

Application of design thinking to the development of a bus tour

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Abstract

Design thinking has been attracting attention as a human-centered, creative, and pragmatic approach for innovation. It also offers feasible solutions to multi-layered and complex problems in society. This study examines an application of design thinking on the development of a tour as a case study in which female second-year college students designed and implemented a day bus tour for female students to Yamashiro Onsen, one of the spa resorts in Kaga City, Ishikawa Prefecture, Japan. This case study shows that design thinking was effective in designing an entirely new tour that discovered potential needs.

Keywords

tour development, design thinking, regional revitalization, potential needs, Yamashiro Onsen

1. Introduction

Design thinking has been attracting attention as a human-centered, creative, and pragmatic approach for innovation [Brown, 2008]. The concept was originated from the design processes of the American design consulting firm IDEO which is known for the designs of a mouse of Apple and a PAD of Palm. However, the application of design thinking is not limited to what is narrowly defined as “design,” such as industrial design and design technology, as it can be applied to intangible products such as process and service innovation.

In educational domain, design thinking is attracted attention as an approach for developing innovative abilities of students. Many universities and graduate schools worldwide have started to provide design thinking educational courses [Kurokawa, 2012]. For example, Razzouk and Shute [2012] pointed out the importance of design thinking in promoting students’ problem-solving skills in the 21st century. As one of practical methodologies the five-step process of design thinking was advocated by the Hasso Plattner Institute of Design at Stanford, an authority in design thinking education [Hasso Plattner Institute of Design at Stanford, 2012].

Yamashiro Onsen, one of the spa resorts in Kaga City, Ishikawa Prefecture, Japan and consists of 20 Japanese style inns. It is located in the south from Kanazawa City, Japan and take about an hour from the Kanazawa station by a car. The number of guests was over 1.8 million in 1989 but dropped to 810,000 in 2013. In order to emerge from the situation the Yamashiro Onsen Tourist Association has decided an objective to increase the number of young visitors. As a trail to its objective, two female second-year college students designed by design thinking and implemented a one-day bus tour to Yamashiro Onsen for young female students. Our objective in this paper is to verify the effectiveness of design thinking to design a tour through this case study.

2. Design thinking

Design thinking can be explained in three processes: “inspiration”, “Ideation” and “implementation.” [Brown, 2008, 2009] The inspiration process motivates actors of design thinking to search for solutions. The ideation process generates, develops and test actors’ ideas that lead to solutions. The implementation process plans a route to market for a product.

The Hasso Plattner Institute of Design proposed the five-step design process to output the design of a product by design thinking, as shown in Table 1 [Hasso Plattner Institute of Design at Stanford, 2012]. These five steps are considered to be a method-

Table 1: Five steps of design thinking

Step	Design thinking [Hasso Plattner Institute of Design at Stanford, 2012]	Tour development
Step 1: Emphasize	To understand people in the context of the design task and identify how and why they behave, what their physical and emotional needs are, how they perceive the world, and what is meaningful to them.	To identify the target participants of the tour and understand what is meaningful to them: with whom and what to see, what to eat, and what to do. Feld studies are effective.
Step 2: Define	To narrow down the focus on the task at hand, drawing from what has been learned from the users and the environment, and then develop a perspective that clearly defines the problem.	To select the suitable concept for the tour. To ensure the constraints of the tour, such as the objectives, data, and number of participants.
Step 3: Ideate	To generate ideas; to expand the range of feasible ideas as far as possible and not settling for a single solution as the best one.	To generate ideas; places to visit and activities to experience, and lunch and sweets suitable for the concept of the tour.
Step 4: Prototype	To approach the final solution, ideas are repeatedly put to practice; to produce prototypes quickly and cheaply; to gain useful feedback from uses and colleagues.	To list details of the tour, such as the places to visit, types of activities, a place and menu for lunch and sweets.
Step 5: Test	Testing the idea; enhancing empathy to the intended user by gaining feedback about the prototype from the user.	To test the candidates by visiting the places, experiencing activities, and eating lunches and sweets.

ology for an educational approach of “inspiration” and “ideation.” The second column of Table 1 shows the brief explanation of each step. Design thinking can be regarded as an approach that creatively repeats the learning cycle of ‘empathize’, ‘define’, ‘ideate’, ‘prototype’, and ‘test’ which are not necessarily repeated in a linear order. Students challenge better design by going back and forth among those steps. Through these repetitive trials of the design process students can cultivate their abilities of discovery and creativity. Note that practice of the design is necessary to cultivate such abilities because students cannot confirm success or failure of their designs without practice although they believe their designs are good enough for practice.

3. Development of a Tour by Design Thinking

This case study deals with the design by design thinking and implementation of a one-day bus tour to Yamashiro Onsen for female students by two second year college female students of age 19. We call these students designers hereafter. Two professors mainly played the facilitators of the five-step design process of design thinking to lead the designers’ activities.

3.1 Application

At the beginning the designers were given the task to design a one day bus tour for young students to Yamashiro Onsen as its destination. The designers first decided Kanazawa station as the meeting place because the station is easy to access for many students. Some constraints of the tour are that it departs from the station on a Sunday morning and returns there in the early evening at the same day. This was the beginning of design thinking.

The designers started ‘Emphasize’ step by talking to their friends and some female students living near Yamashiro Onsen about attractions in the area and obtained relevant information while developing their own interest in Yamashiro Onsen and its neighborhood. At the same time they looked for such information in the Internet. They also obtained and read brochures of Yamashiro Onsen. Through these studies they focused on female students at colleges and universities in Kanazawa City as the target participants of the tour.

There are many attractive places and activities in Kaga City. From them the designers loosely listed some places and activities according to their own interests. These steps can be said loose ‘define and ideate’ steps. The first list as a ‘prototype’ step contained the followings.

Places to visit and activities in Yamashiro Onsen:

1. ‘Ko-Soyu’: A newly built public bath without any faucet or shower of which style is similar to one of 100 years ago.
2. ‘Ashiyu’: A footbath.
3. Lunch at a restaurant.
4. Tea and sweets.
5. Town walk.

Places to visit and activities in the neighborhood:

1. Kaga Fruits Land for fruits and chocolate fondue: A farm of

various seasonal fruits and a restaurant. The restaurant serves all-you-can-eat fruits and chocolate fondue for an hour.

2. Hiramatsu Ranch for animals and gelato: we can enjoy with cows, ponies, donkeys, rabbits, cats, and dogs. It serves their original gelato at a shop.
3. American accessory shop: It sells accessories imported mainly from America.

The designers and one of the facilitators then went to the first field study to Hiramatsu Ranch and Yamashiro Onsen as a ‘test’ step and tried to obtain more insight. For the study the designers brought digital cameras and took photos of places and matters that attracted their interests. For example, they took photos of animals at the ranch because they were cute. After the visit, the facilitators encouraged the designers to ask themselves ‘why five times’ about each photo: the facilitators asked each designer why she took each photo and she answered it and again the facilitator asked her why she thought so. These questions and answers continued at most five times in its depth. The purpose of these questions and answers was to develop their empathy and awareness, and to create possible concepts for the tour. Repeating ‘why five times’ on each photo, they reached to two candidates of the concept for the tour at this moment. They were “Girls on KAGA: Happiness for the mind, body, and taste” and “Be refreshed at KAGA.” These candidates of the concept showed that they still focused on KAGA, a wider area including Yamashiro Onsen.

Based on the insight and information obtained in the ‘Emphasize’ step, the designers examined these candidates of the concept. But they decided to keep both of them as candidates of the concept for a moment. On the other hand, they decided to remove Hiramatsu Ranch from the list because the target female students might feel the smell of the ranch unpleasant although the gelato was attractive.

Then a facilitator and the designers went to the second field study for the purpose to design some details of the tour while getting further information and insight. They first tried ‘all-you-can-eat fruits and chocolate fondue for an hour’, soap making and herb planting at Kaga Fruits Land where they did not visit at the first field study although it was on the list. Next, they visited the American accessory shop for the first time. They felt that the shop’s appearance was impressive and its merchandise were attractive.

After visiting these places, they visited Yamashiro Onsen and tried a footbath at Ashiyu to confirm its feeling. They ate dishes of curry rice with local vegetables for lunch at a restaurant to confirm its taste. They took a bath at Ko-Soyu to confirm its feeling and felt comfortable because it made them imagine spas of 100 years ago. They did not have such a feeling at Ashiyu. They also discovered a comfortable relaxation space on the second floor of Ko-Soyu. Although they knew a famous patisserie for dessert in Yamashiro Onsen, they found out it would be closed on Sundays. Instead, they found some delicious desserts at a shop. They also found a shop of facial massage as a

candidate of activities. They negotiated with the shop about a possible special discounted price for the tour and succeeded.

By this second field study they realized that the fruits and chocolate fondue at Kaga Fruits Land was not attractive because they felt one or two bites were enough. They also found out that the soap making and herb planting would take relatively long time for a one-day tour. For these reasons Kaga Fruits Land was removed from the list.

The designers felt that a visit to American accessory shop was not consistent with any of the candidates of the concept and they removed the shop from the list.

By the reasons as explained above, the places in neighborhood of Yamashiro Onsen were all removed from the list of places to visit and activities. Then the designers finalized the concept of the tour as “Girls on the YAMASHIRO: Happiness from Yamashiro.” Note that the destination of the tour was focused on Yamashiro Onsen instead of Kaga in the candidates of the concept. According to this concept they confirmed the places to visit and activities and required time for each event and finalized the tour plan.

Table 2 shows the summary of the application of design thinking to the development of the tour. The application starts from number 1 and end in number 12 with 14 elements. The first cycle of the design thinking followed the ‘Emphasize’, ‘Prototype’, and ‘Test’ steps. The second cycle followed all five steps.

Figure 1 shows the leaflet of the tour. The contents of the tour are as follows:

Girls on the YAMASHIRO: Happiness from Yamashiro
 To Female Students of Colleges and Universities in Ishikawa:
 Hello! We, students at Hokuriku Gakuin Junior College, developed a one-day bus tour to Yamashiro Onsen for you. Let's be happy.
 Fee: 3,000 JPY
 Date: November 24 (Sun)

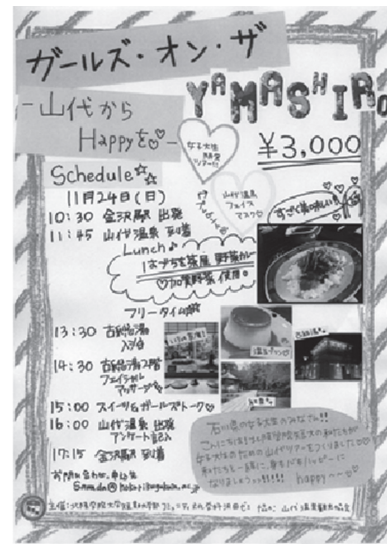


Figure 1: Leaflet of the tour

- 10:30 Depart from Kanazawa Station
 - 11:45 Arrive at Yamashiro Onsen
Lunch at Hazuchio Tea Restaurant—curry rice with local vegetables
Free time
 - 13:30 Bath time at Ko-Soyu
 - 14:30 Lecture and experience of facial massage on the second floor of Ko-Soyu
 - 15:00 Chat with delicious cakes
 - 16:00 Depart from Yamashiro Onsen
Fill out questionnaire in the bus
 - 17:15 Arrive at Kanazawa Station
- Apply to: sawada@hokurikugakuin.ac.jp
 Organizer: Sawada Seminar, Community and Culture Department, Hokuriku Gakuin Junior College.
 Supporter: Yamashiro Onsen Tourist Association.

Table 2: Application of design thinking to a one-day bus tour

Five steps of design thinking	Step 1: Emphasize	1. A. Talked to female students. B. Read brochures of Yamashiro Onsen and its neighborhood and checked relevant information on WEB. C. Decided to focus on female students.	4. A. Took photos on the first field study and asked why five times about photos.	
	Step 2: Define		5. A. Created concepts.	9. A. Finalized the concept of the tour.
	Step 3: Ideate		6. A. Polished ideas of places to visit and activities.	10. A. Polished ideas of places to visit and activities based on the concept.
	Step 4: Prototype	2. A. Listed places to visit and activities.	7. A. Updated the list.	11. A. Updated the list.
	Step 5: Test	3. A. First field study to test some places on the list.	8. A. Second field study to test some places and activities on the list including lunch and sweet.	12. A. Finalized the plan.

3.2 Tour outline

Leaflets for the tour were put up on bulletin boards and distributed in colleges and universities in Kanazawa City. The designers encouraged their friends to apply for the tour. Thirteen female students, including a postgraduate student of a university in Kanazawa, joined the tour. The tour fee was 3,000 JPY. This covered the cost of the food, bath, facial massage fees, and insurance. Hokuriku Gakuin Junior College offered the free bus for the tour. The designers were eager to make the tour memorable for the participants. They decided to prepare handwritten special leaflets and handed them out to the participants on the day of the tour. The contents of a leaflet were the itinerary, some introduction of Yamashiro Onsen such as annual festivals, recommended spots and Japanese style inns. The tour was carried out as planned.

3.3 Evaluation by questionnaires

The participants of the tour were asked to fill out questionnaires in the bus on the way back to Kanazawa Station. Main questions were the following two.

Q: Did you enjoy yourself today?

A: All participants responded “yes.”

Some comments for this question were as follows:

- I enjoyed chat on the second floor at Ko-Soyu.
- Lunch and cakes were delicious.
- I enjoyed the facial massage.

Q: Do you want to visit Yamashiro Onsen again?
(when, with whom, day or overnight trip)

A: All participants responded “yes.”

All participants showed their intention to come back to Yamashiro Onsen for an overnight stay at a Japanese style inn. They also mentioned that they enjoyed the activities and felt the tour was very good in all and sympathized with the designers' enthusiasm. Figure 2 is a photo of the thirteen participants and two designers with the heart-shaped cards which showed their positive impressions. All smiling faces are an evidence of the success of this tour.

4. Discussion

The tour was not intended to be a real commercial product by a tour company in this case study. Thus the designers did not carry out the implementation process of design thinking. [Brown, 2009] However, as described in the previous section, the designers gathered thirteen participants only by distributing the leaflets of the tour and asking their friends to participate it without any marketing strategy. All participants answered that they wished to visit Yamashiro Onsen again for an overnight stay at a Japanese style inn with high satisfaction. This result is favorable to say that the tour would contribute the objective of Yamashiro Onsen Tourist Association that is to increase young visitors.

5. Conclusion

According to the Japan Association of Travel Agents, “Travel



Figure 2: Participants and the designers (front) with their own cards of happiness

agents are trying to actualize travel needs and travel trends and work to commoditize them, however commodification is difficult under previous business models, and currently it is difficult to adequately grapple with new needs.” The ‘Emphasize’ step of design thinking discovers potential needs through understanding users in the context of the design task. In this case study, the designers understood what is meaningful to the target participants in the ‘Emphasize’ step and designed the creative tour that included chat among the participants on the second floor at Ko-Soyu as well as the facial massage experience. The reason the tour was given high reviews was due to the design of the tour that discovered the potential needs of participants. This case study shows that design thinking was effective in designing an entirely new tour that discovered potential needs.

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