THE SOCIAL SIGNIFICANCE OF AI IN RETAIL ON CUSTOMER EXPERIENCE AND SHOPPING PRACTICES

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ABSTRACT

This paper draws on practice-informed, ethnographic research to develop an understanding of the novel social consequences and opportunities afforded from consumers' interactions with AI digital humans as part of the in-store shopping experience. We reveal and interrogate consumers' experiences with AI digital humans in an exploratory study undertaken during the launch phase of an in-store kiosk like a digital store greeter in a flagship store of a large national technology and appliance chain. Our findings contribute to understanding the social significance of AI in retail on customer experience (CX) and the managerial implications of consumers interactions with AI digital humans are described and discussed.

KEYWORDS

AI, Digital humans, Shopping, Service encounters, Customer Experience, Social Practice

1. Introduction

As retailers pursue more creative and profitable uses of their physical shopping spaces, consumer facing Artificial Intelligence (AI) digital humans continue to be incorporated into frontline retail environments, thereby rapidly reshaping the nature of service encounters (Reis, Amorim, Cohen, & Rodrigues, 2020). In particular, the recent emergence of AI conversational interfaces, such as, for example Singtel's Stella AI automated customer service agent in 5G retail stores, has attracted the highest share of worldwide AI related investment USD4.5 billion in 2019 (IDC, 2019), and is further fuelling the digitalisation of the retail environment. As a result, traditional modes of service delivery – service by employees – are being substituted by some retailers in favour of delivery through technology (Huang & Rust, 2018), as they have the potential to offer substantial benefits to businesses, including increased efficiency and lower labour costs. Alternatively, as in the current research, AI interfaces are being used by other retailers to enhance the in-store shopping environment by supplementing the efforts of frontline employees through the delivery of higher personal services, and therefore differentiating their stores compared to their competitors (Larson, 2019).

While retailers have the potential to access these AI interfaces, there is little certainty as to how they can be effectively incorporated into their existing strategies and, arguably more importantly, how their consumers will react to them (Inman & Nikolova, 2017). Retail encounters between human consumers and AI interface employees are increasing, but how and to what extent such technologies impact consumers' in-store experiences and their associated shopping practices raises concerns for the future of customer experience (CX) in retailing. This therefore provides the focus of the current research.

Specifically, this paper explores consumers' interactions with AI digital humans as part of the in-store shopping experience, which, to date, remains underplayed in the extant literature therefore warranting further attention. In part, this is an outcome of the limited range of methodological approaches adopted in existing literature, which tends to privilege consumers' perceptions of AI rather than their actual behaviour (Verhulst et al., 2020). This has led to calls for alternative methodologies to be used to capture and investigate the complexities and dynamics of CX (Kuppelwieser & Klaus, 2021).

Accordingly, in this paper we draw on practice-informed, ethnographic research to develop an understanding of the novel social consequences and opportunities afforded from consumers' interactions with AI digital humans as part of the in-store shopping experience. In doing so, we reveal and interrogate how consumers' experiences with AI digital humans are implicated in their existing store-based shopping practices. To this end, our findings contribute to an in situ understanding of the manifold social significance of AI in retail on CX, and extends the growing sociological-informed debates focusing on shopping and marketplace behaviours (Elms, De Kervenoael, & Hallsworth, 2016).

In terms of structure, we begin with a literature review that considers the implications of AI digital humans on consumers' in-store experiences as well as the wider social significance of AI in retail on consumers' shopping practices. Following a brief discussion of our methodology and case description, we report on an ethnographic study focusing on consumers' experiences and in-situ interactions with an AI digital human in a leading technology and appliance store located in Australasia. We then discuss the core findings of the study, and then outline the resulting managerial implications of this research in respect to future of AI in retail on CX. We conclude with suggestions for further research.

2. Theoretical background

2.1. CX of in-store AI Retail Technologies

Customer experience – defined as the "non-deliberate, spontaneous responses and reactions to offering-related stimuli along the customer journey" (Becker & Jaakkola, 2020, p.637) - has received significant attention in the marketing and retail literature in recent years. However, the topic remains in its infancy with further scope for both conceptual development and empirical research. More specifically, there have been calls for a more holistic understanding of CX as part of the overall customer journey (e.g. De Keyser, Verleye, Lemon, Keiningham, & Klaus, 2020) to address the complexities of the topic in an ever-changing retail landscape (Homburg, Jozić, & Kuehnl, 2017; Lemon & Verhoef, 2016). In addition to this, customer-facing in-store technologies, such as AI, Virtual Reality, and Augmented Reality are creating novel opportunities, as well as challenges, for both customers and retailers. Certainly, retailers are requiring insights into how they can strategically use such technologies to maximise CX and performance.

The extant literature has underscored that as the physical and digital dimensions of retailing begin to merge, shopper-facing intelligent objects, which increasingly possess the ability to sense and communicate, are beginning to dramatically alter the ways in which consumers are experiencing the service of retailers (Huang & Rust, 2018). Such technologies are accelerating the rate in which the retail landscape is evolving (Grewal, Roggeveen, & Nordfält, 2017), and are revolutionising interactions between consumers and businesses (Lee & Yang, 2013). Several issues have emerged in the literature surrounding how this paradigm shift may impact consumers' experiences within retail environments. For example, the buying process has been found to become progressively dehumanised (Evans, 2004) as in-store technologies begin to replace human interaction (Lee, 2017). Moreover, the frequency of such technology-mediated interactions has also increased due to the emergence of numerous technological systems within the traditional brick-and-mortar shopping context (Bulmer, Elms, & Moore, 2018).

Consequently, the World Economic Forum has described AI as the central point of the globe's current technological revolution as it, along with a raft of complementary new technologies, has laid the foundations for radical business advances that augment consumers' shopping experiences and streamline the delivery of service, while prompting the creation of novel business models (Reis et al., 2020). Simply put, AI refers to a machine, algorithm, system, or network that is capable of exhibiting characteristics of human behaviour or intelligence (Huang & Rust, 2018). AI, in the form of a service delivery system has been borne out of the amalgamation of several contemporary technologies (neural networks, machine learning, natural language processing, sensors, etc), and has now reached a point where the same productivity development experienced in consumer goods through the industrial revolution is now occurring with services in an industrialisation of services (Wirtz, Kunz, & Paluch, 2021).

AI, particularly the digital human conversational interfaces, are increasingly being adopted in brick and mortar retail environments (Kaplan & Haenlein, 2019), and have the ability to autonomously interpret external data from various service scenarios, and to use those learnings to achieve specific tasks and goals, such as improved consumer experiences. Such human-like digital avatars, with the ability to converse with customers in store while guiding them through their shopping journeys, are now being used by retailers in an attempt to reduce employment costs, increase speed of delivery, provide a point of differentiation, improve the management of service demand fluctuations, and to improve customer shopping experiences (Grewal et al., 2017). This technological catalyst has sparked a service revolution (Rust & Huang, 2014), with service encounters transforming from what was previously considered a 'game of humans' (Bowen, 2016), to a practice that is now increasingly autonomous and technology-dominant (Larivière et al., 2017). Consequently, the ways in which service is provided and experienced by its two primary actors – customers and service employees – has fundamentally changed (Bolton et al., 2018), and warrants further attention.

Similarly, although innovations in service delivery due to new technologies are understood to offer the potential to generate change in consumers' experiences in-store (Ram & Sheth, 1989), little is known how, and to what extent, AI digital humans are implicated in the social context in which shopping occurs. Indeed, the use of rapidly advancing AI interfaces that have the ability to learn, process, affect, and mimic human characteristics in retail encounters has received limited attention in the extant literature, with a noticeable paucity of research that considers retail encounters in which the exchange is characterised by a digital human actor playing the role of the frontline employee (Robinson et al., 2020). Despite attempts to address this issue, extant research has largely adopted a psychological perspective (see, for example, Huang & Rust, 2018; Jeong & Ha, 2020), with far less being understood about the social opportunities and possibilities for consumers when interacting with retail digital humans as part of the in-store shopping experience. This, therefore, lends itself to consideration of the nature of consumers' actual shopping practices, which forms the discussion below.

2.2. Social Practice Implications of AI in Retail

Theories of practice have been mobilised by other researchers investigating in-store shopping (Bulmer et al., 2018; Jackson et al., 2006; Warde, 2015), and mirrors a more general and growing interest into sociological understandings of consumption and marketplace behaviours, as discussed elsewhere (see, for example, Elms et al., 2016; Fuentes, Bäckström, & Svingstedt, 2017; Fuentes, Enarsson, & Kristoffersson, 2019). From a practice perspective, the social organisation of the mundane and the routine nature of everyday consumption is emphasised (Randles & Warde, 2006), as are concepts such as routine, habit, and constraint (Warde, 2005). This, therefore, signals a departure from an overt pre-occupation with the symbolic meanings that are often attributed to conspicuous consumption and resulting implications for consumers' self-styled identity projects in the extant consumer research literature (Gregson & Crewe, 1997).

In addition, theories of practice can also provide a way of understanding of how behaviour evolves, how new participants are recruited to a particular "community of practice" (Wenger, 1998) to enable the ongoing continuation and transformation of practice, and how particular practices become combined and integrated within a nexus of other related practices (McMeekin & Southerton, 2012; Shove, Pantzar, & Watson, 2012). Such entails a consideration of specific moments of practice as well as the particular assemblages interconnecting materials (such as technologies, including the AI digital humans), meanings, and the degree of competence held by participating individuals (Strengers, Nicholls, & Maller, 2016).

Introducing an AI actor into a physical retail store, lends itself to a modification of the settings and environments in which customers shop, which offers consumers the ability to reconfigure the ways in which they approach and use retail spaces (Fuentes et al., 2017). This, in turn, affords the possibility of new meanings, dispositions, procedures, and sequences that shape CX (Southerton, 2013). In such situations, the traditional human-to-human service encounter requires consumers to interact with unfamiliar materials and technologies, which necessitates the formation of new knowledge, skills and competencies. It also simultaneously requires consumers to transition from the familiar status of shopping mastery to an unaccustomed 'amateur level' shopper. Therefore, the emergence of AI conversational interfaces, specially digital humans, not only results in the transformation of the shopping context, it also disrupts consumers' deeply-embedded shopping practices. Nevertheless, as consumers can best be understood as knowledgeable, skilful, and reflexive agents (Jackson et al., 2006), practices are not so embedded that they are exempt from change, rather they evolve to fulfil consumers' everyday needs and requirements.

The above discussion has four main and overlapping research questions. R1: which specific contexts and situations give rise to or are barriers to consumer interactions with AI digital humans in-store? R2: which particular socio-material and technical assemblages lend themselves to successful and unsuccessful consumer interactions and experiences with digital humans in a physical retail setting? R3: how, and to what extent, do such technologies become integrated within consumers' shopping and related practices? R4: what are the social meanings and relations that emerge from consumers' interactions with AI digital humans as part of the in-store experience? In addressing these questions, the current research seeks to reveal and untangle the social possibilities, opportunities, tensions and consequences that result from consumers engaging – or disengaging – with AI digital humans in-store.

3. **Methodology**

Discovery-oriented research goals influenced the selection of a multi-phase ethnographic approach to exploring consumers interactions with an AI digital human interface as part of the in-store experience in a single case setting. Permission was gained from a large national technology and appliance store chain in Australasia to study their new digital frontline employee. The AI digital human interface was launched in a single signature store during its opening and 'her' introduction was intended as a complement rather than replacement for front-line human service employees to enhance its overall service offer.

A series of activities was conducted to collect data for this study in two stages. First, to contextualise the study a number of interviews were conducted with store staff and managers, the developer and head office leads in areas including CX and operations. These were audio recorded and transcribed. Second, customer observation diaries were kept during the launch phase of the in-store technology, along with intercept interviews with shoppers. During this period, media releases and online coverage relating to the launch of the AI interface were also collated for later content analysis. The use of multiple data sources and multiple researchers during the analysis phase enhanced the trustworthiness, credibility and richness of the analysis process and subsequent findings.

The consumer observations were conducted at intervals across a 12-month period. Semi-structured interviews with 13 shoppers were transcribed. Shoppers were recruited in store; their ages ranged from 22 to 65 reflecting the core demographic of the retailer. Using a purposeful sampling approach, our focus was consumers' that were interacting with this new and unique technology in-store; noting that this technology was unfamiliar to consumers as it was new to the industry. A summary of the 13 research participant's profiles highlighting gender, age and some occupation and family situation follows in Table 1. The participants have been allocated pseudonyms.

Take in Table 1 about here

Data analysis and interpretation involved an iterative process that firstly included multiple readings of the transcripts by each of the three authors of this paper to develop a rich understanding of themes from different perspectives. Subsequently, the lead author used a process of open coding and axial coding, relating the codes and categories identified through the open coding phase to identify relationships within the concepts and themes, and the consideration of rival interpretations (Spiggle, 1994; Strauss & Corbin, 1990). Where text units are provided in this paper the participants are identified by a code number, gender, age range and pseudonym.

4. Case Description

The AI digital assistant was set up as an in-store kiosk like a digital store greeter or concierge, at the entrance to the store. For the purposes of this paper we are calling the digital human by a pseudonym, Paula. A large screen features a youthful female visage of Paula with question-and-answer capabilities and voice-to-text recognition software. Paula, dressed in the store's staff uniform is a human-like interface that appears to blink, smile, talk and respond in a natural conversational way. As shoppers approach, Paula senses their presence and greets them in a similar way to that of a human employee. Shoppers then stand in front of Paula, press and hold an activation button, before speaking to her through a microphone that is mounted on a stand directly in front of the interface. The system is supported by a database of queries and answers that is designed to be updated as her training and learning progresses. A key outcome of the initiative was to connect customers with store staff members, which included providing the staff member with details of the conversation such as what products they required.

5. Findings

Thematic analysis of the dataset revealed three key themes; social tensions are introduced when customers engage with an AI digital human; this new technology can transform the in-store social situation and become the 'life of the party'; when a non-human interface is introduced there is paradoxically both the need to avoid and to have real human interaction. These themes build a picture of the various social possibilities of AI in retail on CX, and evidence of the three themes is discussed in the sections that follow.

5.1. Social Tensions

Paula was described by many interviewees as the type of technology that will change their shopping practices over time. These customers see Paula as something that will ultimately provide shoppers with additional agency and simplify their shopping experiences by reducing the duration of their shopping journey and allowing for a more efficient and informed shopping journey due to the provision of additional information. While the eventual outcome appears attractive, several participants expressed reservations about the disruption to their established shopping practices as they attempt to integrate Paula into their shopping routine and transition into a new community of practice. The use of an AI digital human induced anxieties and tensions that are not associated with typical consumer-to-employee interactions. A number of consumers who participated in our study described feelings of stress, pressure and nervousness as a consequence of sensing that they were on the receiving end of negative social judgment (particularly from other shoppers as well as store staff), caused by their incorrect use of Paula. These participants felt as if unwanted attention is drawn to anyone who does not use Paula properly and that a normally private encounter with a staff member may turn into a public one with Paula.

> *Speaking to Paula and then waiting in awkward silence as she just stares at you can be embarrassing when people are watching. Or when Paula replies in a loud voice that she is unable to understand is a little embarrassing (Abhi)*
>
> *There is only one Paula, so when I go and approach her, I have a few people watching me, which makes me a little bit more self-conscious and anxious…When things go wrong, using Paula can turn a private discussion into a very unpleasant public experience (Poorvi)*

Fear of inadequacy while engaging with Paula was the cause of negative consumer interactions with her. Insecurities that arise as a consequence of appearing incompetent while using consumer facing technology have been described in the literature previously (Bulmer et al., 2018; Elms & Tinson, 2012) and appear to be a driving factor in consumers' experiences with digital humans in-store. Several participants found themselves feeling uncomfortable and vulnerable as they transitioned from perceiving themselves as a customer who was able to autonomously and competently complete a shopping journey, to a shopper that required the help of a human employee in order to operate effectively within a retail environment. This feeling of apparent incompetence was exacerbated when Paula suggested that a human employee should be called over to assist. While some consumers interpreted this response as a result of Paula's inability to *"do her job",* many customers inferred that this was a fault of their own poor technological or communication skills, resulting in a negative impact on their sense of self-worth and social identity as a competent shopper.

While studying the paradoxical effects of technology on consumer behaviour, Mick and Fournier (1998) noted that although new technologies can facilitate feelings of intelligence or efficacy, so too they can lead to feelings of ignorance or ineptitude. Such an idea was revealed throughout our intercept interviews with customers who appeared to express curiosity about Paula while actively avoiding engagement with her. After rejecting an offer by the interviewer to come and interact with her, the fear of appearing incompetent was discussed as a key reason why these predominantly older customers would prefer to not interact with Paula at all. Moreover, those who had tried using Paula before abandoning the interaction reported a negative shopping experience due to a lack of confidence in their ability to use her correctly. This theme was also evidenced by aggressive complaints about the lack of instruction regarding how to operate Paula successfully. Such complaints, and the tone in which they were communicated, highlighted a deep frustration with being in a situation where shoppers were made to feel incompetent within a social setting.

The idea that *"people like what they are good at"* has been described in the broader consumption literature. An example of this was reported by Murphy and Patterson (2011) when they found that competence plays a central role in the consumption experience of motorcycling. As our study suggests, the extent to which consumers feel competent while interacting with in-store AI digital humans appears to mediate consumers overall shopping experience. Our findings further exemplify the social tension that can exist when digital humans are deployed, and customers attempt to reconfigure their established shopping practices. It also contributes to a more nuanced account of the internal tensions that plague consumers as demands to evolve are put on their deeply habitual shopping practices in a changing retail environment.

5.2. The Life of the Party

Shopper observations revealed an unexpected type of consumer usage and benefit in which the AI digital assistant has essentially established herself as the *"life of the party"*. Paula's presence created a tendency to transform the social situation in which customers shop and this transformation appears to have profound behavioural and emotional implications for consumers' shopping experiences. Rather than acting merely as a tool that consumers utilise to guide them through their shopping journey, Paula added life to the social environment of the store by providing a social resource that could enable social opportunities that otherwise would not have existed. Such an idea became evident when comparing shoppers' interactions across various social situations (shopping alone versus shopping with friends/partners/family).

On multiple occasions the observer witnessed consumers, who were accompanied by friends or family, present Paula with humorous questions. These were clear attempts to test her conversational competence with the goal of eliciting a laugh from their shopping companions. Questions such as *"Paula, do you have a boyfriend*?", "*Paula, what did you have for lunch?*", *"Paula, do you like my outfit?",* or even *"Paula, would you like to go on a date with me?"* were all asked by various shoppers we observed. Paula was even confronted with philosophical questions such as *"Paula, do you believe in God?"* all in an effort to generate shared laughter and to strengthen social bonds with their companions.

Whether this behaviour was acted out by fathers attempting to entertain their children, friends attempting to demonstrate their wit, or husbands attempting to impress their partners, the outcome was the same; Paula enhanced the in-store social environment and facilitated a more rewarding consumer shopping experience. While consumers shopping alone tended to use Paula for more practical purposes such as seeking guidance through their shopping journey, many customers shopping in groups saw Paula as an opportunity to entertain their *"audience"*. Research by both Nasermoadeli, Ling and Severi (2013) and Verhoef et al. (2009) found that retail environments that foster strong consumer-to-consumer social connections are likely to result in more positive customer shopping experiences. Our observations and interviews with Paula users found that by enabling shoppers to engage in shared entertainment through hedonic interaction with Paula, more enjoyable consumer experiences were attained.

> *If I go in [to the store] and I've got the grandkids with me, my grandkids love it, because they like pushing the buttons and asking Paula questions like 'did you do well at school' and that kind of thing, and it's really good for me because sometimes I need to fill the kids time – it's like free entertainment for me (Kurt)*
>
> *It would be like a fun thing, you know, for young people. Like a group of teenagers who are going to the mall together and just having fun together trying that [Paula] out and doing some monkey business with Paula and all that stuff (Huckleberry)*

Paula's ability to enhance the social environment is driven by factors beyond providing consumers with an opportunity to engage in playful and friendly conversational exchanges. Many consumers, particularly those in younger generational cohorts, accepted Paula's invitation to take a selfie with her. According to Berger and Barasch (2018), group photos serve to convey one's desired identity to an intended social group, and as a result, have become a ubiquitous mode of social communication (Schlenker, 1980). By engaging in a group selfie that includes an AI digital human posing eccentrically in the background, consumers are able to obtain an unexpected social souvenir and enjoy the subsequent social outcomes. Additionally, Diehl, Zauberman and Barasch, (2016) found that photo-taking causes people to become more engaged in activities which in turn heightens the enjoyment of positive experiences across a variety of contexts. By taking a selfie with Paula, not only are various social benefits realised by shoppers, but an improved consumer shopping experience is enjoyed.

Although this outcome of digital human interaction did not assist consumers with their shopping journey in a practical sense, it improved the social environment of the store, increasing the hedonic value of the shopping process and an enhancing the shopping experience. Such an observation builds upon previous studies that discuss the link between the social environment of retail spaces and consumers' shopping experiences. Researchers have discussed the implications of having multiple humans (consumers and employees) in a retail store environment simultaneously and how the behaviour/experience of each human can impact that of others (Andajani, Hadiwidjojo, & Rahayu, 2014; Nasermoadeli et al., 2013; Peter & Olson, 2008; Verhoef et al., 2009). Researchers have also observed that consumers frequently visit retail spaces with friends or family members and that this collaborative shopping approach influences the shopping experiences of all those involved. While the more traditional forms of in-store social interactions have been explored (consumer to employee, company to employee, company to consumer, and consumer to consumer), the observation that Paula acts as a social object capable of transforming the social environment that consumer shop within further illuminates the sociality of shopping while providing further contribution regarding the influence of AI digital humans on the in-store consumer shopping experience.

5.3. Avoiding Interaction with Employees versus Need for Human Interaction Paradox

While talking to customers about the meanings they assign to their experiences with Paula, it became clear that the way consumers evaluate their perceptions of Paula is, to some extent, paradoxical in nature. When discussing the influence that AI digital humans have on the availability of interpersonal interaction within physical retail environments, contradictory views and attitudes were presented. The complexity of modern society and the human condition has been characterised by paradox (Brown, 1995; Firat & Venkatesh, 1995; Handy, 1995). Mick and Fournier (1998) famously took this idea and applied it to modern technological products, concluding that the meanings consumers assign to their technological experiences are also paradoxical in nature. Consumers' attitudes towards AI digital humans, as indicated by our dataset, appear to be no exception insofar as one of the key reasons why Paula is strongly liked, is the same reason why she is strongly disliked. When questioned on their motivations to engage with, or avoid Paula in-store, polar opposite rationalisations were put forward by different shopper interviewees. AI digital humans grant consumers the option to avoid interaction with human employees in-store, while at the same time deprive consumers of their need for human interaction. Our dataset revealed that while some consumers seek out Paula in an attempt to avoid human interaction with store personnel, other consumers avoid Paula due to their need to interact with human employees.

5.3.1. Need for in-store human interaction

Social deprivation has been posited by some academics as the principal reason why an impersonal service environment might be detrimental to consumers' shopping experience (Dabholkar & Bagozzi, 2002). In the case of in-store AI interfaces specifically, Huang and Rust (2018) have emphasised the possibility that consumers will still prefer to know that humans are serving them, despite the fact that the service may be technically inferior as a consequence. Moreover, many researchers have argued that the true core of service lies in the nature of interactions between service employees and consumers (Bowers & Martin, 2007; Guenzi & Pelloni, 2004; Sweeney, Soutar, & Johnson, 1997), and that well-trained retail personnel play a critical role in forming positive consumer experiences through their expertise, skill, attitude, body language, and behaviour (Jain & Bagdare, 2009). Humans, according to psychology and communication literature, are naturally eager for connection with others and this need is a fundamental social motive that explains a significant proportion of human behaviour (Baumeister & Leary, 1995). It is perhaps not surprising then that a lack of *"real"* human interaction arose as a primary theme throughout our shopper interviews. Several participants expressed dissatisfaction with the perceived reduction in human interaction that results from the implementation of an A1 digital human.

> *I really don't understand why companies think that people actually want to talk to machines, I don't want to speak with them at all…The first time a used Paula it was ok,*

but she didn't answer my questions sometimes so I felt a bit silly standing there talking to this thing [Paula], and I wasn't getting the answer I wanted (Kurt)

It's always nice to speak to somebody when you're doing your shopping (Margaret)

If I have a question in a store, I prefer to talk to a human…There is a lot of stuff that Paula doesn't know [like warranties] that I need to speak to a person about. I'm never to going buy straight off Paula…My wife doesn't like Paula at all…she would much rather walk around for ages trying to find somebody… She [Paula] needs to understand exactly what I'm saying too, like when you talk to a person, they understand your body language and understand what you want, but with Paula, you have to express yourself perfectly and I don't have sit to sit there asking her one hundred questions. It's supposed to be more helpful than that (Kurt)

Having an interaction with a person is much nicer than having an interaction with a machine with a stupid voice. When I go into the community, I like to have some relationships with people [who live in my area] (Abhi)

This concern about real human interaction has been alluded to by researchers since the earliest implementations of end-user information systems in retail environments. Videotex technology, for instance, was released in the late 1970s and delivered information to consumers in a computer-like format. However, according to Ram and Sheth (1989) it was met with consumer resistance when it forced changes to shopping practices because consumers were no longer able to interact with store personnel directly. In the case of AI digital humans, the scope for social deprivation due to a reduction in human interaction is considerably more concerning than for the self-service technologies that came before it according to our dataset, and the extent that customers fault AI digital humans for a reduction (and continued reduction) in human interaction is far greater.

Unease with the idea of Paula pretending to be something that she is not was also alluded to throughout our interview processes. Specifically, a non-human entity (Paula) attempting to replicate genuine human interaction caused discomfort for some of our participants who were seeking human connection.

It was kind of a little bit weird that there was a digital human being that tried to be human but it is not human, you know?... Just having this animated picture on the screen is not a real human to me, but it was creepy that it tried to be human with its gestures and facial expressions and stuff like that, especially when she tried to smile, it was creepy for me. So I felt a bit of weirdness and uncomfortableness…Trying to *communicate human emotions visually with facial expressions I think the technology is not there yet… A little bit creeped out, because of this kind of artificial human but not human… When talking to like a checkout operator, there is a bit of empathy or interest in the person when talking to them or asking them about their weekend. What's the point in asking an AI how was their weekend? I think there is no real reason to have those chit-chats with an AI, because there is no weekend for the AI, there is no life for the AI that they could talk about (Huckleberry)*

Some of our participants see Paula not merely as an obstacle to human interaction, but more as an threat to the social fabric of society. For these shoppers, concern extended beyond a slight annoyance of having to talk with a machine instead of a human.

I think there is a point in our future where we might have to transition into a phase where there is less human interaction, but there are certain interactions with machines that we actually don't need and we need the human touch…Somethings need the human interaction… I am concerned about this transition, it is going overboard (Poorvi)

Artificial humans create artificial interactions. Not really something we [our society] need right now… Kind of the beginning of the end for human connection (Kurt)

Participants with this perception have echoed the idea of human need for human interaction, defined by Dabholkar (1996) in the consumer behaviour context as a consumer's tendency to desire and highly prioritise the emotional-social outcomes of personal interaction during service encounters. Several researchers have identified that the need for interpersonal contact goes hand in hand with a need to avoid machines (Prendergast & Marr, 1994). In other words, a need for interaction deters some consumers from using in-store technologies (Dabholkar & Bagozzi, 2002; Lee & Yang, 2013), and based on our observations, can significantly and negatively affect their experiences with AI digital humans and evaluations of service encounters.

Implications of social deprivation from the continued replacement of human interaction with retail technologies have also been discussed by researchers at the societal level (Čaić, Odekerken-Schröder, & Mahr, 2018; Sparrow & Sparrow, 2006). Consumers, consciously or subconsciously, tend to partake in the shopping process not merely for buying what they require, but also seeking social interaction (Lee & Yang, 2013). With the perceived natural outcome of the eventual widespread rollout of digital humans being a lack of human interaction, a few participants also expressed concern for the more vulnerable consumers within society who might be relying on retail interactions as one of the main sources of human connection.

> *I just think that it's a bit sad to see us heading in this direction. I mean, it doesn't really affect me, but I would imagine there are people that quite enjoy talking to people when they shop (Margaret)*

Such concern, whether based on one's preference to interact with store personnel or based on apprehension for other customers who might be using retail stores to fulfil their social needs, appears to limit some consumers ability to fully embrace Paula; these concerns negatively affect their experience with her.

5.3.2. Need to avoid in-store human interaction

In contrast to those concerned about lack of human contact, some of our participants expressed the opposite. Circumventing the necessity of interacting with human employees has been a factor expressed by those interviewees who were most impressed with Paula and indeed, avoiding unwanted interaction with service employees has been discussed in the literature as a primary factor that enhances the shopping experience for certain consumers as a result of the introduction of in-store technologies (Dabholkar, 1996). Elms, DeKervenoael and Hallsworth's (2016) study of internet grocery shopping behaviour identified a similar theme when they found that some shoppers seek out self-service checkouts to avoid interaction with store personnel. Many of the consumers that we approached during our intercept interviews described their previous frustrations with having to wait for an employee to assist them within retail stores and were delighted to see a practical solution to this. Another rationalisation for this viewpoint is that by avoiding interaction with store employees, consumers have the ability to bypass the human employee's sales pitch and therefore avoid the uncomfortable pressure to purchase. Likewise, consumers can avoid negative outcomes of the varying moods, personalities and biases (e.g. cultural, gender, age and social standing) of those service employees, in addition to eliminating human error when interacting with a digital human.

> *I personally love using them. I don't have to deal with people ...I personally don't actually enjoy having to talk with strangers when I shop, so I like this [Paula] (Luke)*
>
> *A good thing about Paula is that there is no sales pressure on there…when you speak to a person [human employee] and they go through the whole drama [sales pitch], you feel almost pressured to buy it (Kurt)*
>
> *For me I'm from a culture where you are not talking a lot to staff, only if there is information that I need, and I'm more a person who would rather spend more time in the store sorting out my issues myself and search for a longer time than asking other people for help…I don't want to have a lot of interaction with people in the store, I only want staff if I need to talk with them if I need information. I was a little bit concerned that if I used the thing [Paula] a staff member would come and ask me like 'can I help you with that' and stuff so I was concerned that they would kind of annoy me and I just wanted to check it [Paula] out myself (Huckleberry)*

Some participants felt that by having Paula there as an option, they were able to avoid social situations with store staff where social anxiety and human judgment could potentially occur. It appears that Paula was perceived as more approachable than human employees.

> *For me, I get anxiety to speak to a new person…you can get comfortable with Paula because obviously she's a machine and she's not going to judge the way I speak or who I am or where I am from (Poorvi)*
>
> *She doesn't really look like the judgmental type (Margaret)*
>
> *I'm someone who struggles a bit with social friction when talking to new people. Less awkward for me when I don't have to do it (Harry)*

Such a viewpoint appears to be largely based on the unpredictability of new social interactions. AI retail technologies hold the relative advantage over human service employees of being extremely consistent (Huang & Rust, 2018), and can be designed to remain homogeneous over time and across units (Wirtz et al., 2018). As a result, the uncertainty and unpredictability associated with human-human interaction does not necessarily apply with digital human interaction. As discussed by Brosschot, Verkuil and Thayer (2016), it is often the uncertainty associated with specific situations that forms the basis for anxiety and stress responses. By removing the human interaction element of physical retail shopping, those customers who consider themselves to be socially anxious and who fear judgement from other people are able to enjoy a less stressful and therefore more satisfying shopping experience. This finding provides further insight into the social outcomes of implementing this AI technology within retail environments by contributing a more nuanced account of the impact of digital humans on a relational level, as opposed to merely a transactional level.

6. Discussion and Implications

The findings of our study on the actual use of an AI digital human in-store have strong practical implications when thinking about the future of CX as retailing enters a period of both, transformation, and unprecedented change. While those commissioning such technologies envisage improvements in CX and concomitant cost savings, thematic analysis has revealed how consumers use and embrace this new technology and point towards the factors that may need to be accounted for to ensure CX is optimised.

Clearly, the social tensions experienced and the disruption to normal shopping practices need to be managed, and new practices learned. While customers did not enjoy stress, pressure, nervousness and sensing negative social judgment, CX and satisfaction increased significantly once they understood more of what the new technology was capable of doing. While initial advice in our focal study was for consumers to use the AI digital human when help was needed, paradoxically consumers who needed help lacked understanding of how to summon the help effectively, or indeed how to comprehend what it was that they were actually interacting with. Benefits in CX were gained after improving customer training, bolstering knowledge, learning what the correct procedures were, and how to converse with *"her"* effectively.

Making available guidance on various aspects of in-store practices relating to the new technology is key to improving CX. This includes providing details on the correct procedures necessary to operate effectively, such as where to stand, what to talk into, which button to press and hold, how loudly to speak, the clarity of communication required, etc. Consumers also welcomed further guidance as to what type of questions or statements might be responded to, including the possibility of using normal conversational gambits for ‘breaking the ice’ and strategies for initiating a conversation with a stranger. At a deeper level, consumers need to know more about the unfamiliar technology when it is in its infancy. Explanations should be available regarding how the technology works, for example, can she actually see the consumer? Is the consumer being video recorded? Will she remember the consumers? What does she do with the information that she receives throughout the conversation? Such training provided by retailers will reduce consumers’ uncertainty, increase the sense of safety, and help develop trust between the consumers and the AI digital human as part of the in-store experience.

An unexpected contribution and impact of the AI digital human technology on retailing CX in our study was the enabling of social possibilities and opportunities that otherwise would not have existed. Some of those shopping with friends/partners/family were able to interact with the technology in a fun and engaging way that obviously contributed to the CX for those concerned. While this might be a secondary outcome and benefit for retailers (and consumers) it should not be ignored. We believe there are strong arguments to further develop the social functionality of AI digital human technology in-store.

Retailers primarily pitch such technology as something that will assist consumers with their shopping journey, while the ‘fun’ factor has been somewhat ignored. The primary purpose of the technology is generally to assist customers with their shopping journey and the first thing is to ask shoppers ‘how can I help you?’ We believe there may be potential for replacing the question with small talk to encourage a more social rather than practical conversational exchange, especially if a group rather than solo shopper approaches. And extending this agenda, retailers might consider the potential for a wider range of (optional) social/fun interactions. These could be simply designing the AI digital human to play short games with shoppers (noughts and crosses, eye spy etc), or even a guessing game where *"she"* attempts to guess which type of product the customer is wanting to buy based on clues that the consumer provides her. There is tremendous scope for trialling different approaches using an AI digital human to engender a genuinely pleasing social situation in-store. With this broader agenda, retailers who invest in new AI in-store technologies may see that it contributes incremental increases in CX and that a more significant impact of technology on retail CX is experienced.

There is clear evidence that AI digital human technologies engender diverse and paradoxical responses, particularly regarding the need for human interaction/need to avoid interaction. What contributes towards a positive retail CX for one consumer might be the very thing that leads to a bad experience for another shopper. Choice rather than imposed technology is the key to success, considering the social consequences of AI in retail on consumers' experiences and shopping practices. Thus, we believe at this stage retailers would do well to think of AI digital humans not as a replacement for frontline employees but rather as an addition to the physical retail environment (Davenport, Guha, Grewal, & Bressgott, 2020).

Finally, we note that if retailers deploy new in-store technologies then the media messages and publicity that surrounds the launch of such innovative and ambiguous AI digital humans needs to highlight the uses beyond the practical and informational application. The hedonic and social benefits of interacting with an AI digital store concierge can lead to enhanced CX but unless consumers are made aware of this, the potential is unrealised. Thus, there is scope for a nuanced launch communication campaign to mitigate some of the consumers problems in using unfamiliar technology that leads to poor CX, and to highlight the latent and unexpected fun factor.

7. Conclusions and Suggestions for Further Research

This paper makes a clear and significant theoretical contribution to the consumer experience and retailing literature by revealing and untangling the social significance afforded from consumers' interactions with AI digital humans as part of the in-store shopping experience. In addition to adopting this novel sociological lens, there are strong managerial lessons to be learned about CX from the dataset in this study. New trends in store-based consumers behaviour have been interrogated, particularly regarding the potential for fun CX within groups as a result of interacting with an AI digital human.

Future research opportunities include the identification of critical success factors in reducing social tensions and improving CX, and balancing opportunities to interact with real and AI digital humans in store. Importantly, there are many future research avenues relating to our findings around fun and the heightened hedonic aspects of CX due to non-shopping orientated interactions. The marketing and retailing literature remains mostly silent on the wider social significance of AI digital humans on the in-store consumer experience and further studies should be undertaken to unpack the complex dimensions of interactions with human shoppers. Finding new ways to delight and amuse shoppers is central to the future of retailing CX management.

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Table 1. Pseudonyms and profile of participants

Pseudonyms	Participant Profile
Kurt	Male, late 50s, stepfather of three
Poorvi	Female, mid 20s, beauty therapist
Serena	Female, early 30s, master’s student, single
Jayce	Male, late 30s
Abhi	Male, early 30s, business analyst
Huckleberry	Male, late 30s, lecturer, single
Sahil	Male, late 20s
Jimmy	Male, early 40s, newly married
Mia	Female, late 20s, digital marketing manager
Margaret	Female, late 50s, secondary school teacher, mother of three
Harry	Male, late 40s, media director, newly married
Mark	Male, early 60s
Luke	Male, early 20s, builder