

Exploring the Dynamics of Avatar Realism and Trust in Virtual Try-On Technology:
An Integrated S-O-R Model

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Introduction: Virtual try-on technology allows consumers to virtually try-on apparel on personalized avatars, providing a comprehensive view of diverse body types and measurements (Youn et al., 2023). By incorporating photorealistic personalization, users can create avatars closely resembling their physical appearance through mobile uploads (Tawira et al., 2023). Despite benefits for consumers and retailers, privacy concerns arise due to the intimate body data required (Youn et al., 2023). The trust consumers place in these body scanning technologies remains unexplored. Applying the Stimulus-Organism-Response (SOR) framework (Mehrabian & Russell, 1974), this study probes into cognitive and affective trust toward virtual try-on systems with body scanning. By experimenting with varying realism of avatars (i.e., high versus low photo-realistic), this research aims to investigate how perceived telepresence, anthropomorphism, and perceived risk may be affected by the avatar types, hence influence consumers’ trust (i.e., cognitive and affective trust), self-disclose, and adoption intentions.

Theoretical Framework: *Perceived telepresence* is defined as one feeling of “being there” in

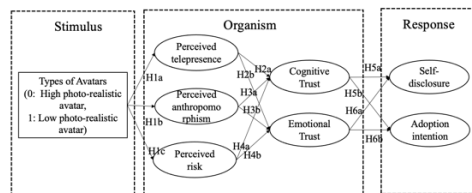


Figure 1 Proposed model

the mediated world instead of being in the physical world. (Baker et al., 2019). *Perceived anthropomorphism* is defined as one perceiving the avatar has the physical or behavioral characteristics of a human (Glikson, 2020). *Perceived risk* refers to users being concerned about collecting their personal information (e.g. body size) while

using virtual try-on technology (Zhang et al., 2019). Applying the SOR framework, this study assesses two avatar types (real body scanning vs. mannequin) as distinct stimuli (Figure 1). Based on the literature, high avatar realism in virtual try-on technology critically shapes user perceptions and intentions toward adoption differently (Baker et al., 2019). User perceptions act as the organism in the SOR model. This study proposes that **H1**: A higher level of avatar realism increases (a)perceived telepresence, (b)anthropomorphism, and, (c)perceived risk. *Cognitive trust(CT)* is defined as seeing the technology as functional, helpful, competent, or useful (Glikson, 2020). *Emotional trust(ET)* is defined as social connections that provide support and comfort (Glikson, 2020). Thus, we proposed that perceived telepresence (**H2a,b**) and anthropomorphism (**H3a,b**) will positively influence CT and ET, while perceived risk (**H4a,b**) will negatively affect CT and ET, respectively. *Self-disclosure* is defined as the sharing of self-information (Kim et al.,2022). *Adoption intention* in this study refers to the intention to use virtual try-on technology. We anticipate that higher trust in the platform will lead to greater openness in self-disclosure (CT: **H5a**; ET: **H6a**) and a stronger adoption intention of the technology (CT: **H5b**, ET: **H6b**).

Methods: An online experimental study, conducted on the Qualtrics platform, involved 125 participants recruited from a southwest university. After the initial data screening and manipulation check, the initial sample of 125 participants was reduced to 63 after excluding unqualified responses. These exclusions were necessary primarily due to the presence of short response times and straight-lining answers. The survey comprised five sections. Participants



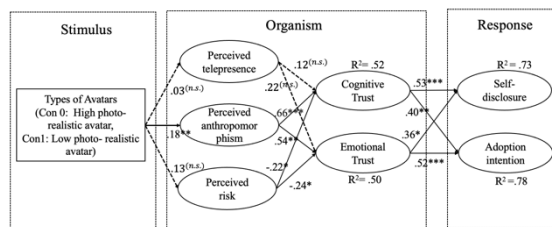
Figure 2 Avatars presented in the survey

were initially asked about their online shopping and return behaviors. Subsequently, they were randomly assigned one of the two conditions for virtual try-on technology, both supposedly provided by Ralph Lauren, a luxury retailer. The first condition featured a photo-realistic avatar, while the second condition used a mannequin avatar with lower realism (Figure 2). These avatars varied in surface information presence and human-like qualities (such as facial features).

Afterward, participants envisioned themselves using this technology and responded to a comprehensive questionnaire covering perceived telepresence (Lee et al., 2022), anthropomorphism (Malhotra & Ramalingam, 2023), risk (Wang & Lin, 2017), cognitive trust (Wu et al., 2023), affective trust (Wu et al., 2023), self-disclosure (Wang et al., 2017), and adoption intention (Chandra et al., 2010). The last section of this survey asked for demographic information.

Results The manipulation check results showed that participants perceived a photo-realistic avatar ($M_{high} = 4.94$) as more realistic than a mannequin avatar ($M_{low} = 3.06$, $p < .001$), confirming the successful manipulation. After data screening, 63 participants were analyzed ($N_{high} = 32$, $N_{low} = 31$). The primary participants were female ($n=51$, 81%) and white ($n=31$,

61.9%) with the average age being 22 years. Using IBM SPSS 29, the collected data of variables satisfied the criteria for normality (Field, 2013). Cronbach’s alpha values of all scales exceeded .90 indicating good internal reliability (Hair et al., 1998). A MANOVA test showed that high versus low photo-realistic avatars had a significant effect on perceived anthropomorphism ($F(1, 61) = 13.33$;



Standardized coefficients, $p < .05$; ** $p < .01$; *** $p < .001$. $N=63$ (Con0, $n=32$; Con1, $n=31$.)

Figure 3 Results model

$p < .05$; partial $\eta^2 = .18$) but not perceived telepresence ($F(1, 61) = 1.90$, $n.s.$) and perceived risk ($F(1, 61) = .81$, $n.s.$). Further using multiple regression analysis demonstrated that perceived telepresence had no significant impact on cognitive trust ($\beta = .16$, $n.s.$) and emotional trust ($\beta = .22$, $n.s.$). However, it was found that perceived anthropomorphism significantly predicted cognitive trust ($\beta = .66$, $p < .05$) and emotional trust ($\beta = .54$, $p < .05$). Moreover, perceived risk had a negative significant impact on cognitive trust ($\beta = -.22$, $p < .05$) and emotional trust ($\beta = -.24$, $p < .05$). Nevertheless, the results confirmed that cognitive trust and emotional trust had positive significant impacts on self-disclosure ($\beta = .53$, $p < .05$; $\beta = .36$, $p < .05$, $R^2 = .73$). Lastly, the results showed that cognitive trust ($\beta = .40$, $p < .05$) and emotional trust ($\beta = .52$, $p < .05$), had positive significant impacts on adoption intention ($R^2 = .79$) (Figure 3).

Discussion and Implications This study provides empirical evidence for the S-O-R model that enhanced realism in avatars boosts perceived anthropomorphism. Additionally, perceived anthropomorphism positively affects both cognitive and affective trust. This indicates that avatars with anthropomorphic elements may make the 3D scanning technology seem more friendly and trustworthy. While avatar types did not impact perceived risks, it was observed that perceived risks negatively affect both cognitive and affective trust. Marketers should prioritize robust privacy measures and transparent communication to enhance trust. Furthermore, cognitive trust influences users' willingness to disclose personal information more than adoption

intentions, while emotional trust increases more adoption intentions than willingness to disclose. For practical implications, marketers can provide clear and transparent information to foster cognitive trust, whereas an emotionally reassuring user experience can foster emotional trust, hence encouraging adoption intentions. The findings may guide the development of 3D virtual try-on technology.

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