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When and why consumers prefer human-free behavior tracking products

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Abstract

Despite disliking behavior tracking for marketing, consumers actively adopt technological behavior tracking products. Our research examines the psychological factors driving this adoption and the conditions under which it occurs. We theorize that consumers prefer technological (versus human-based) tracking, because human-free tracking reduces concerns about negative judgment. However, we propose that this preference is weakened, and even reversed, when immediate judgment concerns are less salient than the need for feedback from relevant humans such as when consumers pursue performance (versus personal) goals. Across four preregistered studies (n = 2,601), we found that consumers generally prefer technological (versus human) tracking due to lower negative judgment concerns (Studies 1 and 2A). Consumers' gender, goal satisfaction, and self-efficacy influenced this effect (Study 2B). However, preference for technological tracking was reversed when consumers pursued performance goals (e.g., training for a public dance competition) versus personal goals (e.g., training to lose weight) (Study 3).

Keywords Behavior tracking · Negative judgment · Technology · Algorithms · Goals

Technological behavior tracking products allow individuals to track intricate details of their daily lives (e.g., activity levels, sleep patterns, emotions, metabolism, focus, and engagement). The consumer market for these products is undergoing an unprecedented surge, with the global wearable devices market projected to reach $109 billion by 2024 (Gartner, 2021) and 644.5 million wearable devices forecasted to be shipped worldwide in 2027 (IDC, 2023). Such figures underscore consumers' willingness to adopt technological products to track personal behaviors. This is

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intriguing, especially given extensive research demonstrating consumers' general aversion towards a different type of behavioral tracking—online tracking (Acquisti et al., 2020). Typically, consumers reluctantly accept online tracking practices that gather data on their behaviors for enhancing targeted marketing efforts (Alreck & Settle, 2007). In contrast, consumers actively seek out technological behavior-tracking products that collect data and provide feedback about their own behaviors. In this way, personal behavior tracking appears to be distinct from online tracking in that consumers willingly pursue tracking rather than merely tolerating it.

Our research aims to shed light on what drives consumers' openness to technological behavior-tracking products and the conditions under which consumers prefer these products. Drawing on cognitive evaluation theory (Deci & Ryan, 1987), we argue that in potentially evaluative situations, consumers prefer technological tracking products over those with human involvement. Moreover, we examine the mechanism driving this effect as well as explore how various individual-level factors (e.g., gender, self-efficacy) influence these preferences. Finally, building on the notion that interpersonal feedback can be particularly effective in certain situations (Ryan, 1982), we examine the idea that consumers' preference for technology-driven (over human-driven) tracking reverses when they use the tracking to pursue performance goals (i.e., goals to perform well on a future public behavior) rather than personal goals (i.e., goals to make progress on personal measures pursued in private).

The present findings contribute to research on consumer behavior by unpacking the psychological process behind consumers' preference for technological tracking and shedding light on the diverse individual and contextual factors that can shape consumers' preferences related to tracking products. Our work also extends previous research on personal tracking (e.g., Etkin, 2016) by highlighting the conditions under which consumers might experience personal tracking more positively. As our findings delve into the psychological impact of autonomous technologies—particularly regarding how consumers' personal activities are tracked—it also has significant implications for research on consumers' privacy-related behaviors and preferences (e.g., Acquisti et al., 2012).

1 Personal tracking: Feedback from technology versus humans

People have long sought to gain better self-understanding on various aspects of their lives through feedback. Historically, they have relied on human advisors. For instance, someone aspiring to improve their fitness might enlist the guidance of a personal trainer to track their progress towards health goals and receive personalized recommendations. Research indicates that there are numerous advantages to receiving human feedback during goal pursuit. Human feedback can be nuanced, tailored, and context-specific (Longoni et al., 2019). Furthermore, working with human advisors offers opportunities for two-way communication that can be particularly valuable during goal pursuit (Achauer, 2023).

Consistent with this notion, research on technology suggests that even when algorithms objectively outperform humans on many dimensions, people exhibit a distinct preference for humans over algorithms in various contexts (Dietvorst et al.,

2015), especially in those that are more subjective (Castelo et al., 2019) or identity-relevant (Morewedge, 2022). Much of this resistance to algorithms may stem from lay assumptions that algorithms cannot account for relevant contextual information (Longoni et al., 2019) and may lead to perceived reductionism (Newman et al., 2020). Furthermore, people are likely to overestimate their understanding of how humans operate relative to algorithms that can seem opaque (Cadario et al., 2021).

Considering people's general preference for human advisors and human feedback over technological counterparts, it may seem logical to assume that involving humans in personal tracking to provide feedback would be more preferable than relying on technological behavior-tracking products. However, when exploring consumers' openness to technological behavior tracking, we propose that technological tracking offers distinct advantages by allowing consumers to pursue goals without concerns about negative judgment. This crucial factor significantly impacts consumers' psychology when evaluating their preferences within the personal tracking realm. In the subsequent section, we develop a theoretical framework that delves into how technology mitigates concerns about negative judgment and elucidates the importance of this factor in shaping consumers' attitudes towards technological behavior tracking.

2 Technological behavior tracking reduces concerns about negative judgment

The presence of other humans evokes concerns about negative judgment (Leary, 1983), impacting consumers' psychological experiences and purchasing behavior. Both real and imagined social presence can lead to embarrassment over purchase decisions (Dahl et al., 2001), prompting consumers to make additional purchases to counter perceived negative judgment (Blair & Roese, 2013). The mere presence of others triggers negative emotions and self-presentation behaviors in consumers (Argo et al., 2005). These findings highlight how negative judgment concerns shape consumers' attitudes and purchasing behavior.

Building on this premise as well as insights from cognitive evaluation theory (Deci & Ryan, 1987), we theorize that consumers may be particularly open to technological behavior-tracking products. Cognitive evaluation theory suggests that individuals' perceptions of their social context can have important implications for their motivations for goal pursuit and goal-related behaviors (Deci & Ryan, 2000). Specifically, when a context is perceived as introducing pressure to attain particular outcomes, it is construed as controlling, whereas a context providing behaviorally relevant information without pressure is construed as informational (Ryan, 1982).

We propose that behavior tracking can be perceived as controlling or informational depending on the salience of the entities involved in the tracking process. When people's behaviors are tracked with human involvement, their actions are susceptible to potential judgment by others and compel them to avoid negative judgments (Leary, 1983). Conversely, technological tracking provides behaviorally relevant information without imposing the need to avoid negative judgment. In doing

so, it alleviates negative judgment concerns that may arise when consumers track behaviors with human involvement.

Consistent with this reasoning, recent research on workplace monitoring suggests that employees tracked with technology-driven tracking products in organizations (versus those involving human oversight) perceive the tracking as informational, leading to greater acceptance and higher intrinsic motivation (Raveendhran & Fast, 2021). Furthermore, studies demonstrate that people more willingly disclose sensitive information to an automated virtual human versus a real human (Lucas et al., 2014; Pickard et al., 2016), and the entity's ability to judge influenced this preference. Thus, we hypothesize that:

Hypothesis 1: In potentially evaluative contexts, consumers will prefer technological behavior-tracking products relative to otherwise identical products with human involvement.

Hypothesis 2: This preference for human-free technological behavior-tracking products is driven by lower concerns about negative judgment.

Given that individual level factors (e.g., gender, self-efficacy) could influence consumers' preference for technological (versus human) tracking, we explore the impact of these factors in our studies.

2.1 Goal type moderates preference for technological (versus human) tracking

While technological tracking allows people to pursue goals without negative judgment concerns, in some situations, consumers may experience these concerns as subordinate to their need for feedback from relevant humans who they perceive as capable of providing holistic, contextual information. Research on cognitive evaluation theory highlights the role of social contexts in fulfilling individuals' key psychological needs of autonomy, competence, and relatedness (Deci & Ryan, 2000). Building on the idea that interpersonal feedback can be perceived as either informational or controlling as a function of its social context (Ryan, 1982), we delineate goal-pursuit contexts where human feedback (versus technological feedback) is crucial for satisfying these psychological needs. Specifically, we posit that when pursuing goals that involve a public performance component—where ultimate success or failure to achieve the goal might be experienced more publicly—consumers will prefer tracking their progress with human involvement (relative to technological tracking).

By tracking performance-relevant progress with human involvement, individuals have access to interpersonal feedback that they may perceive as more holistic and contextually useful relative to technology-based feedback (Newman, Fast, & Harmon, 2020). Individuals gain valuable insights by receiving nuanced, interpersonal feedback through human interaction, in contrast to purely numerical or otherwise limited feedback provided by technology. For instance, personal comments from a coach (e.g., "you did really well, especially given how the session started") differ significantly from numerical data displayed by a computer about one's performance and can help people perform better in certain goal pursuit contexts (Jussim et al., 1992). While quantitative feedback measures progress towards goals, interpersonal

feedback fosters a sense of connection with the feedback giver. Indeed, Mageau and Vallerand (2003) demonstrated how interpersonal feedback from relevant humans has a beneficial impact on athletes' perceptions of relatedness (beyond competence and autonomy) during goal pursuit.

Feeling connected to one's feedback provider can be particularly valuable when pursuing performance goals where a human advisor might be more able to empathize with the possibility of succeeding or failing in front of an audience and provide pertinent and context-aware feedback. Moreover, in situations where individuals voluntarily choose to showcase their abilities before an audience, human feedback serves an important informational (rather than evaluative) purpose. Indeed, studies show that when people pursue goals related to performance, they are more likely to seek feedback from other humans and meet their goals when they received this feedback (Morrison & Weldon, 1990; VandeWalle, 2003).

Offering further support for this argument, research comparing human feedback to algorithmic feedback suggests that people may overestimate their understanding of how humans (versus algorithms) function in a given context (Morewedge, 2022) and tend to assume that humans can offer more context-specific, tailored feedback relative to technological entities (Newman et al., 2020). Taken together, we hypothesize that:

Hypothesis 3: Consumers' preference for technological behavior-tracking products relative to otherwise identical products with human involvement will be reversed when pursuing performance goals where success or failure may be experienced publicly.

3 Overview of experiments

We tested our predictions across four studies (n = 2601). Experiment 1 assessed whether consumers prefer technology-operated over human-operated behavior-tracking products, and whether this effect is mediated by lower concerns about negative judgment. Experiments 2A and 2B examined this preference in different contexts and explored various individual-level factors as potential moderators. Finally, Experiment 3 explored whether consumers' preference for technology-operated tracking is reversed when pursuing performance goals where human feedback is particularly valuable.

Across these studies, we varied the context and type of behavior-tracking product and controlled for objective aspects such as what data are collected and how they are collected. We held constant product tracking capabilities across technology and human conditions, with the only difference being who/what analyzes data and provides feedback. This allowed for a more conservative test of our predictions wherein human involvement in human-operated tracking was limited to data analysis and feedback provision—both of which reflect capabilities of real products in the market.

We determined sample sizes before data collection, aiming for 80% power to detect small to medium effects. We report all manipulations and dependent measures; there were no exclusions in any of the experiments. All data, preregistrations,

and materials are posted on OSF at https://osf.io/ekr7n/?view_only=2c05994d00184f3f833339f812c1dd90. Full manipulations for all experiments are included in the supplementals.

3.1 Experiment 1

Here, we examined our first two predictions in the sleep-tracking context. We tested consumers' preference for a sleep tracking product that was either fully operated by technology or included human involvement and examined concerns about negative judgment.

3.1.1 Method

Participants We recruited 600 US adults (269 women, 308 men, 22 other; M_{age} = 35.47 years, SD_{age} = 12.21) through Prolific Academic. Participants were randomly assigned to either a technology-operated (n = 300) or human-operated tracking (n = 300) condition. Preregistration link: https://aspredicted.org/jm5k9.pdf.

Materials and procedure Participants read the description of a sleep tracking product that tracked users' sleep patterns and biometrics using a smart ring and camera. The description manipulated whether the product was technology-operated or human-operated. In the technology-operated condition, participants read that a computer algorithm would analyze user data and provide feedback on how to improve sleep. In the human-operated condition, participants read that an analyst at the sleep tracking company would perform data analysis and provide feedback.

Participants indicated their ratings on two scales anchored by 1 (strongly disagree) and 7 (strongly agree): concerns about negative judgment (a four-item scale adapted from Leary, 1983; α = 0.96) and product desirability (a three-item scale adapted from Raveendhran & Fast, 2021; α = 0.97).

3.1.2 Results

Consistent with our predictions, participants indicated higher preference for the technology-operated (M = 3.79; SD = 1.73) versus human-operated product (M = 3.05; SD = 1.84, $t(598)$ = 5.09, $p < 0.001$, d = 0.42, 95% CI = [0.25, 0.58]). Participants also reported lower concerns about negative judgment with technological tracking (M = 2.02; SD = 1.32) relative to human tracking (M = 2.81; SD = 1.78, $t(598) = -6.23$, $p < 0.001$, $d = -0.51$, 95% CI = [− 0.67, − 0.35]).

To test our predicted mediation hypothesis, we conducted bootstrapping analyses (PROCESS, model 4, resampling size = 5000) (Hayes, 2013) with concerns about negative judgment as the mediator and product desirability as the dependent variable. The 95% bias-corrected confidence interval for the indirect effect of technology through concerns about negative judgment on product desirability ($b = -0.21$, SE = .05, 95% CI [− 0.31, − 0.12]) did not include zero, indicating that concerns about

negative judgment mediated the relationship between technology and product desirability ($b_{partially\ standardized} = -0.12$, $SE = 0.03$, 95% CI [− 0.17, − 0.07]). Thus, our first two hypotheses were supported.

3.2 Experiment 2A

Next, we sought to replicate the effects from Experiment 1 in a different context (health and fitness). We also explored whether self-perceived status moderated this effect, as people with higher status may feel more secure in their social positions than others (Magee & Galinsky, 2008) and therefore be less sensitive to the possibility of others' negative judgment.

3.2.1 Method

Participants We recruited 601 US adults (253 women, 338 men, 10 other; $M_{age} = 38.81$ years, $SD_{age} = 12.96$) through Prolific. Participants were randomly assigned to either a technology-operated ($n = 299$) or human-operated tracking condition ($n = 302$). Preregistration link: https://aspredicted.org/7ff4s.pdf.

Materials and procedure Participants read the description of a smartwatch that tracks various aspects of users' health and fitness. We manipulated whether the product was technology-operated or human-operated. In the technology-operated condition, participants read that an algorithm analyzed data and provided feedback while in the human-operated condition, a human analyst performed these functions.

Next, participants rated product desirability ($\alpha = 0.95$) and concerns about negative judgment ($\alpha = 0.97$) using the same scales from Experiment 1. Finally, participants rated their self-perceived status using a five-item scale from Anderson and colleagues (2012; $\alpha = 0.95$).

3.2.2 Results

Consistent with Experiment 1 and our predictions, participants indicated greater preference for the technology-operated ($M = 4.30$; $SD = 1.63$) versus human-operated product ($M = 3.53$; $SD = 1.80$, $t(599) = 5.44$, $p < 0.001$, $d = 0.44$, 95% CI = [0.28, 0.61]) and lower concerns about negative judgment with technological tracking ($M = 2.18$; $SD = 1.46$) relative to human tracking ($M = 3.01$; $SD = 1.81$, $t(599) = -6.13$, $p < 0.001$, $d = -0.50$, 95% CI = [− 0.66, − 0.34]).

Bootstrapping mediation analyses (PROCESS, model 4, resampling size = 5000) revealed that the 95% bias-corrected confidence interval for the indirect effect of technology through concerns about negative judgment on product desirability ($b = -0.14$, $SE = 0.04$, 95% CI [− 0.23, − 0.06]) did not include zero, supporting the mediation hypothesis ($b_{partially\ standardized} = -0.08$, $SE = 0.03$, 95% CI [− 0.13, − 0.03]).

Finally, we explored whether self-perceived status moderated our effects. Self-perceived status was significantly correlated with product desirability ($r = 0.25$, $p < 0.001$), but not correlated with concerns about negative judgment ($r = 0.005$, $p = 0.90$). Results of linear regression analyses revealed that there was no significant interaction between condition and self-perceived status ($b = 0.09$, $SE = .11$, $p = 0.39$), indicating that status did not moderate the effect of technology on product desirability.

3.3 Experiment 2B

Here, we aimed to replicate our main effects in the fitness tracking context while making consumers' perceptions about their personal fitness more salient. Additionally, we explored the role of participants' gender as a potential moderator of our effects.

3.3.1 Method

Participants We recruited 599 US adults (267 women, 317 men, 15 other; age: $M_{age} = 40.32$ years, $SD_{age} = 14.08$) through Prolific. Participants were randomly assigned to either a technology-operated ($n = 299$) or human-operated tracking condition ($n = 300$). Preregistration link: https://aspredicted.org/jh7q5.pdf.

Materials and procedure Participants first answered questions about their current fitness, including current weight in pounds, BMI, satisfaction with weight, and satisfaction with fitness on a scale from 1 (not at all) to 7 (very much). They also rated their fitness-specific self-esteem on a 10-item scale adapted from Rosenberg's self-esteem scale ($\alpha = 0.95$).

Next, participants read the description of a smartwatch that tracked fitness levels. The product description reflected whether the product was technology-operated or human-operated with differences between the two conditions limited to whether an algorithm or a human analyst analyzed data and provided feedback.

Participants then rated product desirability ($\alpha = 0.95$) and concern about negative judgment ($\alpha = 0.97$) using the same scales from previous studies.

3.3.2 Results

Consistent with previous studies, participants indicated higher preference for the technology-operated ($M = 4.41$; $SD = 1.69$) versus human-operated product ($M = 3.82$; $SD = 1.91$, $t(597) = 4.02$, $p < 0.001$, $d = 0.33$, 95% CI = [0.17, 0.49]) and lower concerns about negative judgment with technological tracking ($M = 2.18$; $SD = 1.46$) relative to human tracking ($M = 2.91$; $SD = 1.79$, $t(597) = -5.42$, $p < 0.001$, $d = -0.44$, 95% CI = [− 0.60, − 0.28]). Counter to our prior studies, the bootstrapping mediation analyses (PROCESS, model 4, resampling size = 5000) did not support our mediation prediction ($b = -0.04$, $SE = 0.04$, 95% CI [− 0.13, 0.02];

($b_{partially\ standardized} = -0.02$, $SE = 0.02$, 95% CI [− 0.07, 0.01])) (but see below for moderated mediation).

As preregistered, we explored whether participants' satisfaction with weight, satisfaction with fitness, and fitness-related self-esteem moderated the main effect. Results revealed a significant interaction between condition and satisfaction with fitness ($b = 0.23$, $SE = 0.08$, $p = 0.005$): the difference in desirability between the technology-operated and human-operated product reduced as satisfaction with fitness increased. We also found a significant interaction between condition and fitness-related self-esteem ($b = 0.20$, $SE = 0.10$, $p = 0.036$): the difference in desirability between the technology-operated and human-operated product reduced as fitness-related self-esteem increased.

Although not included in our original preregistration, we conducted exploratory analyses examining gender as a possible moderator. Bootstrapping analyses (PROCESS, model 14, resampling size = 5000) showed significant conditional indirect effects. For women, the indirect effect of concerns about negative judgment was significant (*indirect effect* = − 0.15, $SE = 0.06$, 95% CI = − 0.28, − 0.06). For men, the indirect effect was not significant (*indirect effect* = 0.06, $SE = 0.05$, 95% CI = − 0.04, 0.15). These results suggest that, in the fitness context, the indirect effect of technology on product desirability via concerns about negative judgment is conditional upon consumers' gender. Future research should test these exploratory findings more systematically.

3.4 Experiment 3

Here, we examined whether goal type moderates people's preference for technology-operated (versus human-operated) tracking products (Hypothesis 3). We tested whether preference for technological (versus human) tracking would be reversed when people pursue performance versus personal goals. We predicted that people pursuing performance goals may particularly value human input and prefer human-operated tracking.

3.4.1 Method

Participants We recruited 801 US adults (349 women, 429 men, 23 other; M_{age} = 36.11 years, $SD_{age} = 12.12$) through Prolific. Participants were randomly assigned to one of four conditions in a 2 (tracking type: technology versus human) × 2 (goal type: performance versus personal) between-subjects design (*ns* = 198–201). Preregistration link: https://aspredicted.org/ge2i6.pdf.

Materials and procedure We examined our predictions in a dance training context. Participants read descriptions of a smart ring and camera that would track various dance-related metrics. Participants in the two performance goal conditions read that they were training to perform on the popular American dance television competition, "Dancing with the Stars," and their goal was to perform to the best of their ability and impress the judges of the show. Participants in the two personal goal

conditions read that they were training to lose weight and improve fitness, and their goal was to get into shape.

We manipulated tracking type as in prior studies. In the two technological tracking conditions, an algorithm analyzed data and provided feedback about their dance performance. In the two human tracking conditions, an expert dance coach would perform these functions.

Following this, we measured product desirability using the same scale as in previous studies ($\alpha = 0.97$).

3.4.2 Results[1]

Results of a two-way between-subjects ANOVA with goal type and tracking type as independent variables and product desirability as the dependent variable revealed a significant main effect of goal type on product desirability ($F(1, 797) = 13.07$, $p < 0.001$, $\eta_p^2 = 0.02$). Participants in the performance (competition) goal conditions indicated that the product was more desirable ($M = 4.56$, $SD = 1.80$) than those in the personal (health) goal conditions ($M = 4.11$, $SD = 1.82$). Tracking type did not have a significant effect on product desirability ($F(1, 797) = 3.08$, $p = 0.08$, $\eta_p^2 = 0.004$; $M_{tech} = 4.23$, $SD_{tech} = 1.79$; $M_{human} = 4.45$, $SD_{human} = 1.86$).

Importantly, and consistent with our prediction, the interaction between tracking type and goal type on product desirability was significant ($F(1, 797) = 37.83$, $p < 0.001$, $\eta_p^2 = 0.05$). Analyses of simple effects revealed that when participants pursued personal (health) goals, they found the technology-operated product more desirable ($M = 4.39$; $SD = 1.75$) than the human-operated product ($M = 3.84$; $SD = 1.85$, $p = 0.002$, $d = 0.31$, 95% CI = [0.11, 0.51]). However, this preference reversed when participants pursued performance (competition) goals such that they found the human-operated product more desirable ($M = 5.06$; $SD = 1.65$) than the technology-operated product ($M = 4.07$; $SD = 1.81$, $p < 0.001$, $d = 0.57$, 95% CI = [0.36, 0.77]). See Fig. 1.

4 General discussion

Our findings indicate that consumers generally prefer technology-operated (versus human-operated) behavior-tracking products, and this preference is driven by reduced concerns about negative judgment (Experiment 1). This preference was unaffected by consumers' self-perceived status (Experiment 2A). However, this preference is influenced by their gender and self-esteem in the fitness context

[1] To examine the possibility that differences in perceived expertise of the human coach influenced our findings, we conducted a post-test and measured the perceived efficacy of the human expert's knowledge in helping consumers achieve their focal goals. We found no differences between the two human conditions, $p = .86$. Please see supplementals for complete description of the post-test study.

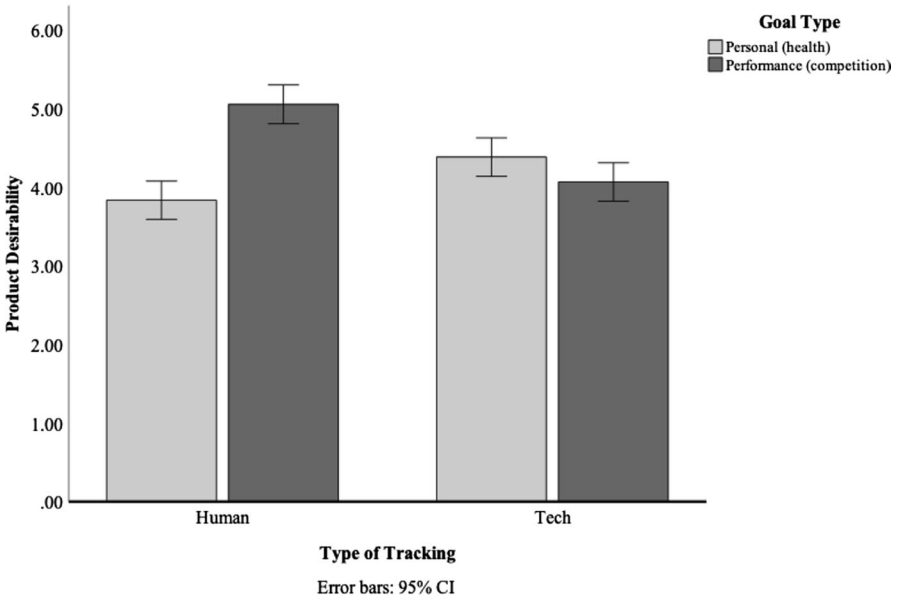

Fig. 1 Goal type reverses people's preference for technology-operated behavior-tracking products

(Experiment 2B) and is even reversed when consumers pursue performance (versus personal) goals (Experiment 3).

These findings make several contributions to research. First, they shed light on the process driving a prominent societal trend—the widespread consumer adoption of behavior-tracking products. Existing research primarily examines individuals' reactions to external entities (e.g., employers, marketers) tracking their behavior (e.g., Raveendhran & Fast, 2021). However, our work unpacks the psychology of consumers who voluntarily opt to purchase products for self-tracking purposes. Our findings indicate that people experience lower concerns about negative judgment and have a fundamentally different psychological experience when tracked by technology (versus humans).

Our findings also extend previous research on personal tracking in consumer behavior suggesting that consumers can feel quantified and devalued (e.g., Etkin, 2016) when they engage in self-tracking. However, our study goes further, by emphasizing that technological tracking creates an informational context where consumers can receive feedback about their behaviors without fear of negative judgment. This insight provides a deeper understanding of when and why consumers experience personal tracking more positively. Additionally, our research sheds light on individual and contextual factors that influence consumers' preferences within the personal tracking domain.

Our findings also have implications for privacy research. An important motivation behind individuals' privacy-seeking behaviors is the desire to act freely without fear of negative judgment (Pedersen, 1997). Our study suggests that the presence of autonomous technologies, where human involvement is less prominent, mitigates

concerns about negative judgment. Consequently, people may become less cautious about privacy and less likely to engage in privacy-seeking behaviors (e.g., Acquisti et al., 2012) and more inclined to disclose sensitive information (Brandimarte et al., 2012). Future research should explore how consumers perceive trade-offs between benefits of judgment-free tracking versus privacy-related costs.

While our research highlights consumers' preference for technological tracking when they are concerned about negative judgment, future research should consider factors that mitigate this effect. Our findings reveal that when consumers focus on long-term benefits of human tracking in situations where they may face public evaluation, they are capable of overcoming immediate concerns about negative judgment and favor human feedback. This implies that marketers, by redirecting consumers' attention away from current negative judgment concerns, may successfully nudge them towards tracking contexts with human involvement, making them more receptive to human advisors. It would also be interesting to examine whether consumers are more likely to successfully accomplish goals when subject to human (rather than technological) tracking. It is possible that when pursuing goals in the presence of other people, quitting involves a psychological cost (e.g., embarrassment) due to negative judgment by others. As technological tracking sidesteps these concerns, consumers may ironically feel freer to abandon their goals.

Future research should also investigate consumers' preferences for technological tracking in hybrid contexts, where technology can engage with them in a human-like manner. The emergence of generative AI, particularly large language models (LLMs), raises intriguing questions about how consumers perceive technological tracking when technology interacts with them in human-like ways. In sum, as novel technologies continue to permeate society, it is crucial to examine the psychological impact of such hybrid interactions to assist consumers in making informed choices within digital environments.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11002-024-09726-6.

Data availability All data, preregistrations, and materials are posted on OSF at https://osf.io/ekr7n/?view_only=2c05994d00184f3f833339f812c1dd90. Full manipulations for all experiments are included in the supplementals.

Declarations

Competing interests The authors declare no competing interests.

References

Achauer, H. (2023). *Your next fitness coach could be a robot*. The New York Times https://www.nytimes.com/2023/04/26/well/move/ai-fitness-trainer-coach.html

Acquisti, A., Brandimarte, L., & Loewenstein, G. (2020). Secrets and likes: the drive for privacy and the difficulty of achieving it in the digital age. *Journal of Consumer Psychology, 30*(4), 736–758.

Acquisti, A., John, L. K., & Loewenstein, G. (2012). The impact of relative standards on the propensity to disclose. *Journal of Marketing Research, 49*(2), 160–174.

Alreck, P. L., & Settle, R. B. (2007). Consumer reactions to online behavioural tracking and targeting. *Journal of Database Marketing & Customer Strategy Management, 15*, 11–23.

Argo, J. J., Dahl, D. W., & Manchanda, R. V. (2005). The influence of a mere social presence in a retail context. *Journal of Consumer Research, 32*(2), 207–212.

Blair, S., & Roese, N. J. (2013). Balancing the basket: the role of shopping basket composition in embarrassment. *Journal of Consumer Research, 40*(4), 676–691.

Brandimarte, L., Acquisti, A., & Loewenstein, G. (2012). Misplaced confidences: privacy and the control paradox. *Social Psychological and Personality Science, 4*(3), 340–347.

Cadario, R., Longoni, C., & Morewedge, C. K. (2021). Understanding, explaining, and utilizing medical artificial intelligence. *Nature Human Behaviour, 5*(12), 1636–1642.

Castelo, N., Bos, M. W., & Lehmann, D. R. (2019). Task-dependent algorithm aversion. *Journal of Marketing Research, 56*(5), 809–825.

Dahl, D. W., Manchanda, R. V., & Argo, J. J. (2001). Embarrassment in consumer purchase: the roles of social presence and purchase familiarity. *Journal of Consumer Research, 28*(3), 473–481.

Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology, 53*(6), 1024–1037.

Deci, E. L., & Ryan, R. M. (2000). The“ what” and“ why” of goal pursuits: human needs and the self-determination of behavior. *Psychological Inquiry*, 227–268.

Dietvorst, B. J., Simmons, J. P., & Massey, C. (2015). Algorithm aversion: people erroneously avoid algorithms after seeing them err. *Journal of Experimental Psychology: General, 144*(1), 114.

Etkin, J. (2016). The hidden cost of personal quantification. *Journal of Consumer Research, 42*(6), 967–984.

Gartner. (2021). *Forecast analysis: wearable electronic devices, worldwide*. Gartner Retrieved from https://www.gartner.com/en/documents/3995162

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: a regression-based approach*. Guilford Press.

IDC. (2023, March). *Global shipments of wearable devices forecast to rebound in 2023, according to IDC tracker*. IDC Retrieved from https://www.idc.com/getdoc.jsp?containerId=prUS50511423

Jussim, L., Soffin, S., Brown, R., Ley, J., & Kohlhepp, K. (1992). Understanding reactions to feedback by integrating ideas from symbolic interactionism and cognitive evaluation theory. *Journal of Personality and Social Psychology, 62*(3), 402.

Leary, M. R. (1983). A brief version of the Fear of Negative Evaluation Scale. *Personality and Social Psychology Bulletin, 9*(3), 371–375.

Longoni, C., Bonezzi, A., & Morewedge, C. K. (2019). Resistance to medical artificial intelligence. *Journal of Consumer Research, 46*(4), 629–650.

Lucas, G. M., Gratch, J., King, A., & Morency, L. (2014). It’s only a computer: virtual humans increase willingness to disclose. *Computers in Human Behavior, 37*, 94–100.

Mageau, G. A., & Vallerand, R. J. (2003). The coach–athlete relationship: a motivational model. *Journal of Sports Science, 21*(11), 883–904.

Magee, J. C., & Galinsky, A. D. (2008). 8 social hierarchy: the self-reinforcing nature of power and status. *The Academy of Management Annals, 2*(1), 351–398.

Morewedge, C. K. (2022). Preference for human, not algorithm aversion. *Trends in Cognitive Sciences, 26*(10), 824–826.

Morrison, E. W., & Weldon, E. (1990). The impact of an assigned performance goal on feedback seeking behavior. *Human Performance, 3*(1), 37–50.

Newman, D. T., Fast, N. J., & Harmon, D. (2020). When eliminating bias isn’t fair: algorithmic reductionism and procedural justice in human resource decisions. *Organizational Behavior and Human Decision Processes, 160*, 149–167.

Pedersen, D. M. (1997). Psychological functions of privacy. *Journal of Environmental Psychology, 17*(2), 147–156.

Pickard, M. D., Roster, C. A., & Chen, Y. (2016). Revealing sensitive information in personal interviews: is self-disclosure easier with humans or avatars and under what conditions? *Computers in Human Behavior, 65*, 23–30.

Raveendhran, R., & Fast, N. J. (2021). Humans judge, algorithms nudge: the psychology of behavior tracking acceptance. *Organizational Behavior and Human Decision Processes, 164*, 11–26.

Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43*(3), 450.

VandeWalle, D. (2003). A goal orientation model of feedback-seeking behavior. *Human Resource Management Review, 13*(4), 581–604.