

Creation and Implementation of a Game-Type Library Guidance Conducted Online

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Abstract

The author's research team has been conducting "Libardry" a game-type library guidance program to learn how to use university libraries. However, in the fiscal year 2020, university libraries had to be closed due to the influence of preventing the spread of the new coronavirus. Under these circumstances, many university libraries attempted to provide library guidance online. In the same way, the author's research team tried to create a library guidance "Libardry Form" which does not rely on any paid tools or special skills. Based on the research team's prior experiences with game-type library guidance, we conducted an exploratory study to understand the game's impact on library learning. Concretely, for a trial survey of the features of the "Libardry Form" we recruited eleven university students during classes taught by the first author and thirty-one participants from the general public via SNS. After playing the game, we asked the participants to fill out a questionnaire. Thirty-three respondents (78.6%) preferred our game-type library guidance to the more common video-type guidance. We also asked the eleven university students who experienced the game to cooperate with us for additional pre- and post-surveys and analyzed the results of the eight valid responses we received. We found that it was difficult to recognize the influence of the "Libardry Form" on sophomore and junior students who had used university libraries before. Contrastingly, although it is not possible to generalize the results due to the small number of valid responses, the results indicate that the "Libardry Form" may improve the understanding of freshmen who have little experience using university libraries.

Keywords: Google forms, library use education, university libraries

要約

筆者らの研究チームでは、これまで大学図書館の利用方法が学べるゲーム型の図書館ガイダンス「Libardry」(リバードリイ)を大学図書館で実施してきた。しかし2020年度は、新型コロナウイルス感染拡大防止の影響により、大学図書館は閉館を余儀なくされた。このような状況下で、多くの大学図書館では、オンラインで図書館ガイダンスを実施する試みを行った。同様に筆者らの研究チームでも、今までのゲーム型の図書館ガイダンスの知見を活かし、有料ツールや特別な技術がなくとも制作可能な、図書館ガイダンス「Libardry Form」(リバードリイ・フォーム)を制作することを試み、それが図書館利用学習へもたらす影響を知るための探索的な調査を実施した。具体的には「Libardry Form」の特徴を試行調査として、第一著者が担当する大学授業とSNSを通じて、「Libardry Form」のプレイ体験者を募集し、大学生11人、一般参加者31人の協力を得た。プレイ体験後アンケート調査への回答を依頼したところ、動画型の図書館ガイダンスよりもゲーム型の図書館ガイダンスを選好する回答者が33人(78.6%)であることがわかった。またプレイを体験した大学生11人に対して、追加の事前・事後調査についての協力を求め、得られた8人の有効回答についての結果を分析すると、大学図書館を利用した経験のある2年生や3年生には「Libardry Form」の影響を認めることが難しかった。一方、有効回答数が少ないため一般化はできないものの、大学図書館を利用した経験の少ない1年生の理解度向上に寄与する可能性があることが示唆された。

キーワード：大学図書館、図書館利用教育、Google フォーム

1. Introduction

Due to restrictions on student movement to prevent the spread of new coronavirus infections in the fiscal year 2020, many universities shifted their teaching format from face-to-face classes to distance learning classes, and university libraries were forced

to close. According to a report by Egawa (2020) at the Cyber Symposium on Sharing the Status of Efforts for Distance Learning at Universities from April, held at the National Institute of Informatics, seventy-seven of ninety-two member libraries (83.7%) of the National Association of University Libraries were closed as of May 1, 2020. Also,



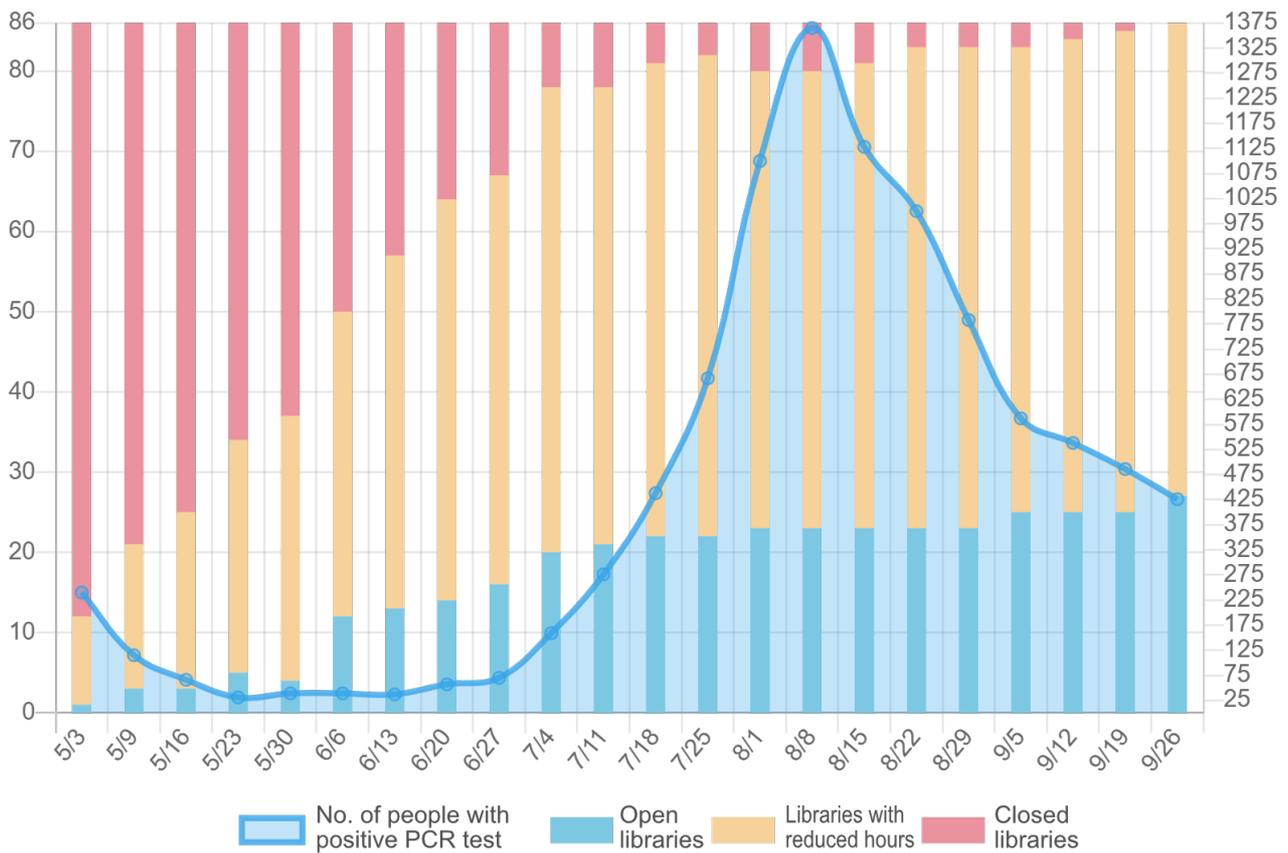


Fig. 1: Changes in the Opening and Closing of National University Libraries (Yawaraka Library Science, 2020).

according to saveMLAK (2021) the closure rate of all national university libraries was more than 50% from mid-April to late May 2020 (fig. 1).¹ Although these survey results show only the closure status of national university libraries in FY2020, it is safe to assume that the libraries of public and private universities similarly closed.

This situation led university libraries to explore services for students with limited mobility (Table 1; Egawa 2020). As Table 1 shows, online services for students who cannot come to the university library include “alternatives to the guidance and usage classes for new students.” More than half of the national university libraries were closed from mid-April to the end of May when many universities usually hold guidance sessions on campus facilities and services. Therefore, university libraries decided to provide online services as an alternative to these guidance services.²

Among services provided as an alternative to the guidance for new students, forms of online library guidance with video clips appear representative (Table 1). Users can now learn from home how to use the university library, its databases, and its various

other services. Compared with student comments from previous years of face-to-face sessions, the Kyoto University Library Organization Business Improvement Promotion Committee and the Investigation Team for a Response to the New Coronavirus Infections (2021, 17) reported more positive feedback about online library sessions, for example of the common subject “Basic Information Exercises.” They further highlight, “Specifically, some students said that explanations about how to use the library (how to search for materials) and how to write a reference list were helpful.” The team believes that one of the reasons for many positive comments is that “the number of report assignments has increased, and there are more opportunities to use the contents of the basic information subject class” (ibid.).

Still, some things are difficult to learn if one cannot go to the library. One of them is the location of reference counters and the distribution of materials in university libraries. Library guidance tours were conducted in the past to inform students about reference counters and the distribution of materials in university libraries. During such a tour-type library guidance, the university library staff leads participants such as new students around the library,

¹ This graph was created by Yawaraka Library Science (2020) based on the data published by saveMLAK under the Creative Commons License (CC0-1.0; accessed 2021/11/08). This graph reflects only the data up to September 26, 2020, but saveMLAK has been continuously releasing survey data of library closures since then.

² Although Tokiwa University’s “Guidance for Information Collection and Retrieval” can be viewed from off-campus as of this writing, there is a possibility that the setting may be changed back in the future to make it available only on-campus. Website: http://www.tokiwa.ac.jp/~tucmi/lib/index_ref.html (accessed 2021/11/08).

explaining the location of the reference counters and the materials in the library. Such a tour-type library guidance should be conducted in the university library. However, many students could not visit their university library due to the library closure, as described at the beginning of this paper. As an alternative, universities developed and provided library guidance using virtual reality (VR), such as the VR library tour of Shimane University Library³ and the 3D view and VR map of Kanagawa Institute of Technology Library⁴. Still, the guidance using VR technology is challenging for users interested in exploring the library or already familiar with the location of materials in the library. It focuses on the virtual experience and does not provide much explanation. Although there are some VR-type library guidance services with thorough explanations, such as Virtual Library Tour in Sagami-hara Women's University Library,⁵ it is difficult for students to understand what kind of services they should use in the university library when they write reports or papers.

This report presents a game-type library guidance system that allows users to participate online, considering the above issues. "TOSHOKAN QUEST" by Josai University Mizuta Memorial Library (2020) represents an example of online game-type library guidance (Kondō 2020). However, the author's team decided to create an online version of an analog game-type library guidance system that we had developed in the past. Specifically, we created a novel game-style scenario based on scenarios we had previously developed and feedback from students who had participated in the analog game. We implemented the online version using Google Forms, a free survey management tool.⁶ In the following, we explain how to make a specific story and implement it in Google Forms. Subsequently, we report on the results of a trial survey conducted for exploratory clarification of the possibility of such game-type library guidance. This report describes the trial survey, which was realized with only a few participants so that results cannot be generalized instantly. Therefore, we will discuss only possibilities following the experiment and suggested by the results.

Table 1: Library Services during University Library Closure (prepared by the authors based on Egawa 2020).

Format	Service description	Concrete example
offline (face-to-face)	Provision of limited facilities and equipment	Limited use of the Learning Commons Laptop rental for the day
	Home delivery service for materials in the collection or copies	Home delivery with advance reservation via email of web form
		Copy transfer service for interlibrary loan (ILL) documents
online	Provision of a special websites	Information about services and electronic resources that can be used at home and how to use them
		Providing the latest information on electronic resources
		Information on copyrights related to distance learning
	Expansion of electronic resources	Expansion of e-book service contracts
		Purchase of additional e-books
	Supporting learning and promoting reading	List of recommended books (readable via electronic books off-campus)
		Release of past library seminar recordings
		Virtual exhibitions
Alternatives to the new student guidance/workshops	Video guidance	
	Introduction of webinars provided by publishers	
Online references	Library staff answer questions via email and web form.	

2. Game Design for Game-based Library Guidance

The authors' research team has been conducting the library guidance named "Libardry," which teaches how to use library services in a game format at university libraries (Ishida, Seki, and Terashima 2015; Terashima et al. 2017). "Libardry" is a "mission-clearing role-playing game" (RPG for short) in which users aim to clear (complete) mission tasks during the library guidance by using the respective library services. However, we thought that the game element of clearing the mission alone was insufficient for library guidances.

First-year students who have just entered a university have not experienced much university life. Therefore, many of them do not understand the importance of the library guidance about "how to use the university library to write a report." Still, it is meaningful to learn how to use the university library, even if new students cannot yet understand the importance. Thus, it was necessary to introduce a game design in "Libardry," where the player plays the role of "someone" different from the guidance participants. We focused on the RPG game design, which is "a new type of game in which multiple players play the roles of fictional characters (role-playing)" (Suzuki 2021). By introducing the RPG game design, new students play the roles of

³ Website: https://da.lib.shimane-u.ac.jp/virtual_tour/top_j.html (accessed 2021/11/08).

⁴ Website: https://www-stdo1.ufinity.jp/kaitlibrary/?page_id=9484 (accessed 2021/11/08).

⁵ Website: <https://www.sagami-wu.ac.jp/library/guidance/vtour/> (accessed 2021/11/08).

⁶ Website: https://www.google.com/intl/ja_jp/forms/about/ (accessed 2021/11/08).

imaginary characters in a fictional situation. In addition, during the game, the new students are required to practice using the university library by themselves. In other words, the game can provide a place for “the activity of creating who you are by performing [a character] who you are not” (Holzman 2008, 19).⁷

Based on these guidelines, we have produced and implemented “Libardry.” However, due to the situation described at the beginning of this paper, the university library had to be closed in 2020. Therefore, we created a new online library guidance system with a mission-clearing RPG game design. We thought this online library guidance should include two elements: ① content that can (easily) be learned in a remote class, and ② content that should be learned even if the students cannot visit the university library. It was also a challenge for us to create a game-type library guidance that balances these two elements in the story.

As for element ①, “how to use the library (how to search for materials)” and “how to write reference lists” are examples of learning contents that were popular among students in the survey conducted by the Kyoto University Library Organization Business Improvement Promotion Committee and the Investigation Team for a Response to the New Coronavirus Infections (2021). An example of element ② is the location of materials in the library. In other words, the game-type library guidance requires designing the game and the story so that the participants can learn how to search for materials in the library ② based on the information obtained by using the appropriate search method ①. In particular, it is crucial to focus on the location of materials ②, which is difficult for students to pick up by themselves. However, the environment and location of materials difficult for students to find on their own also differ depending on the characteristics of the building and placement procedures of each university library.

An example of an online, participatory, game-type library guidance designed with both ① and ② in mind is the Josai University Mizuta Memorial Library’s “TOSHOKAN QUEST” (2020). Kondō, who planned and developed “TOSHOKAN QUEST” (2020), describes RPGs as “characterized by the fact that the player, or user, is the main character and that the player himself can determine the timing and order of information acquisition.” Kondō focuses here on the high level of agency of players in RPGs. Furthermore, because he used a paid digital RPG creation tool combining “game design” with “fun,”

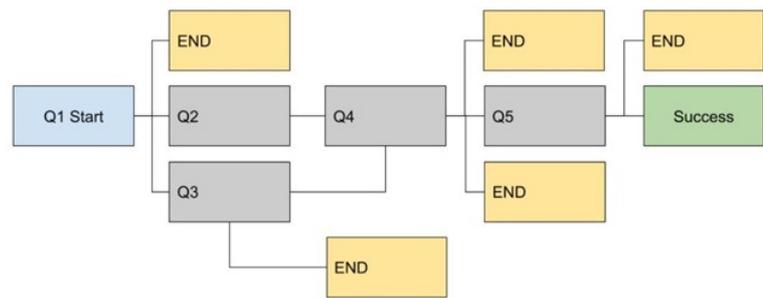


Fig. 2: Flowchart of a “Narrative Map” (Headleand, 2020b).

the player can behave actively in the library guidance. He describes the following ideas for adding “fun” to the “game design” of digital RPGs.

Furthermore, the messages in the in-game events are not mere explanations. Because they receive a character, players move from “reading” to “experiencing” and thus, can feel enjoyment in addition to obtaining information. With this in mind, we have tried to increase the player’s familiarity with the museum by introducing a comedic touch to the text and events in the main story and by employing quizzes (ibid.)

Thus, “TOSHOKAN QUEST,” which utilizes a paid digital RPG creation tool, enabled the combination of the online-participatory edutainment element ① and information about the location of materials in the library ②. However, it is not enough to focus only on the “enjoyment” of the contents of element ①, considering its role as a guidance for those who cannot come to the university library. Instead, it would be better to introduce the contents such as “how to use the library (how to search for materials)” and “how to write reference works,” which are easy to learn online. For this purpose, we decided to create an online game-type library guidance system based on the game design of mission-clearing RPGs conducted by the author’s research team, not on the game design of digital RPGs.

For the design, we referred to “Building Simple Games in Microsoft Forms,” which Headleand (2020) introduces in his “Online Teaching Tips.” In an introductory statement, Headleand notes:

Games can be a great way to engage students, and there are loads of ways to play games in a face to face session. However, with the shift to online/blended learning, we need some new approaches. This is one in MSForms (Headleand 2020).

As described here, Headleand first envisions games in face-to-face classes and then proposes a

⁷ See Ishida, Seki, and Terashima (2015) and Terashima, Meijo, Seki, Miyazaki, and Ishida (2017) for the library guidance “Libardry” they developed.

“new approach” that is necessary for the transition to distance learning. The proposed approach is a simple game⁸ using Microsoft Forms.⁹

We created a simple game-type library guidance to shift from face-to-face to online remote library guidance. A simple game is a game that can be created using free web tools and without special skills.

3. Design and Implementation of a Game-type Library Guidance

For this report, we decided to create a simple game using Google Forms, based on the method proposed by Headleand. The process of creating a game involves two phases. The first phase is creating a “narrative map” (fig. 2), a flowchart showing the links between “questions.” The second phase is the implementation via Microsoft Forms. We describe both these two phases below.

For the game of this report, we used the cell function of MS-Excel, a spreadsheet software, for the story development of the “narrative map.” According to the basic principle of this “narrative map,” a player moves on to the next story part when they choose the correct option. When they make the wrong choice, they return to the previous story. Table 2 shows a portion of the “narrative map” created for this report.

For creating the narrative map, we sought to incorporate the two elements ① and ② described above to determine the necessary learning content for the library guidance. First, for ①, remote edutainment, we opted to incorporate “database use” as one library service counting among the very basic learning content all students should know. Ishida et al. (2015, 58) had included this content already when they incorporated mission-clearing RPGs in their library guidance. Specifically, this task is about how to use the library OPAC and “CiNii Articles,” a Japanese article search engine. Concerning ②, the location of materials, we incorporated the following three items, which students identified as difficult after participating in the mission-clearing RPG library guidance conducted by Terashima et al. (2017).

- | | |
|--------------------|--|
| I. The stack room | Students do not know the existence of the stack room. They are not aware that you can open the door of the stack room. |
| II. Magazine racks | They do not know the set-up of the magazine racks and do not notice that there are back numbers of magazines by opening the front part where |

the latest magazines are displayed.

- | | |
|---------------------|--|
| III. Bound journals | They are not aware that back issues of journals are distributed in two locations according to their publication dates. |
|---------------------|--|

The students themselves said that it was difficult to use these library functions, so it is difficult for them to notice that they are available even if they explore the library alone. In addition, the library locations from I to III include general journals (such as “Gendai Shisō” and “Eureka”) that students often use when they write reports or graduation theses.

It is necessary for students to actually search for materials by using the database, which relates to element ①. After that, they need to learn where to find the materials, which is part of element ②. By creating a “narrative map” with the process of writing reports and graduation theses in mind, it is possible to develop a story in which students can learn both elements.

Based on the above discussion, we came up with a setting for our game design. The protagonist is a student who works part-time at a counter in a university library and completes missions given by students looking for materials to write reports and graduation theses. Based on this idea, we created a “narrative map” (Table 2) in which the students can learn the elements ① and ② mentioned above.

We subsequently implemented this “narrative map” using Google Forms, a free survey management tool provided by Google. One reason for employing Google Forms was that the university to which the first author belongs had already introduced Google Workspace, so we were familiar with it without additional cost. Additionally, Google Forms provide two functions with which we could easily reproduce the different branches of the “narrative map,” namely “radio buttons” and filtering based on answers given. Therefore, it was possible to create a simple game as described above. Still, we changed a part of the “narrative map” text when we implemented it with Google Forms. The following two extracts are typical examples of how we changed the text.

- 1) To sublimate the participants from “reading” to “experiencing,” we used the word “you” to refer to the participants in this guidance when implementing it in Google Forms. In addition, it is not clear what kind of emotion the participant is feeling when participating in this guidance. Thus, we removed the description of emotion from the text and changed it to only a description of the situation.

⁸ The game Headleand (2020) presents as a model, “The Caves of Lincoln Island,” is still available and playable as of November 8, 2021.

⁹ Microsoft Forms is a survey management tool similar to Google Forms. Website: <https://www.microsoft.com/ja-jp/microsoft-365/online-surveys-polls-quizzes> (accessed 2021/11/08).

- 2) To help students understand the situation at a glance, we inserted photographs of the university library into the Google Form. Figure 3 shows a screenshot of the Form with such a photo. We modified the text of the “narrative map,” which was inconsistent with this photo, to match the image.

However, we can only count the end result when creating a simple game with Google Forms. In the case of “Libardry Form,” we could only obtain numbers of how many participants finished the game. Information about which option caused most participants to quit the guidance prematurely was unavailable.

4. Survey Methods and Results

We made “Libardry Form,” implemented with Google Forms, available online. Anyone who knows the URL of this game can participate in it from ICT terminals such as smartphones and PCs. From September 16 to 18, 2020, nine people in the university received the game URL to check “Libardry Form” for any errors. After that, we announced the URL of “Libardry Form” in an on-demand class taught by the first author. As a result, eleven students played “Libardry Form” from September 25 to 26. Finally, we announced the URL of “Libardry Form” on SNS from October 20 to November 29 to coincide with “The 22nd Japan Library Science and Technology Exhibition” held in November 2020. Many librarians are among the participants, so we announced the game on SNS in conjunction with this 22nd Library Exhibition. Table 3 summarizes these participants.

We asked a total of forty-two participants to cooperate with the questionnaire survey after completing the guidance (eleven university students who played and cleared the game between September 25 and 26; thirty-one general participants playing the game until its end between October 20 and November 29). Fortunately, we were able to obtain responses from all of them. To compare the video library guidance that many universities provide online and the game-type library guidance that we produced on a trial basis, we asked the question, “Which is better, the video library guidance or the game-type library guidance?” Thirty-three out of forty-two respondents (78.6%) preferred the game-type library guidance (fig. 4). When we asked for the reasons for their preference in a free text field, we received the



Fig. 3: Screenshot of “Libardry Form.”

following answers: “Experiencing it as a game makes things easier to remember” and “In a video, you can passively move on, but in a game, you have to actively select an option to move on.” Contrastingly, four respondents (9.5%) preferred the video guidance. When we asked them why they preferred the video guidance, they answered, “It is troublesome to go back to the previous story” and “It is difficult to remember the content of the choices when I make a mistake and arrive at the correct answer only by process of elimination.”

We asked the eleven university students who played “Libardry Form” until the end between September 25 and 26 to cooperate in a pre- and post-survey before and after playing the game. The purpose of the pre- and post-surveys was to clarify their experiences of using the university library. The purpose of the post-survey was to clarify their understanding of how to use the university library and the location of the reference desk, which appear in

Table 3: Attributes of the Survey Participants.

Period (2020)	Participants	Target population	Remarks
September 16 - 18	9	Members of the university.	No survey conducted for debugging reasons.
September 25 - 26	11	The first author's on-demand class students (total 64) were invited to participate.	
October 20 - November 29	31	Call for participation via SNS.	

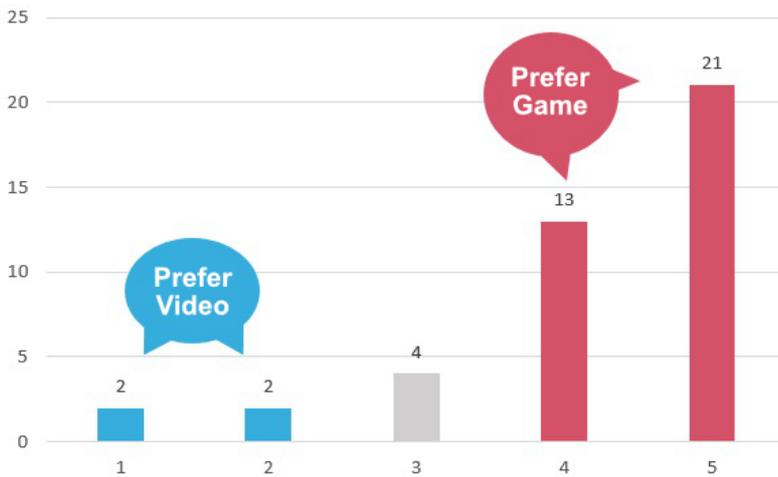


Fig. 4: Results comparing Preference of Game- and Video-type Guidance.

“Libardry Form.” In both the pre-survey and the post-survey, we obtained valid responses from eight out of the eleven respondents. We analyzed these responses by focusing on their grades, experiences of using the university library, and correct and incorrect answers (Table 4).

From the results of the pre-game survey, we learned that the two second- and third-year students had already experienced most of the contents of “Libardry Form” when it was still possible for them to use the university library. Specifically, both of them answered that they had used the OPAC and that they were “a little confident” about “checking whether an article found in CiNii Articles is available in the library.” Therefore, the percentage of correct answers was high even in the post-survey for the second- and third-year students, but we believe this is primarily due to their previous experience. Therefore, it is difficult to say that “Libardry Form” had a particular influence on their learning to use the library.

Contrastingly, there was an evident impact of experiencing the “Libardry Form” for the six first-year students who had little experience using

university libraries. The results of the pre-game survey indicated that they had little experience in using university libraries (Table 4).

Despite this, the post-survey results showed a certain level of understanding of ① the use of online databases and ② the location and position of the reference counter (Table 4).

However, from the responses of eight respondents, we observed some cases of overgeneralization impressed by this guidance. In the university library of Tokiwa University, latest journal issues are available in two locations, the second floor and the first basement floor. Still, most respondents answered that these issues were only located on the basement floor. We believe this impression is because in the storyline of “Libardry Form,” the journals are found on the first basement floor. Thus, there is a risk that the contents learned through the game-type library guidance may lead to some misunderstandings because the students are not familiar with the actual library service. In developing and using game-type library guidance, it is necessary to consider both the advantages and disadvantages of this type of guidance and to consider a system that leads to more appropriate learning.

5. Conclusion

In the fiscal year 2020, many university libraries faced the necessity to implement online library guidance. In this paper, we report the results of a trial study of an online library guidance system employing Google Forms and following a mission-clearing RPG game design. As a result of a questionnaire survey, thirty-three out of forty-two respondents (78.6%) preferred the game-type library guidance to the video library guidance provided by

Table 4: Results of the Pre- and Post-Surveys.

Pre-Survey			Post-Survey				
Study year?	OPAC	Do you think you can discover if material found on CiNii Articles etc. is available at the library?	Main counter location?	Reference number for arts?	Reference counter location?	Where to find latest journal issues?	If you know the title of a book, where do you best search for its location in the library?
3rd year	Using it.	With some confidence.	1st floor	700	3rd floor	Basement 1st floor	OPAC
2nd year	Using it.	With some confidence.	1st floor	700	3rd floor	Basement 1st floor	OPAC
1st year	Not using it.	With some confidence.	1st floor	700	3rd floor	Basement 1st floor	OPAC
1st year	Not using it.	Unsure.	1st floor	700	2nd floor	2nd floor	OPAC
1st year	Not using it.	Not really sure.	2nd floor	700	3rd, 2nd floor	Basement 1st floor	OPAC
1st year	Using it a little.	With some confidence.	1st floor	700	3rd floor	Basement 1st floor	OPAC
1st year	Using it a little.	With some confidence.	1st floor	700	3rd floor	Basement 1st floor	Library database
1st year	Not using it much.	Not really sure.	1st floor	1000	1st floor	Basement 1st floor	OPAC

Wrong answer.

many universities. This result suggests that there is a certain demand for game-type library guidance.

The results of the pre- and post-surveys conducted before and after participation in this guidance indicated that the guidance might improve the understanding of first-year students who have little experience in using university libraries. However, this finding cannot be generalized instantly because the pre/post survey results came only from eight valid responses. We cannot ignore the possibility that the results may differ from the present report if the survey is conducted again with a different target population. In addition, as mentioned above, some respondents overgeneralized their impressions of this guidance. Therefore, it is possible to supplement the contents that cannot be fully learned from “Libardry Form” with the originally analog “Libardry” that the author’s research team has conducted. For example, we can use the strength of the online publication of “Libardry Form” as a pre-entrance task to experience the university library virtually. After entering the university, we can use “Libardry” to experience the actual university library. By realizing this experiment, the “new attempt” of blended learning using games described by Headleand will become possible.

Before any new trials and to increase the effectiveness of this guidance, we will list two points for improvement obtained from the questionnaire survey results. The authors’ research team plans to produce an improved version of the “Libardry Form” based on these two improvements.

The first is what to do if participants choose the wrong answer. In this guidance, when a participant selects the wrong answer, it only returns them to the previous story. In the questionnaire survey, respondents voiced the opinion that this guidance should be improved by providing explanations or hints such as “Look at this column in the OPAC” or “On the shelf in front of you, there is a label ‘University Bulletin’.” Therefore, if a wrong answer is selected, the user should go to the explanation page and then back to the previous story. In addition, we would like to introduce a system in which participants can learn various kinds of content by adding a link to the online video library guidance on the explanation page.

The second is the location information in the guidance game. One of the participants suggested that it would be better to show the map of the university library and the location information in the game so that students can find the location of the pictures in the guidance. Therefore, we will add the map of the university library and the location information in the game next to the images.

The points on possible improvements conclude our report on the production and practice of

game-type library guidance using Google Forms. In this report, we have tried a new approach to create a simple game using Google Forms, based on game-type library guidance that our research team has conducted in university libraries. We hope that this report will provide a way to develop a tool for users to learn how to use university facilities by utilizing the knowledge of approaches that various libraries have conducted so far.

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