Chatting with the CEO's Virtual Assistant: Impact on Climate for Trust, Fairness, Employee Satisfaction, and Engagement

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Transactions on **H**uman-**C**omputer **I**nteraction

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Abstract:

How employees perceive the climate for trust and fairness of practices in an organization is a critical factor that drives employee satisfaction and engagement and contributes to sustained performance and growth. Communication between employees and top leadership is an essential mechanism that bridges the differences and helps align employees towards organizational goals. Technological innovations, such as artificial intelligence (AI)-based virtual assistants, can help leaders provide personalized interactions. Though scholars have argued the importance of AI, they have conducted relatively little work to explain its relevance in managing human resources. This study draws on social exchange theory and social response theory to investigate virtual assistants' impact on positive organizational outcomes. Based on a time-lagged, rigorous field study, we investigated virtual assistants' impact on creating a climate for trust, fairness, and employee outcomes, namely, their engagement and satisfaction. We also discuss the impact and implications of AI-based virtual assistants for enhancing employee outcomes.

Keywords: AI-based Virtual Assistants, Perceived Fairness, Climate for Trust, Employee Engagement, Employee Satisfaction.

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1   Introduction

Growing globalization, economic uncertainties, and competition have increased the complexity of the business environment in which organizations function. In this environment, organizations face it challenging to sustain employee motivation to ensure short-term survival and long-term performance to and meet their growth agendas (Merry, 2013). Past studies have demonstrated that organizational and individual factors drive employee attitude, behavior, and performance towards positive organizational outcomes (Gruman & Saks, 2011; Roberts, 2013; Van Rooy, Whitman, Hart, & Caleo, 2011). Implementing artificial intelligence (AI)-based technology seems vital in enhancing efficiency in task input, processes, and solution and decision outputs (Krogh, 2018). Though scholars have argued for the importance of AI (Strohmann, Siemon, & Robra-Bissantz, 2019), they have conducted relatively less work to explain its relevance in managing human resources (Krogh, 2018). Based on a time-lagged, rigorous field experiment, we investigated the impact that AI-based virtual assistants have on critical organizational factors such as climate for trust (Fainshmidt & Frazier, 2017) and fairness (Masterson, Lewis, Goldman, & Taylor, 2000), and individual factors such as employee satisfaction and engagement.

To sustain and enhance employee motivation, organizations spend enormous resources on improving their systems and processes. Most organizations routinely use a yearly employee survey ritual to assess employee attitudes and measure organizational factors that might help them identify efficiency driving avenues of their workforce (de Waal, 2014; Gruman & Saks, 2011). Despite the considerable effort, time, and money that they entail, these efforts often produce unproductive outcomes (de Waal, 2014, p. 228) because, among other reasons, measuring engagement through annual or bi-annual surveys may not accurately capture employee sentiments, which may change during the year. AI-based virtual assistants enable frequent, round-the-clock, and relatively bias-free interaction with employees to understand their views and provide both task input and efficient output (Krogh, 2018). The anthropomorphic characteristics of powerful virtual assistants with conversational capabilities in various social settings encourage self-disclosure during open-ended questions, enable higher participant engagement, and elicit better quality responses from respondents. Thus, AI-based virtual assistants seem to offer solutions to organizations in building a favorable organizational climate.

In this study, we focus on two goals. First, we investigate whether AI-based virtual assistants can take over routine and low-end tasks such as conducting annual engagement surveys and executing complex and nuanced human dialogs with empathy and compassion since research has not established whether they can (Luo, Tong, Fang, & Qu, 2019). Second, we argue and establish that enabling an AI-based system for efficient, personalized voice enablement enhances the affective feelings of engagement, satisfaction, trust, and fairness. Accordingly, we empirically examine AI-based virtual assistants' implications on the climate for trust, fairness, employee satisfaction, and engagement. The AI we used in the study possessed sophisticated natural language processing and speech recognition tools to enable the virtual assistant dialogue with the employees with empathy, compassion, and humor. We provide a conversation with an employee in Figure 1.

2   AI: Virtual Assistants and Communication

AI refers to "a system's ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation" (Kaplan & Haenlein, 2019, p. 15). In this domain, AI-based virtual assistants represent systems with no physical presence but distinguished identities through avatars or chatbots (Glikson & Woolley, 2020). AI applications range from weak/narrow AI, which achieves human intelligence stimulation fragments, to futuristic AI (algorithms that perform all tasks equally or better than humans). However, adopting AI is a function of ease of use, perceived usefulness, and trust in the technology. Virtual or digital assistants continue to increase in importance (Stout, Denis, Wells, 2014). They integrate artificial intelligence features to assist leaders in providing personalized interactions with their followers (Chattaraman, Kwon, Gilbert, & Ross, 2019). Virtual assistant applications span across multiple industries and functions and drive operational efficiency through data input, and they help identify motives and drivers of individual behavior (Glikson & Woolley, 2020; Krogh, 2018; Luo et al., 2019). Virtual assistants possess sophisticated natural language processing and speech recognition tools that enable subtle, complex, and nuanced human dialogs with empathy, compassion, and sometimes humor. The virtual assistants help "make life less prickly in certain interactions that are inherently bleak" (Luo et al., 2019, p. 9). As a result, organizations exhort taking "advantage of technological developments

to promote direct voice mechanism and reap the benefits of an actively engaged workforce" (Zhou, Fan, & Son, 2019, p. 264).
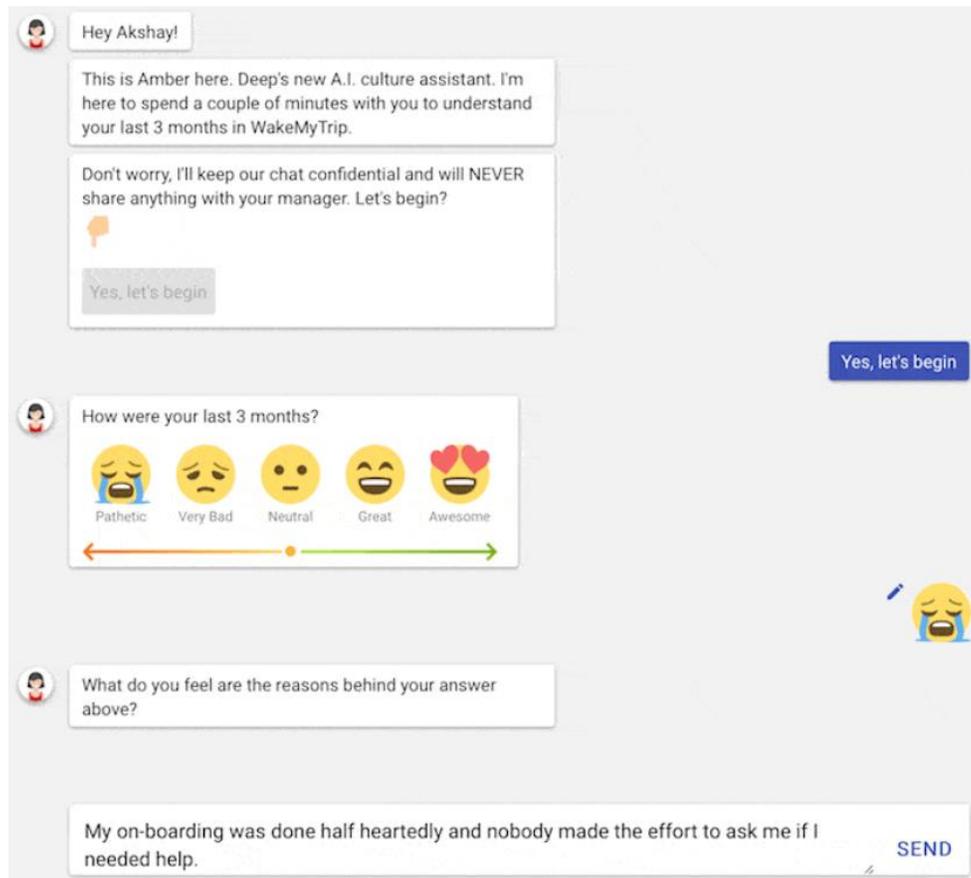

Figure 1. Communication between the Virtual Assistant with an Employee

Scholars argue that organizations can create actual value creation by evaluating and deploying different organizational resources (Barrick, Thurgood, Smith, & Courtright, 2015). Therefore, many organizations have introduced newer technologies to enhance productivity and cause organizational change (Marler & Parry, 2016). Studies reveal an absence of rigorous empirical studies that demonstrate the linkage between IT applications' actual use in the human resources (HR) function and their effectiveness (Haines & Lafleur, 2008). Virtual assistants emerge as one such technological innovation that can help create value and enhance productivity in the HR domain. However, few field studies have assessed embedded AI's trust in organizational settings (Glikson & Woolley, 2020, p. 32; Vargas, Yurova, Ruppel, Tworoger, & Greenwood, 2018). Limited rigorous research has examined its effect on human resources (Marler & Boudreau, 2017). To the best of our knowledge, no study has empirically evaluated AI-based virtual assistants' impact on employee attitude and behavior. Scholars have argued for the need for further research on virtual assistants' use on employee interaction and outcomes (Chattaraman et al., 2019) and that assesses the impact that conversational chatbots have on human-computer interaction research (Xiao et al., 2020). Organizations may even go as far as implementing AI applications based on short-term goals or financial benefits. Still, through confirmation, academic support reinforces broader organizational outcomes, strengthens the case for adoption, and helps HR functions move up the value chain (Garcia-Arroyo & Osca, 2019).

3 Theory and Hypotheses

3.1 Theoretical Foundation

In this study, we adopt social exchange theory (SET) and social response theory (SRT). According to Blau (1964), an exchange relationship depends on social or economic principles and form social exchange theory's foundations. All social exchanges involve a series of sequential transactions where actors

exchange resources through a reciprocity process. Social exchange depends on trust, which symbolizes a high-quality relationship. Researchers have also used SET to explain employee behavior such as organizational commitment. Here, the social exchanges involve greater trust and flexibility and less quid pro quo than the economic exchanges (Cropanzano, Anthony, Daniels, & Hall, 2017). SET helps explain attitudinal and behavioral responses between exchange targets and the impact that these responses have on relationship formation (Cropanzanoet al., 2017).

Drawing from reciprocity norms (Gouldner, 1960), scholars have argued that organizational practices create a sense of obligation for employees, which leads to an association with the organization (Mishra, 2014). An AI-based voice enabling virtual assistant gives a positive signal that the organization cares about hearing its employees' ideas, which builds their confidence in the system, reinforces their psychological contract with the organization, and enhances their organizational commitment (Farndale, Ruiten, Kelliher, & Hope-Hailey, 2011). In a context with increased interconnectedness and workplace integration, SET explains employees' basic psychological need fulfillment, which results in positive emotions and behaviors (Farndale et al., 2011; Moqbel & Nah, 2017).

Extant research argues that organizations that signal adherence to fair practices positively influence employee behavior (Sherf, Venkatarmani, & Gajendran, 2019). In other words, mechanisms to interact with virtual assistants (on leaders' behalf) encourage voice and foster transparency, collaboration, justice, and rule adherence, which all send a positive signal to employees. Employees, in return, are likely to respond favorably to these virtual assistants. We select the following four research variables because active employee voice systems correlate with employee engagement, satisfaction, trust, and perceived fairness (Shin, Jeong, & Bae, 2018; Tremblay, Cloutier, Simard, Chênever, & Vandenberghe, 2010). Scholars have agreed that employee dissatisfaction results in adverse behaviors such as exit, voice, loyalty, and neglect (Farrell, 1983). Hence, enabling bottom-up communication will likely signal that an organization values and trusts its employees, which will result in increased employee trust and organizational commitment toward the organization (Tremblay et al., 2010). Scholars argue that a "social exchange relationship may develop between an initiating actor and a target when the actor provides hedonically positive treatment" (Cropanzano et al., 2017, p. 12). The ensuring sense of reciprocity motivates citizenship behaviors to the initiating actor and referent target of trust. Positive initiating actions such as empowerment and organizational support enhance reciprocity feelings and, thus, cause higher employee engagement levels and extra-role behaviors. However, research has not established whether a virtual assistant can effectively achieve exchange relationships between employees and organizations.

Social response theory (SRT) states that individuals demonstrate similar social rules of self-disclosure, trust, and politeness during their interactions with computers (Chattaraman et al., 2019). It also emphasizes the reciprocity principle in human/computer interactions. The reciprocity principle suggests that humans socially respond and match a computer's communication or behavior. Therefore, human interactions with AI-based virtual assistants demonstrate a similar sense of social presence in human users' minds, which causes them to respond socially regardless of the interacting entity's virtual embodiment. The nature of the interaction (conversations, pausing during the communication, and offering lengthy responses) typifies the sense of reciprocity that these interactions involve. It strengthens the rapport with the virtual assistant. The virtual AI's responsiveness, active listening, and personalization behaviors increase a sense of fairness and trust with the virtual agent, which results in similar behaviors and attitudes as with a human (Chattaraman et al., 2019; Glikson & Woolley, 2020). Scholars have argued that people tend to disclose more personal information and engage in less impression management while interacting with these agents than human beings (Glikson & Woolley, 2020). This study focuses on establishing a linkage between AI adoption for enabling communication with employees with the climate for trust, employee satisfaction, perceived fairness, and employee engagement.

3.2   Organizational Climate for Trust

The opportunity to communicate with the top management team (Farndale et al., 2011) makes employees feel that organizational practices are oriented towards them. Perceived managerial openness to listen to ideas and give them fair consideration enhances psychological safety as employees perceive lower speaking-up costs (Xu, Huang, Ouyang, Liu, & Hu, 2019). Trust is enhanced when employees perceive the organization as supportive and following just practices (Byrne, Pitts, Wilson, & Steiner, 2012). The social exchange theory postulates that environments that demonstrate favorable treatment from an organization's agents, especially its leaders, help enhance trust and signal to employees that the organization values them (Byrne et al., 2012; Mishra, 2014). Employees' feelings of being cared about and respected engender the

perception that they can trust their organization (Hu & Jiang, 2018). When employees perceive their organization as trustworthy, they try to maintain the exchange relationship by getting more engaged with organizational activities (Mishra, 2014). Scholars have argued that appropriate activities, such as voice mechanisms, foster employees' obligation to their organization (Downey, van der Werff, Thomas, & Plaut, 2015); thus, they reciprocate with enhanced trust. Empirical studies have reported a positive association between employee voice behavior and trust in their organization (Son, 2019). Researchers refer to employees' positive expectations regarding other members' motives, intentions, and prospective actions as a climate for trust (Poon, 2003). Drawing from SET, scholars have argued that employees in a high climate for trust "experience a reduced sense of vulnerability and uncertainty and an increased sense of engagement" (Downey et al., 2015, p. 37).

We argue that organizations provide signals about justice rule adherence and that these signals positively influence employee behavior (Sherf et al., 2019). Therefore, employees will likely interact with virtual assistants as a positive signal by their organization to encourage voice, build transparency, collaborate, and enable justice rule adherence. SRT further argues that employees will likely engage with virtual assistants in a manner akin to how they engage with another human. AI-enabled virtual assistants allow a seamless opportunity for employees to voice their concerns. We extend the existing literature by proposing that the AI-enabled chatbots that enable employee voice will foster a climate for trust. Specifically, we hypothesize:

> **H1**: Organizational climate for trust is higher for employees who use AI-based virtual assistants than for employees who do not.

3.3 Perceived Fairness

Sherf et al. (2019, p. 471) defined perceived fairness as "a judgment made about the appropriateness of others' actions by comparing them to a relevant justice rule". Researchers have conceptualized perceived fairness in the workplace through organizational justice theory (Greenberg, 1987). It encompasses all dimensions of organizational justice (Byrne et al., 2012; Xiang, Li, Wu, & Long, 2019), and the academic literature uses these terms interchangeably (Sherf et al., 2019). Studies have shown that interpersonal justice helps convey respect and concern for employees and enhance fairness perceptions (Byrne et al., 2012). Mechanisms for dynamically engaging employees through technology enable personalized, rapid, and seamless communication. When employees "have an outlet to communicate their issues…and expect some form of restitution…, [it] gives them a perception of control and autonomy" (Sharma, 2018, p. 61), which enhances their perceptions about their organization's fairness. Research has found both instrumental voice (outcome influenced) and non-instrumental voice (opportunity to speak up regardless of outcomes) to strongly relate to a sense of fairness and satisfaction with the process (Conway, Fu, Monks, Alfes, & Bailey, 2016).

Social exchange theory predicts that employees will see an organization providing an AI virtual agent as a positive initiating action for enabling organizational support (Cropanzano et al., 2017). We argue that, aligned with SET, direct communication with a leader, albeit through AI-based virtual assistants, will enhance the extent to which employees who have used this mechanism perceive their organization as fair compared to employees who not used it. Specifically, we hypothesize:

> **H2:** Employees who use AI-based virtual assistants perceive their organization as fairer than other employees who do not.

3.4 Employee Satisfaction

Research has conceptualized employee satisfaction as an attitudinal variable that combines the task-related aspects (work facilities, resources available, etc.), instrumental benefits (perceived career growth opportunities), and relationships with colleagues and managers (Torre-Ruiz, Vidal-Salazar, & Cordón-Pozo, 2019). When employees speak up, it informs their leaders about the "beneficial or harmful outcomes that leaders care about, those reflecting their unit's performance" (Detert, Burris, Harrison, & Martin, 2013, p. 627). We argue that systems that enable this voice allow employees to address aspects of their work or environment, which impacts their satisfaction. Employees "who speak up are likely to experience the expressive and motivational benefits of having the autonomy to speak up" (Detert et al., 2013, p. 642). Employees can appeal to the highest authorities to address their concerns on various aspects of job satisfaction by enabling the systems and processes through the virtual assistant system. Scholars have found that, when leaders provide an opportunity to their subordinates to express their views and listen to them, it enhances the latter's satisfaction (Chan, 2019). Based on SET, AI-based virtual assistants increase

employee involvement, help them gain commitment, build stable relationships, and help in attitudinal change (Strong, 2006). Compared to the employees who have the opportunity and access to voice to the highest authorities, employees who lack this access to voice various aspects of their job and work environment will likely feel lower satisfaction levels. Therefore, we argue that employees with access to voice channels enabled by AI-based virtual assistants will experience higher employee satisfaction levels than those who do not have this access. Specifically, we hypothesize:

> **H3:** Employees who use AI-based virtual assistants have higher employee satisfaction levels than employees who do not.

3.5   Employee Engagement

With better natural language processing capabilities, AI-enabled chatbots provide different human-like cues (Glikson & Woolley, 2020). These cues "evoke a sense of social presence in the users' minds" (Chattaraman et al., 2019, p.316). Individuals require social presence since it provides them with intense feelings of socialness (Lee, Peng, Jin, & Yan, 2006). Virtual agents take turns conversing with employees and reciprocate feelings via language and emoticons. As a result, the AI-based virtual agents have the potential to satisfy both employees' relational (maintaining and building social relationships) and instrumental (of getting things done) needs (Chattaraman et al., 2019).

According to SET, individuals reciprocate with an appropriate response when a party enacts social exchange rules (Blau, 1964). Scholars further argue that "obligations are generated through a series of interactions between parties who are in a state of reciprocal interdependence" (Saks, 2006, p. 603). Employee engagement is both an emotional state and a cognitive involvement in the work and the organization that motivates employees to perform their best (Roberts, 2013).

Employees want the opportunity to voice their views and prefer a range of voice mechanisms (Wilkinson & Fay, 2011). On the other hand, purposeful silence occurs when employees withhold their ideas and opinions from sharing with the organization (Van Dyne, Ang, & Botero, 2003, p. 1361). Scholars have used SET as a theoretical anchor in linking voice and employee engagement (Holland, Pyman, Cooper, & Teicher, 2011). AI-enabled chatbots facilitate personalized, rapid, and seamless interaction with employees, which fosters their voice. When employees see their organization as open to listening to their opinions, it enhances psychological safety and lowers employees' perceptions about the cost of speaking up (Xu et al., 2019). As a dichotomous choice between remaining silent and speaking up, voice mechanisms enable employees to express themselves and to bring attention to new ideas, potential problems, and significant trends that employees seek to validate at work (Farndale et al., 2011; Xiang et al., 2019). Robust voice mechanisms enable employees to feed their views upwards and, thus, foster greater psychological wellbeing, empowerment, and a sense of autonomy (Conway et al., 2016; Holland et al., 2011). These mechanisms further enhance a sense of control and influence among employees (Wilkinson & Fay, 2011), which leads to their engagement (Detertet al., 2013; Holland et al., 2011). On the contrary, when an organization fails to allow its employees to share their views, employees reciprocate with reduced engagement. Thus, we hypothesize:

> **H4:** Employees who use AI-based virtual assistants have stronger employee engagement than employees who do not.

4   Methods

4.1   Organization Context and Experiment Settings

We used a quasi-experimental design in a field setting with explicit virtual assistant interaction manipulations to understand employee perceptions and attitudes. We did not randomly assign subjects to both conditions (AI-intervention and no AI-intervention) in this study. Hence, other differences between these two employee groups might impact the outcomes. However, researchers have argued a quasi-experimental study to be a better approach that increases the generalizability of results (Wang, Noe, & Wang, 2014). The "naturally occurring quasi-experiment afforded the opportunity to study unobtrusively the hypothesized effect" (Dhiman, Sen, & Bhardwaj, 2018, p. 83). In the present study, the virtual assistant represents weak/narrow AI, which achieves fragments of human intelligence stimulation and not an algorithm that performs all tasks as well/better than humans (Glikson & Woolley, 2020).

We used a large subsidiary of a multinational organization operating in India as the setting for the field experiment. The organization specialized in energy storage and management solutions, which included solar energy, had operated for over 30 years, and sold its products in more than 36 countries. We conducted the field experiment in all four of the organization's business units (BUs). The BUs represented all functions and included geographically distributed employees across the country. The four business units differed predominantly in their functions and the lines of business. BU 1 represents the manufacturing, BU 2 represents the sales and marketing function (the revenue-generating unit), BU 3 represents the after-sales service (customer-facing employees), and BU 4 represents the support function that provides support to the internal stakeholders (employees) on issues related to HR, finance and accounts, information technology.

The study introduced the virtual assistant as the "CEO's virtual assistant" to all employees through email communication from the CEO's desk and employee direct mailers that welcomed and explained the virtual assistant's role (see Figure 2). The communication indicated that the virtual assistant would reach out to employees based on the tenure milestones they achieved or at instances of critical changes in their career in the organization such as role change, promotion, manager change, and so on. The message encouraged employees to chat with the virtual assistant with the assurance that all communication would be "confidential but not anonymous".

INTRODUCTORY MAIL ON AI ASSISTANT (AMBER) FROM CEO's DESK

Subject: A new employee at ****** who is not human

Dear All,
We are pleased to welcome a new one-of-a-kind employee named Amber into ******. She is an artificially intelligent assistant (BOT) who helps the leadership team act on the areas of improvement that surface in our culture.

Amber will touch base with a selected few, every now and then, to understand and empathize with their journey in ******** so far. Since she is not human, you can open your heart out without any fear of judgment.

Please take two minutes of your time to interact with her if you receive an email from her. I am looking forward to some meaningful interactions.

Regards,
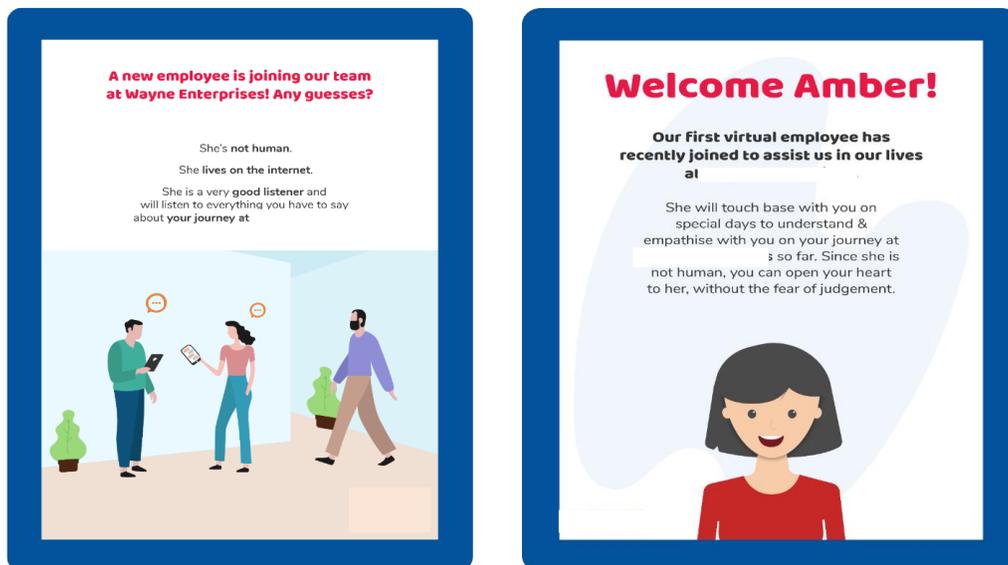
Figure 2. Introduction Communication of the Virtual Assistant

The virtual assistant reiterated a similar message on communication privacy in its first communication. This introductory mail included a disclosure about who would access the feedback that employees provided in the chat. In this case, we configured access to feedback provided to be visible to the chief executive operator (CEO) and the HR head. This communication from the CEO's desk helped build confidence and trust

because the CEO has both the influence and ability to motivate employees at all levels (Barrick et al., 2015). The management also encouraged employees to use the existing conventional channels to converse with their supervisor and/or HR business partner about any urgent concerns if they felt the need if the virtual assistant had not contacted them.

A pre-configured algorithm determined the frequency and target employee with which to initiate conversation. We set the tenure milestones at which the virtual assistant reached out to all employees meeting the criteria to 15 days, one month, three months, six months, one year, 1.5 years, two years, and so on. Each employee interacted with the virtual assistant from at least two times to a maximum five times. We planned the virtual assistant's introduction for a period that contained no other HR interventions, such as merit increase, promotion, role changes, and so on, as these HR influences may have biased employee engagement and survey responses. Also, no changes in other HR practices occurred during this period. Thus, the virtual assistant's introduction occurred alongside the annual engagement survey.

Table 1. The Mean and Standard Deviation of Different Factors between Two Groups

	Group	Aggregate level			BU 1			BU 2			BU 3			BU 4		
		N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Formal education	1	618	1.84	.82	116	1.90	.86	261	1.74	.69	195	1.97	.94	46	1.74	.80
	2	335	1.79	.77	136	1.78	.79	79	1.81	.53	56	1.75	.88	64	1.80	.89
Gender	1	618	.93	.26	116	.85	.36	261	.94	.24	195	.96	.20	46	.94	.25
	2	335	.91	.28	136	.88	.33	79	.92	.27	56	.95	.23	64	.95	.21
Age (years)	1	618	37.08	6.67	116	38.87	7.28	261	36.11	5.65	195	37.20	7.16	46	37.56	7.39
	2	335	36.48	7.07	136	37.57	7.59	79	35.18	6.21	56	36.75	7.49	64	35.52	6.28
Extraversion	1	618	3.93	.75	116	3.80	.72	261	4.01	.79	195	3.92	.71	46	3.84	.71
	2	335	4.10	.65	136	3.98	.66	79	4.28	.62	56	4.05	.57	64	4.16	.68
Agreeableness	1	618	3.86	.81	116	3.89	.82	261	3.84	.82	195	3.86	.79	46	3.84	.78
	2	335	3.93	.83	136	3.95	.85	79	3.99	.83	56	3.87	.87	64	3.88	.78
Conscientiousness	1	618	4.23	.78	116	4.21	.67	261	4.22	.86	195	4.26	.75	46	4.27	.66
	2	335	4.36	.69	136	4.31	.64	79	4.39	.77	56	4.37	.63	64	4.42	.73
Neuroticism	1	618	3.65	.92	116	3.80	.89	261	3.64	.92	195	3.61	.94	46	3.50	.94
	2	335	3.85	.88	136	3.83	.87	79	4.06	.83	56	3.93	.80	64	3.52	.94
Openness	1	618	4.14	.80	116	4.09	.79	261	4.15	.90	195	4.15	.70	46	4.16	.61
	2	335	4.29	.80	136	4.27	.98	79	4.23	.94	56	4.30	.65	64	4.38	.80
Engagement	1	618	3.75	.57	116	3.70	.59	261	3.73	.63	195	3.80	.49	46	3.76	.55
	2	335	4.02	.59	136	4.00	.59	79	3.99	.60	56	4.06	.62	64	4.04	.52
Satisfaction	1	618	3.78	.63	116	3.83	.48	261	3.73	.73	195	3.83	.59	46	3.90	.44
	2	335	4.07	.60	136	4.00	.64	79	4.03	.58	56	4.13	.64	64	4.21	.47
Climate for trust	1	618	3.81	.68	116	3.77	.61	261	3.81	.76	195	3.81	.65	46	3.86	.51
	2	335	4.04	.67	136	3.94	.71	79	4.06	.70	56	4.14	.63	64	4.12	.56
Perceived fairness	1	618	3.78	.68	116	3.66	.83	261	3.77	.74	195	3.84	.68	46	3.87	.58
	2	335	4.04	.67	136	3.93	.74	79	4.13	.72	56	4.14	.64	64	4.06	.53

Note: Group 1 represents control group; Group 2 represents AI intervention sample.
BU: business unit; gender: 0: female, 1: male

A group of employees who met the tenure-based timelines as configured in the AI formed the experimental group from these business units (i.e., employees who received the AI-based virtual assistant intervention). The other group of employees received no intervention. After some time since we introduced the intervention, we elicited the same information from the employees regarding the climate for trust, fairness, satisfaction, and engagement through a survey instrument that we administered to both the control and experimental group employees. We collected data in different periods from different sources to minimize potential common method variance. We collected data from 953 employees of which 335 engaged with the AI-based virtual assistant, and 618 did not (i.e., they comprised the control group). We provide the number of respondents in each business unit in Table 1.

Each chat started with an emoticon. The response to this triggered subsequent questions through the virtual assistants' AI that helped the conversational flow by deploying sentiment analysis, showing empathy with user feedback, and better understanding of concerns. We used the platform NLP and sentiment analysis to thematically represent engagement drivers (see Figure 3), such as "my career and learning", "my organization", "senior leadership", "my organization culture", "my manager", and "my work". The percentage of positive, neutral, and negative responses flagged the major concern areas in the organization. Additionally, the dashboard (see Figure 3) offered a "people to meet" index, which predicted the actively disengaged employees who were likely to leave the company.

Machine learning distilled each chat's overall sentiment to develop an engagement level report. The application also showed the engagement level at various levels, such as the business unit, geography, and even manager level.

We captured employees' age, gender, and education from the company records and personality scores by administering the questionnaire (Time 1). Six months later (Time 2), we introduced the virtual assistant to facilitate continuous employee input. Two months after we launched the virtual assistant-based engagement (Time 3), we sent an online survey questionnaire to both employees in both groups (i.e., those who had engaged with and those who had not engaged with the virtual assistant) and invited them to complete it. These business units did not change significantly from when we introduced the virtual assistant to when we collected data.
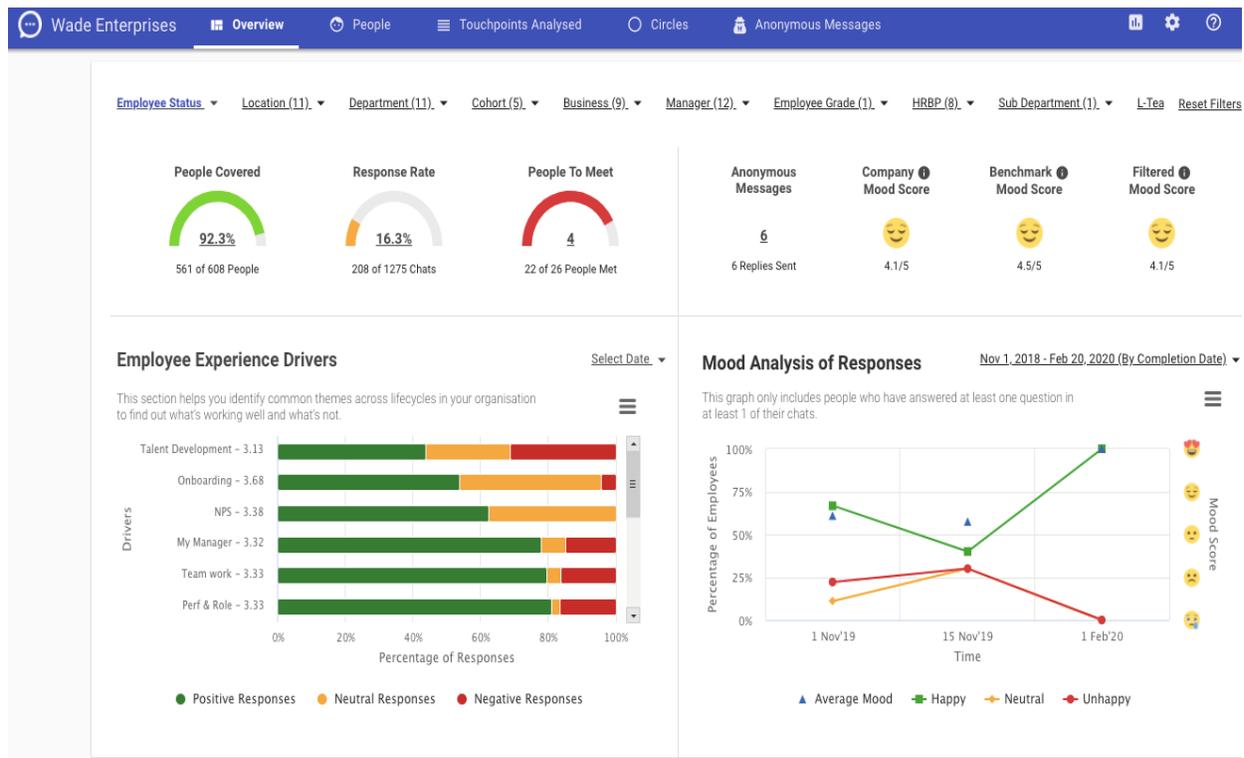
Figure 3. Dashboard Representation of Thematic Employee Engagement Sentiment

4.2   Measurement

We measured organizational climate for trust with a three-item scale (Fainshmidt & Frazier, 2017). It included items such as "In this organization, subordinates have a great deal of trust for managers". We used the scale that Jones and Martens (2009) developed to capture employees' fairness perception. It included items such as "Overall, I believe I am treated fairly by my company's senior management team". We measured employee engagement with the six-item Hewitt engagement scale. Given the model's validity, scholars have used it to capture employee engagement. It included items such as "The organization motivates me to contribute more than is normally required to complete my work" (Love & Singh, 2011; Roberts, 2013; van Rooy et al., 2011). We operationalized employee satisfaction using a five-item scale that Diestal, Wegge, and Schmidt (2014) used. It included items such as "All in all, I am satisfied with the

organization and management" and "All in all, I am satisfied with my colleagues" for dimensions relating to satisfaction with management and colleagues, respectively. The responses ranged from strongly disagree (1) to strongly agree (5). We measured personality because past research has indicated its effect on engagement (Albrecht & Marty, 2020). We used the short version of the Big Five personality scale (Gosling, Rentfrow, & Swann, 2003) to capture individual personalities. The responses ranged from strongly disagree (1) to strongly agree (5). Consistent with past research, we controlled for gender (which we measured as 0: female and 1: male) and education as they relate to engagement (Conway et al., 2016). We captured formal education and measured it on a four-point scale (1: graduates, 2: post-graduates, 3: technically trained, and 4: professionally educated such as cost accountants and chartered accountants). We also captured age because it relates to engagement. All the scales used in the present study indicated an acceptable internal consistency. Table 2 presents the mean difference between the two groups and the Cronbach alpha scores of the measures. We checked the convergent validity of the scales by examining the average variance explained (AVE). We further checked the discriminant validity using Fornell and Larcker's (1981) approach. We found each construct's AVE score (AVE scores of employee engagement: 0.58; employee satisfaction: 0.75; Climate for trust: 0.78; perceived fairness: 0.59) exceeded the square of the inter-correlations and, thus, denoted high discriminant validity.

Table 2. Difference between the Two Groups

	Mean difference between the two groups				Scale reliability			
	BU 1	BU 2	BU 3	BU 4	BU 1	BU 2	BU 3	BU 4
Formal education	0.12	-0.074	0.22	-0.06				
Gender	-0.02	0.02	0.01	-0.02				
Age (years)	1.29	0.93	0.45	2.04				
Extraversion	-0.18*	-0.28**	-0.13	-0.32*	0.69	0.72	0.67	0.74
Agreeableness	-0.06	-0.14	-0.01	-0.04	0.76	0.74	0.68	0.64
Conscientiousness	-0.10	-0.17	-0.11	-0.15	0.61	0.78	0.67	0.60
Neuroticism	-0.03	-0.42***	-0.32*	-0.02	0.69	0.72	0.72	0.74
Openness	-0.19	-0.08	-0.16	-0.22	0.74	0.82	0.64	0.64
Engagement	-0.31***	-0.26**	-0.26**	-0.28**	0.82	0.76	0.76	0.77
Employee satisfaction	-0.17*	-0.26**	-0.30**	-0.31**	0.82	0.87	0.87	0.83
Climate of trust	-0.17*	-0.25*	-0.33**	-0.26*	0.85	0.85	0.82	0.83
Perceived fairness	-0.26**	-0.37***	-0.30**	-0.19†	0.84	0.83	0.83	0.74
Number of respondents	252	340	251	110	252	340	251	110

Note: Group 1 represents the control group; Group 2 represents AI intervention sample.
† $p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

4.3   Results

We provide the mean and standard deviation of all the study variables in Table 1. We compared the employees' age, gender, formal education, and personality between Group 1 (employees without virtual assistant intervention) and Group 2 (employees with virtual assistant intervention). Since the sample size for the two groups differed, we used Welch's t-test to compare the mean in four different BUs. We provide the findings in Table 2. We analyzed the data in each BU to answer our four hypotheses

First, we found that, compared to the control group, the employees in the experimental group showed higher levels of climate for trust (BU 1: Δ_{mean} = -0.17, $p < 0.05$; BU 2: Δ_{mean} = -0.25, $p < 0.05$; BU 3: Δ_{mean} = -0.33, $p < 0.01$; BU 4: Δ_{mean} = -0.26, $p < 0.05$). A post hoc analysis with a Bonferroni adjustment revealed (BU 1: F = 4.28, $p < 0.05$; BU 2: F = 6.71, $p < 0.05$; BU 3: F = 11.12, $p < 0.01$; BU 4: F = 5.99, $p < 0.05$) that the AI-enabled virtual assistant had a significant effect on climate for trust. Hence, we found support for H1.

Second, we found that employees with virtual assistant intervention showed higher levels of perceived fairness (BU 1: Δ_{mean} = -0.26, $p < 0.01$; BU 2: Δ_{mean} = -0.37, $p < 0.001$; BU 3: Δ_{mean} = -0.30, $p < 0.01$; BU 4: Δ_{mean} = -0.19, $p < 0.1$). A post hoc analysis with a Bonferroni adjustment score (BU 1: F = 7.03, $p < 0.01$; BU 2: F = 15.13, $p < 0.001$; BU 3: F = 8.68, $p < 0.01$; BU 4: F = 3.26, $p < 0.01$) indicated that the AI-enabled virtual assistant had a significant effect on perceived fairness. Hence, we found support for H2.

Third, we found that employees with virtual assistant intervention showed higher levels of employee satisfaction (BU 1: Δ_{mean} = -0.17, $p < 0.05$; BU 2: Δ_{mean} = -0.26, $p < 0.01$; BU 3: Δ_{mean} = -0.30, $p < 0.01$; BU 4: Δ_{mean} = -.31, $p < .01$). The comparisons between the respondents across the four BUs supported our findings (see Table 2). A post hoc analysis with a Bonferroni adjustment (BU 1: F = 5.30, $p < 0.05$; BU 2: F = 8.68, $p < 0.01$; BU 3: F = 10.55, $p < 0.01$; BU 4: F = 11.90, $p < 0.01$, indicated that the AI-enabled virtual assistant had a significant effect on employee satisfaction. Hence, we found support for H3.

Fourth, compared to the control groups (employees without virtual assistant intervention), the employees in the experimental group (employees with virtual assistant intervention) showed higher levels of engagement (BU 1: Δ_{mean} = -0.31, $p < 0.001$; BU 2: Δ_{mean} = -0.26, $p < 0.01$; BU 3: Δ_{mean} = -0.26, $p < 0.01$; BU 4: Δ_{mean} = -.28, $p < 0.01$). We provide the BU-wise comparison in Table 3. A post hoc analysis with a Bonferroni adjustment (BU 1: F = 17.52, $p < 0.001$; BU 2: F = 10.47, $p < 0.01$; BU 3: F = 10.44, $p < 0.01$; BU 4: F = 7.57, $p < 0.01$) indicated that the AI-enabled virtual assistant had a significant effect on employee engagement. Hence, we found support for H4.

4.4   Additional Analysis

We also conducted four hierarchical regression analyses by taking the AI-enabled virtual assistant intervention (1: no intervention; 2: intervention) as the independent variable and climate for trust (Model 1 in Table 3), perceived fairness (Model 2 in Table 3), employee satisfaction (Model 3 in Table 3), and employee engagement (Model 4 in Table 3) as dependent variables after controlling for the effect of education, age, gender, personality, and business units. We found that AI-enabled virtual assistants had a significant effect (see Table 3). Hence, we found support for all four hypotheses.

Table 3. Regression Results of AI Intervention of Employee Outcomes

	Climate for trust	Fairness	Satisfaction	Engagement
Variables	Model 1	Model 2	Model 3	Model 4
	B(se)	*B(se)*	*B(se)*	*B(se)*
(Constant)	2.35 (0.23)***	2.19 (0.24)***	2.37(.21)***	2.05 (0.19)***
Formal Education	-0.03 (0.03)	0.01 (0.03)	-0.00 (0.02)	0.02 (0.02)
Gender	0.23 (0.08)**	0.21 (0.09)*	0.08 (0.08)	0.03 (0.07)
Age (Years)	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)	0.01 (0.00)**
Extraversion	0.10 (0.00)**	0.08 (0.04)*	0.10 (0.03)**	0.08 (0.03)**
Agreeableness	0.03 (0.03)	-0.01 (0.03)	-0.00 (0.03)	0.04 (0.02)
Conscientiousness	0.01 (0.04)	0.06 (0.04)	0.00 (0.03)	0.01 (0.03)
Neuroticism	0.03 (0.03)	0.01 (0.03)	0.03 (0.02)	0.02 (0.02)
Openness to experience	0.07 (0.03)*	0.09 (0.03)**	0.09 (0.03)**	0.10 (0.03)***
Business unit	0.04 (0.02)	0.06 (0.02)*	0.04 (0.02)*	0.03 (0.02)
AI-intervention	0.20 (0.05)***	0.24 (0.05)***	0.23 (0.04)***	0.24 (0.04)***
ΔR^2	0.02	0.02	0.03	0.04
Adj. R^2	0.07***	0.07***	0.08***	0.11***
F Change	19.11***	24.08***	30.91***	39.77***

Note: N = 953; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$
We report unstandardized coefficients.
Figures in parenthesis represent standard error.
Gender: 0: female, 1: male

5   Discussion

Organizations harness technology to generate insights in real-time about their employees, their physical, health, and emotional states since people are an essential resource (Garcia-Arroyo & Osca, 2019). The application of AI technologies has resulted in the emergence of the next-generation digital platforms, which offer machines advanced possibilities to perform erstwhile tasks in the domain of human cognitive functioning (Rai, Constantinides, & Sarker, 2019). The challenges in using data sciences and AI for HR

tasks result in a "substantial gap between promise and reality" (Tambe, Cappelli, & Yakubovich, 2019, p. 15). With opportunities for task substitution to task augmentation (AI and human complementarities) and task assemblage (active cooperation to function as an integrated unit) (Rai et al., 2019), using virtual assistants for enhancing employee engagement emerges as an opportunity for both task substitution and augmentation. Virtual assistants' personalization helps address employee's instrumental need for voice expression. We found that asynchronous communication allowed the top leadership team in the company we examined to help satisfy employees' relational needs. This bottom-up information sharing with the top leaders likely enhances employee participation, collaboration, and trust (Tremblay et al., 2010).

The virtual AI's anthropomorphic and immediate social gestures, intelligence, responsiveness, active listening, and personalization increase a sense of fairness and trust with it (Glikson & Woolley, 2020). In combination, AI virtual assistants and human agents (hybrids) will enable task substitution, augmentation, and assemblage at comparable quality levels to what human agents alone could achieve and at a fraction of time (Rai et al., 2019).

The employee psychological contract's dimensions are changing, and many organizations face constraints in terms of resources (time and budgets) to execute engagement agendas (Merry, 2013). Our study reinforces virtual assistants as an alternative feedback mechanism to the conventional annual engagement survey. It examines the impact that introducing this assistant has on organizational outcomes. Using AI technology can transform traditional and sometimes ineffective HR practices in organizations. The "improvements in speed and quality of HR services resulting from a shift from labor-intensive to technology-intensive service delivery" (Haines & Lafleur, 2008, p. 529) can help transform HR from a more administrative and operational role to a value-adding function.

AI-based virtual assistants have emerged as powerful mechanisms and practices that provide employees the opportunity to express their opinions and raise their concerns; in this way, they can augment employee participation in organizational activities (Zhou et al., 2019). Our study shows that participation platforms enabled through AI-based virtual assistants engage employees at a very personalized level, enhance the climate for trust, enhance perceived fairness, improve employee satisfaction, and augment engagement. Our study demonstrates that organizations can use virtual assistants as a useful resource management mechanism to optimize managerial and HR bandwidth and positively engage employees to create value for them.

5.1   Contribution to Theory

This study contributes to the AI and HRM literature in several meaningful ways. First, we examine whether one can use virtual assistants to enhance interactivity with employees, enhance trust in management, and impact employee engagement. The study helps reinforce SET's applicability to enable an exchange relationship between employees and management using virtual assistants. Virtual agents address employees' cognitive and social needs with greater efficiency and speed while boosting their confidence in the technology. Second, the study extends both the reciprocity principle and supports SRT in AI literature by demonstrating its benefits for HRM systems. Typically, in interactions with AI-based virtual assistants, user data handling requires a sense of trust (Chattaraman et al., 2019). The human-like communication of the virtual agents demonstrates the principles of reciprocity required in social communication and engagement as employees respond to the virtual assistants in a social manner akin to human interaction. The study also reinforces SRT in that employees respond to virtual assistants in a social manner akin to human interaction.

Second, we illustrate that virtual assistants' communication can satisfy employees' instrumental need to voice their concerns and relational need to maintain and build social relationships. We demonstrate that AI-based virtual assistants can establish trust in their interaction with employees. We present the possibility to disintermediate HR practitioners' routine and time-consuming interventions to facilitate employee engagement by virtual agents, which may enable the attainment of organization goals in a more effective manner.

Third, we demonstrate that AI-based virtual assistants enhance employee satisfaction, engagement, fairness perception, and organizational climate for trust in their organization. Hinged on reciprocity and social exchange theories, when employees feel that their organization meets their exchange obligations and considers their wellbeing, it enhances their trust (Tremblay et al., 2010). The uniformity of results, irrespective of function or business units, strengthens the generalizability of the findings. The findings

suggest that AI-based virtual assistants can be used across all industries and functions and will likely positively impact organizational and employee engagement outcomes.

Fourth, we demonstrate that AI-based virtual assistants that enable employee voice are better than existing annual employee survey systems for assessing engagement. These virtual assistants can provide immediate and personalized insights that the conventional survey mechanism lacks. Increased employee satisfaction and enhanced engagement are of interest for HR practitioners in organizations. With organizations looking at tools and processes that can help monitor employee feedback effectively and identify real pain points (Merry, 2013), AI-based engagement demonstrates superior outcomes.

Fifth, scholars in the IS literature have called for novelty in research methods (Zachariadis, Scott, & Barrett, 2013). Accordingly, we conducted a quasi-experimental method over six months. We argue that this method increased our findings' internal validity (Wang et al., 2014).

Additionally, scholars working on performance management systems highlight evaluation frequency as an essential factor that HR professionals need to focus on (Briscoe & Claus, 2008, p. 15). Traditional systems fail to increase evaluation frequency since evaluation involves many activities. AI-based virtual assistants can better increase employee interaction frequency and enable organizations to implement continuous performance-management systems. Organizations in the recruitment domain have also adopted AI-based virtual assistants for applicant selection (Krogh, 2018), screening, scheduling, and onboarding. The domains in HR operations and shared services functions have increasingly begun to leverage virtual assistants for greater efficiency, and algorithms have begun to take over HR professionals' traditional tasks (Krogh, 2018). We contribute to the literature by highlighting the relevance of AI-based virtual assistants in impacting positive employee behaviors.

5.2 Contribution to Practice

Research has found the HR function to lag both in adopting and using analytics for evidence-based decision making and, hence, to not keep pace with organizational needs (Vargas et al., 2018). Employees view AI-based virtual assistants as a channel for both expressing grievances and suggestion-making practices. This view helps create a high-performance work system (HPWS) for employees that enhances their commitment and productivity (Zhou et al., 2019). Using an AI-based virtual assistant as an HPWS demonstrates effective resource management by optimizing managerial and HR bandwidth and positively engaging employees to create value for an organization by achieving better outcomes. While researchers have argued that people are a source of competitive advantage, we lack research on whether technologically enabled HPWS (Barrick et al., 2015) and virtual assistants can build individual engagement, trust, and fairness perceptions. This study demonstrates that AI-based virtual assistants can replace the conventional system of annual engagement practice (de Waal, 2014), free HR bandwidth from transactional and administrative work, and help move the HR function up the value chain. Researchers have argued that the annual engagement survey "ritual" delivers fewer benefits than expected due to multiple reasons (de Waal, 2014). Firstly, most survey outcomes involve considerable effort, time, and money but do not result in management actions. Sometimes, surveys lack specific knowledge that removes discontentment sources or management does not have enough time to address issues. Most outcomes tend to become "band-aids that do not work sufficiently" (de Waal, 2014, p. 228). Second, surveys may be too short, measure nonessential issues that an organization cannot act on, and/or address a limited set of issues (de Waal, 2014).

AI-based virtual assistants enable more real-time and personalized insights into engagement. For instance, researchers have suggested that AI can predict employees who will likely leave and manage an organization's retention level more efficiently than humans (Tambe et al., 2019). Furthermore, organizations achieve amplified outcomes when they combine HPWS with employee-participation mechanisms (Zhou et al., 2019). When employees see these HPWS, collective organizational employee engagement enhances an organization's overall performance (Barrick et al., 2015). Our study indicates that merely introducing and enabling employee voice through AI-based virtual assistants can help enhance the climate for trust and employee engagement. This resulting increase in psychological availability can help preempt adverse outcomes such as voluntary turnover.

Supervisors sometimes find it hard to fairly treat their subordinates as various demands consume their time, especially when an organization more strongly rewards performance outcome behaviors (Sherf et al., 2019). Time, place, and leaders' availability also constrain traditional HR-based practices' effectiveness. AI-based virtual assistants can help managers minimize such constraints and, thus, enhance HR practices' effectiveness. Also, AI-based virtual assistants relatively lack human biases; as such, they enhance

performance management systems' fairness in the workplace. Our study contributes to this domain and indicates that AI-based virtual assistants can emerge as an important and feasible practice for enhancing employee voice.

5.3   Limitations of the Study and Directions for Further Research

As with any study, ours has several limitations. We initiated our empirical study after a few months after we launched a virtual assistant-based voice mechanism. We used responsiveness to feedback to measure the voice mechanisms' effectiveness. The efficacy of AI-based virtual assistants' insights will only materialize if managers and leaders in organizations conduct subsequent actions, conversations, and communications in a meaningful manner with employees. After employees speak up, the absence of action will likely cause cynicism and distrust with the technology, leadership, and HR practices.

Research has argued that the "sole implementation of HRM practices may not suffice to improve behavioral performance, however innovative they may be" (Tremblay et al., 2010, p. 425). Using virtual assistants to enhance engagement prima facie seems to yield benefits and create value, but how well organizations manage these practices in the long term can enhance trust or augment suspicion (Tremblay et al., 2010). In fact, studies on AI conversational agents indicate that "the novelty effect may wear off as chatbots become a norm" (Xiao et al., 2020, p. 15). The initial response to enabling voice seems to indicate a virtual assistant system's efficacy in improving engagement and climate of trust. SET predicts that any "positive initiating action would increase trust…and promote positive behavioral responses" (Cropanzano et al., 2017, p. 11). Therefore, employees' responses to a virtual assistant's introduction may result from the associated change. It would be useful to conduct a longitudinal study to assess engagement impacts on a long-term basis on how organizations disseminate input from chats and take actions to address concerns. Moreover, future studies may examine if different interventions have a different effect. For example, if we introduce another survey to measure engagement, will it have any effect, and will that effect compare to introducing virtual assistants? While we collected responses two months after we launched the virtual assistant, researchers could undertake a longitudinal study to assess if leaders responding to voice flows may help build a culture of fairness and justice. Future studies can determine the longitudinal impact of using virtual agents in creating a high-performance work system.

In our study, BU 1 and BU 3 differed primarily in their customer interface. While employees in BU 1 did routine jobs, employees in BU 3 met different clients. Employees in customer-facing roles are likely to present more suggestions and concerns that impact their day-to-day performance compared to employees doing routine tasks in non-customer-facing roles. When employees in BU 3 had the chance to share their views, it more significantly impacted their satisfaction and the climate for trust. Employees in BU 2 usually met customers who had complaints. When these employees feel that the leaders heard their views, it enhanced their engagement, satisfaction, and fairness. We found that AI-based virtual agents did not substantially impact BU 4 employees' perceived fairness. BU4 employees mostly worked at the headquarters and in roles that provided support to the other functions, such as finance, HR, IT, and so on. Hence, they know about organizational policies and practices. Hence, their perceptions about fairness might not change when an organization introduces AI-based virtual agents. Future studies may explore the impact that AI-based virtual agents have on employees who perform different types of work.

While the respondents in the AI-intervention group and no AI-intervention group resembled one another with respect to various demographics (e.g., gender, age, education), they differed in personality dimensions. Hence, we cannot compare the two groups perfectly or provide a definitive causal inference. Future studies may investigate the phenomena in a randomized control trial for better validity. We derived our study from responses from employees who actively engaged with our virtual assistant. We could assess engagement/disengagement levels only for the employees that responded to the invitation to communicate with virtual agent, and, therefore, affirmative action was possible only for the participating employees. The tenure milestone-based manner in which the virtual assistant reached out to employees represents a limitation since the discretion to initiate communication moves away from employees and may impact engagement. A more dynamic and real-time virtual assistant available at employees' discretion may provide a greater sense of control and enable higher satisfaction.

Additionally, some employees chose not to engage and respond to the virtual assistant even though we introduced it as the CEO's virtual assistant. The non-responsive behavior of some employees could be due to lack of time or lack of trust in the virtual agent and/or the organization. Researchers could conduct further studies on the causes and outcomes of non-responsive employees to gain additional insights into disengagement behaviors.

6   Conclusion

With this study, we contribute to the AI domain and, more specifically, to how organizations can use virtual assistants as a powerful HR tool. While we have seen an increasing trend towards virtual assistants in all functions and in the human resource domain, we lack empirical research on employees' behavioral and attitudinal changes due to virtual assistants. While the IS literature has argued that using virtual assistants brings better efficiency and cost benefits, anecdotal suggestions have not informed research or practitioners about the expected positive behavioral outcomes in HR. Our study contributes to this area and establishes that virtual assistants can efficiently and seamlessly address time-consuming, repetitive, and labor- and capital-intensive processes. While we examine whether a virtual assistant can enable employee voice, we demonstrate this practice's positive impact. In summary, virtual assistants in the HR function enable value creation in the HR function and help move the function up the value chain.

References

Albrecht, S. L., & Marty, A. (2020). Personality, self-efficacy, and job resources and their associations with employee engagement, affective commitment, and turnover intentions. *International Journal of Human Resource Management*, *31*(5), 657-681.

Barrick, M. R., Thurgood, G. R., Smith, T. A., & Courtright, S. H. (2015). Collective organizational engagement: Linking motivational antecedents, strategic implementation, and firm performance. *Academy of Management Journal*, *58*(1), 111-135.

Blau, P. M. (1964). *Exchange and power in social life.* Wiley, NY: New York.

Briscoe, D. R., & Claus, L. M. (2008). Employee performance management: Policies and practices in multinational enterprises. In A. Varma, P. S. Budhwar, & A. S. DeNisi (Eds.), *Performance management systems: A global perspective* (pp. 15-39). London, UK: Routledge.

Byrne, Z. S., Pitts, V. E., Wilson, C. M., & Steiner, Z. J. (2012). Trusting the fair supervisor: The role of supervisory support in performance appraisals. *Human Resource Management Journal, 22*(2), 129-147.

Chan, S. C. K. (2019). Participative leadership and job satisfaction: The mediating role of work engagement and the moderating role of fun experienced at work. *Leadership & Organization Development Journal*, *40*(3), 319-333.

Chattaraman, V., Kwon, W.-S., Gilbert, J. E., & Ross, K. (2019). Should AI-based, conversational digital assistants employ a social-or task-oriented interaction style? A task-competency and reciprocity perspective for older adults. *Computers in Human Behavior*, *90*, 315-330.

Conway, E., Fu, N., Monks, K., Alfes, K., & Bailey, C. (2016). Demands or resources? The relationship between HR practices, employee engagement, and emotional exhaustion within a hybrid model of employment relations. *Human Resource Management, 55*(5), 901-917.

Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2017). Social exchange theory: A critical review with theoretical remedies. *Academy of Management Annals*, *11*(1), 1-38.

de Waal, A. (2014). The employee survey: Benefits, problems in practice, and the relation with the high-performance organization. *Strategic HR Review*, *13*(6), 227-232.

Detert, J. R., Burris, E. R., Harrison, D. A., & Martin, S. R. (2013). Voice flows to and around leaders: Understanding when units are helped or hurt by employee voice. *Administrative Science Quarterly*, *58*(4), 624-668.

Diestal, S., Wegge, J., & Schmidt, K.-H. (2014). The impact of social context on the relationship between individual job satisfaction and absenteeism: The roles of different foci of job satisfaction and work-unit absenteeism. *Academy of Management Journal*, *57*(2), 353-382.

Dhiman, A., Sen, A., & Bhardwaj, P. (2018). Effect of self-accountability on self-regulatory behavior: A quasi-experiment. *Journal of Business Ethics*, *148*, 79-97.

Downey, S. N., van der Werff, L., Thomas, K. M., & Plaut, V. C. (2015). The role of diversity practices and inclusion in promoting trust and employee engagement. *Journal of Applied Social Psychology, 45*(1), 35-44.

Fainshmidt, S., & Frazier, M. L. (2017). What facilitates dynamic capabilities? The role of organizational climate for trust. *Long Range Planning*, 50, 550-566.

Farndale, E., Ruiten, J. V., Kelliher, C., & Hope-Hailey, V. (2011). The influence of perceived employee voice on organizational commitment: An exchange perspective. *Human Resource Management*, *50*(1), 113-129.

Farrell, D. (1983). Exit, voice, loyalty, and neglect as responses to job dissatisfaction. *Academy of Management Journal*, *26*(4), 596-607.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, *18*(3), 382-388.

Garcia-Arroyo, J., & Osca, A. (2019). Big data contributions to human resource management: A systematic review. *The International Journal of Human Resource Management*, 1-26.

Glikson, E., & Woolley, A. W. (2020). Human trust in artificial intelligence: Review of empirical research. *Academy of Management Annals*, *14*(2), 1-89.

Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the big-five personality domains. *Journal of Research in Personality*, *37*(6), 504-528.

Gouldner, A.W. (1960). The norm of reciprocity: A preliminary statement. *American Sociology Review*, *25*(2), 161-178.

Greenberg, J. (1987). A taxonomy of organizational justice theories. *Academy of Management Review,* *12*(1), 9-22.

Gruman, J. A., & Saks, A. M. (2011). Performance management and employee engagement. *Human Resource Management Review*, *21*(2), 123-136.

Haines, V. Y., III., & Lafleur, G. (2008). Information technology usage and human resource roles and effectiveness. *Human Resource Management*, *47*(3), 525-540.

Holland, P., Pyman, A., Cooper, B. K., & Teicher, J. (2011). Employee voice and job satisfaction in Australia: The centrality of direct voice. *Human Resource Management*, *50*(1), 95-111.

Hu, X., & Jiang, Z. (2018). Employee-oriented HRM and voice behavior: A moderated mediation model of moral identity and trust in management. *International Journal of Human Resource Management*, *29*(5), 746-771.

Jones, D. A., & Martens, M. L. (2009). The mediating role of overall fairness and the moderating role of trust certainty in justice–criteria relationships: The formation and use of fairness heuristics in the workplace. *Journal of Organizational Behavior*, *30*(8), 1025-1051.

Kaplan, A., & Haenlein, M. (2019). Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence. *Business Horizons, 62*(1), 15-25.

Krogh, G. V. (2018). Artificial intelligence in organizations: New opportunities for phenomenon-based theorizing. *Academy of Management Discoveries*, *4*(4), 404-409.

Lee, K. M., Peng, W., Jin, S.-A., & Yan, C. (2006). Can robots manifest personality? An empirical test of personality recognition, social responses, and social presence in human-robot interaction. *Journal of Communication, 56*(4), 754-772.

Love, L. F., & Singh, P. (2011). Workplace branding: Leveraging human resources management practices for competitive advantage through "best employer" surveys. *Journal of Business and Psychology*, 175-181.

Luo, X., Tong, S., Fang, Z., & Qu, Z. (2019). Frontiers: Machines vs. humans: The impact of artificial intelligence chatbot disclosure on customer purchase. *Marketing Science*, *38*(6), 913-1084,.

Marler, J. H., & Boudreau, J. W. (2017). An evidence-based review of HR analytics. *International Journal of Human Resource Management*, *28*(1), 3-26.

Marler, J. H., & Parry, E. (2016). Human resource management, strategic involvement, and e-HRM technology. *International Journal of Human Resource Management*, *27*(19), 2233-2253.

Masterson, S. S., Lewis, K., Goldman, B. M., & Taylor, M. S. (2000). Integrating justice and social exchange: The differing effects of fair procedures and treatment on work relationships. *Academy of Management Journal*, *43*(4), 738-748.

Merry, J. (2013). Aon Hewitt's 2013 trends in global engagement: Where do organizations need to focus attention? *Strategic HR Review*, *13*(1), 24-31.

Mishra, S. K. (2014). Linking perceived organizational support to emotional labor. *Personnel Review*, *43*(6), 845-860.

Moqbel, M., & Nah, F. F.-H. (2017). Enterprise social media use and impact on performance: The role of workplace integration and positive emotions. *AIS Transactions on Human-Computer Interaction*, *9*(4), 261-280.

Poon, J. M. L. (2003). Situational antecedents and outcomes of organizational politics perceptions. *Journal of Managerial Psychology*, *18*(2), 138-155.

Rai, A., Constantinides, P., & Sarker, S. (2019). Next-generation digital platforms: Toward human-AI hybrids. *MIS Quarterly*, *43*(1), iii-ix

Roberts, D. R. (2013). Using engagement analytics to improve organizational performance. *Employment Relations Today*, 40(3), 57-65.

Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology*, *21*(7), 600-619.

Sharma, D. (2018). When fairness is not enough: Impact of corporate ethical values on organizational citizenship behaviors and worker alienation. *Journal of Business Ethics, 150*(1), 57-68.

Sherf, E. N., Venkatarmani, V., & Gajendran, R. S. (2019). Too busy to be fair? The effect of workload and rewards on managers' justice rule adherence. *Academy of Management Journal*, *62*(2), 469-502.

Shin, S. J., Jeong, I., & Bae, J. (2018). Do high-involvement HRM practices matter for worker creativity? A cross-level approach. *International Journal of Human Resource Management*, *29*(2), 260-285.

Son, S. (2019). The role of supervisors on employees' voice behavior. *Leadership & Organization Development Journal*, *40*(1), 85-96.

Stout, N., Dennis, A. R., & Wells, T. M. (2014). The buck stops there: The impact of perceived accountability and control on the intention to delegate to software agents. *AIS Transactions on Human-Computer Interaction*, *6*(1), 1-14.

Strohmann, T., Siemon, D., & Robra-Bissantz, S. (2019). Designing virtual in-vehicle assistants: Design guidelines for creating a convincing user experience. *AIS Transactions on Human-Computer Interaction*, *12*(2), 54-78.

Strong, C. A. (2006). The influence of employee behavioral performance on customer focus strategies. *The Service Industries Journal*, *26*(2), 147-163.

Tambe, P., Cappelli, P., & Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review*, *61*(4), 15-42.

Torre-Ruiz, J. M., Vidal-Salazar, D. M., & Cordón-Pozo, E. (2019). Employees are satisfied with their benefit, but so what? The consequence of benefit satisfaction on employees' organizational commitment and turnover intentions. *The International Journal of Human Resource Management*, *30*(13), 2097-2120.

Tremblay, M., Cloutier, J., Simard, G., Chênever, D., & Vandenberghe, C. (2010). The role of HRM practices, procedural justice, organizational support, and trust in organizational commitment and in-role and extra-role performance. *The International Journal of Human Resource Management*, *21*(3), 405-433.

Van Dyne, L., Ang, S., & Botero, I. C. (2003). Conceptualizing employee silence and employee voice as multidimensional constructs. *Journal of Management Studies*, *40*(6), 1359-1392.

Van Rooy, D. L., Whitman, D. S., Hart, D., & Caleo, S. (2011). Measuring employee engagement during a financial downturn: Business imperative or nuisance? *Journal of Business Psychology*, *26*(2), 147-152.

Vargas, R., Yurova, Y. V., Ruppel, C. P., Tworoger, L. C., & Greenwood, R. (2018). Individual adoption of HR analytics: A fine-grained view of the early stages leading to adoption. *International Journal of Human Resource Management*, *29*(22), 3046-3064.

Wang, S., Noe, R. A., & Wang, Z.-M. (2014). Motivating knowledge sharing in knowledge management systems: A quasi-field experiment. *Journal of Management*, *40*(4), 978-1009.

Wilkinson, A., & Fay, C. (2011). Guest editors' note: New times for employee voice? *Human Resource Management*, *50*(1), 65-74.

Xiang, C., Li, C., Wu, K., & Long, L. (2019). Procedural justice and voice: A group engagement model. *Journal of Managerial Psychology*, *34*(7), 491-503.

Xiao, Z., Zhou, M. X., Liao, V. Q., Mark, G., Chi, C., Chen, W., & Yang, H. (2020). Tell me about yourself: Using an AI-powered chatbot to conduct conversational surveys with open-ended questions. *ACM Transactions on Computer-Human Interactions*, *27*(3), 1-37.

Xu, E., Huang, X., Ouyang, K., Liu, W., & Hu, S. (2019). Tactics of speaking up: The roles of issue importance, perceived managerial openness, and managers' positive mood. *Human Resource Management*, *59*(3), 255-269.

Zachariadis, M., Scott, S., & Barrett, M. (2013). Methodological implications of critical realism for mixed-methods research. *MIS Quarterly*, *37*(3), 855-879.

Zhou, Y., Fan, X., & Son, J. (2019). How and when matter: Exploring the interaction effects of high-performance work systems, employee participation, and human capital on organizational innovation. *Human Resource Management, 58*(3), 253-268.

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