

EXPLORING THE VIABILITY OF SERVICE ROBOTS IN PERFORMING HUMAN AESTHETIC LABOUR IN THE HOSPITALITY INDUSTRY

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Abstract

This literature review seeks to investigate the value of human aesthetic labour in light of the growing deployment of robotic service workers. As automation continues to advance and replace human workers in a variety of industries, including service industries such as retail, hospitality, and entertainment, the role, value and the significance of aesthetics and the human touch grows. Due to the contemporary nature of the topic, this paper follows the previous comprehensive literature papers methodology; the researchers looked for relevant articles using terms like "human aesthetic labour," "robotic service workers," and "service industry" in relevant databases like Scopus, Web of Science, and Google Scholar. These are the primary academic databases for tourism and hospitality studies available online. Research papers and academic studies published in English between the years 2000 and 2023 were considered for this search, with a particular emphasis on the topic of the value of human aesthetic labour in the context of the increasing prevalence of robots in the service sector. The findings of this research review will contribute to the ongoing discussion on the future of work in the service industry and provide businesses with insights on the significance of preserving human aesthetic labour and its impact on customer and guest experience as well as business performance.

Introduction

The widespread deployment of service robots in recent years has caused a dramatic shift in the labour market [60]. Tasks that once required human labour have been automated thanks to the widespread adoption of robots across industries, including the hospitality and retail sectors [21]. The question of whether human aesthetic labour is still required has arisen in light of the usefulness of service robots in performing tasks and maintaining aesthetics.

Aesthetic labour refers to standards that are necessary for jobs involving the presentation of oneself, grooming, and gentility [75]. As robots become more commonplace, fewer humans are needed to perform tasks and standards that full of a purely aesthetic nature such as the appearance, movements and spoken words, though just how much less work will be done by humans is unclear [27].

Human aesthetic labour in the age of service robots has been studied in a variety of contexts, including the hospitality, retail, and healthcare sectors. Service robots can boost productivity and cut down on labour costs in the hospitality industry, according to studies [6, 8, 14]. However, robots might not be able to provide the same level of personal touch and emotional connection that humans can. Guest staying at a hotel staffed solely by robots might feel unappreciated and be less likely to book another stay there.

In addition, Wang et al. (2023) [63] identified guests' perceptions of robots' functionality, social interaction, and aesthetics as causes of consumer resistance to robots. An unappealing appearance increases customers' unwillingness to return, which is part of the

aesthetic barrier; however, robots' stiff kinesics has no statistically significant effect. Service providers can increase customers' and visitors' acceptance of robots in service by making them more appealing, distinctive, and useful, as suggested by Sansoni et al. (2015) [50] and Kang et al. (2023) [28]. The most effective approach, however, is to prioritise functionality and aesthetics. Kang et al. (2023) [28] suggested enhancing the service robot's ability to tell a story. Storytelling is one of the most defining human traits, which can encourage users to have a more positive impression of it [75]. The purpose of this literature review is to examine the prior work done on human aesthetic labour in the context of the rise of robot helpers in the service industry. Moreover, determine which aesthetic labour tasks and standards robots can perform in the hospitality industry.

1. The concept of aesthetic labour

In 2000, Warhurst and his colleagues investigated a further dimension of requirements to work in hospitality. They traced the notion they referred to as 'aesthetic labour'. Aesthetic labour denotes "a supply of embodied capacities and attributes possessed by workers at the point of entry into employment" (Warhurst et al., 2000, p.1) [67]. The evolution of aesthetic labour as a concept by Warhurst and his colleagues occurred about twenty years ago. It enabled a more organised and thorough investigation of its impact on employment. Aesthetic labour does not replace but complements other skills, such as emotional, soft, and technical skills [40]. In the labour market, aesthetic labour is significant, where frontline employees are expected to create a memorable guest experience [13, 72].

According to Warhurst (2016) [64], aesthetic labour has four features. First, it occurs within the service encounter, including an interaction between employees and customers. Second, it involves employee corporeality management by both the employee and employer. Third, it positively influences customers' perceptions or senses (hence "aesthetic labour") of the organisation. Finally, it is a wage–effort bargain between employees and their employer. In other words, the aesthetic labour paradigm highlights embodiment and explores employees' corporeal attributes and capacities. This favours customers' visual or aural senses and is a commercial benefit [39, 66, 3]. Numerous scholarly works, such as Witz et al. (2003) [69], Nickson et al. (2005) [39], Warhurst and Nickson (2007) [65], Nickson & Warhurst (2007) [38], Williams and Connell (2010) [68], Tsaour and Tang (2013) [58], Efthymiou (2018) [13], and Wu et al. (2020) [72], emphasised that aesthetic labour is an indispensable requirement of employment in hospitality organisations. This is because this labour can be used to sell tourism and hospitality as the realm of hedonistic pursuit [16].

Aesthetic labour obliges employees to perform certain capacities and attributes, such as positive facial expressions, maintaining a cheerful tone of voice, accent, spoken words, decent appearance and dress code, being well-groomed, and favourably appealing to customers [39]. The aesthetic labour concept opens up the possibility of assessing how physical appearance in service interactions is appreciated and can be an economic benefit [69]. In line with this thinking, 'lookism' becomes a critical factor in the recruitment and selection stage. Moreover, some hospitality organisations provide training for their employees in the aspect of self-presentation, largely to portray the welcoming "image" to attract customers. Training includes rules and guidelines regarding grooming and hygiene standards, uniform, makeup, and hairstyle [39]. Despite the significance of aesthetic training, not all employers are willing to support it financially because they target seasonal, temporarily, or casual staff [68]. Ignoring aesthetic training is not new, Nickson et al. (2003) [40] highlighted that aesthetic training provision is limited in hospitality jobs because the insufficient account is made of these jobs' significance, and there is a shortage of sensitivity about what skills are needed for these jobs.

Recently, with the expansion of automation and cutting-edge technology, employers in the hospitality industry have focused on finding alternative ways to adhere to aesthetic standards in their organisations. These alternatives may allow employers to spend less money, time, and effort while maximising customer satisfaction and hedonism. As robotic solutions support a humanlike appearance and are programmed to commit to what is required, the tourism and hospitality industry turned to service robots to serve as concierges, waiters, cleaners, and guides [15, 32]. Especially in frontline areas, service robots can perform routine

tasks such as room cleaning, guests checking in and out, replying to questions through one-to-one interaction, and even providing entertainment while maintaining aesthetics [63].

2. Hospitality-related robots

An automated machine that can perform a series of complex tasks without human intervention is called a robot [34, 35]. The ability of robots to improve customer service, lower operational costs, and boost the quality of the guest experience has led to their rapid adoption in the hospitality sector [47]. Japanese restaurants in the 2010s introduced the first robots into the hospitality industry [46, 20, 25]. Although initially deployed in factories and assembly lines, robots have since found widespread use in the hospitality sector [30, 26]. The earliest robots used in the hospitality industry were programmed to carry out routine jobs like cleaning and dish service. As time went on, they were tasked with more and more duties, such as reception, concierge service, and even bartending.

Robots are commonly used for menial tasks in the hospitality industry, including cleaning, food preparation, and service [21]. They are also put to use in customer service capacities like responding to inquiries and giving out directions [18]. Humanoid refers to the appearance and movement of the robots used in hospitality; these robots are designed to look and act like humans [29].

The use of robots in the hospitality industry has many potential advantages. Efficiency gains are a key advantage [54, 35, 8, 14]. As a result of robots' ability to complete tasks more quickly and accurately than humans, service times can be reduced [48, 29], and customer satisfaction can rise [17, 4, 62]. Saving money is another perk. By taking over manual labour tasks that humans would otherwise perform, robots can help businesses save money [44, 54, 30]. This can result in substantial savings over time, particularly for large hospitality operations [53, 21]. In addition, robots can serve guests nonstop, improving their stay because of the convenience [48, 62]. There are, however, drawbacks to employing robots in the hospitality industry. The threat to human employment is a major disadvantage. The risk of being replaced by robots increases as more and more work is automated [41, 48]. As a result, the number of available jobs in the sector may decrease. Other possible downsides are the high initial investment and ongoing expenses associated with robot technology [57]. Robots can be expensive to buy and set up initially, and they also require regular upkeep, which can add up over time [54, 23].

These pros and cons are in addition to the challenges that arise when implementing robots into the hospitality industry. The requirement for highly specialized training to operate and maintain the robots is a significant hurdle [54, 11]. Since many hospitality businesses lack the personnel, time, and knowledge to properly train their staff on robot use and upkeep, this can be a major hurdle to adoption [11, 23, 54]. Ongoing software maintenance and update requirements are another obstacle. To ensure they keep working, robots need to be updated and maintained just like any other piece of technology especially for larger hospitality operations [21, 23]. This can be a time-consuming and financially draining process [23]. Some hospitality businesses, like the robot-run Henn-na hotel in Japan, were forced to rethink their approach to technology integration as a result of lack of human employees. The Henn-na hotel was the first to be run by robots solely; however, half of the robots in the hotel have been decommissioned because of the necessity of human workers for certain tasks. The guests were disturbed because their snoring was misunderstood as a wake-up call [34]. The UK's Robotazia restaurant closed in 2023, also a victim of rising operating costs. Robotazia's official website featured a statement from a company representative saying, "Having battled through the pandemic of 2020 and 2021 and absorbed many losses from Covid lockdowns, we are once again faced with new significant challenges' driven by steeply rising costs, principally food and utilities, recruitment and retention issues, and a decline in revenue as a result of the current cost-of-living crisis" [5].

Despite these obstacles, there are many real-world examples of successful applications of robots in the hospitality industry. In Japan 2015, the Henn-na Hotel uses robots for everything from guest check-in to housekeeping to luggage service [48, 73]. Since introducing robot technology, the hotel has seen significant cost savings and increased efficiency. Baristas

is robotic in a coffee shop, another instance of this trend. Customers have said the robot baristas make better coffee than humans, and the café has been praised for its efficiency [59]. Also, Jeni and Jeni, two service robots, were introduced to the Hotel JEN Orchardgateway in Singapore to provide guests with room service and amenities [52]. Hilton hotels replace human delivery staff with robots that act as concierges [61, 60]. Connie, the hotel's artificial intelligence robot, can answer guests' questions about the property's amenities and suggest things to do in the area. Connie's artificial intelligence means it can improve the more it talks to humans [74]. Miso Robotics developed the Flippy, Chippy, and Sippy robots to carry out a variety of fast food-related tasks, such as frying potatoes, pouring soda, and baking tortilla chips, respectively [55]. Pepper, a chatbot designed to help hotel guests with check-in, can do so either verbally or via its touchscreen [35, 51]. For hotel deliveries, Aloft planned to use Botlrs, Savioke's first autonomous robot that debuted in 2014 [60, 7, 34]. Botlrs, much like hotel staff, may be asked to make deliveries [33, 34].

3. Materials and Methods

Following the previous comprehensive literature papers methodology [31, 45, 56, 24, 43, 14, 70], the researchers looked for relevant articles using terms like "human aesthetic labour," "robotic service workers," and "service industry" in relevant databases like Scopus, Web of Science, and Google Scholar. These are the primary academic databases for tourism and hospitality studies available online [56]. Research papers and academic studies published in English between the years 2000 and 2023 were considered for this search, with a particular emphasis on the topic of the value of human aesthetic labour in the context of the increasing prevalence of robots in the service sector.

The search results were filtered for quality using the titles, abstracts, and keywords provided. Studies that investigated the value of human aesthetic labour, the potential impact of robotic service workers on that value, and the aesthetic labour tasks that robots can perform were considered for inclusion. These criteria were used to select studies for a full-text review. The methodology, study design, research question, and key findings of the chosen studies have been analysed and summarised. Data were extracted from the literature, analysed, and synthesised to reveal recurring themes. We used a narrative synthesis approach to present the findings, which allowed us to provide a comprehensive overview of the state of knowledge regarding human aesthetic labour in the robot service era in hospitality sector. In addition, this methodology enabled the study's primary objective, which was to determine whether service robots that can perform tasks, maintain appearances, and appeal to customers' visual and auditory senses have rendered human aesthetic labour obsolete. In addition, it assisted in identifying aesthetic labour tasks that robots can perform in the hospitality industry.

4. Results and Discussion

The literature review finds that even in the age of the robot butler, the hospitality industry still relies heavily on human aesthetic labour to provide memorable experiences for guests. This study revealed a correlation between how well an individual presents themselves and their level of customer satisfaction, brand loyalty, and company success. While the literature found that robots are not yet able to replace humans in more socially complex roles (such as personal grooming, makeup application, or clothing presentation), cleaning and customer service are two examples of hospitality professions where robots can have aesthetic labour on them, both impacting how visually appealing the establishment is to guests. Robots' aesthetic labour includes creating entertainment, robot design, and storytelling features (See Figure 1).

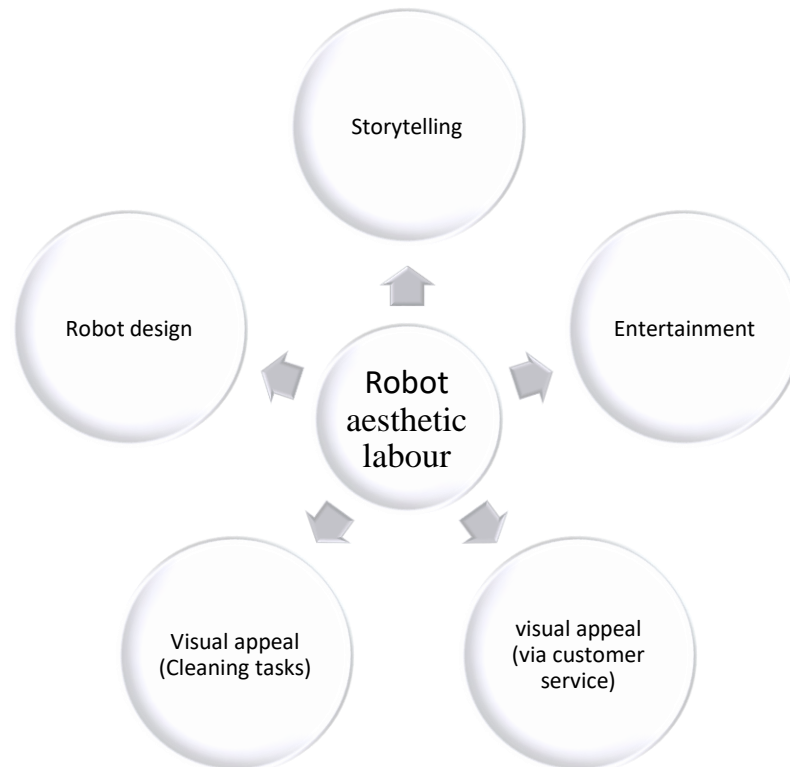


Figure 1. Robot aesthetic labour

Starting with storytelling it is one of the most distinguishing characteristics of humans is their propensity for storytelling, which can help shape positive user perceptions. It is proposed to improve the aesthetic performance of service robots by increasing their capacity for storytelling [75, 28]. When it comes to robot design, restaurant service robots' aesthetically pleasing design and graceful movement add to their aesthetic value [71, 76].

Moving on entertainment, robots can also assist with aesthetic labour in the hospitality industry in the realm of entertainment [19, 35]. Robots can provide various entertainment options, from musical performances to dance routines and beyond. In Japan's Henn-na Hotel, robots check guests in, transport their luggage, and brief them on the property's offerings [34]. Similarly, Samurai robot waiters at Thailand's Hajime restaurant not only serve customers and clear their tables but also put on a show with their own unique brand of dance moves. These robots enhance the area's visual appeal and provide a novel and interesting experience for customers [12].

Customer service is another aspect in which robots can perform aesthetically pleasing labour tasks. Robots can greet customers, give information about the facility and its amenities, and even personalised recommendations based on their past purchases and other preferences [49, 37, 36]. Pepper, a robot created by Softbank Robotics, can serve as a receptionist, give tours of the facility, and make recommendations tailored to each customer [1, 42, 51]. The Hilton hotel chain has also debuted a robot named Connie, who acts as a concierge and tells guests about the facilities and nearby sights [22, 74]. These robots not only give customers something new and exciting to do but also free up workers to focus on other forms of aesthetically motivated work, like making the space feel more inviting [9].

Finally, cleaning tasks such as vacuuming, mopping, and disinfecting can all be handled by robots [21, 61]. Whiz, a robot created by Softbank Robotics, is capable of performing tasks like vacuuming and mopping floors on its own, freeing up human workers to do more value-added work [10]. To that end, Blue Ocean Robotics has created the UVD robot, which uses ultraviolet light to disinfect surfaces and thereby lessen the spread of disease [2].

This literature review's findings point to the value of human aesthetic labour in the hospitality sector, suggesting that robots cannot yet fully replace human workers aesthetically. However, there are some forms of aesthetic labour that robots are able to perform. These

results have implications for businesses and policymakers concerned with the future of work and the role of technology in the hospitality industry, as they point out the value of preserving human aesthetic labour and the positive effect it has on the satisfaction of customers and the success of businesses as a whole.

5. Conclusion

In recent years, the widespread deployment of service robots has dramatically altered the labour market. The widespread adoption of robots across industries, including the hospitality and retail sectors, has enabled the automation of tasks that formerly required human labour. Given the usefulness of service robots in performing tasks and maintaining aesthetics, the question of whether human aesthetic labour is still necessary has arisen. The purpose of this literature review is to examine prior research on human aesthetic labour in light of the rise of robot assistants in the service industry. Determine which aesthetic labour tasks and standards robots can perform in the hospitality industry.

After analysing publications from 2000 to 2023, it is possible to conclude that the hospitality industry continues to rely heavily on human aesthetic labour to provide guests with memorable experiences. While research indicates that robots cannot yet replace humans in more socially complex roles (such as personal grooming, makeup application, or clothing presentation), cleaning and customer service are two examples of hospitality professions where robots can perform aesthetic labour, both of which affect the visual appeal of the establishment to guests. The aesthetic labour of robots includes creating entertainment, robot design, and storytelling features. The findings of this research review will contribute to the ongoing debate about the future of work in the service industry and provide hospitality businesses with insights on the importance of preserving human aesthetic labour and its impact on customer and guest experience as well as business performance.

The future of research in the hospitality industry should focus on the efficiency of robotic aesthetic labour. Data collection should focus on determining whether or not aesthetic labour tasks are ones in which robots excel or fall short when compared to human workers. How guests view robots performing aesthetic labour tasks is an important area to explore in future studies of the hospitality industry's use of robotic service workers. It is important to learn if and how different demographic groups feel about the use of human versus robotic workers for aesthetic tasks. Research into how human workers feel about the prospect of robots performing aesthetically oriented labour tasks is recommended.

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