

Using Instrumental Mechanisms to Support Humanistic Goals: The Case of Two Intelligent Personal Assistants

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Abstract

Calls have been made for information systems to go beyond supporting the instrumental outcomes traditionally associated with business imperatives to foster more humanistic outcomes. This study explores the mechanisms used by two intelligent personal assistants (IPAs) to promote humanistic goals such as pro-social behaviour. We identify four key mechanisms through which the IPAs support humanistic goals and draw on humanistic management literature to identify the humanistic goals supported. The mechanisms are (1) humanistic framing of analytics and goals, (2) persuasion, (3) automation of humanistic actions, and (4) anchoring humanistic goals to instrumental outcomes. The study raises issues about the moral implications of instrumentalising humanistic outcomes and suggests a need for theory to understand the role of Human-AI interaction in promoting humanistic outcomes. We propose a need for investigations into how and whether human-AI interactions can foster authentic humanistic outcomes in practice.

Keywords: humanistic information systems, humanistic goals, persuasive information systems, intelligent assistants.

1. Introduction

There have been several calls for information systems (IS) to better support humanistic outcomes (e.g., Berente et al., 2021; Venable et al., 2011). These calls are underpinned by a concern that IS has long been associated with an ethos of instrumental rationality and used to support instrumental managerial goals; goals that relate to efficiency and control in contrast to goals that support human benefit and the betterment of humans (Argyris, 1971; Berente et al., 2021; Zuboff, 1988). Further, Sarker et al. (2019) have identified a significant bias towards instrumental concerns in published work in the IS field, exhorting IS researchers to pay more attention to the humanistic outcomes of IS, as well as synergistic linkages between humanistic and instrumental

outcomes. Our study is motivated by this twin issue, and by our interest in how an application of artificial intelligence (AI), intelligent personal assistants, are developing in response to the positive computing paradigm, a humanistic ethos according to which IS are designed to promote positive human outcomes (Calvo et al., 2015; Calvo & Peters, 2014).

We embarked on this study after noticing that two intelligent personal assistants (IPAs) we had been using for two years were starting to incorporate features with a humanistic orientation. By “humanistic” we do not mean human-like features such as conversational ability, but rather, functionality that is focused on the humanness of users and promotes humanistic goals such as wellbeing, virtuous behaviour, and consideration of others. For example, we noticed that the IPAs were placing increasing emphasis on the impacts of our communication behaviours and work habits on others, and our own well-being. We wondered, how were intelligent personal assistants (IPAs) developing to support humanistic goals in work settings? We describe this area of interest as ‘AI for humanistic outcomes’ to differentiate it from research in ‘humanistic AI’, the incorporation of human-like features and characteristics into AI-based systems. Our study focuses on exploring the mechanisms employed by two widely-used IPAs, MS Viva Insights and Grammarly, in support of humanistic goals in organisations. We set out to answer, How do intelligent personal assistants support humanistic goals/outcomes?, and What humanistic goals/outcomes are supported in this context?

In the following section, we review literature that expresses concerns about IS and AI, why an instrumental focus on its own is undesirable and emerging paradigms and methods that support humanistic development in IS. We then review the literature on humanistic management and the humanistic goals it aims to foster. Following this, we outline the research method and then present our findings on four mechanisms used by IPAs to promote humanistic goals. In our analysis of these mechanisms, we draw on theories of framing and persuasion. We

conclude with a discussion of the study's implications and limitations and suggest new research directions.

2. Literature review

Several drivers have contributed to a movement for designing IS to foster more humanistic outcomes, part of the so-called "positive computing" paradigm (Calvo et al., 2015; Calvo & Peters, 2014). IS have long been designed to lead to improvements in organisations and society, and they have had many successes. However, the widespread diffusion of IS into every aspect of contemporary life, matched by an accelerating rate of change, has also had unforeseen consequences. Recent years have uncovered a "dark side" to IT (Tarafdar et al., 2015). For example, IS can have a dehumanising impact (Lowry et al., 2016), lead to technostress (Tarafdar et al., 2015) and lack of work-life balance (Chatterjee et al., 2021), and may facilitate anti-social behaviours such as cyberbullying (Lowry et al., 2016) and trolling (Fichman & Sanfilippo, 2016).

While IS may be capable of supporting humanistic outcomes, they are seen as failing to do so at a collective level because they have traditionally been biased toward supporting instrumental outcomes in their conceptualisation and design (Sarker et al., 2019; Venable et al., 2011). IS embody "an instrumental rationality that reflects managerial goals of efficiency and control" (Berente et al., 2021, p.1436). Application of IS by organisations and in IS research is strongly linked with instrumental goals and outcomes such as efficiency, effectiveness, and productivity (Sarker et al., 2019; Venable et al., 2011), competitiveness and flexibility (Venable et al., 2011) and profitability (Kautz & Bjerknes, 2021). We define the use of IS for instrumental outcomes as using IS to measure, deliver and improve economic and/or performance-based outcomes such as efficiency, effectiveness, profitability, and productivity, whether for organisations, groups, individuals and/or society.

In response to these issues and an awareness that software design is not neutral, efforts have been made to find structured ways for system designers to make conscious decisions about what is "good" (Calvo et al., 2015). Various design approaches aim to generate positive human outcomes, for example, Mumford's (1983) ETHICS method, value-sensitive design (VSD), an approach that accounts for human values in a systematic way throughout the design process (Friedman et al., 2017) and distributed participatory design (Kautz & Bjerknes, 2021).

Widespread concern for the future of the planet (including the ecological impact of IT) and the adoption of the United Nation's Sustainable

Development Goals (SDGs) have created further incentives for "good" IS design. There is growing literature on Green IT and Green IS (Esfahani et al., 2015), Sustainable IS (Schmidt et al., 2009), and ICT4D (Avgerou, 2010), a movement focused on using IS to help meet the needs of those in developing countries. More recently there has been a call for IS to build a compassionate workplace (Chatterjee et al., 2021), in part due to the unfolding consequences of the COVID 19 pandemic. Legislation such as GDPR (geared to protect citizens from privacy incursions of IS) and the adoption of Corporate Social Responsibility frameworks in the private sector can be seen as additional drivers for humanistic IT. In summary, recent years have seen many forces, voices and trends converging to promote an agenda for the development and application of information systems with benefits for humans and humanity. This study specifically considers how Intelligent Personal Assistants, an application of artificial intelligence (AI), may help foster humanistic outcomes. We now briefly consider the case of artificial intelligence before summarising relevant literature about humanism and "humanistic" outcomes of IS.

The anticipated impact of artificial intelligence on humans has been the subject of an intense and polarised debate. On one hand, there are significant concerns about negative human impacts of AI. Among these are concerns that machine learning lacks transparency (Strich et al., 2021), AI can reproduce bias due to the use of non-representative data sets in training machine learning models, and AI is changing and eliminating jobs by automating work and deskilling people (Jarrahi, 2019). On the other hand, many commentators see AI as providing human benefits by automating routine tasks and freeing up time for higher-value work (e.g., Jarrahi, 2019). AI is seen as providing "inestimable possibilities for enhancing people's lives in a variety of areas, including their homes, healthcare, education, employment, entertainment, safety, and transportation" (Berente et al., 2021, p.1443). This study considers the case of Intelligent Personal Assistants, AI-based applications that aim to enhance the lives and work of users by automating and performing routine tasks, collaborating with users and offering insights and recommendations that are supported by data about personal behaviour and habits (Ekandjo et al., 2021). Gartner predicts that by 2025 half of all workers will be using virtual assistants daily (Bradley, 2020). Investigating how IPAs may foster humanistic outcomes is therefore a relevant contemporary area of study.

As noted above, with organisations increasingly focusing attention on sustainability and human benefit,

it has been argued that IS should be applied in new ways that further these goals and complement instrumental outcomes. The focus of our study is on the application of IS (specifically IPAs) to promote humanistic outcomes in organisational settings. The humanistic goals and outcomes of IS are typically positioned in IS literature at a level that would benefit all of humanity. For example, humanistic goals of IS should include “improvement of education, provision of social and other services to the public, health, and wellbeing, work-life balance, environmental sustainability, democracy and self-determination, freedom, emancipation, poverty reduction, and social equity” (Venable et al., 2011, p.210). IS Research has yet to examine the humanistic outcomes that IS could foster at an organisational level, and how this could be achieved.

To gain an appreciation of the humanistic potential of IS at this level we consider the literature on humanism and its embodiment in humanistic management. Humanistic management is based on humanism, a philosophical perspective that views humans as subjects and promotes human wellbeing, life quality, interdependence, and betterment (Koon, 2021; Zhao, 2021). Melé (2016; 2003) has identified three distinct historical approaches to humanistic management, the first based around motivating self-actualization and self-improvement to gain better performance, the second is based on building organisational cultures with shared values and beliefs, and the third more comprehensive approach in which humanistic management “emphasizes the human condition and is oriented to the development of human virtue, in all its forms, to the fullest extent” (Melé, 2003, p.78). This third approach also aims to build a community with a culture that fosters the development of human virtues in all its forms and to the fullest extent (p. 85). We adopt this view of humanistic management, which Melé argues is “more complete in considering the human condition and capacity of everyone to develop better human qualities than the previous ones” (p. 78). When applied to human collaboration with IPAs, this approach would, in theory, foster not only doing things better, but also doing things in ways that are more human-centred, that motivate people to become more virtuous and more connected to the community of workers, and that foster a sense of community in which human virtue is valued and cultivated.

Human virtue and human dignity are seen by the humanistic perspective as a perpetual work in progress by humans and the community to which they belong. While humanism is not prescriptive about which virtues should be fostered, valued virtues include empathy (Spitzeck, 2011), cooperation (Melé, 2003),

ethical conduct (Koon, 2021), integrity, honesty, goodness and trust (Wagner-Tsukamoto, 2018). Melé (2016) outlined propositions based on seven attributes that together constitute “genuine” humanism. These are: 1) wholeness (recognising the whole person, including such aspects as emotions, personal growth and flourishing and happiness), 2) comprehensive knowledge (seeking knowledge of all aspects of humans and what makes a person unique), 3) human dignity (respecting, protecting and promoting the constitutive dignity of every human being) - a necessary condition for wellbeing, 4) development (recognising humans as being in perpetual development and creating conditions which foster self-development so they can flourish), 5) common good (living with others, harmoniously and pursuing the common good of all), 6) stewardship-sustainability (encouraging people to act with a sense of stewardship, promoting harmony between humans and nature, and sustainable development of humanity), and 7) transcendence (recognising humans as self-transcendent beings who seek meaning for their lives, and being respectful of religions and spiritual behaviors) (Melé, 2016, p.41-45).

3. Method

To investigate how IPAs were positioned in relationship to humanistic goals, we conducted an exploratory dual case analysis to understand how two IPAs had developed from the time of their release until 2021. We chose two IPAs that we used regularly - an intelligent writing assistant (IWA) Grammarly and a productivity and wellbeing assistant, My Analytics (later rebranded as Viva Insights and referred to as such from here on). We selected these IPAs as we had ready access to them but also for purposive reasons: in both cases, we had witnessed significant shifts in the IPAs’ orientation and value proposition vis-a-vis their users. It appeared that the IPAs were placing an increasing emphasis on humanistic goals. We wanted to conduct an empirical examination of this.

We initially tracked the development journeys of each IPA, with a focus on how they had introduced features geared towards humanistic goals over time, what these features were and their relative emphasis on instrumental vis-a-vis humanistic outcomes. We gathered a large amount of data about each IPA and focused on capturing how they had changed over time. We began the study in 2020 and for each IPA tracked back to their inception - 2009 in the case of Grammarly and 2016 in the case of Viva Insights - using Internet searches and pages captured by The WayBack Machine. Our goal was to capture every change that had occurred in a user-oriented feature since the IPAs

were released. We collected data about Viva Insights from Microsoft.com, the Microsoft Tech Community websites, Microsoft Mechanics and Microsoft 365 YouTube channels as well as Microsoft Ignite event videos and The WayBack Machine. We collected data about Grammarly from: Grammarly.com, mainstream media, the Grammarly YouTube channel, and The WayBack Machine. In addition, we also tracked ‘forward’ the changes that occurred to the two IPAs between 2020 and 2021, as we were using the IPAs. By doing this we captured a large number of web pages and historical screenshots. We also drew on our own records from working with the IPAs (which sent out weekly emails with digests about our progress, new features etc). In all, we gathered nearly a hundred screenshots, as well as texts from web pages and (in the case of Viva Insights) also transcripts of developer videos. Over 60 screenshots of Grammarly were taken from The WayBack Machine and a total of 38 videos (27 from Microsoft and 11 from Grammarly) were downloaded and transcribed. We also gathered a considerable amount of data in the form of notes and screenshots from our own interactions with the IPAs.

We conducted three rounds of data analysis. In the first round, we identified key features from both IPAs as they developed over the years and then organised this data to create two detailed timelines. Each time a new feature was introduced we captured the date and described the change. This provided detailed artefacts that we could compare to look for similarities and differences.

In the second round of analysis, we focused our coding on identifying whether the identified features supported humanistic and/or instrumental goals. We independently reviewed the timelines, made notes about our observations and developed provisional codes based on what we saw as the ‘humanistic’ and ‘instrumental’ goals that were linked with the features. We held weekly meetings to compare our emerging coding and discuss patterns and themes. The motivation for having the researchers code each identified feature was to ensure inter-coder reliability and increase the output's accuracy and consistency. This coding procedure continued in an iterative fashion, where after each individual had completed their coding, they discussed their coding for accuracy and consistency. In the instances where there was disagreement, discussions to reach a consensus took place.

To develop high-level categories for humanistic goals we then reviewed the literature about humanistic outcomes and IS. As the IPAs were focused on individual and organisational use rather than society, we did not find the IS literature sufficient on its own to build an analytical humanistic framework. (As

noted earlier, IS literature primarily considers humanistic goals at societal level). We refocused our literature search on the humanistic management literature on humanism, looking for material that had synergy with the humanistic IPA features that we had found. We then grouped the inductively identified humanistic goals according to Melé's (2016) propositions for humanistic management. Two members of the research team applied Melé's propositions in coding then the team members met to review the codes. This allowed us to identify which aspects of humanistic goals the IPAs drew most heavily on in their assistive features.

Finally, we used an inductive coding process to identify how the humanistic goals were promoted by the IPAs. We iteratively developed a set of high-level thematic codes to group the goal-promoting features identified in rounds one and two into mechanisms that were used to promote these goals. (For example, features that used automation to support humanistic goals were grouped in the “automation” mechanism, while those that used persuasion were coded to the category “persuasion”.) The findings are presented next.

4. Findings

We identified four key mechanisms through which the IPAs promoted four humanistic goals. The mechanisms were: (1) humanistic framing of behavioural analytics and goals, (2) persuasive strategies, (3) automation of humanistic actions and (4) anchoring of humanistic goals to instrumental outcomes. We outline each mechanism in turn below, giving examples of how each IPA promoted humanistic goals with reference to the specific goals. Based on Melé's (2016) propositions, the four humanistic goals identified as being promoted were (1) valuing the wholeness of humans (e.g., having concern for the emotions of co-workers), (2) human dignity (e.g. having respect for others and their wellbeing), (3) human development (recognising humans as being in perpetual development and creating conditions to foster self-development) and (4) common good (working harmoniously with others and pursuing the common good of all). We did not find evidence of Melé's other three propositions – comprehensive knowledge, stewardship-sustainability, and transcendence.

The following sections outline the mechanisms used and how they promoted humanistic goals.

4.1 Humanistic framing of analytics and goals

We identified many examples of how IPAs use normative humanistic framing to analyse user behaviour and promote humanistic goals. Framing involves highlighting selected facets of events and making connections between these to guide the audience's interpretation and promote a particular solution (Entman & others, 2004; Pan & Kosicki, 1993; Peifer, 2013). Framing can be diagnostic (identifying a problem and its cause), prognostic (articulating a solution), or motivational (providing a rationale to engage in ameliorative action) (Benford & Snow, 2000). Both IPAs drew significantly on framing to promote humanistic goals, framing activities in ways that consider the user's impact on colleagues and offering insights for personal development and consideration of others. For example, Viva Insights encourages users to take "quiet days" by showing them how often they work outside work hours and explaining why avoiding this is better for them; Grammarly provides a weekly review of the tones detected in its user's work, providing a ladder for the top seven with a breakdown of the percentage increase/decrease in them.

Through this mechanism, individual work habits are reframed using labels linked with metrics that highlight the user's impacts on the community of co-workers (common good). These humanistically-framed metrics surface previously invisible and inaccessible behaviour such as disengagement, while the IPAs suggest new goals that pay attention to the common good and the wellbeing of others. Two examples are discussed in detail below.

4.1.1. Viva Insights: Humanistic framing of insights into collaboration and meeting habits. Viva Insights collects, analyses, and provides insights into the user's collaboration behaviours ("habits") within the Office 365 suite of products. Many of these insights employ humanistic diagnostic framing, i.e., they are framed to draw attention to how your behaviour impacts your own wellbeing and the wellbeing of others. For example, metrics show how long you take to answer others' emails, the percentage of meeting invitations you have replied to, how much notice you give others when you cancel meetings, and which of your colleagues you frequently send emails to outside of working hours (see Figure 1). Viva Insights draws on prognostic humanistic framing to make suggestions to set goals to improve performance against these metrics (e.g., by agreeing on common 'quiet hours' with colleagues). A four-weekly report measures variance and highlights issues that may impact others. For example, one of the researchers received a message

stating that they had not responded to 46% of their meeting requests. This framing surfaced anti-social behaviour they had been unaware of.

In theory, this framing mechanism encourages users to reflect on how they interact with, and impact, their colleagues. It aims to help users exhibit respect for their colleagues by providing the attention they deserve and being considerate of their time (human dignity) (Melé, 2016). Further, users may reflect on these metrics to develop their own habits to act in ways that are more considerate of those they interact with and improve as a colleague (development) (Melé, 2016). By encouraging such reflection and behaviour, the community can experience better dialogue, participation, and cooperation (common good) (Melé, 2016).

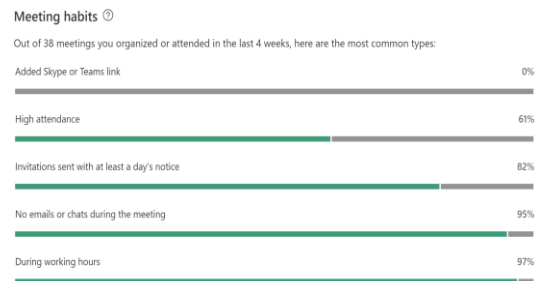


Figure 1. Viva Insights meeting habits.

4.1.2. Grammarly: Detecting tones of message delivery. When writing a message, the way it is constructed conveys much information beyond just the meaning of the words. Grammarly's tone detector gives users instant feedback on how a message might sound to its recipient. The diagnostic and prognostic humanistic framing of this feature draws attention to human impacts on others (for example, sounding "worried" or "angry" may invoke an emotional reaction) thus promoting awareness of human wholeness (Melé, 2016). Multiple tones can be identified, including neutral, joyful, friendly, optimistic, etc. (see Figure 2). The act of choosing a tone is framed around allowing the user to better control this human impact.

Users also receive a weekly update that includes a tone-based diagnostic analysis of how others will perceive their writing. It measures how their 'tones' have changed in comparison to the previous week. For example, one of us received a report showing a 5% drop in sounding "friendly", a 17% increase in sounding "optimistic", and a 7% increase in sounding "worried".

By engaging with this mechanism, users may become more conscious of how their message sounds to potential recipients and develop an empathetic appreciation of the impact of their communication on

others (Melé, 2016). This in turn may help them deliver more effective messages, an instrumental goal.

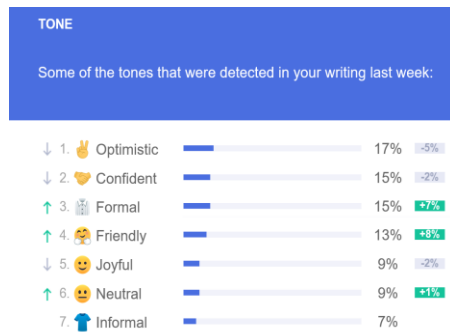


Figure 2. Feedback on detected tones from Grammarly.

4.2 Persuasive strategies

Oinas-Kukkonen and Harjumaa (2009) provide a set of design principles that can be implemented into a system when trying to persuade users to change their behaviour. The two IPAs appear to draw on these principles to encourage users to enact humanistic behaviours. For example, Viva Insights issues reminders for target behaviours such as reflecting on one’s mood during the day; and employs tailoring, where analytical information is tailored to the user’s individual work context, such as keeping track of their habits in specific meetings over the last 4 weeks. Two more examples are discussed in more detail below.

4.2.1. Grammarly: Variety of dimensions.

Grammarly exhibits a number of techniques suggested by Oinas-Kukkonen and Harjumaa (2009) in persuading users to consider humanistic goals while writing. When a user is composing a message, it reviews the message across four categories: correctness, clarity, engagement, and delivery, providing suggestions on where they can improve across each. For example, as shown in Figure 3, Grammarly suggests there is a barrier to readers’ engagement when the word “term” appears multiple times in the text. When the user clicks “Learn More” it explains that if a user uses the same words over and over, it will be less interesting for the audience that the text is intended for. It then provides an example of how richer vocabulary can be more engaging for the audience. Here, persuasive design principles such as tunnelling (guiding users through a process), tailoring (information tailored to the usage context), and suggestion (offering fitting suggestions), (Oinas-Kukkonen & Harjumaa, 2009) are used to persuade the user to be considerate of others (common good) (Melé, 2016). Further, the suggestions encourage the user to

come across as confident, polite, and respectful, to their audience. This in turn may help them develop their writing skills and habits, improving their ability to communicate effectively (development) (Melé, 2016).

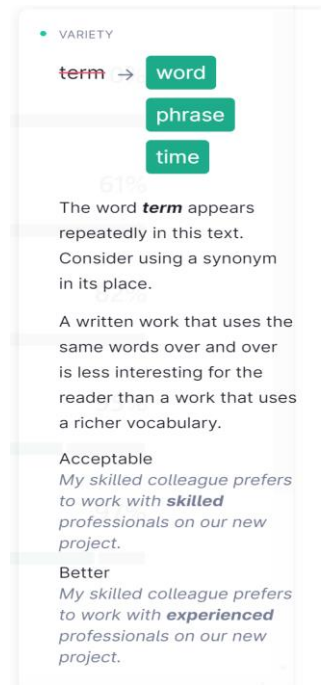


Figure 3. Explanation of suggested changes in Grammarly.

4.2.2. Viva Insights: Changing meeting culture. To persuade users to change their behaviour towards humanistic outcomes, Viva Insights provides suggestions (Oinas-Kukkonen & Harjumaa, 2009) on how they can change and explains why enacting these suggestions will positively impact them and/or their colleagues. These are tailored towards the user (Oinas-Kukkonen & Harjumaa, 2009) based on their behaviour over the past four weeks. For example, as shown in Figure 4, Viva Insights has detected the user has not been very reliable at responding to meeting requests. It suggests they should respond, pleading their colleague’s case, explaining why this is good, i.e., it allows their colleague to better prepare for a meeting when they know who is going to attend (common good) (Melé, 2016).

The mechanism goes beyond the instrumental outcome of just accepting/rejecting meeting invites and moves it towards humanistic outcomes. Viva Insights is persuading the user to reflect on their behaviour, encouraging them to develop better habits that consider the wider community (development) (Melé, 2016). In such instances, they are encouraged to respect their colleagues' time and effort, (human

dignity) (Melé, 2016). All this could help towards generating a working environment in which people can thrive through dialogue, participation and cooperation (common good) (Melé, 2016).

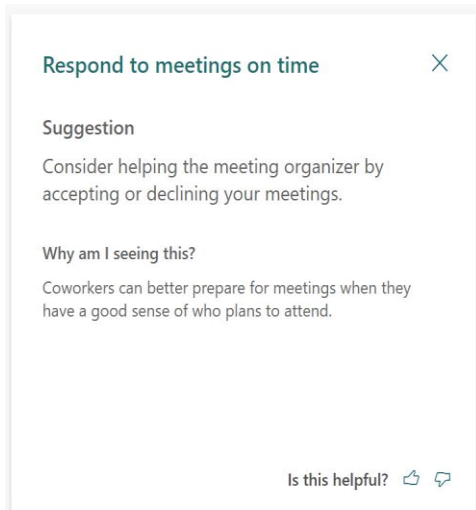


Figure 4. Viva Insights suggesting the user consider their colleagues.

4.3 Automation of humanistic goals

The IPAs also automate humanistic goals. That is, they not only introduce mechanisms for users to achieve humanistic goals but also provide opt-in “single-click” solutions to make this happen. Instances of this automation include automatically putting breaks into the user’s calendar to make sure they are taking regular breaks from work; reminding the user to give praise to colleagues, suggesting who to give it to; and providing real-time feedback allowing users to improve the “tones” hidden in their communication, such as sounding more appreciative, joyful, friendly, optimistic or direct. Two other examples are discussed next.

4.3.1. Grammarly: Automating inclusive language.

When the user is writing, a sensitivity feature automates the replacement of any language that is deemed to be non-inclusive to the target audience by offering terms that are considered less offensive to them. For example, as shown in Figure 5, when the user writes the term “elderly people”, Grammarly invites users to avoid offending older people through an automated “single-click” solution that replaces their non-inclusive language with the term “older adults” or “older people”.

In such instances, Grammarly can be seen as modelling the value of using inclusive language to respect and treat people equally regardless of gender,

race, nationality, religion, ideology, or sexual orientation (human dignity) (Melé, 2016). The user can make a one-click decision that is (arguably) working towards the common good (Melé, 2016). With a combination of continual nudging (a persuasive technique), framing (flagging non-inclusive language) and automation (providing a choice of more inclusive solutions) the user is encouraged to develop by reflecting, learning, and acting on the language they use when communicating, which may lead to a change of habits (development) (Melé, 2016).

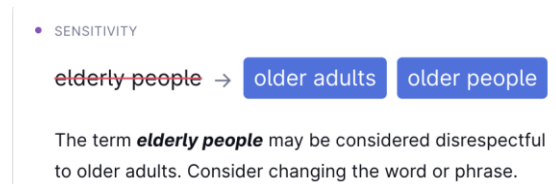


Figure 5. Sensitivity mechanism suggesting more inclusive phrases.

4.3.2. Viva Insights: Delayed delivery of emails.

Viva Insights offers an opt-in “delay delivery” mechanism that allows users to automate email delivery times so that co-workers do not receive emails outside of working hours (see Figure 6). When turned on, if a user tries to send an email outside the recipient’s working hours, a prompt informs them the email will not be sent until a time when the recipient is at work. This is designed to minimise disruptions to recipients outside their working hours or when they’re away from work.

Through nudging people to use this automation feature, Viva Insights can be seen as building norms that treat members of the community as more than a human resource, and respects their private time outside the working environment, reinforcing human dignity (Melé, 2016). Here, the IPA’s automation feature reduces the need for workers to actively consider the working hours of message recipients when they may be tired and under pressure, also removing pressure on the recipient to engage with the message after-hours. This mechanism can be seen as automating a common good outcome, allowing the community group to flourish as human beings (Melé, 2016). In the discussion, we consider the moral implications of automating humanistic outcomes.

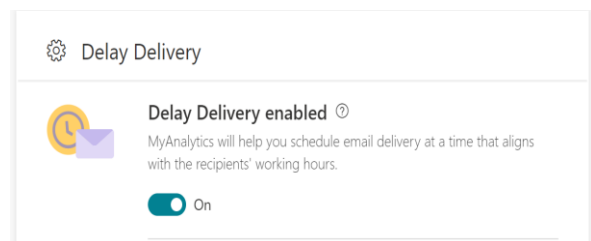


Figure 6. Viva Insights delayed delivery mechanism.

4.4 Anchoring humanistic goals to instrumental outcomes

Some features of the IPAs are designed to appeal to both humanistic and instrumental goals. They employ the mechanism of anchoring to add an instrumental source of value to a humanistic goal. When anchoring a humanistic goal to an instrumental outcome, the IPA signals to its user that by performing a humanistic action, the user will also gain an instrumental benefit, thus making it more desirable to pursue that action. For example, Viva Insights promotes automated booking of "focus time" by stating that "Constant distractions during focused work can cause higher stress and lower productivity". This statement anchors the humanistic goal of becoming less stressed to the instrumental goal of becoming more productive through using the focus time booking feature. Similarly, Grammarly's writing analytics emphasise the value of being aware of the tones used in writing, such as being appreciative and optimistic (humanistic qualities) while at the same time promoting the use of the tone detector to "make the best impression every time" (an instrumental goal).

5. Discussion

Our study considered how IPAs promoted humanistic goals. It identified four key mechanisms through which this occurs. In combination, these mechanisms can be seen as strongly normative. Further, they are also highly instrumental in nature. By instrumental, we mean that the identified mechanisms are employed by the IPA as means to achieve an end; in this case a set of interrelated humanistic goals relating to wellbeing, human wholeness, the common good and virtue development, and to provide means for users to effortlessly enact these goals. The IPAs reframe behaviour as being about one's impact on co-workers and readers. This surfaces non-social behaviours that workers may be unaware of such as disengagement, lack of reciprocity and negative communication tones. By assigning labels and measures to such behaviours, and by tracking user behaviour according to these measures, IPAs instrumentalise the humanistic dimension. This instrumentalisation restricts the menu of humanistic values that "matter" to behaviour that is readily measurable in specific platforms, excluding in-person interactions. The IPAs draw on persuasive design to nudge users to take advantage of these new metrics and goals, while the automation mechanism makes

these neatly framed humanistic 'goals' achievable in a single, reactive click. By anchoring humanistic goals to instrumental benefits (such as becoming more efficient and productive, getting better results from written communication, and showcasing your collection of praise badges) the IPAs reinforce the value of instrumental norms.

It is considered important for IS to promote both instrumental and humanistic goals (Sarker et al., 2019; Venable et al., 2011). Therefore, anchoring of humanistic to instrumental goals by IPAs (effectively the entanglement of these goals in the interaction of humans with IA-based work partners) identified in this study may be of value to organisations. Nonetheless, it seems ironic that humanistic goals may be accomplished by instrumental means. From a critical perspective, it is questionable whether authentic goals such as the development of human virtue, respect for human wholeness and dignity, and common good are *really* being met if the wellbeing of one's co-workers can be improved by a single click. The marginalised older worker remains one click away from being called "elderly", and the over-worked colleague one click away from receiving overnight emails. Instead, they will receive a hefty early-morning delivery. A one-click solution may lead to "praise", but should not be seen as an alternative to empathic awareness, given that the user has simply been nudged into clicking. Nonetheless, it is possible that bounded humanistic outcomes are fostered by the IPAs' instrumentalisation of humanistic goals.

Further research is needed to ascertain whether and how humanistic goals can be achieved through AI-human collaboration in practice. It will be available to employ a socio-technical perspective in such work as suggested by Sarker et al. (2019). AI cannot be expected to lead to humanistic outcomes in the absence of managerial support. The extent to which a workplace can be considered genuinely humanistic, if the wellbeing of workers can be improved with a single click, must depend on the complementary efforts of humans to establish humanistic norms.

This study also revealed that the normative goals promoted by IPAs are visible only to individual users. These goals may not match the goals promoted by organisations, so there is potential for dissonance between advocated humanistic goals and those that are actually valued by organisations. This is another area in which research would be of value.

This study raises a need to consider the moral implications of outsourcing the delivery of humanism to intelligent technologies. Humanistic management is based on the qualities of the human condition ("What it means to be human") so it is questionable whether the IPAs achieve humanistic outcomes

through this route. A new theoretical framework may be required to explain how humanistic goals can be achieved through AI-human collaboration.

The mechanisms identified in this study were not used exclusively to promote humanistic outcomes. They were also applied to promote instrumental outcomes. For example, MS Viva used framing to encourage users to spend less time in meetings so they would be more productive, it automated “protecting” time, and it used persuasive techniques to encourage the addition of agendas to meeting invitations. This underlines the fact that the moral and ethical design of AI and its application in human-AI interaction is bound up with the application of moral and ethical values. While normative mechanisms can be applied to instrumentalise and promote humanistic goals, it requires human designers to determine how features are framed and positioned, and human users and managers to guide how they are actually used in practice.

It is important to note that these mechanisms identified in this study, and the humanistic orientation of the IPAs, are not the outcome of artificial intelligence, but rather, the result of human design choices. (They also represent our interpretations of these choices. We did not interview IPA developers, so it is likely that they would use different names and/or explanations for at least some of the mechanisms.) Nonetheless, we have confidence in the positioning of these IPAs as shifting towards being humanistic, as evidenced in corporate communications and product videos which draw on many humanistic terms, emphasise wellbeing and empathy, and place strong concerns on the human needs of co-workers and readers for understanding, consideration and respect.

It is not possible to know why both IPAs developed in a humanistic direction. This may reflect a response to the humanistic “IT for good” narrative mentioned in the literature review, and/or a strategic response to surveillance capitalism (Zuboff, 2019) a perspective in which a mass of data about human behaviour is used as a currency and the basis for control of people who are reduced to data objects. Microsoft, in particular, gathers an enormous amount of data about human behaviour through its Office 365 platform. Using this data to promote humanistic benefits could be seen as providing a defence against such criticism. If supported by organisational culture, appropriate privacy controls, trust and human effort, the mechanisms identified in this study may offer real potential to help turn the IS tide towards humanistic outcomes.

6. Conclusion

The world has been moving towards more consideration for humans, and the human condition in recent years. This has resulted in calls for organisations to start considering other perspectives that are beyond the dominant economic one toward a humanistic management perspective and has informed recent calls for more research on the humanistic elements of IS, especially in terms of humanistic outcomes. Further, Sarker et al. (Sarker et al., 2019) have called for IS research that considers a synergistic connection between instrumental and humanistic outcomes.

This study aims to address these calls and contribute to this important emergent area of IS by exploring the mechanisms used by two IPAs, namely Grammarly and Viva Analytics, to promote humanistic goals. Here we identify four such mechanisms: (1) humanistic framing of analytics and goals, (2) persuasion, (3) automation of humanistic actions, and (4) anchoring humanistic goals to instrumental outcomes, and outline how these mechanisms promote humanistic goals based on four of the propositions explained by Melé (Domenech Melé, 2016) that constitute “genuine” humanism. Notably our study identified synergistic linkages between humanistic and instrumental outcomes in the case of IPAs, through their anchoring of humanistic goals (such as wellbeing and common good) to instrumental outcomes (such as productivity and effectiveness). This study has raised questions about the authenticity of humanistic outcomes when they are instrumentalised through single-click solutions. It has also resulted in us calling for the need for more theories to understand the role of Human-AI interaction in promoting humanistic outcomes.

6.1 Limitations

It is important to stress a key limitation of this study: We did not set out to study the use of IPAs and the study did not seek to identify how these mechanisms are perceived and/or the extent to which the identified mechanisms actually lead (or do not lead) to humanistic outcomes in practice. Further research is needed to ascertain these things, as well as the role of co-workers vis-a-vis the IPAs and norms that they may be promoting.

7. References

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