Impact of Robot Companions on Customer Experience and Restaurant Service Outcomes in Dining Contexts

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Extended abstract

Introduction

Recent trends in Western societies show an increase in solitary dining, influenced by aging populations, social isolation, and shifting lifestyles. Prior research (i.e., de Castro 1994, Herman et al 2003) indicates that dining with companions can lead to a significant increase in food intake, a phenomenon supported by social facilitation theory, which suggests that the presence of others enhances eating behaviour, especially when the companion is a close friend or relative. However, some studies propose that dining in company can also suppress eating due to the desire to make a positive impression, a concept rooted in impression management theory (i.e., Baumeister et al 1989, Herman et al 2003).

The advent of social robot introduces a new variable into this dynamic, expanding robots' roles from task-oriented to companion roles in human interactions across various settings. This study explores the impact of robotic companions on dining experiences, focusing on consumer satisfaction, wellbeing, and business outcomes like amount of spending and of tip. It delves into the attributes of social robots—appearance, gestures, communication, and voice—and their potential to enhance service quality and customer satisfaction in restaurants. Highlighting the relevance of anthropomorphic features, the study investigates the congruence between a robot's social cues and its effectiveness in improving the dining experience, paving the way for a deeper understanding of human-robot interactions in the hospitality sector.

Background Literature

Social Response Theory provides insight into human-technology interactions, suggesting people inherently treat robots as social actors, an interaction amplified by anthropomorphism where robots with human-like features are seen as socially engageable (Barley et al., 2022; Huang and Lin, 2011). The concept of "commensality" illustrates the social benefits of integrating digital technology into dining, enhancing the experience through shared meals (Spence et al., 2019; de Kervenoael et al., 2020). Reactions to social robots in hospitality have varied, with some studies highlighting their potential to enrich customer experiences through empathy and information (de Kervenoael et al., 2020), while others note negative perceptions due to their strange anthropomorphism (Khoa and Chan, 2023). This mixed response underlines the complexity of consumer reactions and the importance of aligning robots' visual, vocal, and verbal cues with customer expectations. Anthropomorphism plays a significant role in consumer behaviour, with human-like traits in robots and virtual assistants affecting perceptions of competence and satisfaction (Pizzi et al., 2023; Balakrishnan et al.,

2022). However, its effectiveness varies, sometimes leading to negative outcomes, especially under negative emotional states or in business-to-business contexts (Fotheringham & Wiles, 2022; Crolic et al., 2022). Despite challenges, anthropomorphic technology often fosters positive consumer interactions. The literature distinguishes between hedonic and utilitarian values in robotics, affecting consumer interaction and satisfaction. The congruence between a robot's features and conversational content is crucial (e.g., Botti and McGill 2011; Longoni and Cian 2022). Studies on customer satisfaction emphasise meeting or exceeding expectations, with human-like robots eliciting empathy and expertise, thereby enhancing satisfaction (Schuetzler, Grimes, and Giboney, 2020; Klein and Martinez, 2022). This is confirmed by preferences for natural, human-like interactions with robots (Ciechanowski et al., 2019; Jiang et al., 2022). Robotic companions also positively impact affective wellbeing, reducing loneliness and enhancing the dining atmosphere (Broadbent, 2017; Li, Rau, and Li, 2010). Their influence extends to economic outcomes like amount of spending and of tip, emphasising their hedonic value (Khoa & Chan 2023; de Kervenoael et al., 2020). Furthermore, word-of-mouth (WOM) and revisit intentions underscore the lasting effects of robotic companions on customer loyalty and business returns, highlighting the benefits of positive robot interactions (Daugherty and Hoffman, 2014; Zhang, Wu, and Buhalis, 2018).

Aims of this research

Building on this comprehensive literature review, the overarching aim of this research is to empirically investigate the impact of robot companions on the dining experience from a holistic perspective, considering both consumer-cantered and business-related outcomes. Specifically, this study seeks to:

Assess the Effectiveness of Robotic Companions: To evaluate how the presence of robot companions in dining settings influences consumer behaviours, including eating habits, amount of spending and of tip, and their willingness to revisit the establishment.

Examine Consumer Satisfaction and Wellbeing: To explore how interactions with robot companions affect diners' overall satisfaction and affective wellbeing, especially in the context of solo dining experiences.

Investigate the Role of Anthropomorphic Features: To analyse the influence of anthropomorphic features (such as visual appearance, gestures, voice, and verbal communication) of robotic companions on enhancing the dining experience.

Explore the Congruence Between Robot Attributes and Consumer Expectations: To determine the importance of alignment between a robot's social cues (visual, voice, and verbal) and diners' expectations in improving service quality and customer satisfaction.

We plan to conduct an online survey using a panel company to achieve the aims of the study.

Intended contributions

This study intends to make pivotal contributions across both theoretical frameworks and practical applications within the hospitality industry, focusing on the integration of robot companions in dining settings.

Theoretical Contributions:

Enhancing Social Response Theory: It will deepen understanding of human-robot interactions, particularly how anthropomorphism influences diner engagement with robotic companions.

Congruence in Human-Robot Interaction: This research will provide empirical insights into the impact of attribute congruence (appearance, voice, behaviour) on diner satisfaction.

Practical Contributions:

Design Guidelines for Robotic Companions: Findings will inform the design of robot companions, emphasising anthropomorphic features with customer expectations to enhance dining experiences.

Operational Insights: The study will explore the operational and economic implications of robot companions, offering strategies for improving efficiency and customer satisfaction.

Personalisation through Technology: Insights into using AI for personalised diner experiences will be provided, highlighting ways to improve customer engagement and loyalty.

By bridging theory with practice, this study intends to contribute significantly to the knowledge and application of robot companions in enhancing the hospitality industry's service delivery.

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