The Zabuton: Designing the Arriving Experience in the Japanese Airport

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Abstract. This research explores the value of airports upon arrivals by proposing a welcome service *The Zabuton* targeting passengers unfamiliar with the landing-place. *The Zabuton* service comprises of two systems; a local language information display (LLD) and a guiding passengers action app (GAA). LLD is placed in the baggage claim area displaying the written language and meanings of frequently used phrases, and its pronunciations in the local language. GAA supports the series of actions from the arrival gate to transportation consisting the following five components; (1) purchasing internet connection modules, (2) local transportation map and route search, (3) local transportation rules, (4) luggage service information, and (5) where the platform is to ride local transportation. An airport arrival lobby with *The Zabuton* lets passengers learn local language phrases through public displays and provides confidence in their forthcoming steps of transportation through a mobile app. This concept was constructed based on our research and illustrated accordingly based on scenario based design and user centered design process. This paper contributes to the redesigning of the airport arrival lobby by enhancing the local experience and supporting the travel procedures with the help of digital technologies.

Keywords: Experience design · Airport · Travel support system · User centered design

1 Introduction

Airports, important hubs for airplanes carrying an increasing number of passengers—1.7 times more compared to a decade ago [12]—across the world, are striving for branding strategies [5]. In addition to improving their functionalities, the leading airports are putting efforts in universally designed spaces with increased options for shopping, dining, and various entertainment [9,13]. For an airport to be valued by their users, providing a service that is designed through deep understanding of difficulties and tasks of passengers is critical.

On the other hand, passengers in unfamiliar country often feel uneasy or disadvantaged about their trips when they do not have a good understanding of culture, language, rules of the country [14]. Those who want to avoid these socio-cultural risk will tend to make their reservation earlier or purchase prepackaged tours from travel agents [11]. The less accustomed to the habit on information acquisition concerning travel mode choices, the more information and choices are needed when traveling to a destination [16].

We especially focus on the experience at the arrival lobby. The arrival lobby and the departure lobby are important places for both the passengers and the destination, since they are the initial encounter and the final contact point respectively [17]. Compared with the departure lobby, the arrival lobby is often-times overlooked in spite of its vast potentiality of giving the tourists a positive feeling about the destination.

The objective of this study is to design a helpful experience for arriving passengers. Our service *The Zabuton* eliminates anxiety for the passenger from abroad by providing travel supporting information. Their anxieties are reduced by two components; a local language information display (LLD) and a guiding passengers action app (GAA) (see Fig. 1 for the experience image). This paper contributes by designing services from user-centered approach rather than com-mercial aspect, and give insight to designing applications for supporting the travel process.

Fig. 1. *The Zabuton* experience images

2   Related Works

From the theoretical paradigm of "linguistic accomodation" (or communication accommodation), established about half a century ago, indicates linguistic bar-riers in intercultural communication [8]. Studies focusing on the field of tourism shows that actual tourists hardly have competency in the language and style of communication of the local natives [7], and also "fleeting interaction" in the context of tourism are communicative challenges [10]. *In-situ* language practices in tourism aims for a smooth communication [18], and mere greeting can play

a vital role in developing a rapport amongst people [3]. Our research builds on these statements and incorporates into our design of LLD.

On the other hand, some research highlight the current questions with airports and its experience even though its shift from a utility for transportation into a place where various values can be offered—the experience not being comprehensively defined or conceptualised, and airport industry scopes leaving behind those that are not significant sources of income [17]. *Emmasbox* is one example tackling such issue by placing an interactive food station in a major European airport baggage carousel area as an public display which provides food packages [2], through their findings that majority of tourists are looking for gastronomic pleasure in travels. *The Finnish You* is an example highlighting passengers waiting time by an interactive storytelling mobile application while educating them about the Finnish culture [4]. Other studies proposed integrated services to assist travel planning—for hotels, attractions, and routing based on crowd sourced data from social media, reviews of hotels, Flickr images, and Uber taxi costs between places [20]. Our research takes such situation into account for an integrated experience of transportation guidance at the arrival lobby; from the point when you grab back your baggage to the moment you get out of the terminal to your next transportation.

3   Methodology

The concept of *The Zabuton* service was designed mainly based on User-Centered Design(UCD) process [1,15], as outlined below: (1) conduct ethnographic research, (2) identify stakeholders and personas, and (3) illustrate persona's scenario, use case, display and application mock up.

Through the series of ethnographic research we generated hypotheses about passengers situations and tasks in the airport. These were conducted in 7 Asian airports during autumn 2019, mainly on major Airports in Japan. We explored various places in these airports in total of 10 times, for about 3 hours each. We observed people's behavior in the contexts, and recorded them in field-notes. When conducting fieldwork outside Japan, researchers also described what they felt and acted as a passenger in addition to the basic observation. A series of textual data was segmented and coded in five contexts: airport, terminal, kind of people, act from field-notes, date and time.

A total of 428 data samples were extracted from field-notes. We focused particularly on the findings from behavior in the arrival lobby. We investigated that passengers have strong interest in their destination and preparation for their trip in the arrival lobby (See Fig. 2).

4   Experience Design

Through the findings of the ethnographic research, we decided to set foreign passengers who came to Japan for the first time, as a persona. We assumed this persona would want reduce their anxiety and make them feel less anxious about

Airport	Terminal	Place	Passengers	Extracted act from fieldnotes	Date/time	
Haneda	3	arrival gate	Chinese tourists	Talk about route with family and friends while looking at mobile	13:50	Sep. 25, 2019
Haneda	3	arrival gate	Chinese couple	Try to ask someone how to buy a ticket, but wandering around without hearing	13:45	Sep. 25, 2019
Haneda	3	arrival gate	Chinese couple	Thanks a stranger for teaching him how to buy a ticket	13:45	Sep. 25, 2019
Haneda	3	arrival gate	A French man	Show his smartphone to airport staff saying "I want to take this JAL flight"	14:30	Sep. 25, 2019
Inchoen	1	arrival gate	A fieldworker	Immediately after arriving at Incheon Airport, what I thought was the impact of Hangul. I can't read it at all. I could get a feel for Chinese and English, but I felt scared to understand Korean.	7:30	Oct. 22, 2019

Fig. 2. Data coding examples

traveling in Japan with the following upon arrival; (1) be able to communicate a little in Japanese, (2) want to go to their destination without inconvenience, and (3) get necessary/useful information and tools for their trip. The narrative of the following experience has been set to achieve the desires of the persona. This description is based on Scenario Based Design [6,12,19]. Use cases were also developed whilst creating the scenario (see Fig. 3).

The Scenario. Non-Japanese tourists finally arrived in Japan after a long transit. It is their first time in Japan and the tourists are feeling a little anxious. Exhausted, they arrive at the luggage pickup area and wait until the baggage carousel starts moving.

While waiting, a signage jumps into the tourist's eyes as it plays audio and visual information about Japanese language tips in English and Japanese simultaneously (see Fig. 1 and 5). Having been a little anxious about their Japanese language skills, they practices the intonation following the signage. Through this experience, they learns several phrases that could be used for greetings, and feels a little better about their language anxiety. The tourists think about their plan after exiting out of the airport.

First of all, left the arrival gate, they go to the airport information counter, to ask how to go to their destination. There, the staff introduces them to the airport application. They access the airport application to find out information on where they should go next (see Fig. 1 and 5). They find a button saying "Airport to City" and when they taps on the button, the mobile site advises them what they should do in order of the actions people take at the airport. These include information on where to purchase sim cards, train route maps and directions, the direction to the stations, train passes and luggage services. They click on the "Route Search" button and "Where to Ride" button. The tourists leave the airport following the directions and set off to the city.
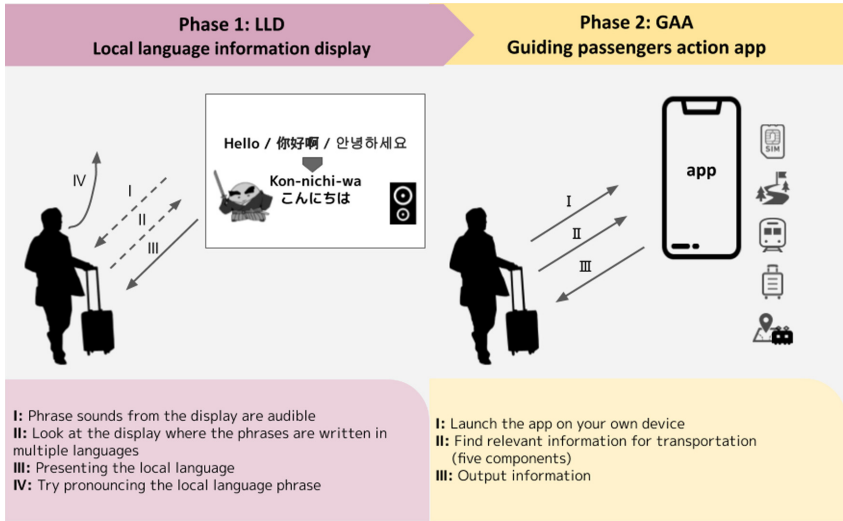
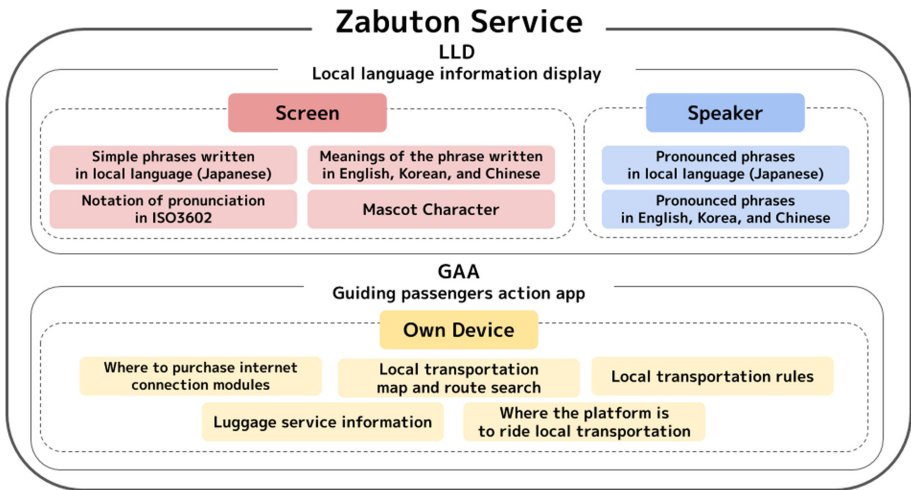**Fig. 3.** User experience flow

Fig. 4. Components of *The Zabuton* service

5   System Description

This section reveals the concept elements that would realize the scenario experience by classifying them into 2 components (see Fig. 4).

Phase 1: Providing Local Language Tips. This phase takes place in the baggage claim area, where we propose the LLD should be located. This local

Fig. 5. The example of language display and guide application

language display system consists of a screen and a speaker, where the screen displays simple phrases written in local language, notation of pronunciation in ISO3602, (see Fig. 5) with a mascot character. Meanings of the phrase are written in English, Korean, Chinese, in reference to the guidelines presented by Japanese ministries[1]. The speaker plays the voice files of actual pronunciation in local language, and in English, Korean, and Chinese.

Phase 2: Helping Passenger's Way from Arrival Lobby to Their Final Destination. The second phase aims to help passenger's way by highlighting a list of information in the order in which it is needed with our proposed system GAA (see Fig. 5). This guiding passengers action app will show the following five steps.

(1) Where to purchase internet connection modules. It shows a map of where SIM cards or mobile wifi routers can be purchased or rent in the airport.
(2) Local transportation map and route search. It also provides route map of Japan's metropolitan area so that users can see visually understand which route to take to the destination. The route search function are also provided.
(3) Local transportation rules. As transportation rules differ from country to country, we provide information on where to buy and how to use IC cards for transportation and rule information in that country will be provided.

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[1] Japan Tourism Agency. Guidelines for improving and strengthening multilingual support for the realization of a tourism-oriented country, 2014.

(4) Luggage service information. It also provides information on the services that the airport offers to travelers upon arrival. In this case, we have introduced a luggage delivery service, as travelers often have large packages with them.

(5) Where the platform is to ride local transportation. At a large airport, the transportation platform of one's choice may be far or difficult to find from the arrival lobby. Information on the boarding area for each mode of transportation is provided on the airport facilities map.

6   Discussion and Future Works

This study aimed to design passengers experience to improve airport value. In particular, our study highlighted the difficulties passengers face in arrival lobby and we proposed *The Zabuton* service. *The Zabuton* aims to help passengers through the process before leaving the airport and overcome their difficulties and anxieties about linguistic difference and way-finding, by providing them local language information display(LLD) and guiding passengers action app(GAA).

In the future, we need to evaluate each use case of the system and verify its effectiveness. We assume the following: (1) what function of *The Zabuton* system are effective in context of real passengers, (2) what impact *The Zabuton* service has had on their travel and what trends are seen in users, and (3) verification of if this system can contribute to the improvement of airport value. We shall also strive for a richer airport passengers experience in this era of COVID-19.

References

1. Abras, C., Maloney-Krichmar, D., Preece, J., et al.: User-centered design. In: Bainbridge, W. (eds.) Encyclopedia of Human-Computer Interaction, vol. 37, no. 4, pp. 445–456. Sage Publications, Thousand Oaks (2004)

2. Alt, F., Vehns, J.: Opportunistic deployments: challenges and opportunities of conducting public display research at an airport. In: Proceedings of the 5th ACM International Symposium on Pervasive Displays, pp. 106–117 (2016)

3. Boxer, D.: Applying Sociolinguistics: Domains and Face-to-Face Interaction, vol. 15. John Benjamins Publishing, Amsterdam (2002)

4. Burova, A., et al.: Promoting local culture and enriching airport experiences through interactive storytelling. In: Proceedings of the 18th International Conference on Mobile and Ubiquitous Multimedia, p. 26. ACM (2019)

5. Castro, R., Lohmann, G.: Airport branding: content analysis of vision statements. Res. Transp. Bus. Manage. **10**, 4–14 (2014)

6. Cooper, A., Reimann, R., Cronin, D., Noessel, C.: About Face: The Essentials of Interaction Design, 4th edn. Wiley Publishing, Hoboken (2014)

7. Dornyei, Z., Csizer, K.: The effects of intercultural contact and tourism on language attitudes and language learning motivation. J. Lang. Soc. Psychol. **24**(4), 327–357 (2005). https://doi.org/10.1177/0261927X05281424

8. Giles, H.: Communication accommodation theory. In: The International Encyclopedia of Communication Theory and Philosophy, pp. 1–7 (2016). https://doi.org/10.1002/9781118766804.wbiect056

9. Changi Airport Group: A decade of distinction :annual report 2018/19 (2019). https://www.changiairport.com/content/dam/cacorp/publications/Annual%20Reports/2019/CAG-AR2019-Full.pdf

10. Jaworski, A., Thurlow, C.: Language and the globalizing habitus of tourism: toward a sociolinguistics of fleeting relationships. In: The Handbook of Language and Globalization, vol. 58, p. 255 (2010)

11. Money, R.B., Crotts, J.C.: The effect of uncertainty avoidance on information search, planning, and purchases of international travel vacations. Tourism Manage. **24**(2), 191–202 (2003)

12. The International Co-operative Alliance Organization: Presentation of 2018 air transport statistical results (2018). https://www.icao.int/annual-report-2018/Pages/the-world-of-air-transport-in-2018-statistical-results.aspx

13. Paris Aéroport: Strategic plan for the 2016–2020 period (2018). https://www.parisaeroport.fr/docs/default-source/groupe-fichiers/groupe-et-strategie/connect-2020-maj-05-2017-en.pdf?sfvrsn=3a28e2bd_0

14. Reisinger, Y., Mavondo, F.: Travel anxiety and intentions to travel internationally: Implications of travel risk perception. J. Travel Res. **43**(3), 212–225 (2005)

15. Svanæs, D., Gulliksen, J.: Understanding the context of design: towards tactical user centered design. In: Proceedings of the 5th Nordic Conference on Human-Computer Interaction: Building Bridge, NordiCHI 2008, pp. 353–362. Association for Computing Machinery, New York (2008). https://doi.org/10.1145/1463160.1463199

16. Verplanken, B., Aarts, H., Van Knippenberg, A.: Habit, information acquisition, and the process of making travel mode choices. Eur. J. Soc. Psychol. **27**(5), 539–560 (1997)

17. Wattanacharoensil, W., Schuckert, M., Graham, A., Dean, A.: An analysis of the airport experience from an air traveler perspective. J. Hospitality Tourism Manage. **32**, 124–135 (2017)

18. Wilson, A.: International tourism and (linguistic) accommodation: convergence towards and through English in tourist information interactions, June 2018. https://doi.org/10.4000/anglophonia.1377

19. Wright, P., Wallace, J., McCarthy, J.: Aesthetics and experience-centered design. ACM Trans. Comput.-Hum. Interact. (TOCHI) **15**(4), 1–21 (2008)

20. Zhou, X., Wang, M., Li, D.: From stay to play-a travel planning tool based on crowdsourcing user-generated contents. Appl. Geograph. **78**, 1–11 (2017)