exemplifies how the convergent audience uses other media, especially the Internet, to coordinate, collaborate, and conduct research, and in the process, build communities (Banks and Potts 2010; Bruns 2008; Sotaama 2010). Second, the multiple and versatile productive practices of game cultures demonstrate the new modes of audience participation that prioritize engagement in the production, and the sharing, of user-generated content (Sotaama 2010). Play is an extremely important component of the literacies essential for convergence culture: "In a hunting culture, kids played with bows and arrows. In an information society, they play with information" (Jenkins 2006, 6, emphasis added).

The articulation of "convergence culture" through the work of Jenkins marks a key shift toward understanding the cultural impact of the technologies of convergence. This highlights the ongoing processes that alter "the relationship between existing technologies, industries, markets, genres, and audiences" (Jenkins 2006, 15). The impact that this shift to a more dynamic media environment has on global media industries and products is also important, and change is still underpinned by the drive for the media industries to extract profit from the audiences' emergent uses of new technology. This means that, in many respects, Venezuela and other countries in the developing world are marginal to these developments because it is often the technological and cultural practices of the "early adopters" of convergence culture that drive change (Jenkins 2006, 23). Consequently, there is more than just inclusion at stake in terms of consuming cultural materials, but also the opportunity to actively participate in the shaping of global culture. At Cybercafé Avila, for example, it was very common to play *Counter-Strike* (1999) using various user-generated maps, but not to make them. The strictly confined times that most people had to play simply did not accommodate such activities.

While access to technology is essential, technological rollouts cannot sustain systemic change without political and pedagogical support. It has long been a moot point to scholars of development that technological development cannot be understood as merely a physical problem to be solved by introducing technology. The implementation of technological change is not solely a technical issue (Martin-Barbero 2011, 58). It must be accompanied by political and educational approaches that are suitably revised to support the desired change. Often, it is a lack of investment and understanding in these latter areas that leads technological development to fail. Without a strong program that encourages the development of relevant skills to make use of technology among the population, economic inequality is likely to persist, despite increased access to technology

(van Dijk and Hacker 2003, 322). There is also a need for an appreciation of the stakes of participation at the political level. According to Claudia Padovani and Kaarle Nordenstreng,

Knowledge societies are supposed to be spaces in which citizens will be able to communicate, interact and participate. But this risks remaining only rhetoric if transformations, challenges and political solutions are perceived as highly technical issues removed from the public. (Padovani and Nordenstreng 2005, 270)

The informal learning that takes place in cybercafés, such as Cybercafé Avila, is accompanied by a government program to bring similar facilities to the barrios of the major cities and to poor remote areas of Venezuela (Robinson 2003, 47). However, their location in the informal or gray economy means that the future is relatively uncertain. A change in how digital copyright is implemented technologically or by how the local laws are applied by the federal government could effectively end the flexible conditions under which cybercafés in Venezuela operate.

At stake in the lack of access to digital games and gaming communities are the knowledge, literacies, and skills that they foster. For advocates of gaming literacy, as the digital sector becomes increasingly important, this lack of access will perpetuate exclusion from the mainstream economy. According to Zimmerman,

In the coming century, the way we live and learn, work and relax, communicate and create, will more and more resemble how we play games. While we are not all going to be game designers, game design and gaming literacy offer a valuable model for what it will mean to become literate, educated, and successful in this playful world. (Zimmerman 2008, 30)

Jenkins also suggests lack of access to forms of digital play may have unfortunate consequences, as "the skills we acquire through play may have implications for how we learn, work, participate in the political process, and connect with other people around the world" (Jenkins 2006, 23, emphasis added). Gaming as a practice provides access to skills and literacies that contribute to use of global networks in a creative and productive manner. As these skills and literacies involve the emergent communicative, connective, and productive elements of networked technology, to lack full access to such services curtails the development of literacies and skills that are essential to function in the global economy and contribute to global culture.

## Conclusion

This combination of high stakes and precarious access has grave implications for cultural diversity in the region, and equally for the diversity of the "network culture" of globalization. By examining the unevenness of access to the medium of digital games, it is apparent that digital media piracy cannot simply be understood in a proprietary manner. In a global economy based on knowledge and networks, exclusion equals poverty, and in some cases, piracy enables inclusion in the economy.

The digital games piracy that takes place in the informal economy and is actualized in the grassroots community of the cybercafé has a significant role in mitigating exclusion. However, this also raises the stakes of

inclusion because total reliance on piracy for inclusion is extremely precarious. Primarily, this is because of its illegality, and the constant legal and technical challenges that are developed to prevent and limit it. In the developing world, increasingly high stakes are placed on digital game play as a practice that engenders creativity, collaboration, and computing skills. Participation in digital play and gaming cultures provides access to *unambiguous segues* into working in the knowledge economy. To apply the same stakes to the developing world may have particularly serious repercussions, considering the partial and precarious ways that people from those areas have access to digital games.

Thus, to consider digital games purely as a medium of entertainment is suspect. While in part, digital play is a consumer luxury, it also informally provides skills and literacies that contribute to autonomous participation in civic and economic life in the global network society. García-Canclini's reconfiguration of citizenship to include the right to consume information suggests that the absolute enforcement of copyright law is ethically ambiguous. Particularly, this is the case when laws are enforced in a way that prevents access to those who lack the economic power to be legitimately included. In the developed world, audience members have considerable power to push back against "harsh" or "unfair" intellectual property rights when, for example, they are used to shut down fan-based productions or implement unpopular digital rights management systems. However, similar strict enforcements in the developing world would not just threaten the lively creativity of fan cultures, but the access to software and networks—and therefore the livelihood of the grassroots communities—where they are cultivated.

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## Note

1. Conatel (*Comisión Nacional de Telecomunicaciones*), <http://www.conatel.gob.ve/> (the information is reproduced in English at <http://www.internetworldstats.com/sa/ve.htm>).

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