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Robotic Imposters with Human Helpers: An Anthropological Study of Social Robots in Staged and Unstaged Settings in Japan

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Abstract—This anthropological study examines two different hospitality settings in Japan: a café and an airport that have implemented robots in their daily work. Using concepts of staged and unstaged settings, we observed robots and interviewed staff on how workplaces with a staged setting, people going to a robot café, differed from an unstaged setting, an airport, where experiencing robots were not expected by visitors. We draw on social scientific theories in our analysis, namely imaginaries and imposter, to examine how expectations shape the integration of robots into the workplace, both in staged and unstaged environments. Through a thematic analysis, the findings show considerable differences between staged and unstaged settings, including the dismissal of robots by staff in unstaged settings and the more apparent positive perceptions and integration of robots in the workflow in staged settings. By analysing how robots potentially are integrated into existing workflows, this paper highlights the importance of anthropological methods within HRI, particularly for understanding the gap between imagined functions and everyday practices.

Index Terms—Ethnography, Hospitality and Tourism, Staged, Unstaged, Anthropology, Critical HRI

I. INTRODUCTION

The ambition of integrating robots into the workplace and replacing repetitive human tasks is becoming increasingly common [1], [2], [3]. Since Covid-19, service robots have been progressively integrated into the hospitality and tourism industry [4], [5] such as in hotels [6], [7], [8], restaurants and cafes [9], [10], and airports [11]. This rise in everyday human-robot interaction (HRI) has brought renewed global attention to Japan, a country long associated with a unique cultural and technological perspective on robots.

In Japan, robots have been used as symbols of national pride and innovation [12], making Japan an empirical testbed to understand the deployment of robots in the workforce [9], [2], [12]. Though, studies have pointed to service and social robots in Japan often failing to live up to their expected functions [2], [12]. This presents an opportunity to conduct anthropological work through observations and interviews, uncovering nuances to social robots in hospitality settings.

Anthropological methods have been used within HRI [9], [2], [12] to deconstruct and bring to light “obvious truths” [13], here the deployment of robots in hospitality and tourism settings. In this study, we build from Kamino and Šabanović [9]’s concept of “staged” settings. The concept is used to emphasise how most people first encounter social robots

in structured environments where robots are programmed according to socially and culturally constructed norms about how a robot *should* act. We therefore depart from “staged” robotic settings to compare to robots in, what we coin as “unstaged” settings. An “unstaged” setting is defined as an environment in which people do not expect to interact with robots and where the interaction does not follow a set structure. Accordingly, this study is conducted in Tokyo, Japan, at Haneda Airport (the “unstaged” setting) and Pepper Parlor (a robot café, the “staged” setting), both located within the hospitality and tourism industry where employees are expected to work alongside robots.

To better understand the dynamics between robots and staff in a Japanese context, this anthropological study aims to compare how robots are integrated in staged and unstaged settings (1) through observations and (2) interviews with employees and management. These aims are addressed through the following research questions:

RQ1. What are key differences and similarities between staged and unstaged settings regarding social robots in the Japanese workplace?

RQ2. What recurring expectations of employees and management are reproducing and shaping understandings of robots?

RQ3. To what extent are employees adapting to the robot as the robot is integrated in the observed workflow?

II. RELATED WORK AND KEY CONCEPTS

A. The Japanese Image of Robots

Japan is in general known as a country with strong faith in the usefulness of humanoid robots in anything from the private home to hospitality settings [9] and elderly care [2]. Robertson addresses how the Japanese government uses robots to portray and reproduce the image of a robot-friendly country [12]. Furthermore, Nakao argues how political and technological identity in Japan is created through robots [14] whilst Sone describes robots in Japan as performers, highlighting their symbolical and emotional importance in engaging audiences rather than executing tasks [15]. Kamino and Šabanović further build on this by exploring how service robots in Japan are presented to the public, arguing that the Japanese robot culture consists of different ideas and visions that shape how HRI is imagined [9].

B. Anthropology in HRI

Ethnographical methods—which we refer to as observations—have been used by anthropologists to study

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HRI [16], [2], [17], [18]. Wright relates ethnography to the Japanese manufacturing term *genba* which he translates to “places where reality happens” [2, p.17]; *genba* is significant when studying robotics to “break through government and media narratives and national stereotypes” [2, p.17]. Anthropological studies do not tend to get published in HRI venues—Kamino and Šabanović marking an exception to this [9]. Nevertheless, Blond highlights the importance of ethnography within HRI as it deepens the insight on how robots are integrated in everyday settings [19]. Using ethnography therefore allows researchers to understand how people encounter robots in everyday settings that are shaped by social dynamics, rather than by abstract narratives and policies.

C. Robots as Imposters/Impostering

Johnson [20] introduces the concept of *Pepper as Imposter*, which we draw on throughout this paper. Here, imposter refers to how robotic applications are shaped by policy agendas, funding opportunities, perceived societal needs and media. In this sense, robots may come to imposter a setting by performing roles that align with expectations surrounding robotics, rather than directly addressing the practical realities of the context in which they are deployed. This highlights the influence of imaginaries, as envisioned robotic applications often respond to media-driven expectations about what robots should do. In practice, this has been demonstrated by Wright [2]. Though Wright does not use the term impostering, he demonstrates that care robots often increase workload and are mainly used for promotion [2]. Subsequently, the deployed robots were rarely used by the staff in the care facilities.

D. Robots in Hospitality and Tourism

There have been growing amounts of studies of robots operating in public spaces [21], [22]. Specifically within tourism and service industry robots are also gaining traction [3]; with studies exploring the relationships between robots, customers, and employees [23], trust [24], anthropomorphism [16] and user experiences [25]. These studies are however, mostly limited to quantitative research and user experience. Some qualitative studies have investigated hotel employees and guests’ perception, which have demonstrated that robots improve experiences for guests and employees [26], [27].

E. Performativity and Social Robots

The concept of performativity is becoming increasingly popular within HRI [28]. Kamino and Šabanović discuss performative staged settings, environments where human-robot interactions are more structured, which in turn shapes how robots are perceived. Multiple HRI studies also use the concept of *mise-en-scenes* [9], [15], [29]. Lee et al. [29] conceptualize the social robot as an ensembelist—a collaborative partner working alongside restaurant staff to co-create a positive guest experience.

Location	Activity	wk 1	wk 2	wk 3	wk 4	wk 5
Haneda Airport	Observations	2	2	2	2	2
Haneda Airport	Interviews			1		
Pepper Parlor	Observations	2	2	2	2	2
Pepper Parlor	Interviews	1		1		1

TABLE I
STRUCTURE OF FIELDWORK

III. METHODS

A. Data Collection

This study was conducted through multi-sited ethnographic fieldwork in Tokyo, Japan, between February and March 2025 over a period of five weeks. Two field sites were visited, a café and an airport. At these sites, ten observations were carried out and four semi-structured interviews were held with both employees and management at both venues (see table 1 for breakdown).

This study did not require ethics approval as it did not have physical interventions, mental or physical risk to participants, or processing of sensitive personal data. Nevertheless, we ensured to protect the privacy and confidentiality of every person observed, especially interviewees. Interviewees voluntarily took part and gave informed consent before the interviews. All names in this study were pseudonymised, and no photographs include identifiable data of persons.

B. Participant Observation

Throughout the ethnographic fieldwork, participant observation was employed as a central methodological approach, Haneda Airport and Pepper Parlor. Spending a longer time on-site, observing, interacting with informants and just being a part of the regular routine not only deepens the understanding of an everyday context but highlights possible disconnections between what is said in interviews and what actually happens in reality. This approach is inspired by the anthropological concept of “deep hanging out” [30], coined by Rosaldo, a process of immersive engagement where spending a longer time on site is seen as crucial and includes interacting with the informants on a deeper level.

At Haneda Airport, several tourist information centres feature the social robot Mork. The first author spent time rotating between these different centres speaking to employees as well as observing interactions with the robot. Some were more open to conversation than others. When asking for further interviews, they refused. The conversations with the employees at Haneda Airport were therefore the most important source material for that site. This is however not viewed as a limitation within ethnography, since conversations with informants are just as important as interviews [31]. One interview for this venue was held with someone working as a manager at Haneda airport in charge of Mork robots, referred to as ‘manager’ in the results.

At Pepper Parlor, where employees were busy and the access to the front-of-house areas were restricted, most of the observations took place as a customer, limited to the standard 90-minute visit. The researcher ordered food, observed the

robots interacting with employees and customers, and was having casual conversations with the employees. Interviews included two servers working at Pepper Parlor, which we refer to as ‘employees’ in the results, one person working at SoftBank Robotics, referred to as ‘manager’.

All of the interviews and conversations were held in a mix of English and Japanese language. On top of these interactions and observations, field notes, pictures and sketched images of interactions or how the robot was positioned. The researcher also interacted directly with the robots to gain a better understanding of their functionality.

C. Reflexivity

Anthropological studies are a reflexive process, where researchers must acknowledge their positionality and how their cultural background affects the interpretation of the data is crucial [32], [33]. In multi-sited ethnographies, the position of the researcher naturally shifts depending on the site [34]. These different positions or “selves” [32] result in the researcher being perceived differently depending on the context and the perspectives of the informants: at times a customer or a researcher. At Pepper Parlor, the researcher was a customer when observing, but clearly a researcher when interviewing employees outside of the workplace. At the airport, the researcher did not use the services, and thus was only viewed as a researcher. Furthermore, regarding language, Marcus [34] has pointed to the challenges of navigating different types of knowledge and languages in transnational research. Although not fluent in Japanese, prior language study and a long time spent in Japan enabled this fieldwork; previous experiences of the language and culture have thus helped to undertake this study and reflect on the role of robots in hospitality and tourism workplaces.

D. Data Analysis

As ethnographies are qualitative, we used a thematic analysis to analyse the data and categorise the data in different groups according to themes/topics. We followed Braun and Clarke’s five steps to conduct a thematic analysis [35]: (1) Familiarisation, (2) Initial Coding, (3) Theme Search, (4) Theme Review, and (5) Naming and Definition. Since ethnographies rely on observation to uncover behaviours and understandings of robots in-the-wild, no pre-determined themes were established and we used an inductive approach to best represent the data collected. Whilst the data collection was done only by the first author, the analysis was done between the first and third author together on NVivo. The five steps were adhered to, whereby after familiarisation, initial codes were discussed to find themes, then those themes would be tested on other observations and interviews, then agreed upon and defined in our codebook.

IV. RESULTS

A. Setting the (un)Stage

1) *Staged: The Predictability of Pepper Parlor:* Pepper Parlor is a café owned by SoftBank Robotics (at the time of the study), the then manufacturer of Pepper robots, located in

a shopping mall in the center of Tokyo. The visit is limited to a 90 minute time slot where customers must purchase food and/or drink. Pepper Parlor represents a staged environment as people purposely go to the café with the intention of meeting robots, and the interactions follow a certain flow. Pepper will provide pre-set phrases as well as entertainment for customers, although it will not serve food. On Pepper’s chest there is a screen with different functions, which the customer can choose from, ranging from dancing, singing and recommending food. Despite the name of the café, there are not only Pepper robots, but also Servi robots and Pudu robots, used for serving and returning dishes. The Servi robots take on the role of the server, carrying and delivering food to the guests from the kitchen. Drinks are served by the employees due to the risk of spillage, as small bumps in the floor can cause the glasses to tip over. The third robot, the Pudu robot, returns used dishes to the kitchen once it has been filled by the employees. Pepper is however the only humanoid robot and clearly presented as the main attraction.

2) *Unstaged: The Surprise of Mork at Haneda Airport:* Haneda Airport is one of the busiest airports in the world. Located south of Tokyo city, the airport receives around 85 million passengers a year [36] and hosts several service robots across its terminals. Among them are Mork robots stationed around eight different areas in the airport, i.e. in two out of three terminals. Six of the Mork robots are placed on the counter or slightly to the side of tourist information centers, each accompanied with a sign that reads “under trial period”. Usually the researcher spent two hours per visit at the airport between different terminals and information centres. The placements of Mork at Haneda Airport is an example of unstaged settings: People are not expecting to see a robot—or necessarily interested in its functions. People simply stumble upon the robot. The length of the researcher’s visits at the tourist information centres varied depending on the availability of the informants. During busy hours, less conversations could be had with employees; some informants were also less interested in speaking about the robot—leading to no interviews with employees. Mork robots are intended to help costumers at the tourist information centres by displaying directions on a map or answer questions asked through a microphone. In practice however, responses were often wrong or unrelated. Many children did approach the robot with their parents, but the microphones were positioned too high for children, rendering the robot unresponsive. Few adults approached Mork, and the people who could access the robot only looked at the screen and did not speak.

B. (Unmet) Expectations

1) *Flaunting Robots at Pepper Parlor:* At Pepper Parlor, management highlighted how the robots were meant to collaborate with the employees, underlining a future vision of a world where robots and humans live and work together side by side. The expectations of how the robots should be perceived by customers and employees were also apparent. During an interview, management expressed: “We make it [Pepper Parlor] like a research program or like an adver-



Fig. 1. From left to right: Pepper Robot, Pudu Robot, Servi Robot (all at Pepper Parlor), and Mork Robot (Haneda Airport). Photos taken by first author.

tisement to show people that we can use robots to provide the service. Also, people can co-work with the robot.” These assumptions of robots being integrated into and coexisting within the workplace contrasts with the reality where employees are still expected to ensure their functioning. Since Pepper Parlor is promoted as a robot café where people can meet robots, the expectations of customers were evident. For instance, during one observation, two women wanted to take a picture with Pepper and physically pushed it into position, which could highlight how some customers viewed the robot more as a photo opportunity or novelty. Most employees agreed that tourists were a significant part of the clientele and that their expectations of the café affected the employees both in their mindset and their work. Some also mentioned how foreign tourists seemed to have higher expectations on Pepper Parlor than Japanese customers. One employee mentioned how Pepper Parlor matches tourist expectations of Tokyo, but it does not match those of society at large, saying that “(...) many people think Tokyo is techy, actually we are not, we still use cash everywhere”.

2) *Dismissal of Robots at Haneda Airport:* Similarly to Pepper Parlor, management at Haneda Airport expressed high expectations on the collaboration between robots and employees at the tourist informations. For instance, Mork robots are envisioned to support the employees during busy hours and share the workload. At the same time, the manager emphasized how the robot was part of an experiment hence the “under trial period” sign. Overall, the management of the Mork robots stated that this was just the beginning of a human-robot collaborative future, especially with the rise of generative AI. According to employees and management, Mork was first introduced during Covid-19 as a way for employees to give people information while keeping social distance. Through microphones and cameras installed in the robots, the employees could still do their work but from a different location, avoiding face-to-face interaction. After the pandemic, the robots and employees started to work side by side, meaning that the robot were no longer operated by staff. This was motivated by management as a way to support the human employees, reducing the workload from the workers. However, Mork’s functionality has been largely diminished. Aside from occasionally moving its arms, the main function is limited to the screen and microphone, allowing users to ask questions in English or Japanese and receive both a spoken and a written response back, along

with a corresponding location on the screen. It was difficult to ascertain expectations from employees at the tourist centre directly, as none wanted to be interviewed. The reason stated was that they did not see the point in talking about a robot that was not part of their workflow.

The robot failed at every interaction observed, rendering the initial users to go to the tourist information desk to ask an employee for the information they needed.

C. Perceptions of Working with Robots

1) *Positive Perceptions: Pepper Parlor.* The positive perceptions of the robots at Pepper Parlor differed between Pepper and Servi robots. Most employees described Servi as the robot that mainly supported the employees by serving meals and guiding customers to their seats. At the same time employees appeared to have a closer connection to Pepper: “The one that helps us is Servi. He guides to seats and he can carry meals. Ramen and stuff. But Peppers are doing, well... we get paid because of Pepper, so I’m thankful to him but he is not helping us in the sense of work”. Another employee expressed how the robots were making the work more efficient and probably saved money for the company. The same informant also explained how Pepper could be understood as a co-worker or a friend. An employee stressed how there are less complaints from customers overall when they are being entertained by robots, comparing prior experiences within the service industry, since there is less attention on the employees.

Haneda Airport. When asked about Mork robot, positive perceptions were only related to the appearance of it. Most employees characterised Mork as “cute”, with some comparing it to a snowman or a baby. Notably, few employees mentioned any impact on a personal level. An exception was an employee who remarked: “I see it from my desk and it’s cute so it makes me happy”. Management was hopeful that the future robots could autonomously provide answers because of large language models. Therefore Mork robots could work alongside employees: “when customers ask vague or unclear questions, it becomes necessary to engage in dialogue to understand their concerns. For this reason, we believe that human intervention is still necessary”.

2) *Negative Perceptions: Pepper Parlor.* While the robots at Pepper Parlor were seen as helpful by some employees, many expressed how they also added work. Employees were responsible for ensuring their functions as well as execute tasks that were too difficult or complicated for the robot.

For instance, management explained how employees at times had to introduce the menu to customers and highlighted that although Pepper is able to perform this task, human employees do it better. The employees were aware of this and therefore are the ones to judge if certain tasks should be carried out by a human or a robot. This was especially noticeable with drinks being served by employees and the input of table numbers by employees into the Servi robots.

One employee mentioned how customer expectations adds work. Since guests could be disappointed if an employee served the food, the Servi robots that were responsible for showing the guests to their tables would at times be used as servers during busy hours, choosing customer satisfaction over efficiency.

Informants mentioned how the robots could appear as cumbersome. This was especially clear when talking about Pepper, more so than Servi. For example, Pepper robots were manually moved by employees with their wheels audibly squeaking. Pepper's pre-programmed songs replaying in employees' heads before going to sleep and also how Pepper is not very useful or smart. Servi was described as doing all the work. Even so, Servi was described by some as slow.

Employees explained how Pepper seemed intriguing and funny when they first started working, but how the novelty wore off. They got used to the Pepper robots, such as their "behaviours" (e.g. following them around with their eyes). "Pepper is smiling actually but maybe its too mechanic smile, machine smile. Not really a true smile, they [customers] don't feel the smile".

Haneda Airport. Although Mork robots were positioned in close proximity to the employees, about a meter away from the counter, they were not a topic of interest. Employees explained how they rarely referred customers to the robot, despite management's claims that it would reduce their workload. Overall, the employees seemed to know little about the robot. One employee even refused to discuss the robot at all, claiming it was the responsibility of a different department. Further interviews outside of the tourist information centres were therefore out of the question as some employees became quiet or started talking about something else after a few minutes of conversation about the robot.

Employees expressed how the Mork robots tended to *add work* instead of helping them and perceived the robot as cumbersome. While some employees discussed how people used the robots when the line at the tourist information was long, they also shared how customers ended up at the counter anyway since they did not feel like it was helpful. Employees therefore did not share management's view that generative AI would take away some workload from them.

D. Adaptation or Integration of Robots?

1) A Hope of Integration at Pepper Parlor with Help of Employees: Adaptation from Employee to Robot. Management expressed how it was the employee's responsibility to make sure that the robots function properly as well as decide when they should be used or not when sending out food from the kitchen. It was clear during observations and

interviews, where the employees would make the call on whether to bring out the food and/or drinks themselves or how to make sure the robot does it. This was aggravated by customers who expected robots to serve food, and complained to the employee if it was not the robot doing it, passing comments such as "Why aren't the robots carrying them? We came for that".

Since the robots could not execute some of the service tasks at the restaurant, these had to be carried out by the employees. Although unclear why, the bill was brought by an employee to the table, even though there were facilities to do an instant payment next to the tables. The staff also had to adapt to robot malfunctions. For example, staff directed the Servi robot when it was going in the wrong direction, or directed the customer to the table when Servi could not. This was experienced first hand, where Servi was meant to guide the first author to her seat, but Servi could not move, since another Servi robot was coming from the opposite direction. Instead, the employee pointed at the table.

Integration of Robots in Workflow. The integration and connection between worker and robot was especially apparent at Pepper Parlor. Pudu robot was the most integrated, where employees seamlessly put dishes on the robot and the robot brought them to the kitchen. Employees were aware that they needed to ensure Pepper was functional and how this was a part of their role. In the morning, employees had to switch Pepper robots on and check the speaker volume. After closing the café, the employees had to plug in Pepper robots to charge them.

Displays of affection were also observed. Employees were seen dressing Pepper. One of the informants also described how they sometimes speak to Pepper at the end of the shift, saying that the robots seem tired and that they were worried about them.

2) Unclear Integration or Adaptation at Haneda Airport: Adaptation from visitors. Adaptation was done by the visitors, since employees rarely interacted with the robot. Visitors were therefore left to interact with the robot and attempt to make it function, usually without success. Notably, every observed visitor who interacted with a Mork robot ended up turning to the employees for help. The only indication of employee adaptation was one employee expressing how they sometimes wiped it down.

No integration in the workflow. There were no observations of Mork robots being integrated in the workflow at Haneda airport.

V. DISCUSSION

A. RQ1: Similarities and Differences of (Un)Staged

In this study, Pepper Parlor and the Haneda Airport tourist information centres serve as two contrasting environments: one **staged**, the other **unstaged**. While both locations have introduced robots in the workplace, our results point more to differences than similarities in both settings.

1) Similarities: Although staged and unstaged settings showed few similarities, employees' negative assessments (e.g. robots adding to their workload) seemed to align. This

reflects Wright's [2] findings in care settings, where robots, rather than reducing burdens, frequently ended up increasing the amount of work required by staff. Also Shin and Jeon state that there is more a displacement of work rather than an eradication of workload regarding robots in homes [18]. At both settings, management had visions for how the presence of robots could fulfil an ambition of a human-robot society, however they were not received as an actual solution or help by employees—this relates directly to Johnson's idea of imposterism [20]. Furthermore, this points to a third similarity: that the presence of robots offers a commercial opportunity.

2) *Differences*: The most prevalent difference is how customers/visitors came into contact with robots. In a staged setting, the customer is fully aware that they will meet a robot and pay money to do so. However, in an unstaged setting, it is a surprising event to see the robot. The people at the airport are there to travel, either from or to Japan, without set expectations of seeing robots. Furthermore, employees at Pepper Parlor are required to work alongside robots, whilst at Haneda airport, employees are expected but not required to. This affects the dynamics quite radically. At Pepper Parlor, the employees ensure that robots are functional, whilst at the tourist information centre, it is for visitors to create an interaction with the robot.

The staged setting of the cafe in this study draws parallels to Kamino and Šabanović's work [9], particularly in how structured environments facilitate HRI and access to robots for first time interactions. This demonstrates an attractive setting for HRI researchers to use these settings as test beds for interactions—though this might be more, or only—applicable to robots rather than employees. It is important to mention the employee's role, as they seem to be key facilitators throughout the customers' experience, even if the robots are supposedly doing most of the work. Therefore, the role of the employees should also be taken into account, as their judgement ensures customer satisfaction. Although in a different setting, Harrison and Johnson talk about *affective corners*, which is the important work a human does to enable the robot's performance [37]. However, unstaged settings, such as the Haneda airport, do not seem to present an opportunity to test out interactions. These do not provide easy-access test beds but require the HRI community to first assess what might be helpful in such a setting.

The two settings also differed in the way that the employees related to the robots. At Pepper Parlor, the employees at times seemed to speak or have a connection with Pepper. This was not echoed in the unstaged environment of the tourist information centres where the employees barely said anything to or about Mork robots.

B. RQ2: Expectations Emanating from Imaginaries

1) *Expectations*: Expectations were similar from management in both settings, but different at the level of employees and customers/visitors. Here we use expectations as preconceptions and ideas about how the robots should function made by management, employees, customers and visitors.

Expectations usually derive from moments/information prior to meeting actual robots, often from media [38]. Through methodological approach of *deep hanging out*, we are able to offer direct insight into how expectations are shaped and managed in the context of everyday HRI [30].

Management in both our settings aimed to set expectations for Japan: a futuristic place where robots and humans are on the brink of co-existing. This is a powerful imaginary, with an observed huge impact on the workplace. On the one hand, at Pepper Parlor, the employees had to adapt to this vision, at times through efforts to ensure that there would be a robot interaction with customers. Put differently, the employees were the ones to perform a certain way to ensure robots would function according to customers' expectations. On the other hand, robots at the airport instantly validated the narrative that robots are part of Japanese society, as it will be one of the first artefacts tourists will see when entering the country. However, with the huge workload employees at the tourist centre face combined with the lack of Mork robot's capabilities, resulted in employees completely overlooking the potential role of the robot. Put differently, the employees did not perform, it was only for the robot to attempt to perform in a way that would align with visitors' expectations, though it did not. This points to Sone's staged authenticity, requiring a human to ensure the robot's performance [15].

2) *Perceptions*: The perceptions of the robots at the different settings varied. Perception here refers to individual attitudes observed and discussed with the participants who continuously work with robots. At Pepper Parlor, there were three robots: Pepper robot, Pudu robot and Servi robot. Generally, Pepper robots were mostly having a symbolic function: they entertain, but do not help with workload. While in contrast Servi and Pudu robots were more helpful, according to some employees, most agreed that the robots added work. At the same time, some employees expressed appreciation for Pepper robots, noting that they were the reason employees had jobs and were being paid. The Mork robot at Haneda Airport on the other hand was clearly dismissed by the employees. Few informants were interested in having any sort of conversation about the robot and rarely referred to it, claiming that the robots did not help the customers or reduced workload. The perceptions of the robots were clearly different for staged [9] and unstaged environments.

While perceptions of the Pepper robots at times were negative, the employees acknowledged some type of value. In contrast, at the airport the complete absence of perceived usefulness meant that the robots were largely ignored. This highlights how acceptance and positive perceptions of robots are crucial for integration of robots in workplaces (pointing to challenges of integrating humanoids into public settings[12][21]).

C. RQ3: Adaptation and Robot Integration

We initially aimed to examine a spectrum between employee adaptation, where employees have to adjust to the robot and full integration where the robot is seamlessly

incorporated into the workflow. This would delineate the premises of robots and actual practices, which anthropological methods are well suited for [17]. Instead, we found that it was not as neat as expected, with much more adaptation than integration, and with adaptation largely depending on the employees (for Pepper Parlor) and visitors (for Haneda airport).

1) *Adaptation*: Adaptation refers to the employees having to directly do something to enable robot performance. Adaptation to the robots varied considerably between the two sites. At Haneda Airport adaptations were mainly carried out by visitors, not employees. When the Mork robot malfunctioned or failed to assist, the visitors had to approach the help desk and the employees did not adapt to the robot's malfunction. Employees themselves rarely interacted with the robot, mostly since it was not involved in daily routines and tasks. As a result they seemed to have little reason to adapt to the presence of Mork and simply dismissed it.

At Pepper Parlor, on the other hand, it was clear that the employees adapted to the robots. For example, by executing certain tasks when noticing robots malfunctioning. Overall, while the robots were reasonably embedded in daily routines and workflow, there was still a need for the employee to be active. This could be negative for the perception of robot integration, for example when dragging non-functioning Pepper robot loudly across the café.

The contrast between these two sites raises important questions about human-robot relations in the workplace. Yet both point to a much needed reflection: are robots *imposter* on work structures rather than reducing workload? Johnson uses that term to showcase that researchers attempt to formulate solutions which might not be aligned with the social issue [20]. In unstaged settings, the robots are expected to enter a work structure with already set routines. This does not solely demand adaptation, but an imposter on workflow—especially if employees do not adapt as observed at Haneda airport.

2) *Integration*: Though very little integration was observed, Pepper Parlor and Haneda Airport differed in how the robots were integrated into everyday workflows. At Pepper Parlor, there were daily routines that the employees followed which made them interact with the robots on a daily basis, such as making sure that the Pepper robots volume is sufficient every morning or putting dishes on Pudu robot. These interactions demonstrate an integration of robots in the workflow. At the airport, on the other hand, robots were not included in the daily work and rarely interacted with by the employees.

This contrast too relates to imposter [20]. At Pepper Parlor, robots performed as imposters by projecting a more advanced role than their capabilities allowed. At Haneda Airport, the lack of integration in employee's workload reveals a more obvious imposter effect: robots that neither fulfill intended roles nor are fully embraced by the workplace, resulting in implausibility of integration. In this case, the employees did not attempt to cover for the robots as the imposter, the robot was rendered inappropriate for their

setting. This should be viewed as a warning to roboticists: if the robots are not part of the work environment but expected to be introduced in the workflow, there must be careful consideration on how the robot can integrate the workflow. Without this, integration is not possible and the robot will be, at best, symbolic. Wright has already demonstrated that if the robot is adding more than it is benefitting the caregivers, they will take the robot out of sight [2]. Showing that a lack of consideration of the workflow, at worst, results in the robot being put away, out of sight from potential customers.

VI. LIMITATIONS AND FUTURE WORKS

This work provided initial insights into staged and unstaged environments from a small sample, which demonstrated the lack of interest from staff when they do not have the robot integrated in their workflow. The resulted in a lack of formal interviews in unstaged settings, which represent an important workforce that must still be accounted for in future studies. Furthermore, we tried mitigating as much as possible that one person did the observations and this could bring in their own biases—however this is part of anthropological work. Future works should expand and compare this study to other countries, beyond Japan.

VII. CONCLUSION

This study aimed to showcase two different venues within hospitality and tourism in Japan having robots as part of their workplace: Haneda airport and Pepper Parlor. We use the concept of *staged* and introduce the concept of *unstaged* to demonstrate the important differences between these settings, mainly of what a non-pre-programmable robot interaction would change to the workforce. *Staged* refers to an environment where people purposely go to that place, in this instance Pepper Parlor, to meet robots, and the interaction will follow a certain flow. *Unstaged*, on the other hand, refers to people not expecting to see a robot—or necessarily be interested in its functions—and it is unknown what the people will ask making it obsolete to pre-programmed interactions. By using anthropological methods, as well as building on imaginaries and *Pepper as Imposter*, we demonstrate the need to conduct *deep hang outs* in the spaces the robots are introduced in to better understand their impact. Spending time at different sites, observing daily routines, and speaking to the employees interacting with the robots as part of their work offers a unique perspective on how humans and robots are expected to work together. This demonstrates the value of anthropology within HRI, particularly in cases where a robot's performed role does not fully align with its intended or imagined functions.

We found it apparent that Pepper Parlor's staged environment allowed for robots to be better integrated in the workflow, though this success was due to the expectations of customers and employees ensuring that they fulfilled those expectations. However, Haneda airport's unstaged setting demonstrated a lack of integration into the workflow, leading to employees completely disregarding the potential utility of the robot and not adapting to it. Finally, this study emphasises

the importance of ensuring that robots do not imposter on workflow and can instead empower the employees who are expected to work alongside robots.

VIII. CONTRIBUTIONS

Conceptualisation: EC, SL, LT. Data Collection: EC. Analysis: EC, LT. Writing—Original Draft: EC, LT; Review & Editing: EC, SL, LT. Supervision: LT.

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