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Master's Thesis
Academic Year 2025

Guide Dog Board Game: Co-designing an
Interactive Learning Experience for Children on
Guide Dog Users in Japan



Keio University
Graduate School of Media Design

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A Master's Thesis
submitted to Keio University Graduate School of Media Design
in partial fulfillment of the requirements for the degree of
Master of Media Design

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Abstract of Master's Thesis of Academic Year 2025

Guide Dog Board Game: Co-designing an Interactive
Learning Experience for Children on Guide Dog Users in
Japan

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Summary

Public understanding of guide dogs and their users is often shaped by stereotypes and limited exposure, leading to misconceptions about their roles. This thesis presents the design and evaluation of an educational board game aimed at deepening children's understanding of guide dog users and accessibility issues in Japan. To create a more engaging and meaningful learning tool, a co-design approach was adopted, involving guide dog users, support center professionals, educators, and community members. The game was developed through five iterative prototyping phases, with each stage incorporating testing, feedback, and revision. Key components include quiz cards, tactile features, and discussion prompts designed to encourage critical thinking about disability and social inclusion. Workshops were conducted in collaboration with the Yachiyo Social Welfare Council and a local after-school program, where fourth-grade students engaged in talk sessions, gameplay, and reflection. Post-game questionnaires and observations indicated increased awareness and interest in guide dog-related topics. By framing disability education through interactive play, this thesis highlights the potential of game-based learning and the importance of inclusive co-design in developing accessible and socially impactful educational experiences.

Keywords:

guide dogs, guide dog users, board game, learning, disability awareness

Keio University Graduate School of Media Design

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Chapter 1

Introduction

1.1. Background

Guide dogs are a type of assistance dog specially trained to support individuals with visual impairments by helping them safely and confidently navigate their environment. Acting as the eyes of their users, guide dogs can detect and avoid obstacles, indicate changes in elevation such as curbs or stairs, and help locate specific landmarks like doorways or stairs. In addition to their role in mobility, guide dogs play a vital part in fostering independence and enabling greater social participation [2] [3]. They allow users to move through public spaces more freely and with greater confidence. Beyond these functional tasks, guide dogs also offer companionship and emotional support, contributing to their users' mental and social well-being [4].

In Japan, guide dogs and guide dog users continue to face significant challenges and persistent societal misconceptions that hinder their ability to fully participate in public life [5]. Although guide dogs are intended to support individuals with visual impairments in achieving greater independence, this independence cannot be achieved without the understanding and cooperation of the wider society. Social support is essential to enable guide dog users to navigate public spaces safely and with dignity [6].

Although numerous awareness initiatives have been introduced to improve public understanding, their effectiveness appears limited. A simple online search yields an abundance of educational content, including websites, videos, and campaigns that promote accessibility. Posters and brochures are commonly seen in public areas across Japan, and workshops targeted primarily at children are held by organizations such as the Japan Guide Dog Association. However, social attitudes have not changed significantly.

Despite legal protections under Japan’s *Act on Assistance Dogs for Persons with Physical Disabilities* [7] and many awareness efforts, guide dog users continue to encounter significant barriers due to inconsistent law enforcement and widespread public misunderstanding. According to the *National Survey on Guide Dog Acceptance*, published in March 2025 by the Japan National Federation of Guide Dog Training Associations, 576 guide dog users were asked about their experiences from January to December 2024. When asked if they had ever been refused entry or access because they were accompanied by a guide dog, 276 users—nearly 48 percent—responded yes. While this percentage may not seem overwhelming at first, it means that almost half of the respondents had faced discrimination at least once within the year. For guide dog users, this can make going out feel uncertain or even discouraging, knowing that there is a significant chance they may be turned away from places they need or want to go [8].

From January to December 2024, have you ever experienced being refused entry or access because of your guide dog?

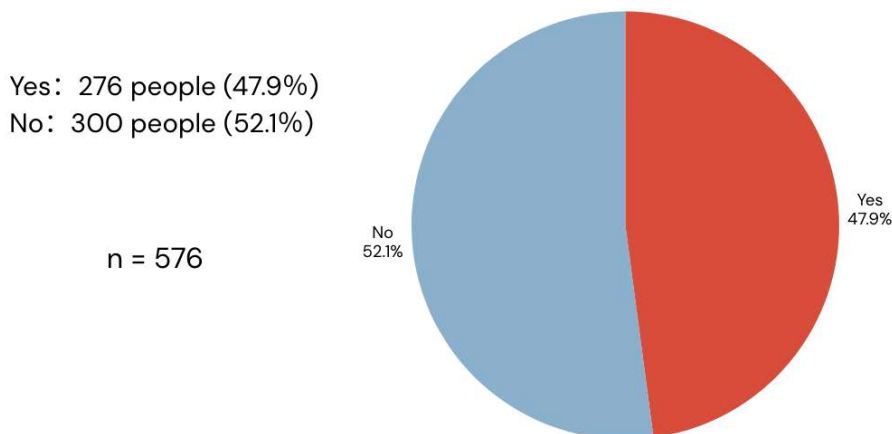


Figure 1.1 Japan National Federation of Guide Dog Training Association National Survey on Guide Dog Acceptance. March 25, 2025.

Unfortunately, this is not a new trend. The report also stated that a similar survey conducted in 2020 found that approximately 52 percent of users reported the same experience. Although the number has decreased slightly, the change is minimal. This persistent rate of refusal is especially concerning given the ongoing

efforts to raise awareness about assistance dogs and promote social inclusion. It suggests that much more needs to be done to ensure that guide dog users are fully accepted and able to participate in society without barriers.

1.1.1 Motivation

Upon relocating to Japan, one of the first cultural differences I noticed was the strong affection toward small companion animals, such as toy poodles and shiba inus. Dogs are often seen in strollers or adorned with accessories, receiving a level of care similar to that given to young children. The continued popularity of pet shops further reflects the deep integration of pets into family life.

In contrast, I was struck by the lack of service animals in everyday public settings. Having grown up in the United States, I was accustomed to encountering a wide variety of service dogs and I had become accustomed to a general public awareness of their roles, including the importance of not distracting them while they are working. In Japan, however, many people appeared unfamiliar with these practices, prompting me to explore how service animals are understood and regulated in the two countries.

This comparison revealed fundamental structural and cultural differences. Under the Americans with Disabilities Act (ADA) in the U.S., a wide range of service dogs is recognized, including those assisting individuals with physical, psychiatric, and sensory disabilities. No formal certification is required, provided the dog is trained to perform specific tasks that mitigate the challenges faced by the disabled handler. By contrast, Japan officially recognizes only three categories of assistance dogs: guide dogs, hearing dogs, and mobility dogs.

- **Guide Dog** : A type of assistance dog trained to help individuals with visual impairments navigate their environment. Guide dogs assist by avoiding obstacles, stopping at curbs or steps, and helping navigate safely and independently.
- **Hearing Dog** : An assistance dog trained to assist individuals who are deaf or hard of hearing by alerting them to important sounds, such as doorbells, alarms, or someone calling their name.

- **Mobility Dog** : An assistance dog trained to help individuals with physical disabilities that affect mobility, such as wheelchair users. They may retrieve items, open doors, and pick up objects from the ground.

These dogs must be trained at designated facilities and undergo formal certification to be granted legal protection. In addition to legal differences, it became clear that the challenges faced by users in each country are shaped by cultural and social factors. In Japan, limited public exposure to service animals has contributed to misconceptions and, at times, discriminatory treatment of users.

These early observations highlighted a broader issue: in Japan, the visibility and societal understanding of assistance dogs remains limited. As I learned more about the multifaceted benefits these dogs provide, including emotional support and enhanced independence, I became increasingly interested in how public education might foster greater awareness and inclusion. This recognition ultimately formed the motivation for this research: to explore how educational interventions can contribute to more informed, empathetic, and inclusive attitudes toward guide dog users in Japan.

1.2. Research Objectives and Contribution

This research explores the development of a new educational tool in the form of a board game designed to enhance learning about guide dogs and their users in Japan. The game was created as a supplementary resource for use in existing guide dog workshops aimed at children. By co-designing the game in collaboration with members of the guide dog community, including users and professionals, the study ensures that the game meaningfully reflects the lived experiences, concerns, and messages these stakeholders wish to convey.

The aim of this research is to support and strengthen existing guide dog education efforts through a more interactive and engaging learning experience. Rather than passively receiving information, children engage in real-life scenarios, make decisions, and encounter the perspectives of guide dog users through game play. Educational games have been shown to support active learning across a variety of contexts and are often more effective than passive instructional methods in fostering deep engagement. This approach promotes not only cognitive understanding

but also emotional engagement and social perspective-taking.

To guide this research, the following research questions were posed:

- How can a co-designed board game be used to enhance disability awareness education about guide dogs and their users among children in Japan?
- In what ways does incorporating perspectives from guide dog users and professionals influence the content and design of the educational tool?
- How do children’s perceptions and understanding of guide dog users change after engaging with the game and supporting activities?

Ultimately, this study seeks to contribute to a broader societal shift toward increased acceptance, support, and inclusion of guide dog users in Japan.

1.3. Thesis Structure

This thesis is organized into six chapters. Chapter 1 introduces the background, research objectives, and overall structure of the study. Chapter 2 reviews the relevant literature on disability awareness, game-based learning, and co-design methodologies. Chapter 3 outlines the concept design process of the board game, including stakeholder engagement, co-design activities, and iterative development. Chapter 4 presents the validation phase, detailing the implementation of the game in workshop settings and analyzing participant responses and observational data. Chapter 5 offers a discussion of proposed design and implementation guidelines informed by the research. Finally, Chapter 6 concludes the thesis with a summary and recommendations for future work.

Chapter 2

Related Works

2.1. Guide Dogs in Japan

In Japan, guide dogs have played a critical role in supporting the independence, mobility, and social participation of people with visual impairments. Despite the profound impact they have on guide dog users' daily lives, the number of working guide dogs has steadily declined in recent years. Between 2008 and 2013, over 1,000 guide dogs were in active service across the country. However, since 2014, the population has declined each year, reaching 836 in 2022 and falling further to 768 in 2024, the lowest figure in more than two decades, even below the 875 dogs recorded in 2000 [9]. This downward trend raises important questions about public awareness, access rights, and the evolving social and legal landscape surrounding guide dog use in Japan. The following section explores key aspects of this context, including legal frameworks, public perceptions, and the broader challenges guide dog users face in everyday life.

2.1.1 Legal Framework and Accessibility

In Japan, the *Act on Assistance Dogs for Persons with Physical Disabilities* was enacted in 2002 to promote the social participation and independence of individuals with physical disabilities. The law formally recognizes three categories of assistance dogs: guide dogs for people with visual impairments, hearing dogs for those with hearing impairments, and mobility service dogs for individuals with physical mobility limitations. While the Act encompasses all three types, this research focuses specifically on guide dogs and the experiences of guide dog users, as guide dogs are the most commonly used type of assistance dog working in Japan.

Under the Act, public facilities, transportation systems, and businesses open

to the general public are required to allow entry to individuals accompanied by certified assistance dogs [7]. Although private-sector workplaces and housing are not legally mandated to comply, the law encourages them to make reasonable efforts to provide access. Access may be restricted only under specific conditions, such as if the dog poses a hygiene risk, appears likely to cause physical harm, or could result in substantial damage to facilities [10] [11].

To qualify for legal protection, the assistance dog must be certified by a designated organization approved by the Ministry of Health, Labour and Welfare. Certification requires that both the dog and user meet a set of regulated standards. Users are required to carry official documentation, which includes identification details of both the dog and handler, the dog’s breed and registration number, the issuing training organization, and the certification date. Assistance dogs must wear a visible identification mark and maintain a high level of hygiene and behavioral control, such as refraining from barking or reacting aggressively in public settings. Users are expected to uphold public safety by ensuring their dogs are properly vaccinated, regularly groomed, and capable of responding to commands reliably [2].

Despite its comprehensive structure, the law contains limitations. Most notably, it does not impose any penalties on individuals or businesses that deny access to certified assistance dog users. As a result, enforcement depends largely on voluntary compliance and public goodwill. This lack of legal consequences undermines the effectiveness of the law in practice and has led to continued cases of refusal of access, particularly in settings such as restaurants, taxis, and retail establishments [2]. Advocacy organizations and members of the guide dog community have consistently called for broader public awareness of the law, as many refusals stem from simple misunderstanding, business owners often assume guide dogs are pets, not legally recognized assistance animals.

“Welcome Guide Dogs” Stickers and Public Messaging

In addition to formal legal protections, the Japanese government and related organizations have promoted the use of “Welcome Guide Dogs” stickers to encourage accessibility and social inclusion. These blue decals, which feature a simple illustration of a guide dog and the phrase “Mōdōken ukeire kangei” (Guide Dogs

Welcome), are intended to signal that a business or facility allows entry to certified assistance dogs.

The initiative was introduced in part by the Ministry of Health, Labor and Welfare and promoted in collaboration with organizations such as the Japan Guide Dog Association. While the sticker carries no legal authority, it serves as a public awareness tool aimed at normalizing the presence of guide dogs in society. The visual cue is particularly useful for users seeking reassurance that they will not be denied entry, and for educating business owners and staff who may be unaware of their responsibilities under the 2002 *Act on Assistance Dogs for Persons with Physical Disabilities*. However, display of the sticker is entirely voluntary, and there are no penalties for not displaying it or for denying access, even in establishments that do not feature the sticker. As such, while the sticker contributes to a more welcoming environment for guide dog users, it operates more as a social encouragement measure than a regulatory mechanism.



Figure 2.1 “Welcome Guide Dogs” Stickers

Service Animals Not Recognized Under Japanese Law

The *Act on Assistance Dogs for Persons with Physical Disabilities* applies exclusively to individuals with physical and sensory disabilities and legally recognizes only three types of assistance dogs: guide dogs, hearing dogs, and mobility service dogs [7]. This means that other types of animals often associated with disability support, such as emotional support animals and therapy dogs, are not included in the legal definition of assistance dogs in Japan. As a result, animals that support people with psychiatric, cognitive, or developmental disabilities, including assistance dogs for anxiety, autism, or post-traumatic stress disorder, are not granted

legal recognition or access rights under the current legislation. Additionally, assistance animals trained overseas or not certified through Japan’s designated organizations are treated as pets in legal and public contexts, regardless of their function or training [6]. This limited scope contrasts with broader international practices. For example, in countries such as the United States, service animals used for psychiatric conditions and emotional support are more widely acknowledged and often granted similar public access rights as physical assistance animals. However, in Japan, the legal framework remains focused on physical mobility and safety, and current legislation does not reflect the growing diversity of service animal roles in disability support.

2.1.2 Public Perceptions of Guide Dogs

Despite legal recognition and formal training requirements, misconceptions about guide dogs and their users remain widespread in Japan. These misunderstandings often stem from limited public exposure to assistance animals and a lack of accurate information about their roles and training. Among the most common misconceptions are that guide dogs are unsanitary in public spaces such as restaurants and stores, and that they experience undue stress from their responsibilities as working animals.

According to the *National Survey on Guide Dog Acceptance* published in March 2025 by the Japan National Federation of Guide Dog Training Associations, the most frequently cited reasons for refusal of entry included concerns that the presence of a guide dog would bother other patrons, particularly those with allergies or a fear of dogs, as well as anxieties about hygiene, such as shedding or the risk of infection [8]. These concerns reflect broader social discomfort and point to a persistent gap between legal policy and public understanding.

Further insight comes from the 2023 *National Survey on Public Awareness of Guide Dogs and Visual Impairment*, conducted by the Japan Guide Dog Association. The purpose of the survey was to understand public perceptions of guide dogs, visual impairment, and the factors influencing acceptance or refusal of guide dogs in society. The survey gathered responses from 1,098 individuals aged 20 to 79, across all 47 prefectures in Japan.

While 76.8% of respondents associated guide dogs with intelligence and disci-

pline, a significant portion still held hygiene-related concerns (Figure 2.2). For example, 8.1% believed that guide dogs could make places dirty, be unsanitary, or damage floors, and 7.1% considered them a nuisance in public settings (Figure 2.3). Most notably, 84% of respondents were unaware that guide dog users are legally responsible for managing their dog's hygiene and behavior. In practice, users undergo extensive training and are responsible for daily grooming, behavior monitoring, and waste management. Yet, around 68% of participants did not know that guide dogs are trained to relieve themselves on command in appropriate locations, without soiling public areas [1].

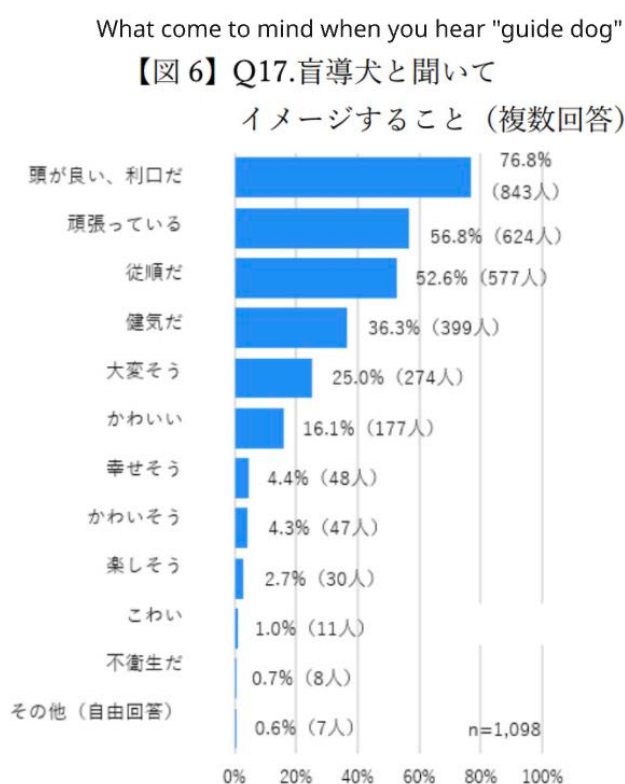


Figure 2.2 2023 National Survey on Public Awareness of Guide Dogs and Visual Impairment conducted by the Japan Guide Dog Association [1]

Such misconceptions directly affect the daily lives and social participation of guide dog users. Even well-meaning individuals may unintentionally contribute to exclusion by questioning a guide dog's presence, refusing access, or attempting

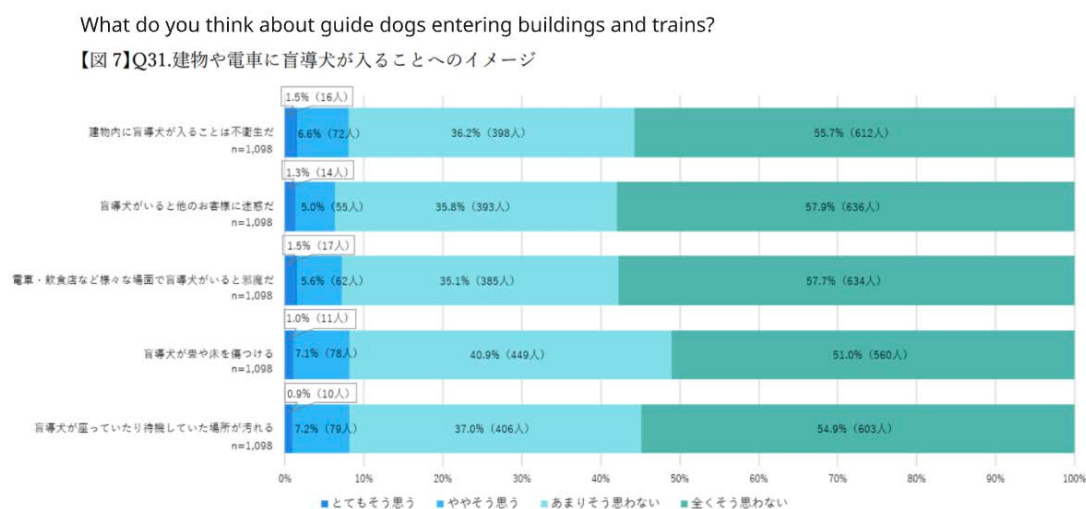


Figure 2.3 2023 National Survey on Public Awareness of Guide Dogs and Visual Impairment conducted by the Japan Guide Dog Association [1]

to interact with the dog while it is working. Such actions create barriers to participation, increase social isolation, and place emotional burdens on guide dog users.

In reality, guide dogs in Japan undergo rigorous training and receive attentive daily care from their users. This includes hygiene maintenance, behavioral management, and consistent grooming. Guide dogs are trained not only for safe navigation but also to remain calm and unobtrusive in public. The partnership between the user and guide dog is built on mutual trust and emotional connection, challenging the assumption that guide dogs are overworked or stressed [3] [10].

2.1.3 Social and Emotional Aspects of Guide Dog Use

Beyond mobility support, guide dogs contribute significantly to the emotional and social well-being of their users. Compared to white cane users, guide dog users often report higher confidence, lower anxiety, and improved quality of life. In 2016, Matsunaka and Koda found that guide dog users in Japan experienced greater satisfaction in emotional well-being, motivation, and social engagement [2].

The relationship between a guide dog and its user is built on trust and daily cooperation. Users often describe their dogs as irreplaceable partners rather than

just support tools. This bond provides not only functional assistance but also emotional support, particularly in unfamiliar or stressful situations.

Guide dogs can also shape social interactions. Some users report more frequent engagement with others, while others feel burdened by unwanted attention. Gravrok et al.(2019) note that visibility associated with guide dogs can both facilitate and complicate public interaction, depending on context [12].

Despite these benefits, public understanding of guide dog partnerships remains limited. Misconceptions, such as beliefs that guide dogs are constantly stressed or overworked, can reduce support for users. Sanders (2000) argues that public education must move beyond functional awareness to address the emotional and relational aspects of guide dog use [13].

2.2. Disability Awareness

Disability is a multifaceted concept, encompassing a wide range of physical, intellectual, and developmental conditions, each existing along a spectrum of severity and impact. While the term “person with disabilities” provides a collective identifier, it’s crucial to acknowledge the inherent heterogeneity within this population; every disability is distinct, and the individual experiencing it is equally unique. For the purposes of this study, this section will primarily focus on literature related to physical disability education and learning experiences. This focus is pertinent given that guide dog users, a key demographic for this research, fall under the category of individuals with visual impairments.

2.2.1 Educational Approaches to Disability Awareness

In order to build a more diverse and inclusive society, it is essential to promote understanding of disabilities and the range of differences that make each person unique. One of the most common approaches to disability education is the awareness workshop, which typically combines an informational session with a hands-on activity [14]. These workshops are implemented across a wide range of settings, from elementary schools to workplaces, with the goal of fostering empathy, reducing stigma, and encouraging inclusive behavior [15].

In recent years, the growing emphasis on diversity and inclusion has contributed to the expansion of such programs in both formal education and community outreach. In Japan, the Basic Programme for Persons with Disabilities explicitly calls for public awareness efforts and welfare education in schools to promote mutual understanding between people with and without disabilities [14].

Introducing disability education at an early age is particularly important, as childhood represents a critical period for shaping social attitudes. Early exposure to accurate and meaningful representations of disability has been shown to promote more accepting and inclusive perspectives later in life. For example, a recent review of school-based disability awareness programs found that multi-component approaches, such as the integration of storytelling, simulation, and structured reflection, are particularly effective, especially when adapted to students' developmental levels [16]. Field research by Lin et al.(2025) investigated the effects of an 8-activity experiential learning program delivered to sixth-graders, including both students with and without special needs [17]. Grounded in Kolb's experiential learning theory, the intervention fostered structured interaction, reflection, and cooperative activities. The results showed improved peer interactions and greater empathy in the affective domain, with students shifting from passive tolerance to a deeper understanding and more supportive attitudes toward peers with disabilities. These outcomes support the value of interactive, age-appropriate, sensory-engaged programming for helping young children internalize inclusive values and counteract discriminatory stereotypes early on.

Another important aspect of disability awareness is ensuring that activities are designed with and led by people with disabilities. Involving individuals with lived experience provides essential context that helps children move beyond generalized assumptions and stereotypes. When people with disabilities share their own stories, challenges, and perspectives, it allows for a more authentic, empathetic, and nuanced understanding of disability. As Goodley (2011) emphasizes, disability should not be reduced to a medical label or abstract concept, but instead understood as a lived and socially constructed experience [18]. Similarly, Liddiard et al. (2019) argue that involving people with disabilities as co-creators in education and research ensures that their voices shape the narratives that represent them [19]. Awareness activities that exclude the voices of people with disabilities risk rein-

forcing simplistic or pity-based narratives. By centering their perspectives, these programs can more effectively challenge ableism and foster meaningful learning.

2.2.2 Effectiveness of Disability Awareness Programs

Disability awareness programs for children and adolescents have shown considerable promise in shaping inclusive attitudes from an early age. In a systematic review of 42 school-based interventions, Lindsay et al.(2013) found that multi-component approaches, those combining simulation, storytelling, guided discussion, and personal interaction, consistently improved students' knowledge and empathy toward individuals with disabilities [20]. These interventions were particularly effective when tailored to students' developmental levels.

Moore and Nettelbeck (2013) similarly evaluated a half-day training program for adolescent boys in Australia that incorporated guest speakers with disabilities, a documentary, simulation activities, and factual information [21]. The study found significant improvements in participants' attitudes toward people with disabilities, which were sustained at a one-month follow-up. Also, Magnusson et al. (2017) implemented a 90-minute, multimodal intervention in primary schools in southern Belize. Developed through a community-university partnership and tailored to local cultural norms, the program led to immediate gains in both disability-related knowledge and positive attitudes among students aged 11-14 [22]. These findings underscore the effectiveness of experiential and socially grounded learning environments for fostering disability awareness among youth.

While much of the focus has been on early intervention, research suggests that such programs remain valuable at later stages of education as well. In 2017, Makio reported that after a single 90-minute lecture, Japanese university students showed marked improvements in their perceptions of people with disabilities, with 80-90% reporting more positive attitudes [23]. This suggests that even brief, well-structured interventions can contribute to shifting societal perspectives across age groups. Beyond theoretical value, these interventions have shown measurable impacts on participants' attitudes, indicating their value as effective tools to facilitate long-term changes in the way disability is perceived within society.

2.2.3 Rethinking Simulation-Based Learning

However, while educational programs have made meaningful progress, significant gaps remain in how they address the social barriers encountered by people with disabilities. Many disability awareness workshops rely on simulation-based activities intended to help participants “experience” a disability firsthand. For example, in visual impairment workshops, it is common to ask participants to wear blindfolds and use white canes to navigate a designated path or try walking with different goggles simulating various types of visual impairments. Although these activities can raise awareness of certain physical challenges, they often risk oversimplifying the lived experience of disability.

Critiques of simulation-based learning in disability awareness are well documented in the literature. These simulations frequently overemphasize individual impairments at the expense of addressing the systemic structural and attitudinal barriers that truly restrict the participation and access of people with disabilities [24]. This perspective is reinforced by subsequent research, which indicates that without proper debriefing or opportunities for direct interaction with disabled individuals, simulation activities can inadvertently perpetuate negative attitudes. These studies have demonstrated that participants in disability simulations may develop judgments of lower capability towards people with disabilities, even alongside increased empathy [25]. Such simulations may also elicit negative emotional responses like anxiety, confusion, and helplessness, without consistently fostering lasting positive attitude shifts or a more profound understanding of the disability [26].

Overall, these findings suggest that while simulation activities may serve as a useful introductory tool, their effectiveness depends on thoughtful design and integration with opportunities for critical reflection and meaningful interaction with individuals with disabilities. Effective educational approaches should not only promote understanding of individual lived experiences but also draw attention to the systemic societal barriers that shape those experiences. At the same time, they should highlight the diverse strengths and contributions of people with disabilities in order to challenge prevailing stereotypes and misconceptions.

2.3. Game-Based Learning

2.3.1 Educational Board Games as Learning Tools

Educational board games are increasingly recognized as effective tools for promoting both learning and social awareness. In contexts such as disability education, they offer an engaging alternative to traditional teaching methods. Alejandria et al. (2023) note that such games enhance understanding by making complex topics more accessible and memorable [27]. Rather than passively receiving information, players interact with content in meaningful ways. Sousa (2023) adds that when guided by structured frameworks like MBGTOTEACH, serious games can promote deep learning and critical reflection, especially on sensitive social issues such as the lived experiences of individuals with disabilities [28].

2.3.2 Discussion and Reflection in Gameplay

A key strength of this board game lies in its ability to foster discussion and encourage curiosity, particularly around complex social topics such as disability and guide dog use. Unlike traditional lectures or simulation-based activities, the game naturally creates moments for players to pause, reflect, and engage in conversation about the scenarios they encounter. These in-game discussions provide a space for players to reconsider their assumptions, ask questions, and explore different perspectives in a collaborative setting.

This aligns with Vygotsky’s (1978) theory of social constructivism, which emphasizes that learning is most effective when it occurs through social interaction and dialogue [29]. Similarly, Kolb’s (1984) experiential learning theory highlights the importance of reflection in transforming experiences into meaningful and lasting understanding [30].

In many cases, people do not actively consider issues related to accessibility or the lived experiences of guide dog users simply because they are not prompted to do so. The game serves as that prompt, offering a structured yet open-ended environment in which participants are encouraged to think critically and engage with unfamiliar perspectives. Observations from play sessions revealed that once players were given space and permission to discuss these topics, rich conversations

Experiential Learning Cycle

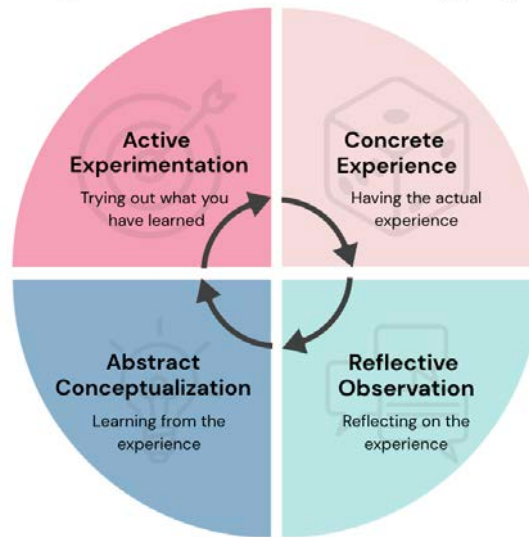


Figure 2.4 David Kolb’s Experiential Learning Theory, 1984

and thoughtful reflections naturally followed. This reinforces the game’s role not only as an interactive learning experience but also as a catalyst for empathy-building and awareness for guide dogs and guide dog users in Japan.

2.4. Co-Designing

2.4.1 Principles and Definitions of Co-Design

Co-design, also known as participatory or collaborative design, is a methodology that involves end users as active contributors throughout the design process [13]. Rather than designing *for* users, co-design emphasizes designing *with* them, treating them as experts in their own experiences. This approach is particularly valuable in projects that address disability, where it is important to move beyond top-down assumptions and instead prioritize inclusion, respect, and lived knowledge [31]. In the context of this research, co-design served as a way to meaningfully involve members of the guide dog community, including users, trainers, and support professionals, in shaping the educational content and mechanics of

the board game. Their firsthand perspectives helped ensure that the game was not only accurate but also empathetic and emotionally grounded.

2.4.2 Applications in Educational Games

In recent years, co-design has gained traction in the field of educational game development as a method for increasing relevance, authenticity, and learner engagement. When games are developed with the direct input of affected communities, they are more likely to capture nuanced realities and foster a sense of ownership among stakeholders [32].

This project applied co-design principles through interviews, collaborative design sessions, and iterative feedback with guide dog users and professionals. Their insights shaped core elements of the game, including event scenarios, key questions, and support mechanisms, ensuring that the game reflected both everyday challenges and moments of connection between users and their guide dogs. These contributions also helped clarify misconceptions and informed the tone of the game to balance realism with approachability for younger learners.

2.4.3 Impact on Learning Outcomes

Co-design not only improves the design process itself but also enhances the educational impact of the final product. Bekker (2015) note that games co-created with relevant communities are more effective at fostering emotional engagement and critical thinking [32]. In particular, they emphasize the value of integrating discussion and reflection opportunities within gameplay, allowing players to collaboratively process complex social issues. In this study, one of the key co-designed features was the inclusion of discussion prompts and scenario-based decision points that encourage players to talk, reflect, and question assumptions about guide dog use. This approach aligns with social constructivist learning theories, which emphasize that learning is most effective when built through interaction and dialogue [29]. The contributions from the guide dog community directly informed these elements, reinforcing the educational goals of understanding and social awareness.

2.5. Summary of Research Gap

While guide dogs are legally recognized in Japan and provide essential support for individuals with visual impairments, public understanding of their role remains limited. Misconceptions about hygiene, stress, and access rights persist, often leading to discrimination and denial of entry to public spaces. Although the *Act on Assistance Dogs for Persons with Physical Disabilities* provides a legal framework, its lack of enforcement mechanisms and limited public awareness reduce its effectiveness.

Educational efforts, including school workshops and simulation activities, have attempted to address these issues, but they often focus on impairment rather than the broader social barriers faced by guide dog users. Moreover, few educational tools highlight the emotional and relational aspects of guide dog partnerships.

Despite the growing recognition of game-based learning and co-design as effective strategies in social education, there is limited research exploring their combined use in the context of guide dog awareness. This study addresses this gap by developing a co-designed board game to foster deeper understanding and meaningful dialogue about the experiences of guide dog users.

Chapter 3

Concept Design

3.1. Game Design Overview

3.1.1 Game Purpose

The board game was developed as an interactive learning experience to support students in understanding the roles of guide dogs and the accessibility challenges their users encounter. Targeted primarily at elementary school students in workshop settings, it encourages active participation through discussion, question-based play, and reflective thinking. Rather than delivering information passively, it engages players through structured prompts related to guide dog use in Japan, fostering empathy, perspective-taking, and inclusive attitudes.

3.1.2 Gameplay Overview

Gameplay takes place on a board where players take turns rolling a die to move along a path, encountering a variety of quiz and scenario-based questions. As they progress, players collect coins, which serve both as progress markers and as resources to receive hints when facing more difficult prompts. Depending on the space landed on, players draw a corresponding card, each designed to promote different levels of understanding and reflection.

Mamechishiki Quiz cards present fun and surprising facts about guide dogs and accessibility. *Challenge Quiz* cards highlight appropriate actions and common misconceptions, encouraging players to think critically about public behavior and support for guide dog users. *Hanashiai* cards prompt players to reflect on new insights or express lingering questions, creating opportunities for dialogue. Finally, *Lucky Paw* spaces reward players with an extra coin for positive engagement.

A typical game session lasts approximately 20–30 minutes and is designed for groups of four participants. The facilitator plays a central role in guiding the session by introducing the rules, supporting players during gameplay, and managing transitions between turns. This structure allows the game to serve not only as an engaging group activity, but also as a catalyst for thoughtful interaction and discussion surrounding the lived experiences of guide dog users.

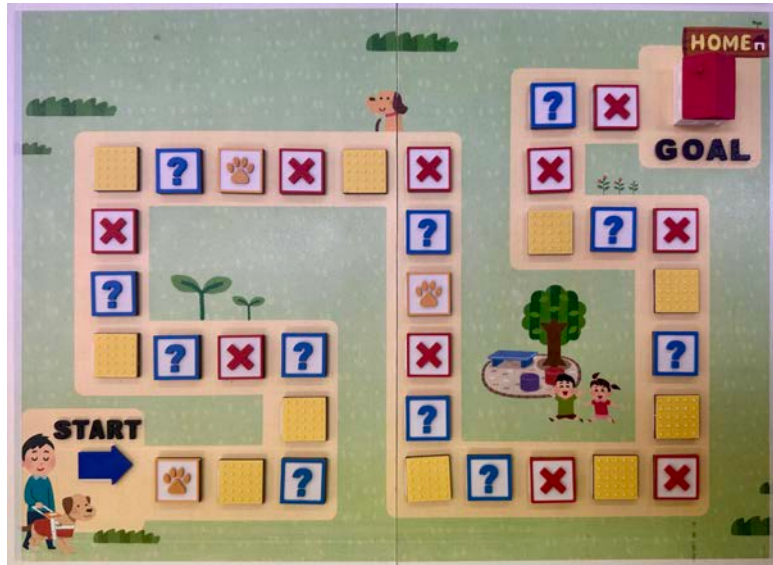


Figure 3.1 Final Board Game Design

3.1.3 Design Frameworks and Learning Theories

The design of this board game draws from established educational and game-based learning frameworks that support engagement, reflection, and conceptual understanding. One such model is the Mechanics-Dynamics-Aesthetics (MDA) framework, which helps designers align game mechanics with intended emotional and cognitive outcomes [33]. By carefully designing elements such as role cards, event tiles, and discussion prompts, the experience encourages empathy, critical thinking, and awareness about guide dog users.

The game also incorporates principles from constructivist learning theory, which emphasizes that learners build knowledge actively through experience. This is reflected in how players interact with realistic scenarios, make choices, and engage in

collaborative discussion. These elements closely follow Kolb’s (1984) experiential learning cycle, in which learning occurs through a process of experience, reflection, conceptualization, and experimentation [30]. The structure of the game supports this cycle by offering moments of action followed by guided reflection and conversation.

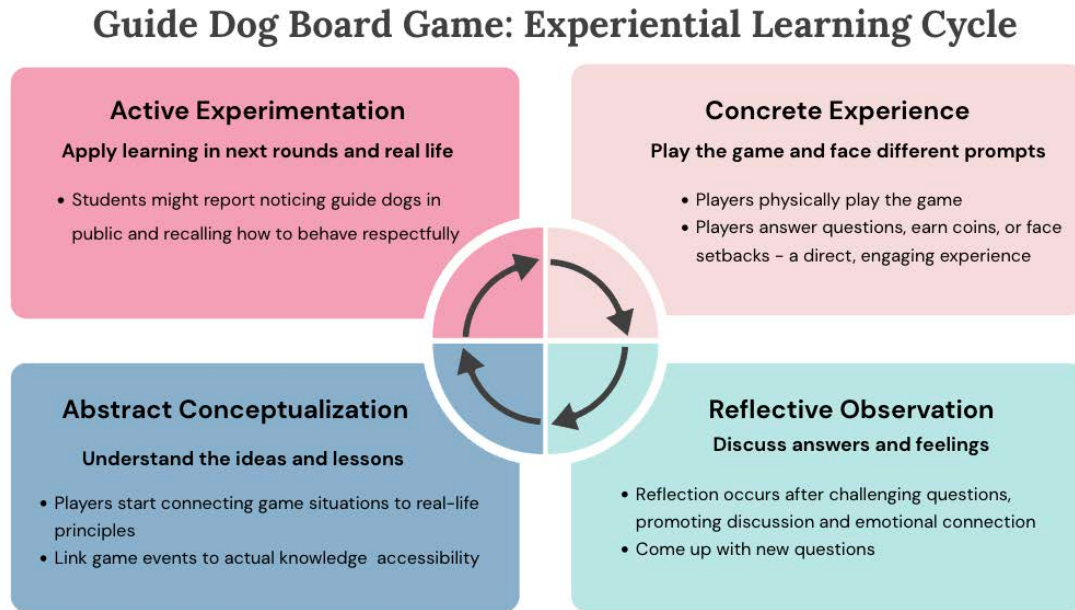


Figure 3.2 Guide Dog Board Game: Experiential Learning Cycle

Additionally, the design was influenced by MBGTOTEACH [27], a framework for serious game development that emphasizes the importance of meaningful goals, balanced gameplay, and narrative integration to enhance learning outcomes. The game uses these principles to ensure that educational objectives are embedded within the gameplay itself, rather than presented as add-ons. For example, challenge questions are connected to real-life issues faced by guide dog users and are framed in a way that invites players to consider their own responses and assumptions. This approach transforms gameplay into a process of guided inquiry, helping players reflect not just on the content, but also on their values and perspectives. These theoretical foundations were crucial in shaping a game that is both engaging and educational, allowing players to learn through active participation and critical reflection.

3.1.4 Settings of Research

This game was developed as a supplemental tool to enhance existing guide dog workshops conducted by the Yachiyo City Council of Social Welfare, an organization that regularly offers disability awareness programming in local schools and community settings. These workshops include guest talks by guide dog users and basic simulation activities designed to promote understanding of visual impairments and accessibility.

While these initiatives provide valuable firsthand perspectives, observations revealed that they may not always fully engage participants in deeper reflection or critical thinking. The game was designed to fill this gap by creating an interactive space where players can explore real-world scenarios, process what they have learned, and reflect on their own assumptions and responses.

Additionally, conventional workshops often require large venues and significant time commitments, which can limit their accessibility and scalability. In contrast, this game offers a flexible alternative that can be used during transitional periods, such as breaks or waiting times, while still reinforcing key concepts. By sparking curiosity and providing repeated exposure to guide dog-related content, the game helps sustain interest and encourages further learning. However, it assumes some foundational knowledge about guide dogs, making it most effective when used in conjunction with an introductory explanation or a broader educational session.

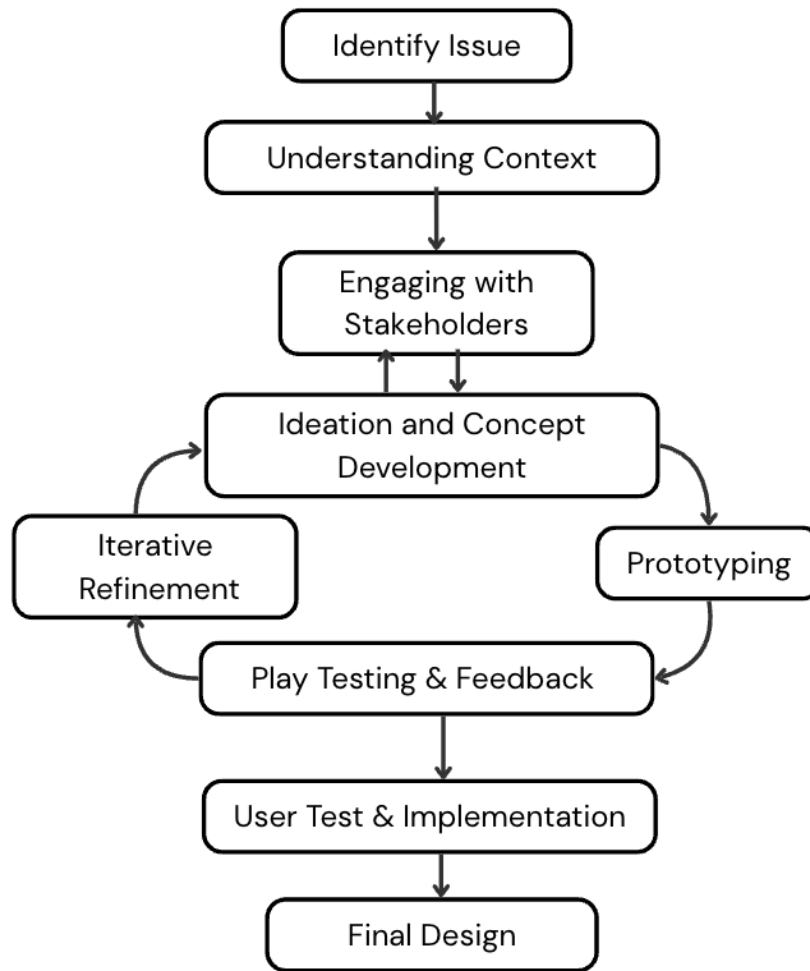


Figure 3.3 Design Process Timeline

3.2. Background and Preliminary Observations

3.2.1 Initial Encounters at Blind Table Tennis Meetups

This study began with a visit to a blind table tennis meetup held twice a month at the Yachiyo Social Welfare Center. Initially drawn by an interest in working with both animals and local communities, I was invited to attend the sessions due to the regular participation of a guide dog user, Yamaki-san.

Blind table tennis, also known as sound table tennis, Showdown, or Swish, is an adapted racket sport designed for individuals with visual impairments. Blind table tennis balls contain small metal components or bells that produce sound, enabling players to track the ball's movement by sound. The game is played on a table with side rails and a net across the middle; however, unlike traditional table tennis, the ball is slid beneath the net rather than being bounced over it. Participants typically wear blindfolds or opaque goggles to ensure equal visual conditions, relying on auditory and tactile cues to guide their play and score by sending the ball into the opponent's goal area [34]. Attending the meetups provided an eye-



Figure 3.4 Blind Table Tennis



Figure 3.5 Tea time after playing

opening introduction to the capabilities and adaptability of individuals with visual impairments. Over the course of four visits, I had the opportunity not only to observe but also to participate in the games. Even without a blindfold, I found the sport remarkably challenging. The players, who navigated the game with precision and skill despite limited or no vision, demonstrated a level of adaptability that deeply impressed me. This direct engagement helped me move beyond abstract understandings of disability, offering a more embodied appreciation of the physical literacy and community spirit present in adaptive sports settings.

In addition to the games, the meetups often concluded with a casual tea and snack time, during which participants and volunteers gathered to talk. These moments provided valuable opportunities for informal conversation, allowing me to ask questions and listen to participants' personal stories and reflections on living with visual impairments in Japan. Through these exchanges, I began to

develop a more nuanced understanding of the daily experiences, social dynamics, and barriers faced by visually impaired individuals—insights that would later inform the development of this research.

It was during one of these sessions that I first met Yamaki-san, a long-time guide dog user and resident of Yachiyo. Our initial conversation sparked a deeper interest in guide dog use and accessibility in Japan, ultimately shaping the focus of this research. The following chapter expands on our subsequent dialogues and her contributions to the co-design process.

3.2.2 Fuji Harness Guide Dog Training Center

There are 11 organizations in Japan that provide guide dogs to individuals with visual impairments. Among them, the Japan Guide Dog Association (JGDA) is the largest, operating four training centers across the country. One of its primary facilities is the Japan Guide Dog Center, Fuji Harness, located at the foot of Mt. Fuji.

Fuji Harness is a comprehensive facility that serves multiple functions beyond guide dog training. It acts as a base for raising and caring for puppies, provides lifelong support for retired guide dogs, and promotes public understanding of visual impairment and the role of guide dogs in society. Operated with the support of donors and volunteers, the center also includes a retail shop offering merchandise such as dog treats and branded apparel to help sustain its activities.

The facility is expansive and thoughtfully designed to support not only guide dogs and users, but also prospective users and visitors interested in learning more. It features dedicated areas for each stage of dog development, hostel-style accommodations for users undergoing training, and exhibition zones aimed at public education. Informational posters line the walls, and historical displays provide context about the evolution of guide dog services. Daily demonstrations, offered twice a day at no cost, showcase how guide dogs assist with navigation tasks such as ascending and descending stairs. Guided tours further enhance visitors' understanding of the training process. In addition to its regular programming, the center also hosts larger-scale events throughout the year, many of which are designed specifically for children, helping to cultivate awareness of accessibility and disability issues from an early age.



Figure 3.6 Demonstration



Figure 3.7 Facility Tour

One of the most memorable moments from the visit came during the guided tour and demonstration, where staff demonstrated how guide dogs follow user commands, navigate stairs and corners, and adjust their pace to match the users' movements. Observing these interactions in real time offered a clearer understanding of the coordination and communication required between dog and user. This experience helped dispel the common misconception that the guide dog independently leads the way while the user simply follows. In reality, successful navigation depends on a partnership grounded in trust and teamwork.

This became even more evident upon learning about the intensive training that guide dog users must undergo. Users live on-site and participate in immersive sessions where they practice working with their dogs and learn to give precise verbal and physical cues. The process is not merely about being paired with a trained animal, but about building mutual trust, responsiveness, and shared understanding. The visit highlighted the effort required from both the dog and the user, reinforcing the idea that guide dog navigation is a learned skill grounded in communication and cooperation.

The visit to Fuji Harness emphasized the organization's commitment not only to technical training but also to community engagement and public education. Through hands-on demonstrations, accessible materials, and immersive user training, the center fulfills its role as both a specialized training facility and a public-facing institution that promotes deeper understanding and social inclusion.

3.2.3 Guide Dog Support Center Workshops

In Japan, several organizations are dedicated to supporting guide dog users and promoting public understanding of their needs. One such organization is the Guide Dog Support Center, *Ippan Shadan Hōjin Mōdōken Sōgō Shien Sentā*, which engages in community outreach, public education, and fundraising. Its initiatives include hosting awareness workshops, providing direct support to guide dog users, and selling charity goods such as guide dog-themed stationery, plush toys, and beverages.

In July 2024, the organization participated in a two-day event called the Summer Kids Festival (*Natsu no Wakuwaku Kizzufesu*) in Nihonbashi, where they held a series of interactive workshops for children and their parents. Each session included a talk by a guide dog user followed by a hands-on simulation activity. The target participants were primarily elementary school students accompanied by their guardians.

During the talk session, a simple interactive quiz was conducted in which students placed stickers on the answers they believed were correct. This activity served not only as a way to assess their initial understanding but also as an effective strategy to maintain engagement. It provided a brief physical break from sitting, which helped re-energize the students and sustain their attention during the remainder of the session. Incorporating movement and participation in this way created a more dynamic and learner-centered environment.

I assisted in facilitating the hand guidance simulation activity, which was designed to engage both adults and children. The activity began with parents practicing proper hand guidance techniques, leading a facilitator through a maze-like setup of tables while offering both physical guidance and verbal instructions. At each designated station, children, blindfolded to simulate low vision, used their sense of touch to identify objects. For example, at the first table, children were asked to distinguish between a pen and an eraser, while at the second table, they were guided by their parents to choose a small guide dog-themed gift such as a keychain or bookmark. The activity concluded with a short post-session questionnaire.

Observing these workshops provided valuable insight into how children of different ages engage with educational activities. Some participants showed sustained



Figure 3.8 Guide dog user talk session and hand guidance activity table setup

curiosity and asked thoughtful questions, while others appeared less engaged, possibly attending only at the request of their guardians. The hand guidance activity appeared too complex for younger children to fully grasp, whereas older children sometimes found it overly simplistic. These age-related differences suggest the importance of tailoring content and structure based on the developmental level of the audience.

Despite its effectiveness in fostering empathy and understanding, the simulation activity presented logistical challenges. The setup required significant physical space to arrange the maze of tables, and the layout had to be reset after each session. Only two groups could participate at a time, leading to wait times for others. With each session constrained by time, only three or four groups could complete the activity. These limitations highlighted the need for an alternative that could deliver similar educational value in settings with less time, space, or staffing. This need ultimately informed the design of the board game.



Figure 3.9 Question Board and off duty guide dog

3.2.4 KMD Forum 2024

Building on insights from previous workshops, I was interested in exploring public understanding of guide dogs in a different setting. Each November, Keio University Graduate School of Media Design holds the KMD Forum, a showcase event where students and researchers present their work to the public through exhibitions and interactive workshops. At this event, I conducted a simple quiz activity to gauge public knowledge about guide dogs and their users. I asked participants, “Who decides the timing to cross the crosswalk: the guide dog or the guide dog user?” Participants placed stickers on one of two options, “guide dog” or “guide dog user,” based on what they believed to be the correct answer.

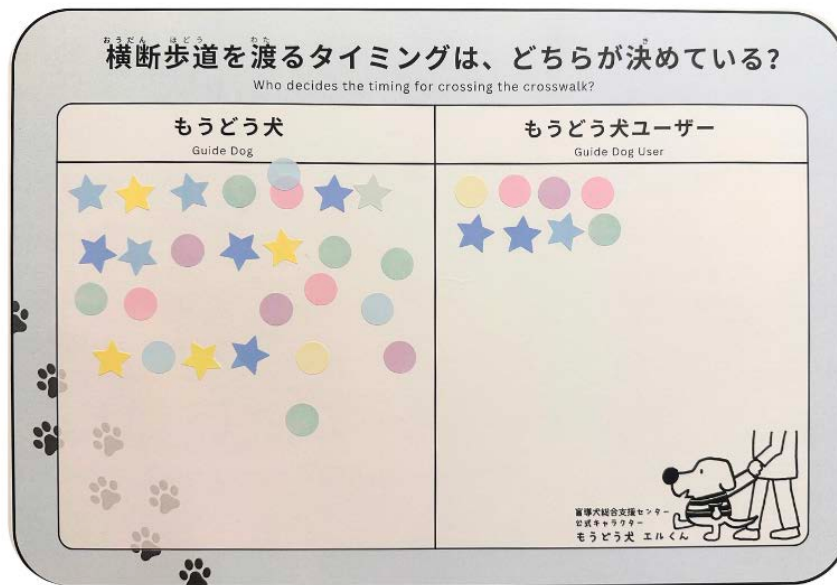


Figure 3.10 Question Board at KMD Forum

As shown in the results, the majority selected “guide dog,” which is actually incorrect. While guide dogs are highly trained, they are still animals and cannot interpret traffic lights or understand traffic laws. It is the guide dog user who listens to surrounding sounds, such as traffic flow and pedestrian signals, to decide when to cross, then gives a verbal cue to the guide dog. Once this was explained, many participants responded with remarks like “Oh, of course” or “That makes sense.” This simple yet engaging activity revealed how easily misconceptions about guide dogs can persist when not directly addressed. It served as a quick but powerful learning moment that emphasized the collaborative relationship between the guide dog and its user. Overall, this exercise provided a helpful baseline for understanding how little many people in Japan know about guide dogs and the roles they play in everyday life.

3.2.5 Yachiyo Social Welfare Workshops

To gain a deeper understanding of how awareness initiatives are conducted for children in Japan, I attended several workshops held at a middle school in Yachiyo City. These workshops were organized by the Yachiyo Social Welfare Council,

which conducts over 30 workshops annually on a range of topics, including earthquake evacuation and disability awareness. Their programs target a broad audience, from elementary school students to working adults, and are adapted to suit different educational levels and contexts.

I attended a disability awareness workshop at a local middle school, where students could choose between two sessions: one focused on wheelchair users and the other on guide dog users. The guide dog session began with an informational talk delivered by a representative from the Yachiyo Social Welfare Council and Yamaki-san, a local guide dog user, who attended with her guide dog, Fururu. Following the talk, students participated in a white cane simulation exercise. Working in pairs, one student was blindfolded and used a white cane, while the other provided verbal and physical guidance along a designated route around the school.



Figure 3.11 Guide dog user Yamaki-san with middle school students



Figure 3.12 White Cane Simulation Activity

A key observation during the workshop was the amount of time required to

carry out the white cane simulation activity. For safety reasons, each pair of students proceeded one at a time to maintain adequate distance from the pair ahead. Given the number of participants, this led to extended waiting periods. After completing the course, students returned to the classroom and switched roles with their partners to ensure that both experienced the activity. During these intervals, some students became restless and talkative, and the guide dog user, Yamaki-san, had to kindly ask them to lower their voices out of consideration for her guide dog, Fururu. Although the white cane simulation is a standard activity in many visual impairment awareness workshops, it is often conducted in familiar settings. In this case, the route took place within the students' own school building. While the course included elements such as staircases and hallway turns, several students remarked that the activity "was not that difficult" due to their familiarity with the environment. In addition, some students played with the white canes, using them to poke or joke with classmates, slightly compromising the intended seriousness of the exercise.

It was insightful to observe how middle school students interacted with the guide dog user and what kinds of questions they asked. Many appeared genuinely curious, and the session provided a rare opportunity for students to directly engage with someone who uses a guide dog in daily life.

3.2.6 Key Takeaways

The blind table tennis meetups offered an important initial point of engagement with the visually impaired community. Observing and participating in the games provided a more embodied understanding of the physical coordination and adaptability required in adaptive sports. Informal conversations held during the post-game tea and snack time further deepened this understanding, as participants openly shared their daily experiences and the social realities of living with visual impairment in Japan. These exchanges offered important context that helped deepen my awareness of the social dynamics and barriers faced by this community.

The workshops highlighted several practical considerations in the design of disability awareness programs. Both sessions required considerable time, space, and personnel to manage the activities, and periods of inactivity were common as

participants waited for their turn. For younger audiences, these gaps in engagement risked reducing the effectiveness of the overall experience. One key insight was the value of incorporating supplementary, low-resource activities that participants could complete independently while waiting. Such additions could help maintain attention and reinforce learning, ultimately enhancing the accessibility and impact of guide dog awareness initiatives.

3.3. Co-Design Process

To illustrate the co-design process, Figure 3.13 provides an overview of the key stakeholder groups involved in the development of the guide dog board game. These included guide dog users, welfare professionals, educators, and community members. Each group participated at different levels of involvement, with varying degrees of influence on the game’s content, mechanics, and implementation. All stakeholders contributed meaningfully by sharing their unique expertise and lived perspectives.



Figure 3.13 Stakeholder collaborative network

3.3.1 Stakeholder Groups and Roles

The co-design process brought together a range of stakeholders whose input was essential to shaping the development and implementation of the guide dog awareness program. Each group contributed unique perspectives, experiences, and expertise that informed various aspects of the design.

Guide Dog Users and Individuals with Visual Impairments

Guide dog users and individuals with visual impairments contributed valuable perspectives based on their daily experiences. Their input, gathered through interviews and informal conversations, shaped the content and framing of the game, particularly in addressing public misconceptions and accessibility challenges. They also offered suggestions to enhance the board game's accessibility for players with limited or no vision.

Guide Dog Professionals

Guide dog professionals, including guide dog trainers and staff from organizations such as the Guide Dog Support Center, contributed valuable technical expertise regarding guide dog behavior, training protocols, and the dynamics of user dog interaction. In addition to advising on appropriate content for educational purposes, they also provided feedback on how to frame information in a way that would be accessible and easily understood by younger audiences.

Educators and Welfare Staff

Teachers from after-school programs (gakudō) and staff from the Yachiyo Social Welfare Council were instrumental in organizing and facilitating workshops. Their insights into workshops targeting kids and classroom dynamics helped tailor the activities to suit the needs and attention spans of younger participants.

Community Members

Community members of Yachiyo—including students, parents, and other visitors—played an important role as informal evaluators during the initial proto-

typing and showcase sessions. Their reactions, engagement levels, and feedback helped validate the educational impact and revealed which aspects of guide dog use sparked the most interest. These insights informed revisions to the game content and highlighted the types of questions and themes that resonated with a general audience.

3.3.2 Engaging with Guide Dog Users

One of the key contributors to the co-design process was Yamaki-san, a long-time guide dog user and resident of Yachiyo. With over 15 years of experience partnering with guide dogs, she is currently working with her third guide dog, Fururu. Actively involved in guide dog advocacy, she frequently participates in awareness workshops to share her experiences and promote greater understanding. With extensive lived experience navigating public spaces in Japan alongside her guide dogs, Yamaki-san played a pivotal role in identifying both the everyday challenges and persistent societal misconceptions faced by users.

Through several in-depth conversations and ongoing informal exchanges, she offered valuable insight into not only the logistical aspects of guide dog use but also the emotional dimensions of the user-dog relationship. One extended interview with Yamaki-san, in particular, proved instrumental in shaping the direction of this study. She spoke candidly about the realities of navigating public spaces in Japan. Many of the challenges she described, such as being denied entry to cafes or encountering people who attempt to interact with the guide dog despite its working status, highlight the social barriers that continue to affect users on a daily basis. As someone with personal experience in a different cultural context, I found it particularly striking that these issues, which might be considered less common elsewhere, remain widespread in Japan.

What stood out most was the emotional depth of the bond Yamaki-san described between herself and her guide dogs. She emphasized that successful mobility depends not simply on training, but on mutual trust, love, and commitment. To her, Fururu is more than a mobility aid; he is a member of the family and a vital partner who enables greater independence and social participation. Before receiving her first guide dog, Yamaki-san recalled feeling anxious about going out alone. Her confidence has grown over the years through the bond she formed with

each dog.

When asked what she most wished others understood about guide dogs and their users, Yamaki-san again stressed the importance of recognizing the guide dog as a partner, not a tool. She expressed concern that the emotional labor and responsibility borne by both user and dog are frequently overlooked by the public. This was demonstrated in her account of the challenges she faced when adjusting to a new guide dog following the retirement of her first. Although users can sometimes trial several dogs to find a compatible match, she was committed to building a relationship with her assigned partner. Despite early struggles, she persevered, and a strong bond eventually developed. This story not only reflects her personal determination but also highlights the complexity and adaptability required in such partnerships.

Overall, these conversations reveal that being a guide dog user entails far more than receiving a trained assistance animal. It demands emotional resilience, continuous learning, and a deep sense of mutual responsibility. Yet despite these efforts, guide dog users often face exclusion and discrimination. Yamaki-san's insights emphasize the pressing need for broader public understanding, not only of what guide dogs do, but also of the strength, dedication, and agency of the individuals who rely on them. A greater societal awareness of this human-animal partnership could contribute significantly to fostering a more inclusive and compassionate environment.

3.3.3 Input from Guide Dog Professionals

Key professional input was provided by staff at the Guide Dog Support Center, a prominent organization involved in public education and advocacy for guide dog users. To better understand the support and outreach side of the guide dog community, I reached out to the center, where staff were generous with their time and insights. They invited me to observe and assist with their children's awareness workshops, discussed previously, and later welcomed my continued participation at public events, including helping manage a charity booth selling guide dog-themed merchandise.

At one such event, the Japan Guide Dog Association was also present, offering guide dog demonstrations and collecting donations. This provided an opportunity



Figure 3.14 Guide Dog Support Center charity goods booth

to speak directly with professional guide dog trainers. Though the game was still in its prototyping phase, they expressed strong support for the initiative and recognized its potential as an educational tool. They also offered helpful insights into the kinds of questions children typically ask, which contributed further to refining the game's content and framing.

These experiences offered valuable opportunities to observe how the general public engaged with educational materials and expressed curiosity about guide dogs. The popularity of dog-themed items often served as an approachable entry point for dialogue. These informal interactions helped surface common questions and misconceptions, which informed the types of questions and topics ultimately included in the game.

Overall, professionals from both organizations brought a complementary perspective to that of guide dog users. While users emphasized the emotional bond with their dogs and the challenges of daily life, professionals focused on how the broader public could play a supportive role. Staff from the Guide Dog Support Center, for instance, encouraged inclusion of content that explains how others can assist guide dog users in public spaces, such as calling out before offering help or avoiding distractions to working dogs. They also emphasized the need to raise awareness about broader accessibility issues, including tactile paving and audible traffic signals. These professionals played a critical role in shaping the

game’s educational components. Their insights ensured that the game remained age-appropriate, accurate, and relevant to real-world contexts, while also helping to bridge the gap between lived experiences and public understanding.

3.3.4 Insight from Educators and Welfare Staff

Staff from the Yachiyo Social Welfare Council and local educators played a meaningful role in shaping the development of the educational game. Drawing on their experience working with children across a range of age groups, they offered targeted feedback on student behavior, attention spans, and strategies for maintaining engagement. Their advice helped refine both the structure and content of the game, including the recommendation to balance information with interactivity through the use of simple visuals and age-appropriate language to enhance accessibility.



Figure 3.15 Getting feedback from Yachiyo Social Welfare Council staff

In addition to these contributions, observations from various middle school workshops organized by the welfare council provided practical insights into effective workshop flow and facilitation. Although these sessions were initially attended for observational purposes, they also became valuable opportunities to learn effective facilitation techniques, such as crafting engaging introductions and

integrating visual support into explanations. I was also able to observe how students interacted during the activities, as well as the depth of their discussions and reflections, which provided further guidance on how to structure questions and prompts within the game. The combined input from educators and welfare staff was instrumental in ensuring that the final product was age appropriate, accessible, and engaging for a diverse range of learners.

3.3.5 Feedback from Community Participants

To gain feedback from the community, the board game was showcased at *Minna no Fukushima Center Matsuri*, a monthly community event hosted by the Yachiyo City Social Welfare Center to engage individuals of all ages in welfare-related activities. The game received positive feedback from visitors, who described it as a fun and accessible way to learn about guide dogs. Many participants expressed interest not only in the gameplay itself but also in the creative process behind its components. Several attendees actively tested the game, interacted with the materials, and responded to sample questions.

Observations from the event revealed important insights regarding age suitability and prior knowledge. Children under the age of ten often struggled to grasp concepts related to guide dogs and disability, whereas participants in grade five and above were better able to engage with the content. Additionally, individuals with no prior exposure to guide dogs had difficulty relating to certain scenarios, as the game assumes a foundational understanding of the topic. These findings suggest that the game is best positioned as a follow-up activity within a guide dog awareness workshop, where participants are introduced to key concepts before playing.

This public user test also led to several refinements in the game's design. It became clear that the wording of questions and event cards was particularly impactful. Nuances in translation between English and Japanese sometimes created confusion or reduced engagement, emphasizing the need for clarity and cultural appropriateness. Furthermore, observing which types of questions generated meaningful discussion versus those that elicited brief factual responses helped shape the final balance of content and reflection.

Notably, feedback was also received from a member of the blind table tennis

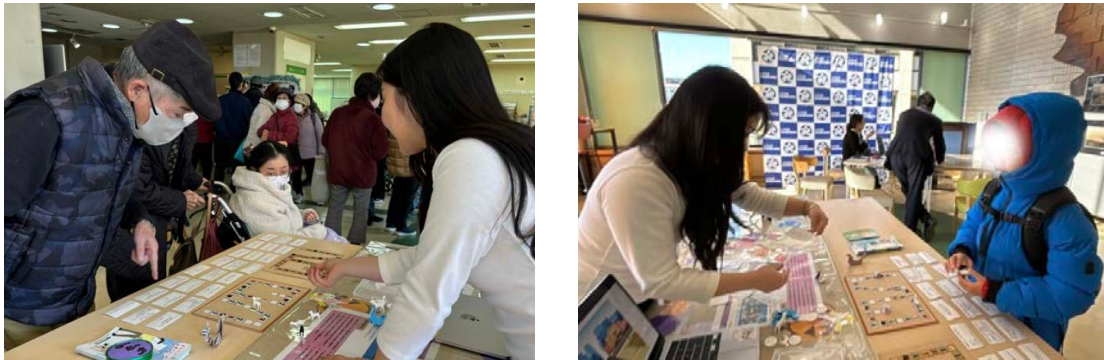


Figure 3.16 Community members testing game at *Minna no Fukushima Center Matsuri*

group who was present at the event. Using her hands, she traced different versions of the 3D-printed board and offered valuable insights on physical accessibility. She noted that straight-line paths were much easier to follow than curved ones, and that maintaining distinct spacing between each tile improved tactile recognition. Additionally, she suggested that increased color contrast would benefit players with low vision, as many individuals can still perceive contrasting colors. This feedback directly informed adjustments to the final board layout, including the shape of the paths and the design of raised elements to enhance navigability and clarity (Figure 3.17).



Figure 3.17 Person with visual impairments touching prototypes

3.3.6 Summary of Key Outcomes

This subsection consolidates the most significant findings that emerged through collaboration with guide dog users, professionals, educators, and community participants. These insights informed both the content and structure of the game, ensuring it was grounded in lived experience and educational relevance.

- **Accessibility Considerations:** Feedback from guide dog users and individuals with visual impairments emphasized the importance of tactile clarity and visual simplicity. Adjustments included the use of large text, high-contrast visuals, and clear iconography to improve accessibility.
- **Content Relevance and Framing:** Professionals from guide dog organizations guided content development by highlighting common public misconceptions, appropriate terminology, and areas where additional public education was needed, particularly regarding how to support guide dog users in everyday settings.
- **Educational Design and Engagement:** Educators and welfare staff offered advice on maintaining student engagement and adapting language for younger learners. Their recommendations led to the inclusion of visual aids, simplified language, and reflective discussion prompts.
- **Public Curiosity and Misconceptions:** Feedback from community members during prototype testing identified high-interest topics such as guide dog training and the emotional bond between user and dog. These insights helped prioritize content areas and refine the game's questions and activities.
- **Design Adjustments:** Revisions were made to simplify card language, introduce tactile and visual markers, and restructure the game to sustain interest across different age groups. Reflective pauses were also added to encourage discussion and deeper learning.

Overall, co-design efforts played a critical role in ensuring that the game was not only accurate and informative but also inclusive and engaging for its intended audience. The collaborative process also strengthened the relevance and usability of the final product within educational settings.

3.4. Iterative Prototyping

This section outlines the five major phases of prototyping undertaken in the development of the guide dog board game. Each phase involved testing different design elements, materials, and gameplay mechanics, informed by stakeholder feedback and iterative design evaluation.

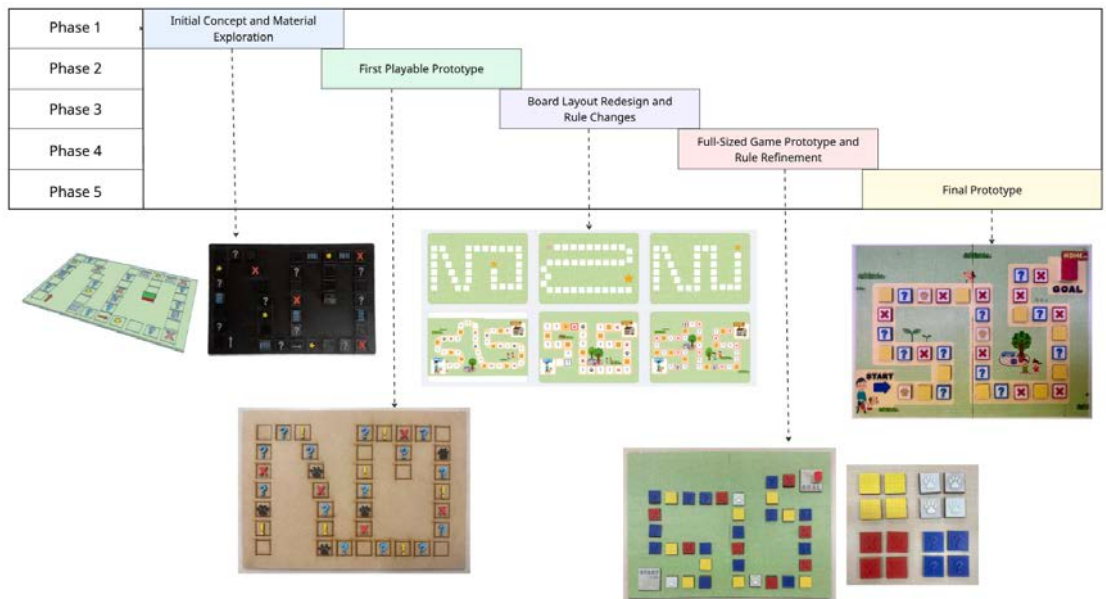


Figure 3.18 Prototyping phases timeline

3.4.1 Phase 1: Initial Concept and Material Exploration

Focus

This initial phase focused on developing the foundational concept of the board game while exploring early gameplay structure and material options. The goal was to create a format that would encourage active engagement and reinforce learning about guide dogs through repeated exposure to educational content.

Initial Game Design

A circular board layout was introduced to promote continuous play, allowing players to remain engaged by repeatedly landing on various spaces. This approach reduced the influence of luck and ensured more frequent interaction with

the game's core content. Four distinct types of spaces were conceptualized, each associated with a corresponding symbol and card deck:

- Question space: Basic facts and trivia about guide dogs and their users.
- Obstacle space: Scenario-based challenges a guide dog user might face in public.
- Distraction space: Minor setbacks such as moving backward or skipping a turn.
- Lucky space: Random benefits such as gaining extra coins or bonus movement.

To prototype the physical components, small-scale 3D-printed tiles were produced. Symbols for each space were manually colored using paint pens to enhance visibility. Coin and dog-shaped player pieces were also printed using black and white filament to test different sizes and assess tactile clarity.



Figure 3.19 3D Printed Board

Initial Gameplay Mechanics

The core mechanic centered around players earning coins by answering questions correctly. Once a player collected a predetermined number of coins, they could advance to the center of the board to finish the game. This reward system reinforced learning through repetition, as players needed to continue engaging with question spaces in order to win.

Testing and Feedback

Initial testing focused on evaluating the material properties and playability of the

components. It was observed that smaller dog-shaped pieces were too fragile and often broke when removed from the printer supports. For coins, a diameter of approximately 30mm was identified as ideal—small enough to fit comfortably in hand but large enough to prevent loss or choking hazards for younger children. While the small-scale tiles allowed for initial experimentation, the overall size of the board and pieces was not well-suited to a group gameplay setting.

Takeaways

- 3D printing was too time-consuming and impractical for larger-scale boards.
- Smaller dog figures were prone to breaking; coin size needed to be optimized for handling and safety.
- Symbols and colors required more contrast for visibility.
- Core gameplay structure was promising, but cards and rules were still underdeveloped.
- The need for a larger board layout became evident for effective group play.

3.4.2 Phase 2: First Playable Prototype

Focus

This phase focused on constructing the first fully playable version of the board game. Key goals included solidifying the rules, refining material choices, and producing a complete set of question and scenario cards to evaluate both the game's mechanics and its educational effectiveness.

Game Design Changes

While the circular layout from Phase 1 was retained, the board was scaled up and fabricated using laser-cut MDF tiles arranged on an A4-sized board. This material provided greater durability and a more professional finish compared to 3D-printed tiles. Symbols representing each space type were laser-cut and painted using bold colors to improve visual contrast and make the game more engaging.

A full set of cards was developed for the four space types, ensuring a cohesive experience aligned with the educational objectives of the game:



Figure 3.20 Laser Cut Board



Figure 3.21 Components used in the game: cards, coins, dice, and player pieces

- Question cards: Multiple-choice and true/false questions that test players' knowledge about guide dogs and their users.
- Obstacle cards: Scenario-based prompts simulating accessibility challenges encountered by guide dog users; designed to foster discussion and empathy.
- Distraction cards: Minor setbacks reflecting real-world challenges guide dog users face in public (e.g., move back spaces or lose a turn).
- Lucky cards: Positive actions individuals can take to support guide dog users, rewarding players with advantages like bonus coins or extra moves.

Gameplay Mechanics Changes

This version introduced a clearer objective: players would collect five coins through correct answers in order to proceed to the goal space. The balance between challenge and reward was intended to keep players motivated while exposing them to a variety of scenarios. However, the mechanics also revealed areas in need of refinement, particularly in scoring fairness and game flow.

Testing and Feedback

A playtest was conducted with graduate students from Keio University Graduate School of Media Design. While none had significant prior knowledge of guide dogs in Japan, they provided valuable insights into how accessible and engaging

the gameplay was for those new to the topic. Participants completed pre- and post-game questionnaires, and gameplay was preceded by a short explanation of the rules and background.



Figure 3.22 First playtest with KMD students

Players reported increased awareness of the challenges faced by guide dog users and indicated that the game prompted them to reflect on their own assumptions and privileges. The session lasted approximately 40 minutes, including questionnaires and post-game discussion. Two critical issues emerged: first, the dual scoring system (coins and finishing order) was found to be unbalanced, giving an advantage to players who took more turns. Second, the A4-sized board proved too small for comfortable group play, particularly when multiple players were seated around the same table.

Takeaways

- A complete card set improved gameplay flow and introduced varied learning moments.
- Coin-based scoring required revision to prevent late-turn player advantage.
- Rules and transitions needed clarification for smoother facilitation.

- A4 board size was too small; a larger A3 format was necessary for better visibility and group interaction.

3.4.3 Phase 3: Board Layout Redesign and Rule Changes

Focus

This phase focused on refining the board layout and restructuring the rules to better accommodate the flexible time frames of workshop settings. The aim was to make the game playable and meaningful within varying session lengths, particularly within the commonly available 20-30 minute window. Adjustments were made to optimize gameplay, enhance interactivity, and ensure that the learning objectives remained clear and achievable regardless of time constraints.

Game Design Changes

The original circular layout was reconsidered, as it proved too time-consuming for the typical 20-30 minute duration allocated for workshops. A traditional linear map design, with a clear starting point and end goal, was determined to be more suitable. This format offers greater visual clarity and is easier for children to conceptualize, as the objective of reaching the goal becomes immediately understandable and intuitive. To explore alternatives, several layout configurations were prototyped online and printed using A3-sized paper. This format struck a balance between visibility and table space, and informal tests confirmed that it accommodated four players comfortably. The number of spaces was reduced and adjusted to ensure that a full round of gameplay could be completed in 30 minutes.

Input from individuals with a background in game design was also incorporated during this phase. Their feedback emphasized the need for deeper player engagement and more meaningful use of in-game items. In earlier versions, players simply collected coins to reach the goal, which led to a focus on speed of collecting the coin over reflection. To shift emphasis back to learning, coins were reimagined as functional resources—players could now exchange them for hints when responding to challenging cards.

Additionally, the types of board spaces were revised to introduce new interactions and better align with learning objectives. Each space type had a distinct action and purpose:

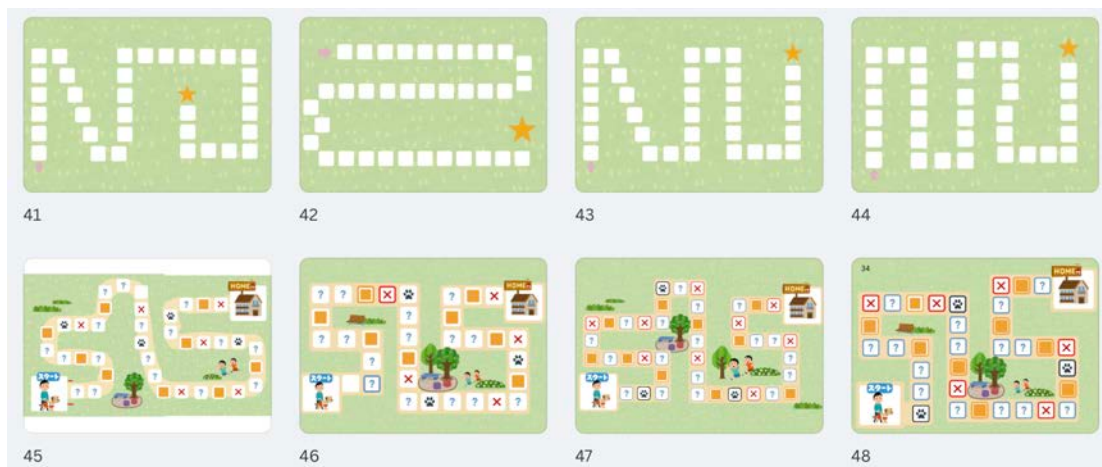


Figure 3.23 Examples of different board game layout designs

- Question Space:** Multiple-choice questions testing players' knowledge of guide dogs and their users.
Action: If answered correctly, the player moves forward an extra space. A coin can be spent to receive a hint.
- Event Space:** True/false questions based on real-life scenarios.
Action: Incorrect answers result in a setback, such as moving back two spaces or losing a turn. Players can use a coin for a hint.
- Discussion Space:** Open-ended prompts encouraging players to reflect and share their thoughts.
Action: Players who actively contribute to discussion receive a coin as a reward.
- Lucky Paw Space:** A rare advantage space.
Action: Players gain a free coin or a similar positive outcome.

Gameplay Mechanics Changes

In this phase, coins gained strategic value. Rather than serving only as a way to win, they became tools that could influence player choices, reinforcing learning while maintaining engagement. The rebalanced mechanics encouraged thoughtful participation and reduced the speed-based focus of previous prototypes.

Testing and Feedback

Informal testing was conducted with Keio Media Design graduate students in a casual, iterative format. The A3-sized board proved successful for visibility and shared interaction. A layout with approximately 30 spaces consistently resulted in a play session lasting less than 30 minutes, which aligned well with the workshop time limits.

During testing, participants noted that the difference between Question and Event cards was sometimes unclear, especially when content overlapped. This feedback pointed to the need for better category distinction in future versions of the questions.



Figure 3.24 Paper layout play test

Takeaways

- A3 board layout with ~30 spaces balanced playtime and visibility well.
- Coins became more meaningful as tools for strategic decision-making.
- Revised space types introduced greater interactivity and reflection.
- Overlap between question types revealed the need for clearer categorization.

3.4.4 Phase 4: Full-Sized Game Prototype and Rule Refinement

Focus

This phase focused on producing a complete, full-sized A3 version of the board game with clearly defined rules, finalized space actions, and improved modularity. The objective was to create a version that was both portable and adaptable for workshop environments, while solidifying the overall game structure.

Game Design Changes

To maintain portability while achieving the desired A3 board size, the board was constructed from two A4-sized MDF sheets taped together. This allowed the board to be folded for storage and transport. Each space (23mm square) was laser cut from the MDF, and the cutouts were used as movable space tiles. Symbols for each space type were 3D printed in color to improve contrast and visual clarity.

To enable customization based on the players' age or prior knowledge, magnets were embedded into both the board and individual tiles. This allowed facilitators to rearrange the layout of the board spaces as needed while ensuring that the tiles remained in place during gameplay. However, a board design issue emerged: some of the magnetic tiles did not align perfectly with the base board, either overlapping or exposing the underlying magnet if misaligned.

Gameplay Mechanics Changes

In this phase, the four board space types were renamed using Japanese terms, reflecting the local educational context. Each space type was also assigned a specific, clearly defined action to improve consistency and understanding:

- **Mamechishiki Quiz (formerly Question):** Multiple-choice or true/false questions presenting light, interesting facts about guide dogs and their users (e.g., how many years a guide dog typically works).

Action: If answered correctly, the player moves forward one space. If incorrect, no action is taken. Players may spend a coin to receive a hint.

- **Challenge Quiz (formerly Event):** Scenario-based or factual questions about essential knowledge, such as how to behave when encountering a guide dog in public.

Action: Incorrect answers result in a two-space penalty. Players may use a

coin for a hint.

- **Hanashiai Question (formerly Discussion):** Open-ended prompts designed to encourage reflection on real-life situations and accessibility challenges faced by guide dog users.

Action: If the player shares a response, they earn a coin.

- **Lucky Space (formerly Lucky Paw):** Advantage spaces offering small positive outcomes.

Action: The player receives a free coin.

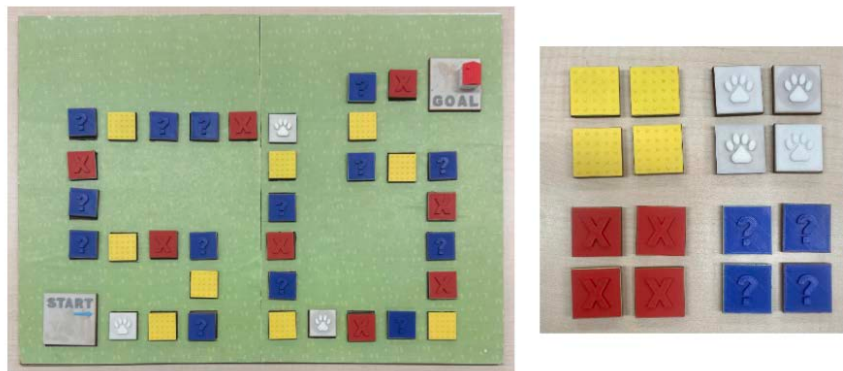


Figure 3.25 Full size board game with movable tiles and new tile design

Testing and Feedback

This version was brought to a facilitator guide meeting at the Yachiyo Social Welfare Center. The session ran smoothly, as the structured actions for each space made the rules easier to understand. The clear distinction between the “fun fact” questions and the “need-to-know” questions was also positively received, allowing facilitators to more easily categorize card content.

The most prominent challenge involved the Hanashiai (discussion) cards. Facilitators expressed difficulty in determining whether a player’s response warranted receiving a coin, especially in cases where answers were subjective or incomplete. While a facilitator guide with model answers had been planned, this scenario illustrated the limitations of relying solely on open-ended discussion without pre-defined evaluation criteria. Time management was another concern; responses

to Hanashiai prompts occasionally took too long, posing a challenge for keeping within the intended 20-30 minute session timeframe. Facilitators were unsure of how to smoothly transition turns and manage pacing during these moments.

Additionally, a mechanical issue emerged with the magnetic tile system. Some tiles did not sit evenly or aligned slightly off-grid, which occasionally revealed magnets underneath or disrupted the intended layout.



Figure 3.26 Facilitation guide meeting for Gakudō and welfare center staff

Takeaways

- A detailed facilitator guide with sample answers, hints, and discussion prompts is necessary to support smooth game facilitation.
- Clear strategies are needed for limiting discussion time and managing turn transitions.
- Magnetic alignment and tile fitting require refinement to ensure consistent usability.

3.4.5 Phase 5: Final Prototype

The final phase focused on completing the full game system, integrating all components into a polished, playable version suitable for classroom or workshop use.

Game Design Finalization

While the overall board layout and material approach remained consistent with

the previous phase, several adjustments were made to improve precision and visual clarity. The size of each laser-cut space tile was reduced slightly to better align with the embedded magnets, resolving the misalignment issues noted in earlier testing. Additionally, each tile was redesigned with a white base layer to enhance color contrast between the background and the printed symbols. These refinements were primarily aesthetic but contributed to a clearer, more cohesive game presentation.

Gameplay Mechanic Adjustments

The most significant update to game mechanics addressed the challenge of evaluating the Hanashiai (discussion) cards. In previous versions, facilitators struggled to determine whether a player's open-ended answer merited a coin. To resolve this, the Hanashiai cards were revised to become reflection-based prompts, such as asking players to share something new they learned or a question they still had. This eliminated the need for facilitators to judge correctness while still encouraging personal engagement and reflection.

Importantly, the original discussion prompts, many of which addressed valuable topics, were not removed. Instead, they were adapted and re-integrated into either the *Mamechishiki Quiz* or *Challenge Quiz* categories, depending on the content's complexity or significance.

Facilitation Guide Completion

A comprehensive facilitation guide was developed alongside the final prototype. This guide includes all card content with suggested answers, hints, and short explanations. Its purpose is to support educators and facilitators, particularly those unfamiliar with guide dog-related topics, by enabling accurate and confident gameplay supervision.

豆知識クイズ

?

Q1. どんな犬が盲導犬になれるの？
 ヒント: 人が苦手な犬は難しいよね。

正解: B) 人といっしょにいるのが好きな犬
 説明: 人が大好きで、おだやかな性格の犬が盲導犬に向いています。

Q2. ハーネスをつけた盲導犬は、何をしています？
 ヒント: ハーネスをつけていない時は、ふつうのペット。じゃあ、ハーネスをつけている時は—

正解: C) お仕事
 説明: ハーネスをつけているときは、ユーザーを安全に案内する大事なしごと中です。

Q3. 盲導犬のくんれんにどのくらい時間がかかるの？
 ヒント: 10週間ほど短し、4年は長すぎるかもね。

正解: C) 1年
 説明: 子犬時代のあと、盲導犬協会での約1年間訓練を受けます。

Q4. どんな犬が盲導犬になれるの？
 ヒント: 体が大きくて、おだやかでかしい犬が多いよ。

正解: D) ラブラドル・レトリバー
 説明: かしくて人にやさしい性格のラブラドルが多く使われます。

Q5. 盲導犬はどこではじまった？
 ヒント: ヨーロッパの国だよ。

正解: C) ドイツ
 説明: 日本に初めて盲導犬が紹介されたのは、1938年です。

Q6. 盲導犬はほえない。
 ヒント: しつけられているけど、犬だよな。

正解: B) いいえ
 説明: ほえないように訓練されているけど、犬だから絶対とは言えない。吠えることもあります。よくある勘違いです。

Q7. 盲導犬が服を着ているのは、なぜ？
 ヒント: まわりの人や場所への気づきとして着ています。

正解: B) 毛がぬけるのをふせぐため
 説明: レストランなどで毛が落ちないように、服を着ることがあります。

チャレンジクイズ

X

Q1. 手引きで目の見えない人を案内するとき、どうすればいい？
 ヒント: 安心できるように、体の一部をそっと持ってもらいます。

正解: B) ひじの上を持ってもらう
 説明: 手引きでは、盲導犬ユーザーにひじの上を持ってもらい、案内者は盲導犬ユーザーの半歩前を歩くのが安心で安全です。

Q2. 盲導犬とユーザーは、レストランやお店にいつしよに入れる。
 ヒント: みんなが行ける場所には、ユーザーも行ったほうがいいよね。

正解: A) はい
 説明: これは法律で決まっています。

Q3. 盲導犬を見かけたとき、してはいけないことは何があったかな？
 「み・き・こ・も」の中からひとつ考えてみよう。
 ヒント: 犬の仕事のじゃまになることは、しないほうがいいよね。

正解: 見つめない、さわらない、声をかけない、物をあげない

Q4. 「み・き・こ・も」の中から、さっきとちがうものをもう一つ考えてみよう。
 ヒント: ほかに、盲導犬の仕事のじゃまになることがあったよね。思い出してみよう。

正解: 見つめない、さわらない、声をかけない、物をあげない

Q5. 盲導犬だとわかる目じるしはどれ？
 ヒント: 見た目でこの犬はおしごと中」ってわかるものがあるよ。

正解: C) ハーネスをつけている

Q6. ユーザーは、盲導犬のことをどう思っている？
 ヒント: 犬はただのどうぶつじゃなくて、いっしょに生きていくなかまなんだ。

正解: C) 大切にひつようなパートナー
 説明: 盲導犬は、目が見えない人の生活を変える、大切で必要な存在です。道を歩くときだけでなく、毎日の生活やこころの支えにもなっています。

Q7. 盲導犬ユーザーが普段の生活で困りそうな場所を1つ考えてみよう。
 ヒント: 「人が多い場所ってどこ？」
 例:

- 電車やバスなどの公共交通
- 人や車の多い交差点
- レストランやお店の中

Figure 3.27 Excerpt from the facilitation guide showing question prompts and suggested responses

3.5. Final Design

The final board design is A3-sized, constructed from two A4 laser-cut MDF sheets mounted on a thin cardboard backing. The two panels are joined with tape to allow the board to fold for portability, and the seam is reinforced with tape to create a smooth, continuous surface. Each game space consists of a 23mm square tile, laser cut from the board and fitted with a 3D-printed colored symbol to indicate its function. Magnets embedded in both the tiles and the board base enable modular arrangement and ensure that the components remain securely in place during gameplay. All materials were selected to prioritize durability, tactile clarity, and ease of use in small-group workshop settings.

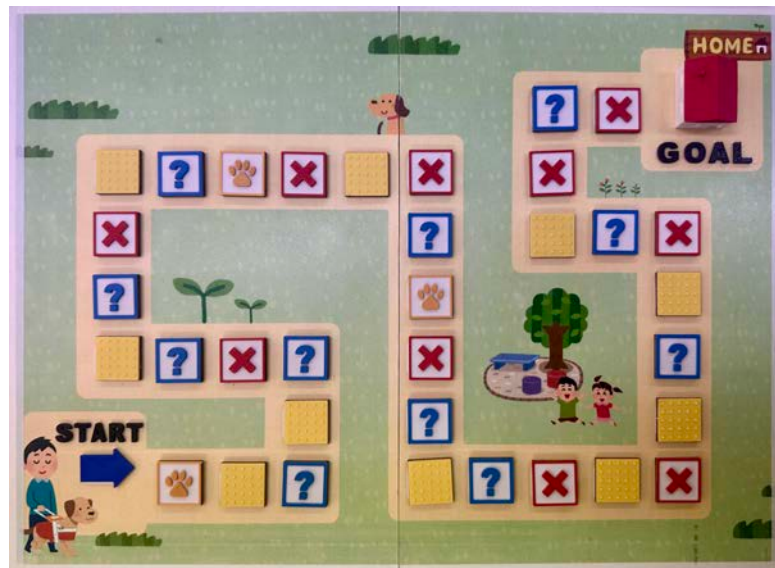


Figure 3.28 Final Board Game Design

3.5.1 Card Types and Space Categories

The board includes four space types, each associated with a distinct deck of cards. The space categories and their associated actions are as follows:

- Mamechishiki Quiz:* Light, fun-fact questions (multiple choice or true/false) that introduce surprising or lesser-known facts about guide dogs and accessibility. These cards aim to build foundational knowledge in an engaging way (Figure 3.29).
Action: Move forward one space if correct; no penalty for incorrect answers. Coins may be used for hints.
- Challenge Quiz:* Questions focused on essential knowledge and appropriate behavior around guide dog users, including what to do or avoid in real-world situations (Figure 3.30).
Action: Move back two spaces if incorrect; coins may be used for hints.
- Hanashiai:* Open-ended reflection prompts encouraging players to express what they learned or formulate questions they might ask a guide dog user. These cards foster discussion, perspective sharing, and inclusive thinking

(Figure 3.32).

Action: Earn one coin by participating in the discussion.

- *Lucky Paw:* Advantage spaces that provide players with a bonus, serving both as positive reinforcement and as adjustable difficulty elements. These spaces can be added or removed based on the age of the players or their familiarity with the topic: more Lucky Paw spaces can assist younger participants by offering additional coins for hints, while fewer spaces can increase the challenge.

Action: Receive a free coin from the facilitator.

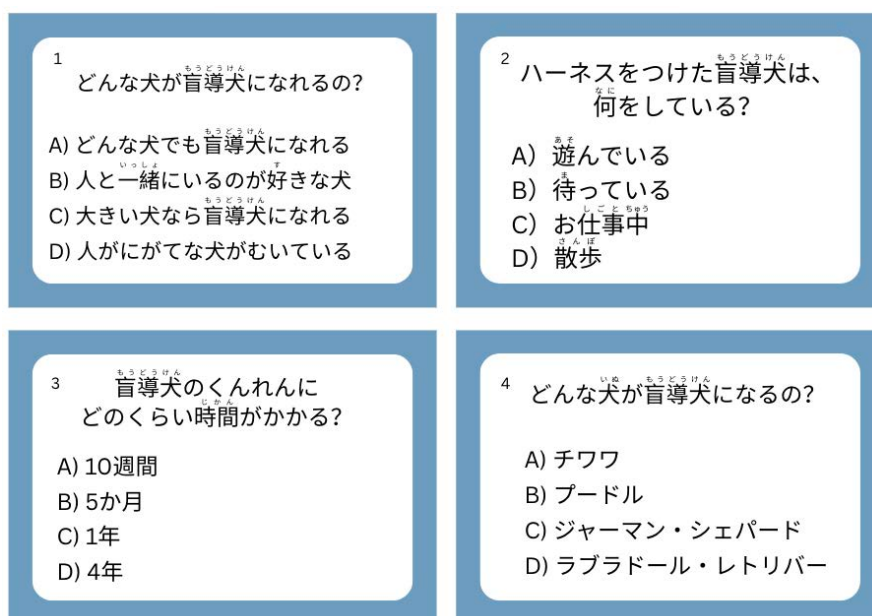


Figure 3.29 Mamechishiki Quiz Cards

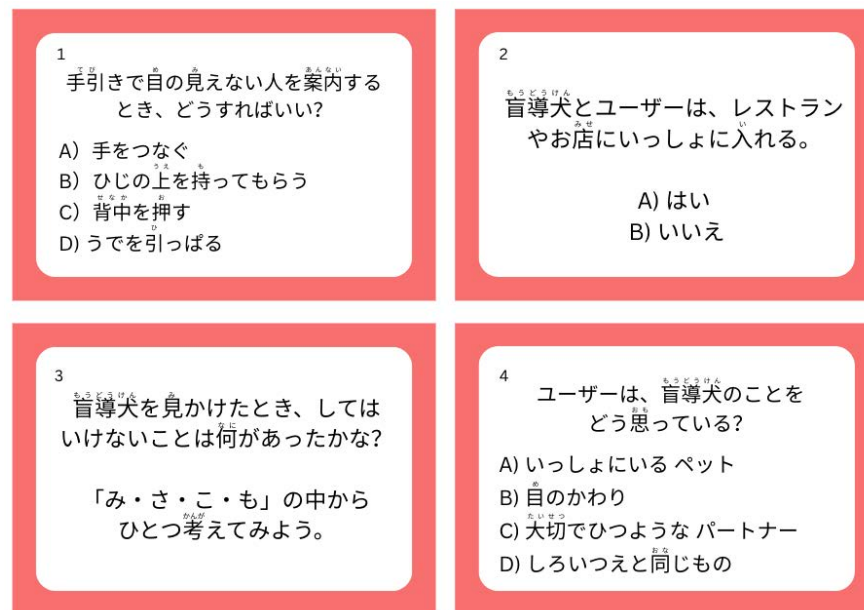


Figure 3.30 Challenge Quiz Cards

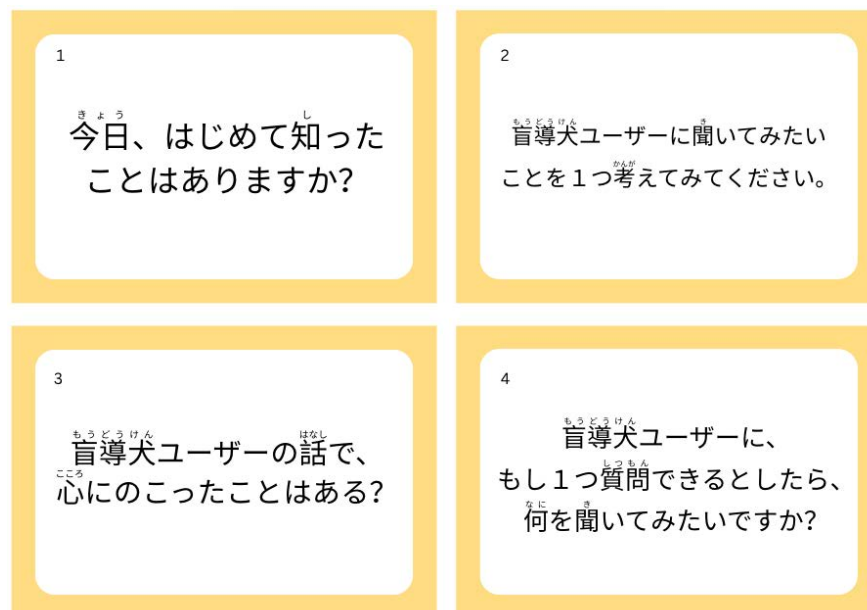


Figure 3.31 Hanashiai Cards

3.5.2 Facilitator Support Tools

A comprehensive facilitator guide accompanies the game, containing all question and prompt cards along with corresponding answers, hints, and brief explanations. Recognizing that facilitators may not have extensive prior knowledge of guide dogs and their users, the guide is designed to provide the necessary support to confidently lead the session. The inclusion of short explanations equips facilitators to respond to player questions and reinforce key learning points. The facilitator plays a crucial role in maintaining the flow of the game and encouraging participants to reflect on what they learned during the talk session and apply that understanding during the game.

早見表

マスの種類	正解したとき	間違えたとき	コインの使い方
 話し合い質問	コインを1枚もらう	なし	使えない
 ラッキーマス	コインを1枚もらう	なし	使えない
 豆知識クイズ	もう1マス進む	そのまま	ヒントに使える
 チャレンジクイズ	そのまま	2マスもどる	ヒントに使える

Figure 3.32 Quick guide to all spaces and actions

3.5.3 Full Set of Game Materials

This section presents the full board game set, including all physical components stored in two containers: an A4-sized carrying box and a smaller component box.

A4 Carrying Box Contents



Figure 3.33 A4 Carrying Box

- **Game Board**

Foldable A3 board constructed from two A4 MDF sheets.

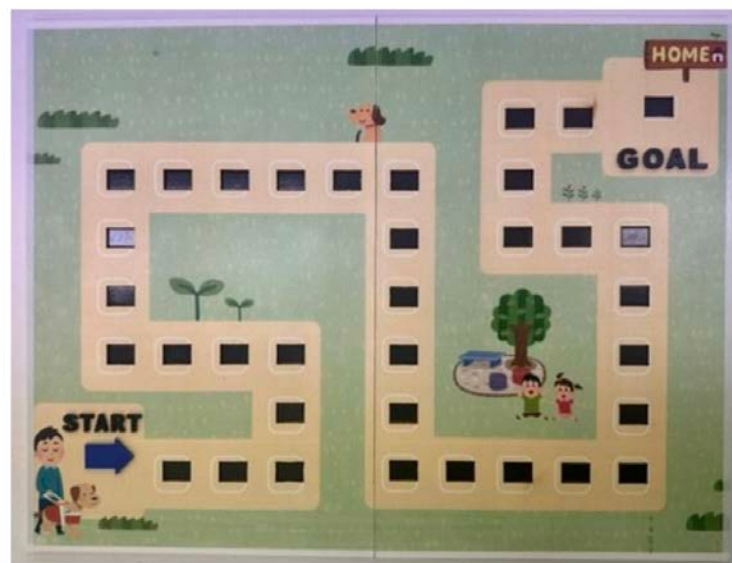


Figure 3.34 Foldable A3 Game Board

- **Game Tiles**

- Blue Tiles —Mamechishiki Quiz spaces
- Red Tiles —Challenge Quiz spaces
- Yellow Tiles —Hanashiai spaces
- Paw Tiles —Lucky Paw spaces



Figure 3.35 Game Tiles

- **Card Decks**
 - Blue Cards —Mamechishiki Quiz
 - Red Cards —Challenge Quiz
 - Yellow Cards —Hanashiai Questions
- **Coins** —Used to obtain hints during gameplay, particularly for answering quiz questions.



Figure 3.36 Three types of color-coded card decks used during gameplay

- **Support Materials** —Includes a quick-reference sheet that explains the different board spaces and their associated actions, as well as scene illustrations that accompany Challenge Quiz cards Q20 and Q26 to support visual understanding.



Figure 3.37 Support materials in main box: quicksheet and challenge card scene image

Mini Component Box Contents

- **Dog-Shaped Player Pieces**
- **Dice**
- **House Piece** —Used to mark the goal.

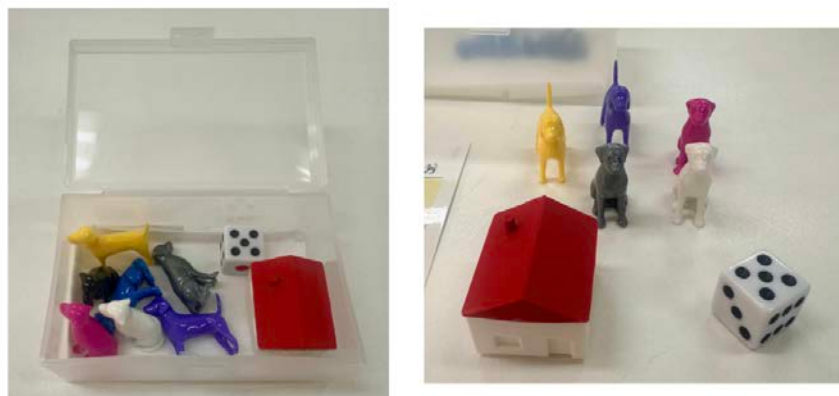


Figure 3.38 Dog-Shaped Player Pieces

Facilitator Support Materials

- **Facilitation Guide Book**

Contains game rules, answers and hints for each card, and guidance for discussion management.

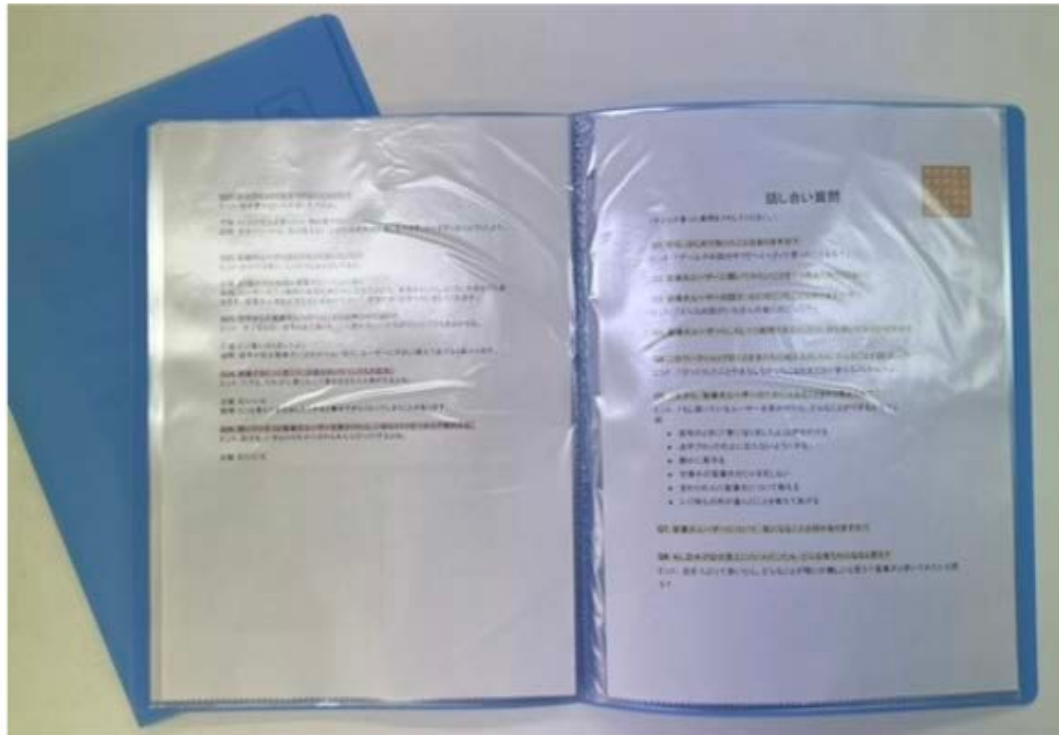


Figure 3.39 Facilitator Guide Book

Chapter 4

Validation

4.1. Methodology

To validate the effectiveness of the board game as an interactive learning tool within a guide dog workshop setting, a multi-stage process was conducted involving key stakeholder groups. This included educators and welfare staff, individuals with visual impairments, and elementary school students.

First, staff members from the *gakudō* program and the Yachiyo City Council of Social Welfare, who were expected to facilitate the workshop, were consulted to assess the game's usability, clarity of rules and objectives, and potential to support student learning.

Second, the game was presented to members of a local blind table tennis group to gather input from individuals with visual impairments. This feedback focused on the tactile clarity of the board and pieces, the accessibility of gameplay, and the overall effectiveness of the game in communicating its intended messages.

Finally, the game was implemented in a workshop session with fourth-grade students at an afterschool program in Yachiyo City. This session was designed to evaluate the game's ability to engage participants while deepening their understanding of guide dog users through interactive, discussion-based play.

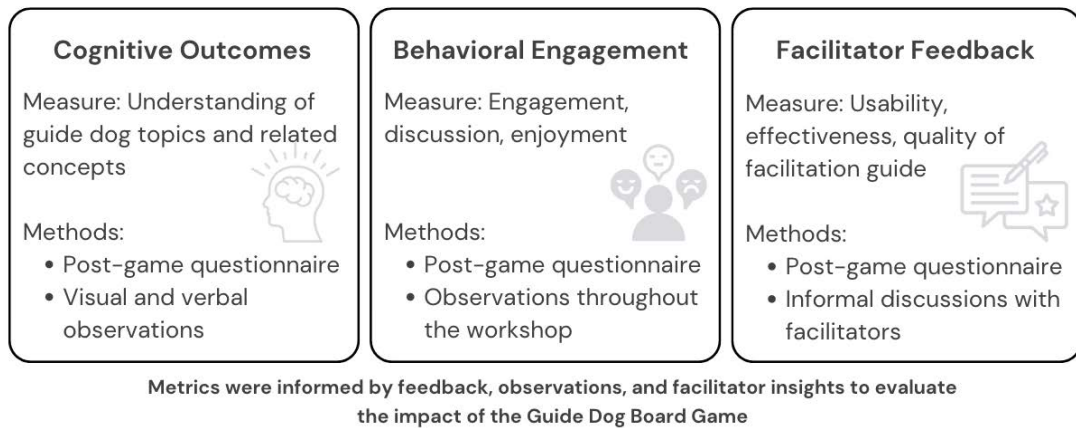


Figure 4.1 Evaluation Metrics

4.2. Validation Through Community Feedback

4.2.1 Data Collection and Analysis

Initial evaluations of the guide dog board game were conducted with key stakeholders involved in the study, including gakudō teachers, Yachiyo Welfare Center staff, and members of a local blind table tennis group. The purpose of this stage was to assess the usability of the game, the clarity of its rules and mechanics, and its potential to support learning objectives related to guide dog awareness.

Data was collected through direct observation, informal interviews, and open-ended group discussions during in-person feedback sessions. Participants were given the opportunity to interact with the physical game board, explore the tactile components, and test example question cards. Their verbal reactions, questions, and suggestions were noted as qualitative data.

This process led to several key refinements in the game’s design and implementation strategy. For example, the need for clearer facilitator instructions was identified, leading to revisions in the facilitator guidebook. Additional adjustments were made to the structure of discussion prompts and tactile layout in order to optimize accessibility and enhance the overall learning experience.

4.2.2 Feedback from Gakudō Teachers and Welfare Center Staff

A feedback session was conducted at the Yachiyo Welfare Center with gakudō teachers and welfare center staff to review the game design and gameplay structure. At the time of this meeting, the prototype was in Phase 4 of development. Participants provided constructive feedback on the role of facilitators and emphasized the importance of clear guidance to ensure smooth gameplay. One concern raised was the open-ended nature of the discussion prompt questions; staff expressed uncertainty about what would constitute an acceptable or appropriate answer. This feedback directly informed revisions made between Prototyping Phases 4 and 5, particularly in terms of providing more structured support for facilitators. It was also recommended that a brief explanation accompany each question to assist facilitators in addressing player inquiries and maintaining the flow of the game. This suggestion was later incorporated into the facilitator guide.

The board game itself received positive responses, particularly from those who had observed its development since the early stages of prototyping. Many participants expressed interest in the use of 3D printing and laser cutting, and were curious about the technical process behind the board's production.

Overall, participants were enthusiastic about the game's potential as a new addition to guide dog workshops. Some expressed concern about their ability to facilitate the game effectively due to a lack of prior knowledge about guide dogs. These concerns were addressed through the development of a detailed facilitator guidebook designed to provide necessary background information and support.

4.2.3 Input from Adults with Visual Impairments

Prior to the final workshop, the board game was presented to members of a local blind table tennis group during a casual discussion following their regular session. Several members were already familiar with the study from its early phases, making this an opportunity to share the final version and gather direct feedback from individuals with visual impairments.

The game was explained and members were invited to explore the tactile components, including the dog pieces and raised tiles. Feedback was generally positive,

with several members expressing appreciation for the textured board and raised elements, which made it easier to follow the progression of gameplay by touch.



Figure 4.2 People with visual impairments feeling the board game



Figure 4.3 Yamaki-san going over 6/18 workshop details

Additionally, Yamaki-san, a guide dog user who participated in the feedback session, offered valuable insights based on her lived experience. She provided thoughtful comments on the relevance and clarity of the card questions. In particular, one of the questions included in the final game was based on an acronym

created by Yamaki-san herself, which is commonly featured on guide dog awareness posters in Yachiyo (see Figure 4.4). The acronym outlines key behaviors to avoid around working guide dogs, such as not staring and not calling out to them. Yamaki-san expressed enthusiasm upon seeing her contribution reflected in the final design, noting that it felt meaningful to see an important message from her community integrated into the game.

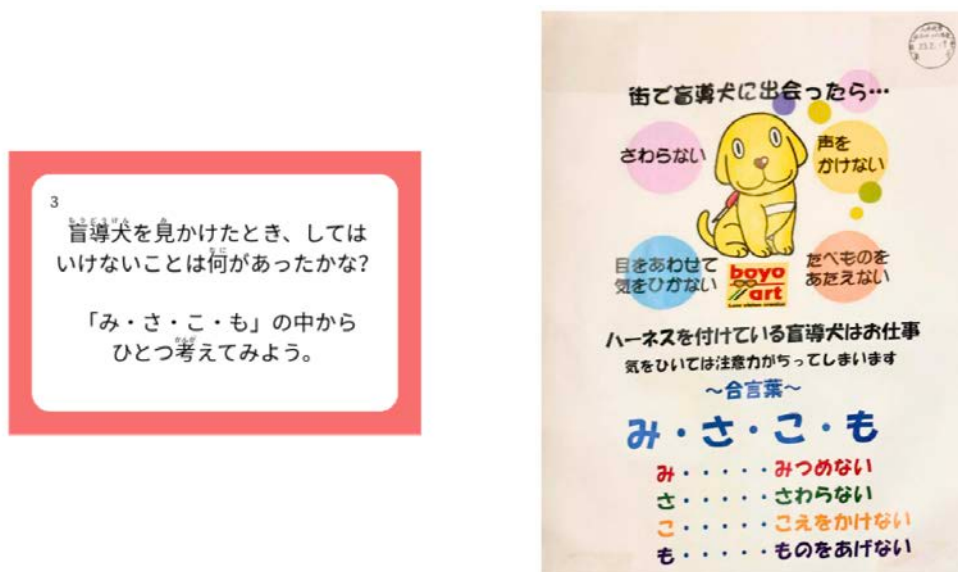


Figure 4.4 Game card and awareness poster

4.3. Final Workshop

4.3.1 Setting

The final workshop was held at Katsutadai Elementary School in Yachiyo City, as part of the school's after-school care program (*gakudō*). A total of 18 fourth-grade students (approximately 10 years old) participated in the session, along with six facilitators who supported the activities and guided the gameplay. In total, the workshop was 1.5 hours.



Figure 4.5 Workshop talk session

4.3.2 Workshop Structure

The structure of the workshop followed the standard format used by the Yachiyo Social Welfare Center for its disability awareness programs, with one key modification: in place of the usual white cane simulation activity, students participated in the educational board game.

The workshop began with a brief introduction by staff from the Welfare Center, outlining their activities, including volunteer initiatives and ongoing events. This was followed by a talk from a guide dog user, Yamaki-san, who shared her personal experiences with using a guide dog in daily life.

Following the presentation, students were divided into five groups of three or four, each facilitated by an adult leader. Each group played the board game for approximately 30 minutes, during which participants engaged with the game's questions and discussion prompts related to guide dogs and guide dog users.

After gameplay, the workshop transitioned to a short discussion and question-and-answer session. This allowed students to ask follow-up questions about guide dogs and engage further with the guide dog user based on topics that arose during the game.

To conclude the workshop, students were asked to complete a brief questionnaire reflecting on their experience and impressions of the game. Facilitators were also given a separate questionnaire to assess the effectiveness of the activity and to identify any challenges they encountered while facilitating. The entire workshop

session lasted approximately 90 minutes.

Time	Subject	
13:30	Setup	
14:00	Yamaki-san Arrive	
14:00~15:20	Guide Dog Workshop	
~14:20	What is welfare?	20 minutes
~14:50	Guide Dog User Talk Session	30 minutes Yamaki-san
~15:20	Guide Dog Board Game	30 minutes Anna Okabe
15:20~15:30	Q&A, Questionnaire	For both students and facilitators
15:30~	Clean up	

Figure 4.6 Schedule for June 18, 2025



Figure 4.7 Classroom layout, 5 groups

4.3.3 Data Collection and Analysis

This study employed multiple data collection methods, including video recordings, observations, discussions, facilitator reflections, and post-workshop ques-

tionnaires. All data were collected with prior consent from participating teachers and the parents or guardians of the students.

Students

Data Collection and Analysis

A total of 18 fourth-grade students participated in the workshop session. Student engagement and learning outcomes were assessed through a combination of observational and survey-based methods. During the workshop, student engagement was assessed through continuous observation of verbal comments, behavioral cues, and body language. These observations were used to evaluate excitement, attention levels, and overall group dynamics during gameplay. Particular attention was paid to how each group progressed through the game and how actively they participated in discussion-based components.

To assess cognitive outcomes, a short questionnaire was administered after the game. The survey used a simplified smileyometer scale [35] to ask students whether they found the activity fun, easy to understand, and whether they felt they had learned something new about guide dogs and guide dog users. In addition, video recordings and notes were used to examine how students responded to the game's question prompts and whether they were able to apply knowledge gained from the earlier talk sessions. Observers also noted the types of questions students generated during gameplay using the Hanashiai cards, as well as the nature of their inquiries during the final Q&A session. These spontaneous questions offered additional insights into the students' curiosity and depth of understanding.



Figure 4.8 Smileyometer scale used on student questionnaire

The following is the data collected from the student questionnaires:

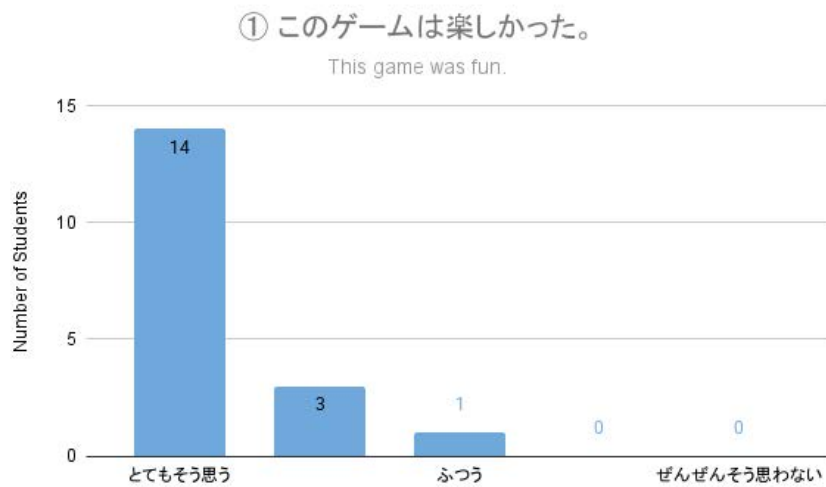


Figure 4.9 Student responses to Question 1: Perceived enjoyment of the game experience

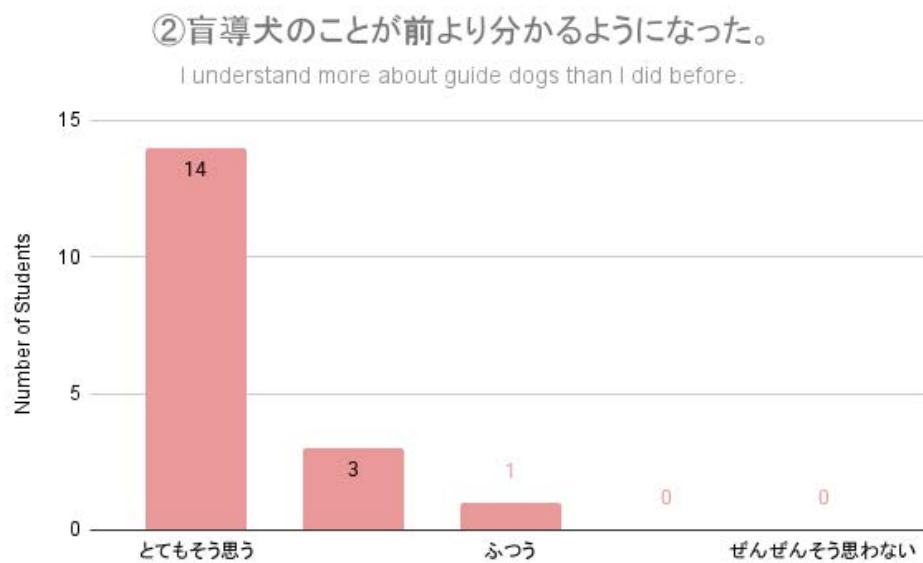


Figure 4.10 Student responses to Question 2: Perceived increase in knowledge after gameplay

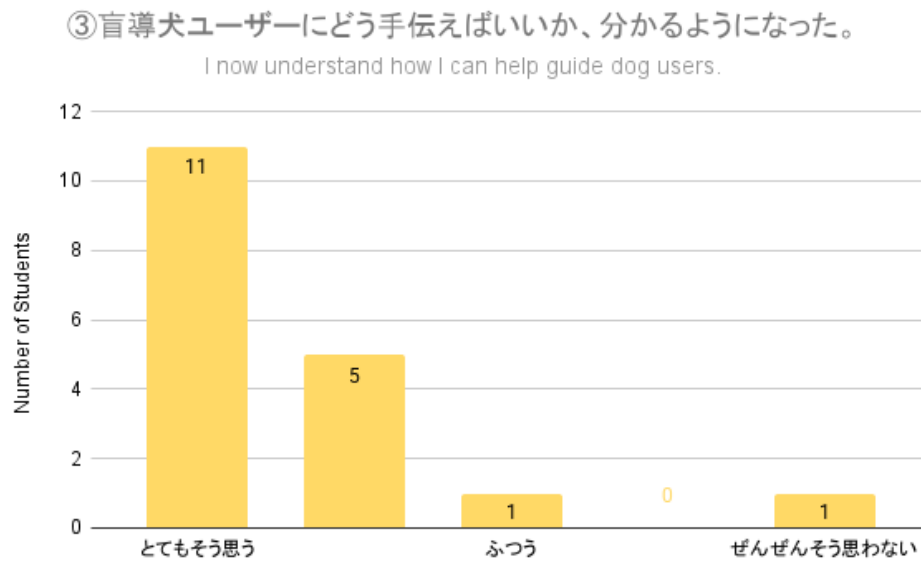


Figure 4.11 Student responses to Question 3: Understanding how to support a guide dog user

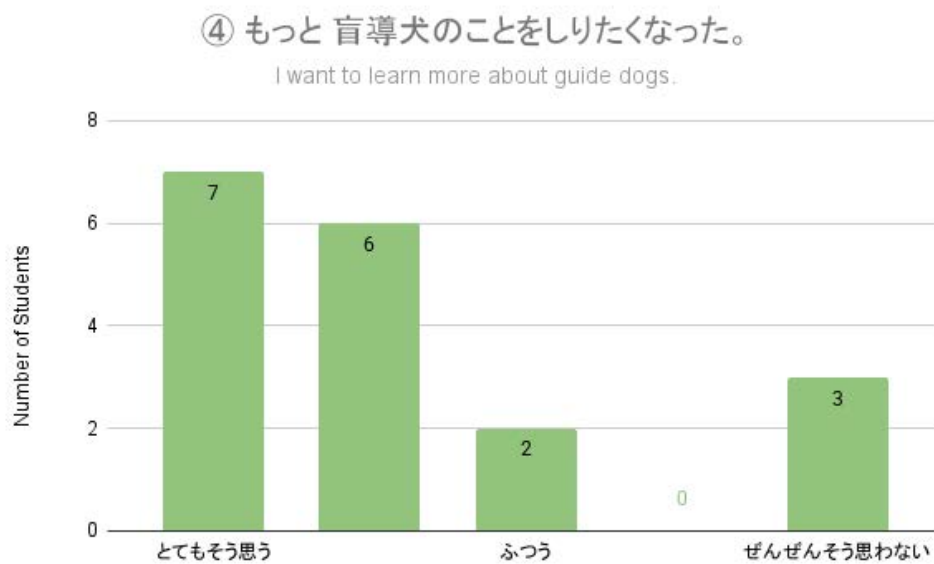


Figure 4.12 Student responses to Question 4: Interest in guide dogs and users after playing the game

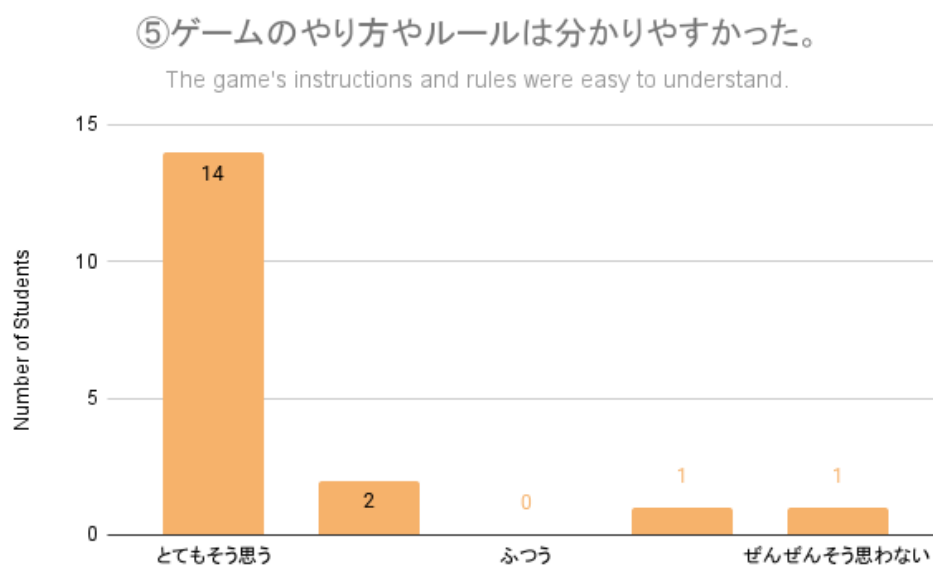


Figure 4.13 Student responses to Question 5: Clarity of gameplay and rule comprehension

Results

The results from the post-workshop questionnaires indicate that students generally enjoyed playing the board game and demonstrated an increased understanding of guide dogs and guide dog users compared to their prior knowledge. Despite the limited time frame, most students were able to grasp the game mechanics quickly and engage with the content effectively.

Observational data supported these findings and showed a clear progression in engagement and learning. Many students appeared eager to answer questions, even when it was not their turn, which demonstrated active participation and enthusiasm. Several students also generated their own original questions during gameplay, suggesting a high level of curiosity and reflection. Notably, some students who had appeared disinterested during the earlier talk sessions became highly engaged once gameplay began. One student in particular, who had shown little interest at first, became actively involved and ultimately asked a thoughtful question to Yamaki-san during the final Q&A session. This increase in interest appeared to be partly driven by the competitive nature of the game, as many

students were motivated by the desire to reach the goal first.



Figure 4.14 Students and facilitators playing game

Facilitators

Data Collection and Analysis

To ensure smooth gameplay and to observe facilitation dynamics, each group in the workshop was assigned one facilitator, either a staff member from the welfare center or a gakudō teacher. In total, five facilitators supported the session, one for each group.

The purpose of including facilitators was to evaluate the game's practicality, clarity of instructions, and the adequacy of the materials provided to support independent facilitation. Data were collected through video recordings, post-game questionnaires, written comments, informal feedback during the debrief session, and observational field notes taken during gameplay. These inputs contributed to assessing whether the game could be realistically implemented by facilitators in future workshop settings without direct involvement from the researcher.



Figure 4.15 Group of 3 students playing game

The post-game questionnaire asked facilitators to respond to five statements using a 5-point Likert scale ranging from “strongly disagree” (1) to “strongly agree” (5). Items focused on the clarity of game rules, usefulness of the facilitator guide, playability of the game, perceived learning outcomes, and interest in using the game in future settings.

The following questions were included in the facilitator questionnaire:

- The rules and flow of the game were easy to understand.
- The facilitator guide was helpful as a reference for leading the session.
- I felt that the children were able to understand the content while having fun.
- I feel that the game provided a good opportunity to learn about guide dog users.
- I would like to use this game in other classes or activities in the future.

Results

All five facilitators agreed that the game rules were easy to understand and that the facilitator guide was helpful. They also unanimously indicated that they

believed the children were learning while enjoying the activity. However, some written comments noted that the students were highly excited during gameplay, which made it challenging at times to maintain a steady pace. This issue may be attributed to the age of the participants and their limited attention span, particularly given that the session lasted approximately 90 minutes without a break.

Two facilitators mentioned that they ran out of coins to distribute, as players frequently landed on the “Hanashiai” space but rarely spent coins for hints. This was likely a result of the even distribution of tile types (Mamechishiki, Challenge, and Hanashiai) on the board. Despite these minor challenges, all facilitators responded on the higher end of the scale when asked whether they would be interested in using the game in a different setting in the future, indicating a strong level of support for its broader implementation.

4.3.4 Post-Game Discussion

Overall, both students and facilitators appeared to enjoy the gameplay experience and responded positively to the interactive learning format. The discussion that followed the game demonstrated a high level of curiosity and engagement from the students, particularly during the Q&A session with guide dog user Yamaki-san.

After the game concluded, several students eagerly raised their hands to ask questions, showing a genuine interest in the lived experience of guide dog users. Example questions included:

“What is inside the bag on the guide dog’s harness?”

“What has been the happiest day with your guide dog?”

“What do you do when your guide dog is sick?”

These questions reflected not only attention to detail but also empathy and a desire to understand the everyday realities of partnering with a guide dog.



Figure 4.16 Questions noted through gameplay and student asking Yamaki-san questions during post-game Q&A

Interesting Observation

One particularly noteworthy observation involved a student in a white shirt, whose behavioral shift over the course of the session illustrated the transformative potential of interactive learning. At the start, during the talk session, he appeared disengaged—sitting quietly in the back corner and showing minimal interest in the content.

However, his demeanor changed significantly during the gameplay. As seen in Figure 4.17, he leaned forward over the table, visibly more animated and eager to participate. He began volunteering answers enthusiastically, even during other players' turns. By the end of the session, he raised his hand to ask Yamaki-san a question and deliberately positioned himself nearby to ensure she could hear him clearly.



Figure 4.17 Progression of student participating in workshop

This shift highlights how game-based learning can serve as a powerful entry point for engagement, particularly among children. The student's progression reflects the stages of Kolb's experiential learning cycle—moving from passive observation in the initial talk session (concrete experience) to active participation in the game (active experimentation), followed by questioning and interaction that suggest a deeper level of processing and reflection (reflective observation and abstract conceptualization).

Such observations underscore the value of incorporating hands-on, socially interactive elements in disability awareness education. Not only do they make the content more accessible, but they also foster curiosity and critical thinking in ways that traditional instructional formats may not.

4.4. Reflections and Observations

The workshop session was overall successful, with students actively engaging in the game and demonstrating curiosity about guide dogs and guide dog users. However, several observations emerged that highlight areas for improvement in both game design and workshop logistics.

Student behavior during gameplay was more energetic and competitive than anticipated. This may be partially attributed to the fact that the appropriate level of cognitive challenge for fourth-grade students was not yet fully understood during the design stage. The board layout may have also contributed to the fast-paced and competitive atmosphere. In its current form, the distribution of spaces tends to encourage quick advancement and coin collection, rather than slower, reflective engagement with the questions and learning content. Adjusting the content balance, by increasing the number of challenge questions and reducing or eliminating some of the *Lucky Paw* spaces, could help slow down the pace and promote more meaningful engagement.

In addition to gameplay dynamics, the physical classroom setup presented logistical challenges. With a large number of participants, the space became crowded, which occasionally made it difficult for players to hear one another. Groups consisting of three students appeared to have a more comfortable amount of space around the board compared to groups of four, which may have affected the quality

of their communication and concentration.

Differences were also observed in group dynamics based on familiarity. Groups consisting of close friends tended to be more rowdy, occasionally engaging in playful bickering or distractions, whereas groups with students who were less familiar with each other appeared to be more focused and attentive during gameplay.

Lastly, it was noted that placing all the tiles on the board prior to starting the game required a significant amount of preparation time. Although the boards were set up in advance for this session, this step could be time-consuming if done during the actual workshop. Having additional support for board setup and cleanup was extremely helpful and would likely be necessary for smooth operation in future implementations.

Chapter 5

Discussion

5.1. Guidelines

This section offers practical guidelines based on the co-design process, implementation experiences, and interactions with members of the guide dog and visually impaired communities. The following subsections outline considerations for game design, effective use in educational settings, and broader recommendations for working respectfully with people with visual impairments.

5.1.1 Guidelines for Design

The development of this educational board game required a thorough understanding of guide dog use within the Japanese context. Designers are advised to begin with an in-depth review of relevant policies, cultural practices, and the experiences of guide dog users. Direct engagement with stakeholders, including guide dog users, trainers, and support professionals, was essential for ensuring that the game’s content remained both accurate and emotionally resonant. The co-design process also emphasized the value of grounding scenarios in real-life challenges, using inclusive and respectful language, and balancing educational depth with accessibility appropriate for the target age group. Designers should prioritize obtaining accurate and up-to-date information about guide dog systems in Japan and maintain a collaborative approach throughout the development process.

From a production standpoint, fabricating the physical board game requires considerable planning and resources. The use of digital fabrication tools such as 3D printing and laser cutting was critical for producing durable, accessible components, particularly for tactile features and custom game pieces. A variety of materials are needed, including colored 3D printing filaments and multi-

ple medium-density fiberboard (MDF) panels. Crafting each board manually is time-intensive and should be approached with careful scheduling and budgeting, particularly if multiple copies are intended for distribution or testing.

5.1.2 Guidelines for Implementation

The following guidelines reflect key implementation considerations, which may also offer insight for others developing interactive tools for disability awareness education.

Setting

The game is most impactful when situated within a broader educational context, such as a disability awareness workshop, a classroom unit on inclusion, or a community learning event. Pairing the activity with a talk by a guide dog user or supplementary visual materials can enrich the experience by grounding the content in real-world relevance. In school settings, collaborating with teachers or program coordinators helps ensure that the activity aligns with the learning objectives of the session.

Logistically, the game is best conducted in quiet environments with tables that support small group interaction. Because multiple teams often play at the same time, having enough physical space between groups is important for minimizing distractions and encouraging focused discussion. This is especially relevant for younger students, who may become excited and more vocal during gameplay. In crowded or noisy spaces, it can be difficult for some students to stay engaged or hear instructions clearly.

Facilitators should also account for practical needs such as setup and cleanup time, table layout, and the storage of game components. Given that the game includes several parts, some logistical support may be necessary to keep the session running smoothly.

In longer workshop sessions, it is helpful to schedule a short break partway through. Allowing students or participants time to rest and recharge supports sustained focus and engagement for the remainder of the session, especially when the workshop includes extended periods of gameplay or discussion.

Facilitators

Facilitators are central to the success of the game-based learning experience. Their responsibilities go beyond explaining the rules—they guide discussion, encourage reflection, and help create a safe and engaging space for students to explore new perspectives. While a background in education, disability inclusion, or social work can be beneficial, the game is intentionally designed to be accessible to those without specialized expertise. The included facilitation guide offers background information, example prompts, and suggested responses to support consistent and confident delivery.

To use the board game effectively in educational settings, facilitators should begin with a brief introduction that frames the game activity as a tool for learning and reflection. Setting this expectation helps participants understand the purpose of the session and encourages them to engage attentively with any preceding content, such as a talk by a guide dog user or a related discussion. When participants are aware that the game will build on earlier materials, they may be more likely to listen closely and make meaningful connections during gameplay.

Before leading a session, facilitators should familiarize themselves with the game mechanics by playing a full round. This hands-on experience helps them explain the rules clearly, manage timing, and address questions effectively during gameplay. Being prepared in this way is particularly important in group environments that may be busy or noisy, as smooth facilitation contributes significantly to learning outcomes.

Facilitators should also be mindful of classroom dynamics when organizing groups. Students who are highly competitive or who have interpersonal conflicts may benefit from being placed in separate teams. Thoughtful group composition can help foster a more cooperative and inclusive atmosphere, supporting the game's broader educational goals. In sessions with larger groups or younger children, having assistants or volunteers on hand is recommended. These additional facilitators can help monitor progress, manage materials, and keep students engaged, ensuring the session runs smoothly and remains focused on both learning and enjoyment.

5.2. Limitations

While the guidelines for design and implementation offer practical recommendations for using and adapting the board game, several limitations must be acknowledged that may affect the generalization and application of these strategies.

Cultural Specificity

The content and scenarios presented in the game are closely tied to the context of guide dog use in Japan. Local regulations, societal attitudes, and daily experiences of guide dog users vary significantly across countries. For example, in countries like the United States, service animal policies may include a wider range of support animals such as emotional support or psychiatric service dogs, which are not recognized under Japanese law. As a result, some aspects of the game may not translate well outside of Japan or may require cultural adaptation to remain relevant and accurate.

Individual Differences Within the Guide Dog Community

Another limitation concerns the diversity of experiences and preferences among guide dog users themselves. While the game's scenarios were developed through interviews and input from trusted organizations such as the Japan Guide Dog Association, no single representation can encompass the full range of user perspectives. For instance, some guide dog users may prefer not to be approached by strangers in public, while others may welcome polite interaction. These personal differences are difficult to represent within the constraints of a structured educational game. Facilitators should emphasize that each guide dog user's experience is unique, and that respectful, individualized engagement is essential in real-world situations.

Scope of Target Audience: Elementary School Students

This research focused on elementary school-aged children as the primary target audience. No formal pre-workshop assessment was conducted to measure students' prior knowledge or perceptions of guide dogs and their users. Instead, the study

proceeded with the assumption that students had limited or no prior knowledge, based on preliminary studies and existing reports on public awareness in Japan.

It is important to note that the user testing and feedback were conducted specifically within an elementary school setting. While the game and accompanying facilitation materials were designed with this age group in mind, the dynamics of the session—such as pacing, question complexity, and engagement style—would likely differ for older or younger participants. Although the current guidelines are tailored for elementary students, they remain flexible enough to be adapted to different age groups or learning environments.

Chapter 6

Conclusion

This study explored the design, development, and validation of an interactive learning experience through a board game aimed at deepening the understanding of guide dog users among elementary school children in Japan. Through a participatory and iterative design process involving guide dog users, visually impaired adults, welfare professionals, and educators, the game was refined to support both engagement and learning.

Validation through stakeholder feedback and real-world workshop implementation demonstrated that the game was both enjoyable and educational for fourth-grade students. Facilitators reported that the materials were easy to use, and observations suggested that the game successfully encouraged curiosity, discussion, and empathy among participants.

This research contributes to the field of accessible educational design by providing a playful, community-informed approach to disability awareness programming. It also offers a replicable framework for creating inclusive learning tools that foster interaction, reflection, and emotional engagement.

In conclusion, the board game not only increased children’s understanding of guide dogs and their users, but also created space for meaningful conversations and personal reflection—outcomes that often go beyond what traditional simulation-based activities can achieve. The collaboration with diverse stakeholders was essential in ensuring the game was both accurate and accessible, while remaining engaging for young learners. Ultimately, players were not just learning facts; they were invited to engage in thoughtful dialogue and shape their own understanding through shared experience.

6.1. Future Works

Looking ahead, there are several opportunities for expanding the use and application of the educational board game developed through this research. One key area involves integrating the game more widely into existing guide dog awareness workshops. In particular, the Yachiyo Social Welfare Center conducts disability awareness workshops at various middle schools during the fall semester, and this game could serve as an engaging educational tool within those sessions. Implementing the game in these structured, school-based settings would also allow for comparative analysis of learning outcomes across different age groups and educational environments.

Future efforts could also focus on expanding the game's audience beyond children to include adults and businesses. Previous reports by guide dog organizations have shown that many adults still lack accurate knowledge about guide dogs and that guide dog users are frequently denied access to restaurants, taxis, and other public facilities due to misunderstanding or insufficient staff training. Introducing the board game as a learning activity in corporate training sessions, community workshops, or professional development programs could help address these gaps. Although the current version of the game is designed for elementary-aged learners, it could be adapted for adult audiences by incorporating more complex discussion prompts and frequently asked questions from adults, such as questions about the cost of guide dogs or regulations regarding access rights. This expansion could significantly increase the game's impact by fostering greater awareness, empathy, and policy understanding among a broader segment of the population.

There has also been interest from local community spaces, such as a dog café in Yachiyo, in using the game to raise awareness about guide dogs. However, such informal settings may lack the preparatory educational components, such as an introductory talk by a guide dog user, that are typically provided in workshops. In these cases, the game may require adaptation. One potential direction is the development of supplementary materials, such as short educational videos, that could provide players with essential background knowledge before beginning gameplay. These resources would make the game more accessible in non-facilitated or casual environments while maintaining its intended learning outcomes.

Future iterations of the game could also explore increased accessibility features

(e.g., larger text, tactile elements) and digital formats, potentially broadening its reach to a wider audience, including those with visual impairments or those in remote learning contexts. The digitization of game components, such as converting question cards into a mobile-friendly format with audio narration, would not only make the game more inclusive but also more portable and adaptable across different settings. For example, incorporating audio recordings of the card prompts could allow guide dog users to participate directly alongside a facilitator, enabling real-time feedback and shared dialogue. A digital version of the cards would also reduce reliance on physical materials, making the game easier to distribute and use in spaces with limited resources or accessibility constraints. This approach would support both independent and facilitated play while maintaining the game's educational value.

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Appendices

A. Final Workshop Questionnaires

グループ番号: _____

ふりかえりシート



① このゲームは楽しかった。



ぜんぜんそう思わない

ふつう

とてもそう思う

② 盲導犬のことが前より分かるようになった。



ぜんぜんそう思わない

ふつう

とてもそう思う

③ 盲導犬ユーザーにどう手伝えばいいか、分かるようになった。



ぜんぜんそう思わない

ふつう

とてもそう思う

④ もっと 盲導犬のことをしりたくなった。



ぜんぜんそう思わない

ふつう

とてもそう思う

⑤ ゲームのやり方やルールは分かりやすかった。



ぜんぜんそう思わない

ふつう

とてもそう思う

Figure A.1 Post-game questionnaire for students

お名前： _____

ご担当: (ファシリテーター/オブザーバー) **ゲーム後アンケート**

グループ番号 (わかれば) : _____

以下の項目について、あてはまるものに (✓) をつけてください。

※ 5段階評価：1=まったくそう思わない 3=ふつう 5=とてもそう思う

1. このゲームは、ルールや進め方が分かりやすかった。
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

2. ファシリテーターガイドは、進行の参考として役に立った。
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

3. 子どもたちは、楽しみながら内容を理解していたと感じた。
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

4. ゲームを通して、盲導犬ユーザーについて学ぶきっかけができたと感じる。
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

5. 今後、他の授業や活動でもこのゲームを使ってみたいと思う。
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

よかったこと

改善すべきこと



Figure A.2 Post-game questionnaire for facilitators

B. Mamechishiki Quiz Cards

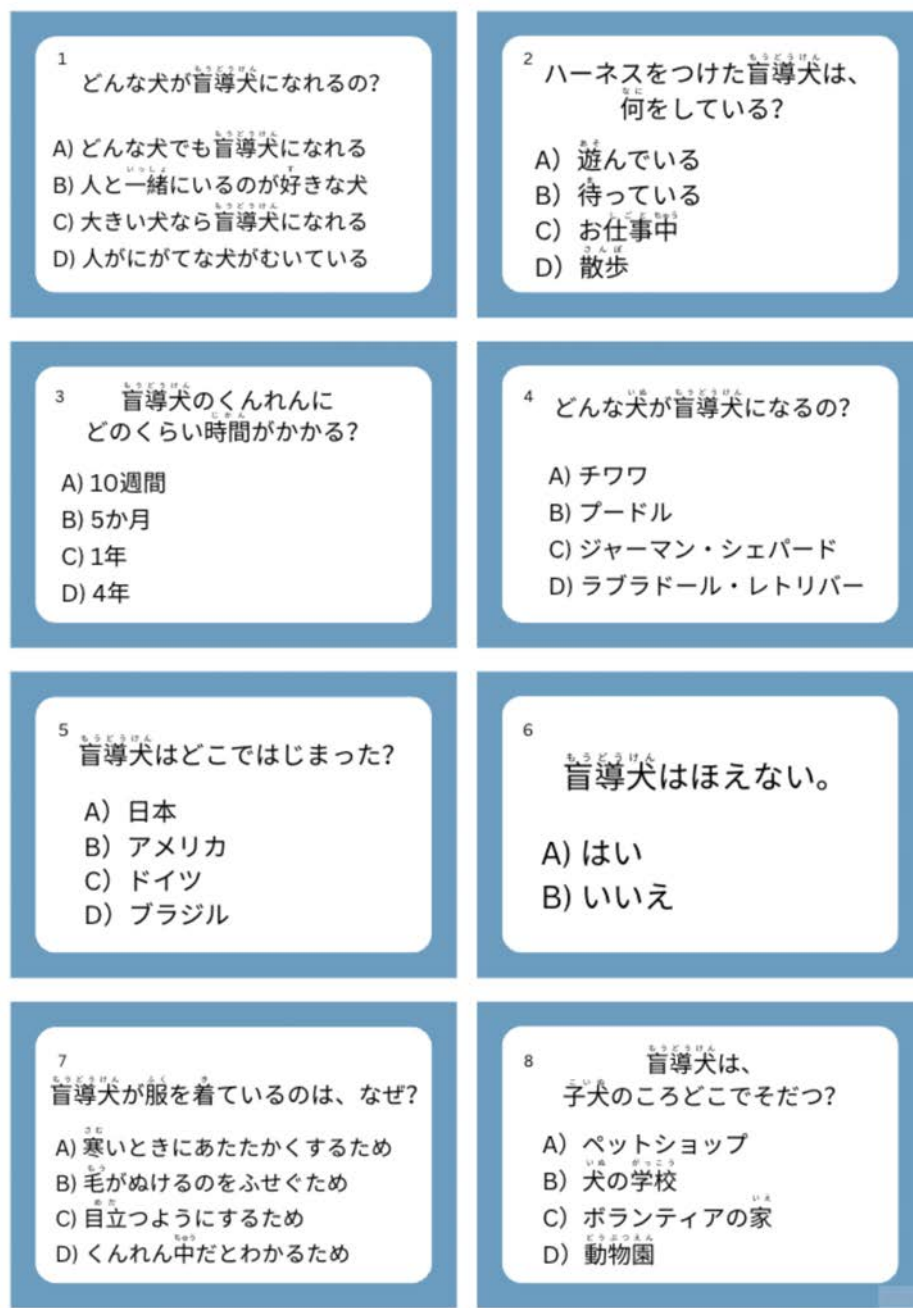


Figure B.1 Mamechishiki Quiz Cards 1-8

9 盲導犬は何年ぐらい働くの? A) 3年 B) 5年 C) 8年 D) 10年	10 盲導犬はオス・メスと、 どちらが向いているのですか? A) オス B) メス C) 両方 D) どちらも向いていない
11 2024年には、 何匹の盲導犬がはたらいている? A) 300匹より少ない B) 約500匹 C) 約800匹 D) 1000匹より多い	12 盲導犬が引たいしたあと、 どうするの? A) ボランティアの家でくらす B) 訓練センターにもどる C) 新しい仕事をはじめ D) 山や森でくらす
13 横断歩道をわたるタイミングを きめるのは、だれ? A) 盲導犬 B) 盲導犬ユーザー	14 この2つの点字ブロック、 それぞれどんな意味があるの?  
15 盲導犬ユーザーは、 何語で盲導犬にしじを出すの? A) 日本語 B) 英語 C) 中国語 D) フランス語	16 盲導犬は何才まで働くの? A) 4才 B) 7才 C) 10才 D) 18才

Figure B.2 Mamechishiki Quiz Cards 9-16

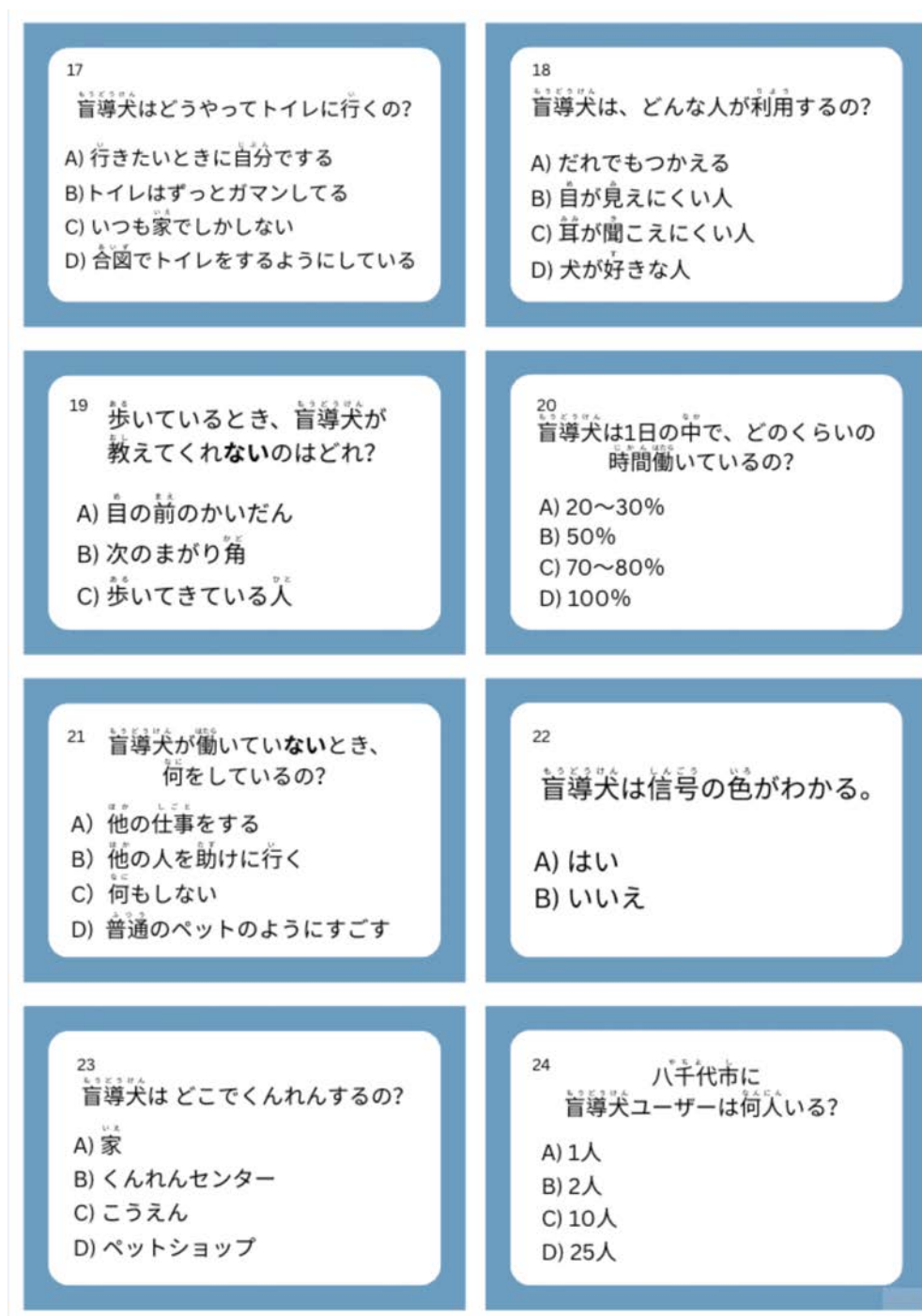


Figure B.3 Mamechishiki Quiz Cards 17-24

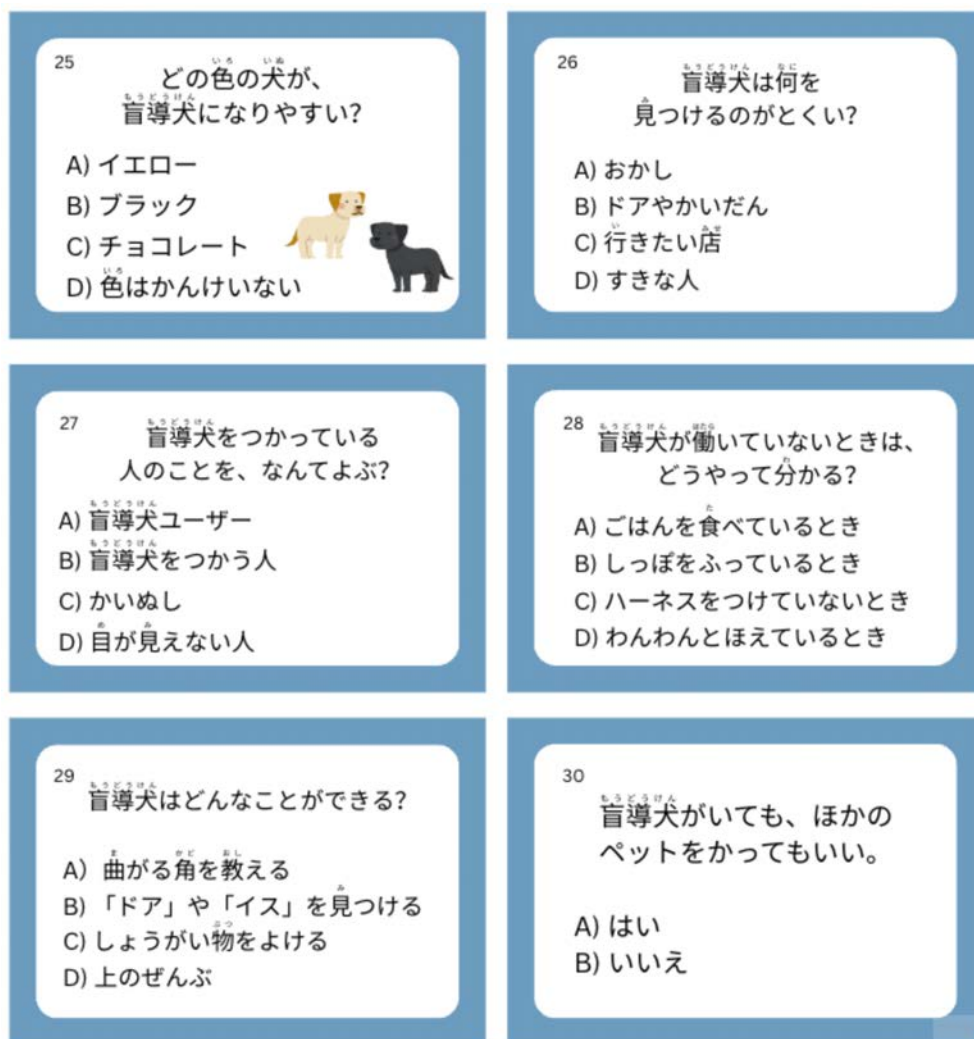


Figure B.4 Mamechishiki Quiz Cards 25-30

C. Challenge Quiz Cards

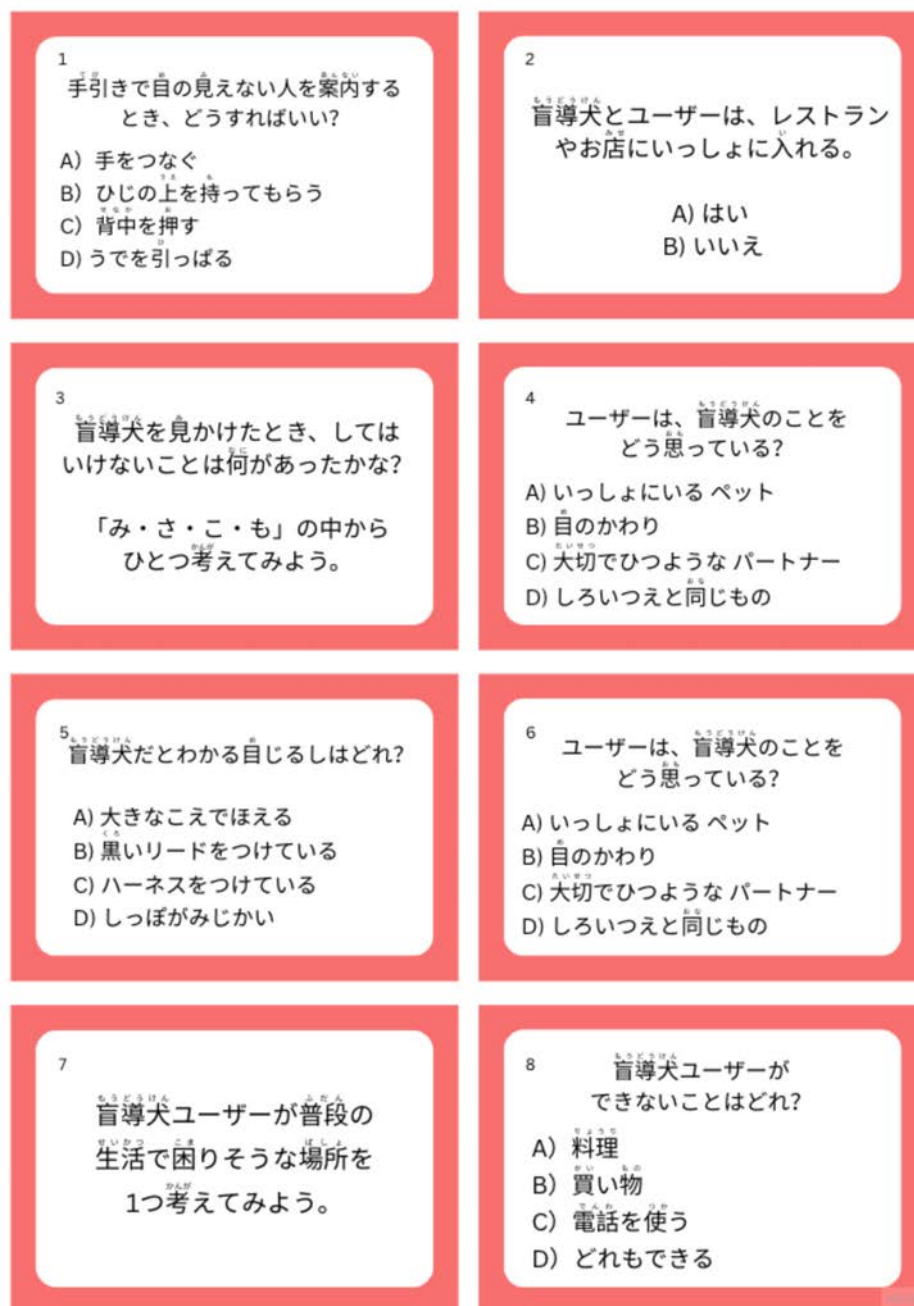


Figure C.1 Challenge Quiz Cards 1-8

9 盲導犬に出会ったら、 まずどうするのがよい? A) なまえをよんでみる B) おやつを見せる C) そっと見守る D) となりを歩く	10 盲導犬をなでてもいいの? A) はい、だれでもなでてもいい B) はい、犬が嬉しそうならなでてもいい C) いいえ、しごと中はなでてはいけない D) いいえ、盲導犬はほかの人がきらい
11 盲導犬とユーザーに会ったとき、 どんなふうに手伝えがいい? A) 何も言わずに犬をひっぱる B) 「お手伝いしましょうか?」と聞く C) ユーザーの体をさわる D) 犬にえさをあげる	12 このステッカーは何のためにある? A) お店がかわいく見えるように B) どんなペットでも入っていいし C) 盲導犬といっしょに入れるし D) お店のセールのお知らせ 
13 盲導犬はユーザーといっしょに タクシーや電車にのれますか? A) はい B) いいえ	14 盲導犬はユーザーとどこに 入ることができる? A) 病院 B) レストラン C) 飛行機 D) 上のぜんぶ
15 盲導犬はいつはたらくの? A) ねているときもはたらいている B) ごご6時まで はたらいている C) ハーネスをつけているとき D) 雨の日は はたらかない	16 道で盲導犬を見かけたとき、 やってはいけないことはどれ? A) さわる B) 声をかける C) おやつをあげる D) 上のぜんぶ

Figure C.2 Challenge Quiz Cards 9-16

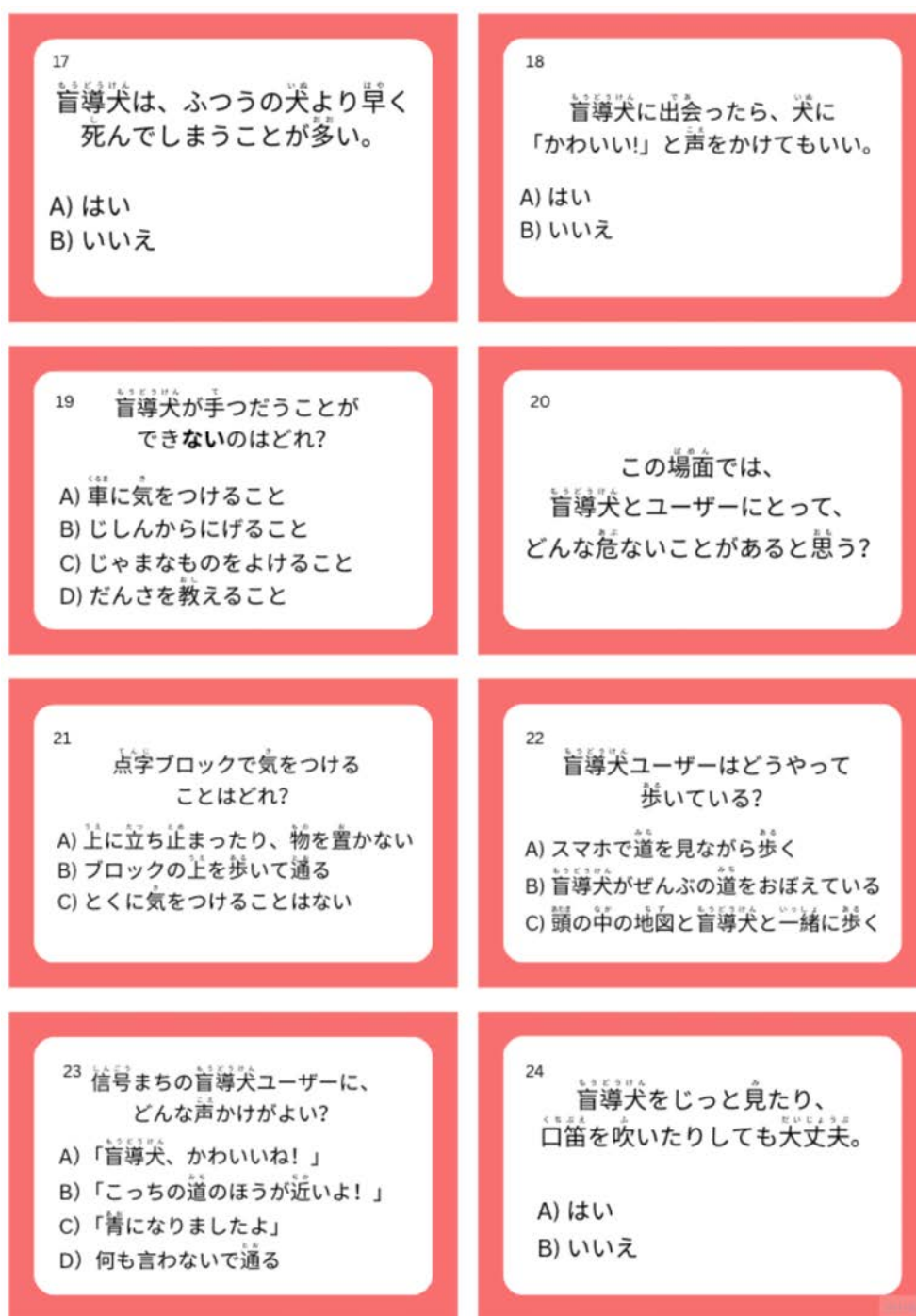


Figure C.3 Challenge Quiz Cards 17-24

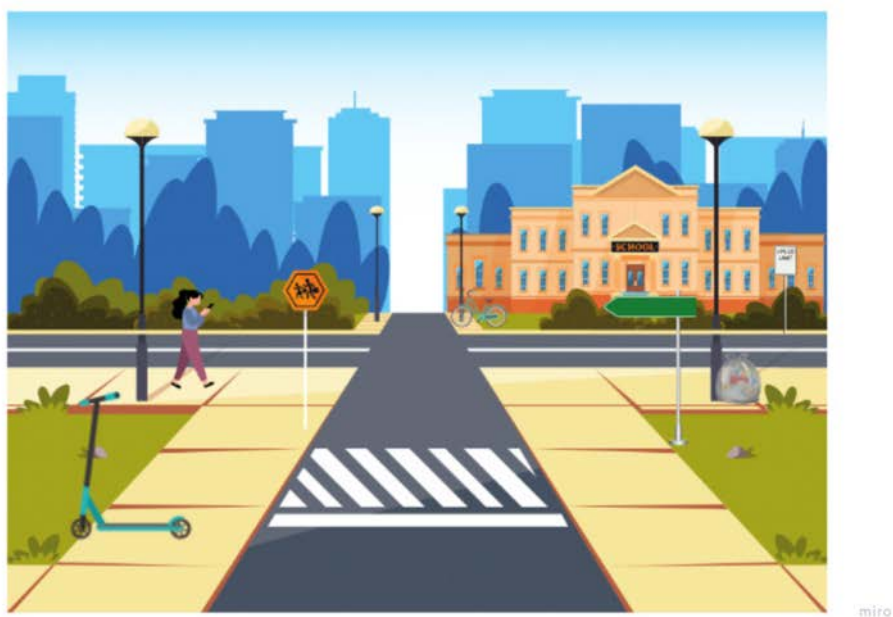
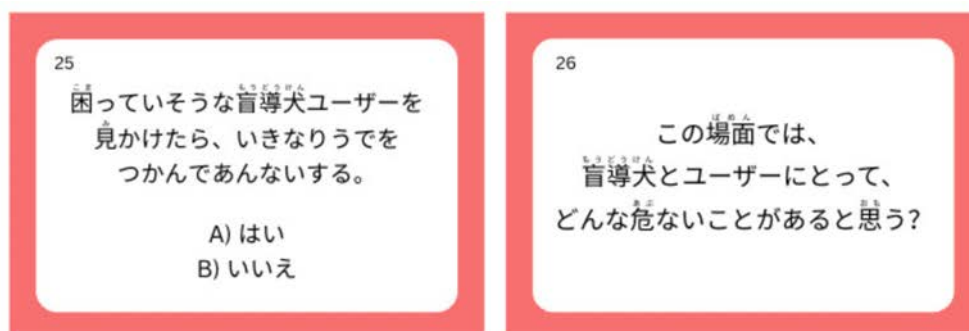


Figure C.4 Challenge Quiz Cards 25-26 and scene image for Q20&Q26

D. Hanashiai Cards

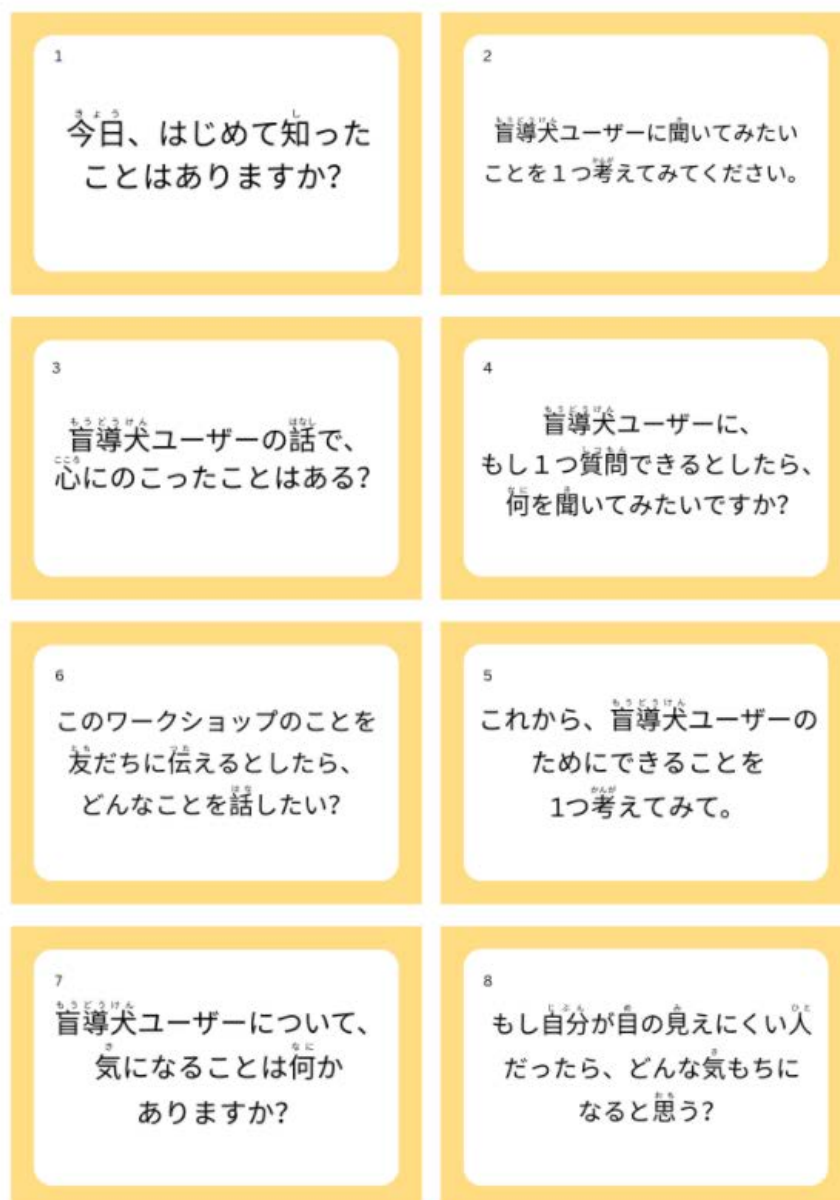


Figure D.1 Hanashiai Cards 1-8

E. Facilitation Guide - Mamechishiki Quiz Cards

豆知識クイズ



Q1. どんな犬が盲導犬になれるの？

ヒント: 人が苦手な犬は難しいよね。

正解: B) 人といっしょにいるのが好きな犬

説明: 人が大好きで、おだやかな性格の犬が盲導犬に向いています。

Q2. ハーネスをつけた盲導犬は、何をしている？

ヒント: ハーネスをつけていない時は、ふつうのペット。じゃあ、ハーネスをつけている時はー

正解: C) お仕事

説明: ハーネスをつけているときは、ユーザーを安全に案内する大事なしごとです。

Q3. 盲導犬のくんれんにどのくらい時間がかかる？

ヒント: 10週間はちょっと短いし、4年は長すぎるかもね。

正解: C) 1年

説明: 子犬時代のあと、盲導犬協会で約1年間訓練を受けます。

Q4. どんな犬が盲導犬になるの？

ヒント: 体が大きくて、おだやかでかしい犬が多いよ。

正解: D) ラブラドル・レトリバー

説明: かしくて人にやさしい性格のラブラドルが多く使われます。

Q5. 盲導犬はどこではじまった？

ヒント: ヨーロッパの国だよ。

正解: C) ドイツ

説明: 日本に初めて盲導犬が紹介されたのは、1938年です。

Q6. 盲導犬はほえない。

ヒント: しつけられているけど、犬だよ。

正解: B) いいえ

説明: ほえないように訓練されているけど、犬だから絶対とは言えない。吠えることもあります。よくある勘ちがいです。

Q7. 盲導犬が服を着ているのは、なぜ？

ヒント: まわりの人や場所への気くばりとして着ています。

正解: B) 毛がぬけるのをふせぐため

説明: レストランなどで毛が落ちないように、服を着ることがあります。

Figure E.1 Mamechishiki Quiz Facilitation Guide Page 1

Q8. 盲導犬は、子犬のころどこでそだつ？

ヒント: ボランティアの家族といっしょに、家の中でくらしします。

正解: C) ボランティアの家

説明: 生まれてから約1年間、家族の一員として人とすごし、人に慣れることを学びます。パピーウォーカーと呼ばれるボランティアの家庭で育てられます。

Q9. 盲導犬は何年ぐらい働くの？

ヒント: たくさん訓練するから、3年だけじゃもったいないよね。でも、10歳ぐらいで引退する犬が多いよ。

正解: C) 8年

説明: 盲導犬は2歳から仕事を始めて、10歳ぐらいで引退します。だから、だいたい8年間働きます。

Q10. 盲導犬はオス・メスと、どちらが向いているのですか？

ヒント: 人と同じで、性別よりも性格が大切です。

正解: C) 両方

説明: 盲導犬にはオスもメスもいます。大事なのは性格で、人とよくなじむ犬が選ばれます。

Q11. 2024年げんざい、日本ではたらいっている盲導犬は何匹いるのでしょうか？

ヒント: 300は少なすぎるけど、1000はちょっと多すぎるかも。

正解: C) 約800匹

説明: 2024年時点で、日本で活動している盲導犬の数は約800匹です。多くの人が必要としている一方で、数は限られています。

Q12. 盲導犬は引退したあと、どうするの？

ヒント: 長年働いたあとは、家庭で落ち着いて過ごせるといいですね。

正解: A) ボランティアの家でくらす

説明: 平均8年間働き引退後の盲導犬は、ボランティアの家庭で家族の一員として穏やかに暮らします。

Q13. 横断歩道をわたるタイミングを決めるのは、だれ？

ヒント: 盲導犬は信号の色を見分けられないよ。

正解: B) 盲導犬ユーザー

説明: 盲導犬ユーザーが周囲の音などを頼りに、信号をわたるタイミングを判断します。

Q14. この2つの点字ブロック、それぞれどんな意味があるの？

ヒント: このブロックは「止まれ」の意味。じゃあ、もう一つは？

正解例: 進む方向や止まる場所を教えるため（自由記述式でも可）

説明: 点字ブロックは、進む・止まるの合図として使われています。目が見えない人のための大事な道しるべです。

Figure E.2 Mamechishiki Quiz Facilitation Guide Page 2

Q15. 盲導犬ユーザーは、何語で盲導犬に指示を出すの？

ヒント:ふだんの会話とまちがえにくい、かんたんな言葉が使われます。

正解: B) 英語

説明: 盲導犬には「Sit」「Go」などの英語で指示を出します。日本語は言い方が色々あるので、英語のほうがまちがえにくく、犬にもわかりやすいです。

Q16. 盲導犬は何才まで働く？

ヒント: 年をとる前に引退して、おうちでゆっくりすごします。

正解: C) 10才

説明: 引退の時期は犬の体調によってちがいます。盲導犬の寿命は12-14年ほどなので、のこりの時間はゆっくりすごします。

Q17. 盲導犬はどうやってトイレに行くの？

ヒント: トイレのタイミングもくんれんで決まっています。

正解: D) 合図でトイレをするようにしている

説明: 盲導犬は「ワン・ツー！」などの合図でトイレをするように、子犬のころからくんれんされています。

Q18. 盲導犬は、どんな人が利用するの？

ヒント: 盲導犬は、ユーザーの「目」になるんだよね。

正解: B) 目が見えにくい人

Q19. 歩いているとき、盲導犬が教えてくれないのはどれ？

ヒント: 段差など、歩くときに危ないものを教えるように訓練されています。

正解: D) 歩いてきている人

説明: 人が近づいてきても、それを教えることはできませんが、段差や角などは体の動きで知らせます。

Q20. 盲導犬は1日の中で、どのくらいの時間働いているの？

ヒント: 1日に自分がどのくらい歩いているか考えてみて。

正解: A) 20～30%

説明: それ以外の時間は普通のペットとしてすごしています。

Q21. 盲導犬が働いていないとき、何をしているの？

ヒント: ハーネスをつけていない時は、遊んだり人に撫でてもらったりしてもいい時間。

正解: D) 普通のペットのようにすごす

説明: 遊んだり、寝たり、普通のペットと同じようにすごしています。

Q22. 盲導犬は信号の色がわかる？

ヒント: 信号では、まわりの人が声をかけてくれると安心だね。

正解: B) いいえ

説明: 盲導犬は信号の色を見分けることはできません。ユーザーが音や周りのようすを聞いて、道をわたるタイミングを決めます。

Q23. 盲導犬はどこでくんれんするの？

ヒント: やっぱり、プロの先生がトレーニングする場所のほうが安心だね。

正解: B) くんれんセンター

説明: 盲導犬は、特別なくんれんセンターでプロのトレーナーによって1年間でいねいに訓練されます。

Q24. 八千代市に盲導犬ユーザーは何人いるの？

ヒント: 思ったより少ないかもしれません。

正解: B) 2人

説明: 2024年の時点で、八千代市には盲導犬を使っている人は2人だけです。だからこそ、正しい知識をもつ人がふえることが大切です。

Q25. どの色の犬が、盲導犬になりやすい？

ヒント: 自分の髪の色って、できることに関係あるかな？

正解: D) 色はかんけいない

説明: 盲導犬に向いているかどうかは性格や落ち着きが大事で、毛の色は関係ありません。

Q26. 盲導犬は何を見つけるのがとくい？

ヒント: 歩いているときに見つけられると助かるもの。

正解: B) ドアやかいだん

説明: 盲導犬は、段差、階段、ドアなど、道の中で大事な場所を見つけてユーザーに教えてくれます。

Q27. 盲導犬を利用している人のことを、なんてよぶ？

ヒント: 今日お話してくれた人のことを思い出してみよう。

正解: A) 盲導犬ユーザー

Q28. 盲導犬が働いていないときは、どうやって分かる？

ヒント: 盲導犬が働いている印は何だった？。

正解: C) ハーネスをつけていないとき

説明: ハーネスをつけていないときの盲導犬は、お仕事中ではなく、自由に過ごしています。

Q29. 盲導犬はどんなことができる？

ヒント: 道をあそびだけじゃなくて、ほかにもいろんなおしごとがあるよ。

正解: D) 上のぜんぶ

説明: 盲導犬は、ユーザーの指示でドアや階段、イスなどを見つけて、触れる場所まで案内することができます。他にも、角や段差を教えたり、しょうがい物をよけたりして、安全に歩けるように手つだいます。

Q30. 盲導犬がいても、ほかのペットをかってもいい？

ヒント: お仕事をしていない時間は、ふつうの犬としてすごしている。

正解: A) はい

説明: 他のペットといっしょにくらしている人もいます。

Figure E.5 Mamechishiki Quiz Facilitation Guide Page 5

F. Facilitation Guide - Challenge Quiz Cards

チャレンジクイズ



Q1. 手引きで目の見えない人を案内するとき、どうすればいい？

ヒント: 安心できるように、体の一部をそっと持ってもらいます。

正解: B) ひじの上を持ってもらう

説明: 手引きでは、盲導犬ユーザーにひじの上を持ってもらい、案内者は盲導犬ユーザーの半歩前を歩くのが安心で安全です。

Q2. 盲導犬とユーザーは、レストランやお店にいっしょに入れる。

ヒント: みんなが行ける場所には、ユーザーも行けたほうがいいよね。

正解: A) はい

説明: これは法律で決まっています。

Q3. 盲導犬を見かけたとき、してはいけないことは何があったかな？

「み・さ・こ・も」の中からひとつ考えてみよう。

ヒント: 犬の仕事のじゃまになることは、しないほうがいいよね。

正解: 見つめない、さわらない、声をかけない、物をあげない

Q4. 「み・さ・こ・も」の中から、さっきとちがうものをもう一つ考えてみよう。

ヒント: ほかに、盲導犬の仕事のじゃまになることがあったよね。思い出してみよう。

正解: 見つめない、さわらない、声をかけない、物をあげない

Q5. 盲導犬だとわかる目じるしはどれ？

ヒント: 見た目で「この犬はおしごと中」ってわかるものがあるよ。

正解: C) ハーネスをつけている

Q6. ユーザーは、盲導犬のことをどう思っている？

ヒント: 犬はただのどうぶつじゃなくて、いっしょに生きていくかまなんだ。

正解: C) 大切にひつようなパートナー

説明: 盲導犬は、目が見えにくい人の生活を支える、大切に必要存在です。道を歩くときだけでなく、毎日の生活やこころの支えにもなっています。

Q7. 盲導犬ユーザーが普段の生活で困りそうな場所を1つ考えてみよう。

ヒント: 「人が多い場所ってどこ？」

例:

- 電車やバスなどの公共交通
- 人や車の多い交差点
- レストランやお店の中

Figure F.1 Challenge Quiz Facilitation Guide Page 1

Q8. 盲導犬ユーザーができないことはどれ？

ヒント：見えなくても、いろいろなことができるよ。

正解：D)どれもできる

説明：目が見えにくくても、サポートがあれば、ほとんどのことができます。盲導犬ユーザーも、買い物や旅行、料理など、たくさんのことを自分でしています。

Q9. 盲導犬に出会ったら、まずどうするのがよい？

ヒント：じゃましないのが大事だね。

正解：C)そっと見守る

Q10. 盲導犬をなでてもいいの？

ヒント：おしごと中の犬のじゃまをすると、ユーザーがあぶないめにあうかも。

正解：C)いいえ、しごと中はなでてはいけない

Q11. 盲導犬ユーザーに会ったとき、どうやって手伝えばいいかな？

ヒント：まずその人に声をかけたほうがいいよね。

正解：B)「お手伝いしましょうか？」と聞く

説明：いきなり触らず、まず声をかけることが大切です。

Q12. このステッカーは何のためにある？

ヒント：「Welcome」って書いてあるね。これは「どうぞ入ってください」という意味だよ。

正解：C)盲導犬といっしょに入れるしるし

説明：このステッカーは、盲導犬といっしょにお店や施設に入れることを知らせるマークです。盲導犬ユーザーが安心して入れるように作られています。

Q13. 盲導犬はユーザーといっしょにタクシーや電車にのれますか？

ヒント：タクシーや電車にのれなかったら、いろんな場所に行くのがたいへんだよね。

正解：A)はい

説明：盲導犬は法律で認められていて、ユーザーといっしょにタクシーや電車などの交通機関を利用できます。

Q14. 盲導犬はユーザーとどこに入ることができる？

ヒント：ほかの人と同じように、ユーザーもいろんな場所に行けるようにしているよ。

正解：D)上のぜんぶ

説明：盲導犬は法律でいろいろな場所に入れますが、じっさいにはことわられてしまうことも多く、もっと理解がひつようです。

Figure F.2 Challenge Quiz Facilitation Guide Page 2

Q15. 盲導犬とユーザーに会ったとき、どんなふうに手伝えばいい？

ヒント: どうやって手伝えばいいかは、ユーザーに聞くのがいちばんだよ。

正解: B)「お手伝いしましょうか？」と聞く

説明: いきなり触らず、まず声をかけることが大切です。

Q16. 道で盲導犬を見かけたとき、やってはいけないことはどれ？

ヒント: 犬にちゅうもくすると、犬がよそ見をしてしまうかも。

正解: D) 上のぜんぶ

Q17. 盲導犬は、ふつうの犬より早く死んでしまうことが多い。

ヒント: 盲導犬も、ほかの犬と同じように、大事にそだてられているよ。

正解: B) いいえ

説明: 仕事をしていてもストレスは少なく、健康管理もしっかりされているので長生きします。これはよくある誤解です。

Q18. 盲導犬に出会ったら、犬に「かわいいね！」と声をかけてもいい。

ヒント: 犬は大きな声や音で気がちってしまうことがあるよ。

正解: B) いいえ

説明: ユーザーや盲導犬には言わないほうがいいけど、お友達とこっそり言い合うのはOK!

Q19. 盲導犬が手つだうことができないのはどれ？

ヒント: 地しんがおきたとき、どうすればいいかを犬が考えるのはむずかしいよね。

正解: B) じしんから一緒ににげること

説明: だからこそ、まわりの人のサポートが大切です。

Q20 & Q26. この場面では、盲導犬とユーザーにとって、どんな危ないことがあると思う？

例こたえ:

1. 歩道に停められているスクーター
2. 点字ブロックがない
3. 低い位置に出っ張っている看板
4. 歩道にゴミが置かれている
5. スマホを見ながら歩いている人
6. 歩道に停められている自転車
7. 信号がない



Figure F.3 Challenge Quiz Facilitation Guide Page 3

Q21. 点字ブロックで気をつけることはどれ？

ヒント: 目の見えない人の道しるべだよ。

正解: A) 上に立ち止まったり、物を置かない

説明: 点字ブロックは、目の見えない人のための大切な道しるべです。じゃまをしないようにしましょう。

Q22. 盲導犬ユーザーはどうやって歩いている？

ヒント: 出かける前に、しっかりじゅんびしてるよ。

正解: C) 頭の中の地図と盲導犬といっしょに歩く

説明: ユーザーは行く場所の地図を頭の中に入れておいて、盲導犬といっしょにたしかめながら歩きます。盲導犬は道をおぼえているわけではなく、安全に歩くお手つだいをしてくれます。

Q23. 信号まちの盲導犬ユーザーに、どんな声かけがよい？

ヒント: 音がならない信号もまだ多くて、いつ渡ればいいのか分かりにくいこともあるかもね。

正解: C) 「青になりましたよ」

説明: 信号の色は盲導犬にはわからないので、ユーザーにやさしく教えてあげると助かります。

Q24. 盲導犬をじっと見たり、口笛を吹いたりしても大丈夫。

ヒント: 人でも、だれかに見られたり音を出されたら気がちるよね。

正解: B) いいえ

説明: じっと見たり音を出したりすると集中できなくなってしまうことがあります。

Q25. 困っていそうな盲導犬ユーザーを見かけたら、いきなりうでをつかんで案内する。

ヒント: 自分も、いきなりだれかにさわられたらびっくりするよね。

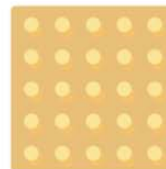
正解: B) いいえ

Figure F.4 Challenge Quiz Facilitation Guide Page 4

G. Facilitation Guide - Hanashiai Cards

話し合い質問

(子どもが言った質問をメモしてください。)



Q1. 今日、はじめて知ったことはありますか？

ヒント: 「ゲームやお話の中で『へえ〜』って思ったことある？」

Q2. 盲導犬ユーザーに聞いてみたいことを1つ考えてみてください。

Q3. 盲導犬ユーザーの話で、心にのこったことはありますか？

ヒント: 「どんなお話がいちばん印象にのこった？」

Q4. 盲導犬ユーザーに、もし1つ質問できるとしたら、何を聞いてみたいですか？

Q5. このワークショップのことを友だちに伝えるとしたら、どんなことを話したい？

ヒント: 「びっくりしたことやおもしろかったことを友だちに教えるとしたら？」

Q6. これから、盲導犬ユーザーのためにできることを1つ考えてみて。

ヒント: 「もし困っているユーザーを見かけたら、どんなことができるかな？」

例:

- 信号のときに「青になりましたよ」と声をかける
- 点字ブロックの上に立たないようにする
- 静かに見守る
- 仕事中の盲導犬のじゃまをしない
- まわりの人に盲導犬について教える
- レジ待ちの列が進んだことを教えてあげる

Q7. 盲導犬ユーザーについて、気になることは何かありますか？

Q8. もし自分が目の見えにくい人だったら、どんな気持ちになると思う？

ヒント: 目をつぶって歩いたら、どんなことが怖いか難しいと思う？ 盲導犬と歩いてみたいと思う？

Figure G.1 Hanashiai Facilitation Guide Page 1

H. Data Table from Students Questionnaire Responses

	ぜんぜんそう思わない		ふつう		とても思う	Total Kids
① このゲームは楽しかった。	0	0	1	3	14	18
	ぜんぜんそう思わない		ふつう		とても思う	
② 盲導犬のことが前より分かるようになった。	0	0	1	3	14	
	ぜんぜんそう思わない		ふつう		とても思う	
③ 盲導犬ユーザーにどう手伝えばいいか、分かるようになった。	1	0	1	5	11	
	ぜんぜんそう思わない		ふつう		とても思う	
④ もっと 盲導犬のことをしりたくなった。	3	0	2	6	7	
	ぜんぜんそう思わない		ふつう		とても思う	
⑤ ゲームのやり方やルールは分かりやすかった。	1	1	0	2	14	

Figure H.1 Students answers to questionnaire