



Case Study 5.1

“Ok Google: Is AI Gendered?”

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As artificial intelligence (AI) products such as Siri, Alexa, and Cortana become prominent fixtures in daily life, debates rage about their potential and dangers. There are high expectations that AI will engender diversity, social inclusion, fairness, and equality. However, evidence is already emerging that even AI is prone to reproducing social biases and stereotypes (Gustavsson & Czarniawska, 2004; Gustavsson, 2005). Against this backdrop, we explored some of the more overt ways in which AI might be mirroring societal biases regarding female roles. Specifically, we asked: Are AI products given gender identities — and, if yes, to what extent do these identities reinforce occupational gender stereotypes?

Methodology. We conducted internet searches using Google Play Store and Apple Store, as well as lists such as Imanuel (n.d), Pappas (2015), and Wycislik-Wilson and Ellis (2018). The search yielded 129 AI products, mostly cost-free, that are marketed on the internet:

- 98 virtual personal assistants: software and applications that respond to requests from users
- 31 text-to-speech services: software and applications that allow users to hear text read out loud

To determine gender identity, we classified the names, voices, and appearances of the AI product, based on information on product websites as well as product advertisements and demos. Names were classified based on the Worldwide Gender-Name Dictionary (Raffo, 2016). For products with a voice feature, gender of the voice was classified by downloading and listening to a demo and assigning female to higher-pitched voices and male to deeper-pitched voices. Appearance, for products with an embodied virtual agent, was determined by whether the agent resembled a female, a male, or looked neutral.

Findings. Virtual personal assistants had primarily female identities: 41% had a female name, 68% had a female voice, and 50% had a female appearance (Table 5.2). Male identities were less common. However, there was also a fair amount of neutral identities: 28% had a neutral name, 13% offered both male and female voices, and 29% were neutral in appearance.

Table 5.2

Gender identities of virtual personal assistants

	FEMALE	MALE	NEUTRAL	BOTH	UNSURE	TOTAL
NAME	40 (41%)	23 (23%)	27 (28%)	0	8 (8%)	98 (100%)
VOICE	48 (68%)	9 (13%)	0	9 (13%)	4 (6%)	70 (71%)
APPEARANCE	21 (50%)	8 (19%)	12 (29%)	1 (2%)	0	42 (43%)

Text-to-speech software and applications, on the other hand, were overwhelmingly neutral (Table 5.3). Practically all had generic names and non-gendered appearances. However, most (84%) offered the option to choose gendered names and accompanying voices within the software.

These findings suggest that AI products tend to be assigned gendered identities that to some degree

replicate occupation stereotypes, especially regarding “pink-collar” jobs. Most virtual personal assistants are designed to carry out basic clerical tasks, such as answering e-mails, reading or sending messages, and planning calendar agendas. The fact that most of our sample of virtual personal assistants were female-gendered is consistent with the tendency for these types of frontline services to be associated with female workers in the offline world (Gustavsson, 2005; Piper,

Table 5.3

Gender identities of text-to-speech software and applications

	FEMALE	MALE	NEUTRAL	BOTH	UNSURE	TOTAL
NAME	1 (3%)	0	30 (97%)	0	0	31 (100%)
VOICE	5 (16%)	0	0	26 (84%)	0	31 (100%)
APPEARANCE	0	0	0	0	31 (100%)	31 (100%)

2016; Zdenek, 2007). Indeed, some researchers argue that both men and women prefer interacting with virtual females (LaFrance, 2016; Piper, 2016; Zdenek, 2007). However, the strong presence of products with neutral identities indicates that some developers are proactively eliminating overt gender stereotypes from their products. It is notable that the “older” product type, text-to-speech services, was the most likely to give users gender choices.

Recommendations. This is a relatively new area, with room for more exploration. Future research should

expand the scope to include more AI products of varying types, life-stages, sectors, geographic origins, and languages. Demand-side analyses would shed light on consumer preferences as well. To mitigate widely held gender stereotypes that continue to shape people’s career decisions, AI product developers could take a cue from text-to-speech products and assign their products neutral identities, or, at the very least, incorporate multiple options, allowing consumers to decide.

