Preserving Japan: Saving Digital Games for Future Generations

Interview with Koichi HOSOI

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His research themes include the application of digital media in society through new social business models based on partnerships between communities, the business industry, educational institutions, and the government. He established the Game Archive Project at the Ritsumeikan University at the late 1990s. It is aimed at the holistic and social preservation of digital games through collaboration between the business industry, research and educational institutions, and the government. He also recently co-authored *The Life and Times of the Nintendo Famicom: The Birth of TV Games* (NTT Publishing, 2013).

Interviewer

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Miroslav Macák is currently a full-time doctoral student at the Faculty of Mass Media Communication UCM in Trnava, Slovakia. He received both his Bachelor's and Master's degrees at the same institution in the digital game theory programme. The main topic of his scientific research is the industry of digital games. He is predominantly interested in Japanese game production. He also focuses on mainstream, AA and independent production of digital games, stories in digital games, game genres and modern trends in the digital game industry (technological, narrative and design).

Miroslav Macák (M. M.): Professor Hosoi, you have a very interesting digital games preservation project under your wings. Can you give us some background on what made you start the whole project?

Koichi Hosoi: I majored in business administration at the graduate school of Ritsumeikan University and became a researcher before being appointed as a faculty member of the newly established *College of Policy Science* in 1994. The School of Policy Science was a completely new concept at the time, and I was appointed as a faculty member in charge of business administration, but since Ritsumeikan University already had a traditional business administration department, and since a new department had just been established, I thought I would focus my research on a new area that was not covered by conventional business administration. However, which industries should we target? Then I decided to ask the first-year policy science students what industry they were interested in, and they all answered in unison, 'games'. They talked passionately about the fun of games and the impact they had on their lives. When I think about it, first-year university students who entered in 1994 are the generation that spent their entire junior high and high school years playing games as Nintendo released the Family Computer (NES) when they were in elementary school. Furthermore, 1994 was a milestone year when Sega released the Sega Saturn and Sony released the PlayStation, drastically changing the map of the game industry. As someone who was also interested in the management of the information industry, I had a strong feeling that the creative information industry, with its high profit margins, would be the most promising candidate for the rapid change in Japan's industrial structure, which had traditionally been dominated by large, heavy manufacturing companies. The game industry is undoubtedly full of potential, and the current students are immensely interested in it. I could relate to this from my own gaming experience, and yet there were almost no researchers in the field of business administration who were interested in the gaming industry at that time. At that time, I had a kind of intuition that this was something I should do.

M. M.: Can you elaborate on why you think that preserving digital games is important for our cultural heritage?

Koichi Hosoi: Computer games, along with manga and anime, have been featured in the Japanese government's Cool Japan strategy, and are considered to be representative of Japan's world-class popular culture. You can see the smiles on the faces of young people all over the world as they play Japanese games. It would not be an exaggeration to say that the gaming experiences they have had, down to the way they handle the controller, have already become a universal 'experience' or 'language'. Never before have so many people around the world accepted and shared the sensitive products and culture that Japan has created.However, many of these games, especially the early works, have been lost, and there is no prospect of preserving them in the future at this rate. Manga can be preserved for a long time by converting them to digital images, and animation can be preserved continuously by converting the recording format. Digital games, on the other hand, are a very fragile cultural resource that can only be maintained for a few decades or so due to deterioration and other factors using normal preservation methods. No simple and durable preservation method has been established so far, nor has a social framework for institutional preservation such as a library been established, and even the publisher has not completely preserved the game, even though it is a new entertainment content that was introduced about only 40 years ago. Importantly, digital games are a form of popular culture that has developed in historical and content relations with the manga and

animation cultures. If things continue as they are, it is easy to imagine a future in which, among the expressive, amusement, and entertainment arts that flourished around the world, especially among young people, at the turning point of the twentieth and twenty-first centuries, manga and animation have been preserved, but only fragmentary and partial resources remain for games. Therefore, the theme of the preservation of digital games is very important not only from the perspective of cultural resources but also from the perspective of cultural heritage.

M. M.: Do you only preserve digital games from Japanese production, or are you also archiving games made in other parts of the world localized into Japanese, or even versions of Japanese games localized for the global market?

Koichi Hosoi: Yes. All of them are the subject of our game preservation research. Of course, we think it is important to preserve all digital games released from all around the world, but in terms of limiting the scope of what we can realistically do, we consider all digital games sold in Japan to be eligible for preservation.

M. M.: Are there any specifics that make preservation of Japanese games different from the preservation of global production?

Koichi Hosoi: With the exception of private collectors and those involved in game preservation initiatives through NPOs, efforts by public institutions to create game research resources in Japan are still very limited. This year marks about 25 years since we began our research and our practice of game preservation at Ritsumeikan University, and yet so many issues remain unresolved. It has become clear through our activities around game study that public museums in Japan are extremely limited in both quantity and quality regarding game preservation, in contrast with the many large and unique collections in other countries, from whose collections, exhibition methods, and expertise on social partnerships we have much to learn. Examples of universities and public libraries are Stanford University (US), Leipzig University (Germany) and the Bibliothèque Nationale de France (France), while non-university libraries include the Strong National Museum of Play (US), National Videogame Museum (US), the National Videogame Arcade (UK), Computerspielemuseum (Germany) and Video Game Museum Roma (Italy). What these overseas museums have in common is: (1) extensive collections and storage space, including arcade games with large cabinets, (2) collaboration with governments and universities to develop learning environments and schemes for game-related research, education, and human resource development, (3) proactive opening of their collections to the public and creative exhibitions with their own philosophies on the history of games, (4) many visits by children (with their families) and many game related educational events for children, and (5) creative ways of raising operating costs (admission fees, original projects, administrative support, donations and patronage, etc.). It would be almost impossible for public collections in Japan to achieve any of these now.

M. M.: Is any part of the collection available to the general public?

Koichi Hosoi: The game archives being constructed at the Ritsumeikan Center for Game Studies are researching knowledge and experience to practice comprehensive and long-term preservation of digital games and related materials. In order to provide the archival materials to the general public, it is necessary to create a system to provide practical services beyond the level of research on a permanent basis, but we do not have such

organizational capability. This is related to the question below, but we hope to create a system and organization similar to game museums in other countries in the future.

M. M.: It is known that Nintendo lent you all of the available game cartridges for Famicom (Japanese equivalent of Nintendo Entertainment System), yet Nintendo nowadays are known to be very overprotective of their IP. How did you manage to convince them about your cause?

Koichi Hosoi: It was around 1996 or 1997, I think, that I asked for Nintendo's cooperation to conduct research on games. Since I had no connections within Nintendo, they did not take me seriously at first. At that time, I had a chance to talk with Mr. Akimasa Yamashita, who was then a section chief of the Commerce, Industry and Labor Department of Kyoto Prefecture (now he is the Vice Governor of Kyoto Prefecture). Mr. Yamashita was a movie enthusiast and understood the Contents Industry very well, so he immediately talked to Nintendo. After two or three visits to Nintendo, we were not able to make any progress, but we continued to ask for their cooperation in game research. However, in the negotiations back in 1997, Nitendo's response was that "Nintendo finds it difficult to find positive significance in researching past games, and there is nothing we can do to cooperate at this time". The person with whom I was negotiating at that time was Masayuki Uemura, Director of Development Department 2, who was responsible for the development of the Famicon. And now he is currently a visiting professor at Ritsumeikan University and officially visited your university in April 2017 as the director of Ristumeikan Center for Game Studies. Nevertheless, I persisted and went back to Nintendo several times. One day, Mr. Uemura personally contacted me and said, "Although we can't engage in game research as a company, it would be meaningful to conduct research at a university, so let's consider lending the NES software that we keep in our company. So, let's consider lending our NES software". After that, Nintendo decided to take appropriate measures as a company, and Ritsumeikan University and Nintendo signed a memorandum of understanding through the mediation of Kyoto Prefecture. Through the mediation of the Kyoto Prefectural Government, a memorandum of understanding was signed between the university and Nintendo, and Nintendo officially agreed to lend us the actual hardware of the Family Computer and the U.S. version of the Nintendo Entertainment System (NES), as well as over 1,700 NES game software titles for both domestic and overseas markets.

M. M.: Are you planning to preserve games only for selected platforms or up to a certain console generation, or do you want to archive as much as possible?

Koichi Hosoi: When considering the preservation of cultural resources such as comics and animation, it is not possible to organize a body of materials for research by assuming only specific formats and contents. The same is true for digital games, which we are considering for preservation in as many forms and contents as possible.

M. M.: Are there any elusive game/games that you have been hunting for a long time, but still cannot obtain?

Koichi Hosoi: There is a game called *Shonen Majutsu-Shi Indy* that was created for Nintendo's Family Computer. This game was based on the game book series (original story by Naomi Inoue) published by Futabasha. Of course, we can imagine easily that there are other similar titles, but this one is unique in that it is a case where the many records of the time can confirm that it was almost complete and playable. The reason why I am

interested in this title is that it was produced at the end of the period when a large number of official Family Computer titles were being produced, and in many ways it is a compilation of the best and most interesting aspects of the software that had been produced for the Famicon up to that point. I believe that this is the title that brings together the best of the programming techniques that have been cultivated on the Famicon platform. This title is currently unavailable, of course, but we have received some information on the whereabouts of a supposed development version, but our centre has yet to confirm those whereabouts.

M. M.: Many games have various updates, patches and add-ons. Some can even heavily alter the game itself. How do you decide which version of the game will be archived?

Koichi Hosoi: This is a difficult question. I think the next two questions are also rooted in the same problem: content provided as a continuous service on digital platforms. Of course, with legacy media such as books and records, there are differences in versions also, reprints, and re-playings, but with digital games, especially online games, the number and frequency of updates is extraordinary. This issue is currently one of the most important issues to consider, and neither I nor our centre have decided which versions to preserve at this stage.

M. M.: In the current game environment, many games are being made not as a product, but as an ever-evolving service. What do you think would be the best approach to preserve such games? Continuing this question, The market for mobile games is currently booming in Japan. But even though, many of the games on the platform, even those that belong to a well-established franchise, are discontinued after 1 or 2 years (with one of the most recent discontinuations being Sakura Revolution (DelightWorks), going offline only 6 months after release). Do you think there is a tangible way to preserve a live-service game that was already shut down?

Koichi Hosoi: This is also a very difficult question. I think it is a problem that arises from the fact that content is provided as an ongoing service on the Internet and digital platforms, and that we are a business that is constantly seeking to maximize the value of the user experience. I don't have the knowledge to answer it easily, but one hint might be the efforts of Perfect World, a Chinese company that partnered with our centre in 2019 for an academic exchange agreement. The company's efforts to preserve online games have a different purpose and perspective than game preservation in the academic sense, as it aims to capture and reuse information and data generated in the stages of internal development as intellectual property to generate new revenue and improve the efficiency of future game development. However, it can be understood as an example of how it is possible to preserve the entire process of creating, updating, and eventually shutting down an online game. The following is part of an interview survey with the company: "In April 2015, a new team of four members was established, led by Ms. Sun Ning, who had worked in Perfect's art department since 2004, and specializes in game preservation. Since then, this organization has been in charge of the preservation of the games developed at Perfect. Perfect's facilities can be roughly divided into the headquarters building where the business is conducted and where resources related to the game works are stored. On the other hand, Pixseed, a research institute, has a separate location set apart from the headquarters. This facility houses classrooms, educational PCs, broadcasting equipment, motion capture facilities, etc., as well as research books related to game development.

In terms of the timing of the preservation, Perfect will perform the first backup operation when a new game reaches the third month after it is released to the public as an open beta. After that, backups will be done once a year during the second half of the year for those projects that are still in operation. If a project is launched and then cancelled, the status at the time of the project's completion is backed up. In this way, special events and updates that are backed up once in the second half of the year are backed up at the same time as the various resources. Regarding the way the internal resources are managed, they are generally managed on the company's own RAID instead of being placed on a server or network. In addition to real storage technology, the company uses RAID 3 to store files. A file director tree is automatically generated for each project to ensure that the file types and names are compliant with the norms. If it does not, it will automatically change it. In addition, we have created a 3DSMAX plug-in that allows us to immediately capture screens from source files. This makes it possible to search for the source file at a glance when searching. In addition to this, they have also developed a plug-in to select the corresponding source file from the capture screen. As for the internal resource management database, in addition to regularly backing up the work itself, the various resources (characters, costumes, and weapons) that make up the work are also stored separately in the database. Each piece of data is assigned an individual ID, and metadata is also registered, making it all searchable. This makes it possible to quickly refer to something in a particular work. For example, even a single vase can have a variety of patterns, shapes, and historical backgrounds. If you enter the keyword 'vase', you can see all the vases, and if you want to use a model, you can click on the item to go to a link where you can download the stored model itself".[1]

M. M.: What do you consider to be the biggest challenge in preserving digital games for future generations?

Koichi Hosoi: There are three main issues related to the use of games as research resources in general, including the efforts of Ritsumeikan University. The first is gaining the understanding and cooperation of companies in preserving games. If we want to store games in a closed system, but also want to use them in various ways in society, we need to obtain the understanding and permission of the manufacturers and publishers who hold the various rights. On this issue, rather than unilaterally obtaining the cooperation of companies, including handling their rights, we need to patiently consider what the significance and merits of the public and social activities of game preservation will be for those companies, and try to seek their cooperation in a more voluntarily manner. The second is the difficult problem of how to preserve games other than home video games, i.e. arcade videogames, which formed the early stage of game culture and are still developing in various ways today, as well as Internet-based games such as online games and social games, which are currently very popular. This is where we see a convergence of the technical and methodological issues involved in preserving games as a form of expression. The third is the organizational theory of how to proceed with such preservation efforts within a social framework, and how to compose the management resources of people, goods, and money. On this point, it is important to learn from the aforementioned examples of video game museums overseas, and to develop human resources with a producer's mindset who can incorporate them into the Japanese context. You can always see the smiles on the faces of young people all over the world when they become absorbed in Japanese games.

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1   *FY2019 Research Project for Cooperation of Game Archive Holding Institutions Implementation Report. Media Arts Collaboration Promotion Project of Japanese Agency for Cultural Affairs.* Kyoto : Ritsumeikan Center for Game Studies, 2020, p. 30-32.

And it is no exaggeration to say that their gaming experiences have already become a shared global 'language', from the nicknames of the characters to the way the controllers are operated. Never before in history have the products and culture created in Japan been so widely accepted and shared by this many people. We also need a realistic strategy for preserving games and making them into a research resource, and I think the quickest way forward is to get as many people as possible to understand this fact.

M. M.: Working with such a large amount of digital games, you surely must have played a lot of titles and series. Would you mind sharing your personal favorites?

Koichi Hosoi: *Half-Life 2*. The narrative and action are excellent. In addition, the unique screen, which is clearly different from the graphic taste of many domestic and foreign games up to that time, has a mysterious impression and depth similar to Andrei Tarkovsky's movie *Stalker*, which made me want to stay in the world longer.

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