Abstract: Creatures differentiate themselves into various species through the process of evolution wherein individuals adapt to their environment. Similarly, products adapt to the environment of each country to evolve into products with completely different characteristics. This paper discusses computer role-playing games (CRPGs), which have evolved into different products in Japan from those in the West despite having the same roots. In the West, CRPGs emerged from table-top role-playing games (TRPGs) that reproduced it with video games. Through the technical developments thereafter, many TRPG fans became involved in the development. This was to recreate similar “fun” as TRPGs and emphasize “story developments based on the free selection of actions” and “realistic simulations in virtual worlds.” On the other hand, importation from Western CRPGs was the basis of Japanese CRPGs. Japan came into contact with CRPGs first instead of with TRPGs. The elements of CRPGs were different from the essential elements of TRPGs. The elements differed with regard to the following characteristics: (1) “fixed storylines” due to
the technical limitations of CRPGs at the time; (2) the “systems that bring about character development by accumulating experience points and increasing the levels” were considered to be “fun”; (3) the anime-style character designs influenced by Japan’s manga and anime culture were further added and diffused as CRPG standards in Japan. This resulted in the genre known as Japanese role-playing games, which sought after a different type of “fun” that have heterogeneity compared with TRPG and CRPG in the West.

Keywords: video game, role-playing games, Japanese role-playing games

1. Introduction

Creatures differentiate themselves into various species by adapting to their respective environments. Similarly, products evolve into different products by adapting to the environments of respective countries and regions. When differences between environments are significant from country to country, a dominant design is created for each country, and different trajectories are drawn depending upon the levels of technological development.

This paper focuses on the Japanese computer role-playing games (CRPGs) as an example of the products sharing the same roots but having evolved differently in different countries and regions. Japan’s role-playing games (RPGs) have become a popular genre due to successful works such as Dragon Warrior, which was based on Western CRPGs. After further development, Japanese role-playing games (JRPGs) are now recognized as a distinct genre (Bateman & Boon, 2006; Kino, 2010; Sawayaka, 2012).
2. Origin of Computer Role-Playing Games

The origin of CRPGs dates back to Dungeons & Dragons, a table-top role-playing game (TRPG) that was designed by Gary Gygax and went on sale in 1974 (King & Borland, 2003).

In TRPGs, a game master who presides and determines the flow of the game sets the assignments in imaginary situations and the players respond to these situations by selecting the actions of their player’s characters, turning the game into a story. The attractiveness of TRPGs rests in the kind of joy you would encounter in novels played out in virtual worlds. In addition, 1) players, as characters in this virtual reality world, can enjoy experiences they do not encounter in their everyday life; 2) players enjoy the trial and error process in cooperation with other players to solve the assignments set by the game master; and 3) the players can enjoy the interactivity that could impact the results of stories.

One of the problems with TRPGs is that every time a player takes an action, the game master must refer to rulebooks that note the probabilities of success, roll dice multiple times, note the necessary data on a record sheet, and erase such data when they are updated. The work involved is extremely cumbersome. In addition, the fact that scenarios develop based on player actions means that it is possible for those scenarios to end with a “dull note.”

3. History of Computer-Role Playing Games in the West

In the latter half of the 1970s, when TRPGs began to become widely popular, open source-like communities of hobbyist students and researchers came into existence that developed and released games using the mainframes and networks of their research organizations (Masuyama, 2001).

In 1976, William Crowther, influenced by D&D, released the first
CRPG, *Colossal Cave Adventure*. CRPGs were distributed to universities in many countries via ARPANET and spread to hacker communities subsequently (King & Borland, 2003).¹

These initial CRPGs were designed with preset storylines and had users make selections out of the alternatives that caused the story to split into different directions. Having a computer manage scenario progress and data management was beneficial in that it made it more simple and easy to play and players could enjoy a predetermined storyline.

Simultaneously, these games were limited in their level of interactivity with which players were able to impact the scenario results through trial and error under TRPGs. In addition, there was no longer the fun of having many people participate, communicate with each other, and cooperate together toward achieving a goal.

The subsequent history of CRPGs in the West involved recreating the “fun” aspect of TRPGs and further evolving them.

**Innovation in computer-role playing games: Improvement in virtual reality**

Apple I was introduced to the market just as CRPGs appeared in the latter half of the 1970s, launching the personal computer market.

Richard Garriott, a fan of D&D, developed and published the CRPG named *Akalabeth* for the Apple I in 1979. Around the same time, in 1981, the game *Wizardry*, also influenced by D&D, appeared. These games used computer graphics to visually display surrounding scenery, enemies, and other game elements.

Soon, improved personal computer specs brought sophisticated visuals to CRPGs, followed by 3D graphics. In addition, non-player

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¹ Many *Colossal Cave Adventure* clones were known through the expression of “adventure.” Games with scenarios that progressed through user selections came to be called “adventure games.” However, in this paper, these are treated as CRPGs or descendants of TRPGs.
characters (NPCs) and enemies were positioned and displayed on the computer screen, and users felt a greater sense of immersion as they acted in real time.

In contrast with TRPGs that used words, maps, and miniatures to portray scenes, CRPGs surpassed TRPGs through the ability to recreate virtual worlds, as in CG-based movies whose storylines and scripts originate from novels.

**Innovation in computer-role playing games: Single player to multi player**

The issue of CRPGs only being one-player games was solved with games that allowed for multi-player participation over a network.

When the first CRPGs appeared, there were already network games that used ARPANET. In 1978, the online RPG *Multi-User Dungeon*, which was developed by Roy Trubshaw and Richard Bartle, was released, and it allowed many people to participate in a single game play (King & Borland, 2003).

Soon, PCs were being connected to each other over telephone lines, and along with that development came online RPGs for those personal computers. The CRPG D&D *Neverwinter Nights* appeared in 1991 and used the AOL online service. In 1997, Richard Garriott started the *Ultima Online* massively multi-player online role-playing (MMORPG) service.

The appearance of online RPGs meant that players could gather over networks whenever they wished and experience the adventure with an overwhelming number of people, unlike TRPGs.

**Innovation in computer-role playing games: Improvement in interactivity**

The early CRPGs only allowed players to choose from a set number of options. However, advances in computer technology enabled interactive “adventures” where players could enjoy various outcomes.
based on individual actions.

As has already been noted, the appearance of MMORPG allowed interaction between players. Compared with NPCs that had pre-programmed behaviors and could not make other responses, players had a much broader array of actions as well as responses to those actions. In addition, many online RPGs offered participants a large degree of freedom to create their own stories (King & Borland, 2003).

Soon in 1992, Wolfenstein 3D became the first game in the category of first person’s-view shooter (FPS), driving down the traditional CRPGs (Bateman & Boon, 2006; Sawayaka, 2012). However, CRPGs survived by shortly incorporating such functions with a high degree of interactivity that reflected the free actions of players. These games had radical innovations such as allowing NPCs to act through artificial intelligence first seen in FPS games and the use of physics engines to calculate the outcomes of actions on objects in a field of view (Sawayaka, 2012).

4. History of Computer-Role Playing Games in Japan

TRPGs were never popular in Japan (Ikuine, 2012). Japan never saw the development of hobbyist hacker-based games that used the computers and telecommunications networks of universities and research organizations (Uemura, Hosoi, & Nakamura, 2013). As a result, many users became aware of RPGs through CRPGs.

Many people in Japan were exposed to CRPGs through Dragon Warrior, a game published by ENIX Corporation in 1986. Even prior to Dragon Warrior, products were influenced by D&D and Western CRPGs, such as The Tower of Druaga, an action RPG for arcades by NAMCO Limited (Tane, Miya, Shida, & Yuuki, 2012), and a series-based

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2 Regarding the history of TRPGs in Japan, a Japanese version of D&D was published in 1985, and the first domestically produced TRPG, Wild Adventure Role Playing System appeared in 1987.

3 Even prior to Dragon Warrior, products were influenced by D&D and Western CRPGs, such as The Tower of Druaga, an action RPG for arcades by NAMCO Limited (Tane, Miya, Shida, & Yuuki, 2012), and a series-based
Warrior was released for the Nintendo Entertainment System called a “family computer” in Japan, and subsequently it became a widely played hit.

Dragon Warrior’s producer, Yuuji Horii, was influenced by US CRPGs such as Ultima and Wizardry (Koyama, 2010; Shida, 2000). However, its playability was far removed from the TRPGs that were at the roots of these games.

First, the early CRPGs in the West did not have the open stories of TRPGs though they were playable on computers and limited users to play with predetermined storylines. In contrast, Yuuji Horii had the experience of producing adventure games that focused on scenarios, and he brought this same emphasis to CRPGs (Sawayaka, 2012). In Dragon Warrior, the focus is on a predetermined story and on enjoying it as a cartoon where “Players are given the set role of a warrior and must topple the evil Dragon King” (Sawayaka, 2012; Tane, 2011).

Second, in TRPGs, character development is a means to overcome story impediments or is a result of overcoming those impediments. However, in an article introducing Dragon Warrior, producer Yuuji Horii emphasized that one goal of the game is to develop the characters: “RPGs are games in which characters develop.”

At the time, Yuuji Horii was responsible for a column in the Weekly Shonen Jump magazine that introduced games, and this introductory article for Dragon Warrior explained the “fun” of CRPGs in an effort to popularize the game (Shida, 2000). Dragon Warrior became the dominant design for CRPGs in Japan. The later definition of CRPG in Japan noted that they are “games with the concept of experience points and with set scenarios” (Hirabayashi & Akao, 1996). In

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CRPG for the PC-8800 NEC PC. However, these were used by a few people due to inadequate hardware adoption.

4 An experience point is a metric to measure the development of a character.
addition to having set stories, the focus was on elements of character development.

Third, because of Yuuji Horii’s column in *Weekly Shonen Jump*, Akira Toriyama, the writer for “Dragonball” in the same publication at the time, became responsible for the character design of *Dragon Warrior* (Shida, 2000). Later, it became a standard for character design in Japanese CRPGs to have anime-like characteristics rather than life-like characters that are alter ego of oneself within the parallel world of the video game.

Because of these three reasons ((1) set stories, (2) character development elements, and (3) anime-style characters) as well as CRPGs that featured acting, these games took hold and spread in Japan, eventually coming to be known as the separate genre of JRPGs (Bateman & Boon, 2006; Kino, 2010; Sawayaka, 2012).

5. Discussion

From this history of CRPGs, we can see that these games evolved in completely different directions in the West and in Japan despite the roots of both being in TRPGs. As has been noted by Ikuine (2012) and Wada (2011), within the video game industry, the trajectory of technical evolution is determined by the knowhow accumulated within the development company, as well as the playability demanded by customers and the market. Thus, the evolution of CRPGs in the West and Japan took such different paths.

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5 At the end of 1986, when *Dragon Warrior* was released, *Deep Dungeon* was sold on the Disk Original Group for the NES disk system (and was developed by Square Co., Ltd.). However, it did not last long (Studio e-clair, 2011). *Romancing SaGa*, software for the Super NES, developed as a “free scenario” system allowing for the development of open scenarios and various action options for players, went on sale in 1992 (Sawayaka, 2012). In Japan, TRPG elements in which players impact scenario development were an unprecedented “innovation.”
Christensen (1997) defined the “innovator’s dilemma,” which threatens the market positions of existing powerful companies by way of “disruptive innovation.” However, even though technical trajectories may diverge, technological substitution may not necessarily appear afterward (Takahashi, Shinaku, & Ohkawa, 2013). In the case of technical evolution in Western and Japanese CRPGs, Western CRPGs appeared as products that allowed for TRPG play without much difficulty and by offering more attractiveness; in Japan, CRPGs became products completely different from TRPGs. This means that even though a disruptive innovation occurs, it does not necessarily threaten existing technologies.

As has been noted by Kikuchi (2016), technical trajectories are impacted by societal factors. For disruptive technologies to progress along the same axis of values as an existing technology, it is perhaps necessary for the values of a certain number of companies and consumers to be shared for both the existing technology and the disruptive technology, just as D&D fans in the West were involved with CRPG creation.

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References

Bateman, C., & Boon, R. (2006). 21st century game design. Hingham, MA: Charles River Media.

Christensen, C. M. (1997). The innovator’s dilemma: When new technologies cause great firms to fail. Boston, MA: Harvard Business School Press.
Hirabayashi, H., & Akao, K. (1996). *Game no daigaku* [The university of computer gaming world]. Tokyo, Japan: Media Factory (in Japanese).

Ikuine, F. (2012). *Kaihatsu seisansei no dilemma: Digital jidai no innovation pattern* [Development productivity dilemma: The innovation patterns in the digital age]. Tokyo, Japan: Yuhikaku (in Japanese).

Kikuchi, H. (2016). Social shaping of technological trajectories of Shinkansen. *Annals of Business Administrative Science, 15*, 175–186. doi: 10.7880/abas.0160605a

King, B., & Borland, J. (2003). *Dungeons & dreamers: The rise of computer game culture from GEEK to CHIC*. New York, NY: McGraw-Hill Osborne Media.

Kino, N. (2010). Hokubei game sijou [Video game market in North America], In Digital Game no Kyoukasyo Seisaku Iinkai (Eds.), *Digital game no kyoukasyo: Shitte oku beki game gyoukai shin trend* [The textbook of digital game: New trend of video game industry which you must know] (pp. 75–98). Tokyo, Japan: Softbank Creative (in Japanese).

Koyama, Y. (2010). Game to game sangyou no rekishi [The history of video games and video game industry]. In Digital Game no Kyoukasyo Seisaku Iinkai (Eds.), *Digital game no kyoukasyo: Shitte oku beki game gyoukai shin trend* [The textbook of digital game: New trend of video game industry which you must know] (pp. 37–58). Tokyo, Japan: Softbank Creative (in Japanese).

Masuyama, H. (2001). *Terebi ge-mu bunkaron: Interactive media no yukue* [The cultural theory of TV Game: The future of interactive media]. Tokyo, Japan: Koudansya Gendaishinsyo Syuppann (in Japanese).

Sawayaka (2012). *Boku tachi no game shi* [Our video game history]. Tokyo, Japan: Seikaisya Bunko (in Japanese).

Shida, H. (2000). *Game maestro vol. 1: Producer/director hen (1)* [Maestros of video game vol. 1: Part 1 of producers and directors]. Tokyo, Japan: Mainichi Communications (in Japanese).

Studio e-clair (Eds.). *Fami-chu seisyun famicon gekijou 80’s* [Middle-aged NES fan: NES theatre of youth in the 1980s]. Tokyo, Japan: Sogotosyo (in Japanese).

Takahashi, N., Shintaku, J., & Ohkawa, H. (2013). Is technological
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trajectory disruptive? Annals of Business Administrative Science, 12, 1–12. doi: 10.7880/abas.12.1

Tane, K. (2011). Kyouyou to shiteno game shi [Video game history as culture]. Tokyo, Japan: Chikuma Syobou (in Japanese).

Tane, K., Miya, S., Shida, H., & Yuuki, M. (2012). Game no ryuugi: Game creator long interview shu [The style of game]. Tokyo, Japan: Ohta Syuppan (in Japanese).

Uemura, M., Hosoi, K., & Nakamura, A. (2013). Famicon to sono jidai: Terebi game no tanjou [Nintendo Entertainment System and its age: The birth of a video game]. Tokyo, Japan: NTT Syuppan (in Japanese).

Wada, T. (2011). Exploitation reduces novelty: An empirical analysis of the Japanese video game industry. Annals of Business Administrative Science, 10, 1–12. doi: 10.7880/abas.10.1

Wada, T. (2017, February). Recognition disruption of disruptive innovation. Paper presented at ABAS Conference 2017 Winter, University of Tokyo, Japan.