

## THE PERCEPTION OF TRUST IN PERSONALIZED VIDEO NEWS GENERATED BY ARTIFICIAL INTELLIGENCE

Felipe Breviglieri, Instituto Universitário de Lisboa (ISCTE-IUL), Lisboa, Portugal<sup>1</sup>  
João Guerreiro, Instituto Universitário de Lisboa (ISCTE-IUL), Business Research Unit  
(BRU-IUL), Lisboa, Portugal<sup>2</sup>  
Sandra Loureiro, Instituto Universitário de Lisboa (ISCTE-IUL), Business Research Unit  
(BRU-IUL), Lisboa, Portugal<sup>3</sup>

### ABSTRACT

As the use of artificial intelligence (AI) grows, so do the questions regarding this new technology and its potential uses. Among the various possibilities and employment that could be offered by AI is personalized news technology. Nowadays, it is already possible to produce journalistic content through AI (Carlson, 2014; Graefe & Haim, 2018). Digital storytelling has become a reality through automated journalism powered by AI (Caswell & Dörr, 2018; Galily, 2018; Linden, 2017; Thorne, 2020). “Artificial intelligence applies advanced analysis and logic-based techniques, including machine learning, to interpret events, support and automate decisions, and take actions” (Gartner Group, 2019). In personalized news technology, algorithms are responsible for selecting content and sorting it according to the personalization criteria (Powers, 2017). So far, AI has been studied in different fields with distinct research focuses (Loureiro et al., 2021). Studies of news-personalization technologies have mainly focused on search engines and filtering mechanisms (Darvishy et al., 2020; Haim et al., 2017; Manoharan & Senthilkumar, 2020). Few studies examine news aggregators (Haim et al., 2018; Kwak et al., 2021) and the effects of news personalization on audiences (Merten, 2021; Swart, 2021; Thurman et al., 2019), thus demanding further research. AI is an imminent reality for the future, reshaping the news media (Brennen et al., 2022; Linden, 2017; Thorne, 2020). Hence, it is still necessary to investigate the impacts that this technology potentially offers to users. Therefore, the current study seeks to respond to this need to deepen research into the area of news personalization through AI, by analyzing the response of audiences toward current and future technological tendencies. The main aim of this research is to investigate the levels of trust that users have in AI-generated personalized video news.

One of the most noticeable features of AI technology is perceived intelligence (Lee & Chen, 2022). Because technologies use intelligence to complete tasks and solve complex problems, perceived intelligence is understood as the perception of efficient behavior on the part of the technology, capable of delivering effective outputs (Moussawi et al., 2021). Perceived intelligence tends to be tied to the extent to which technologies can imitate human intelligence (Qiu et al., 2019). McLean et al. (2021) classify perceived intelligence as one

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<sup>1</sup> felipe\_breviglieri@iscte-iul.pt

<sup>2</sup> joao.guerreiro@iscte-iul.pt

<sup>3</sup> sandramloureiro@netcabo.pt

social attribute of AI technology, alongside social attraction. Social attraction is a construct derived from social presence. Social presence is defined as the extent to which the medium enables users to sense that other users are psychologically present to them (Hassanein & Head, 2006). In journalism, social presence is felt as “the sense of a human behind the news” (Marchionni, 2015, p. 232). AI-based interactions convey perceptions of social presence through social attraction (McLean et al., 2021). Compared to social presence, social attraction means having a positive attitude toward others. While social attraction examines the psychological sensation of proximity, social attraction goes one step further by analyzing the presence (or lack of) of positive appeal in the interaction.

Media richness theory (Daft & Lengel, 1984; 1986) analyzes the flow of information processing in organizations within the scope of a descriptive model. Media richness (information richness) is defined as “the ability of information to change understanding within a time interval” (Daft & Lengel, 1986, p. 560). The richness of a communication channel may be influenced by the medium’s capacity for immediate feedback, language variety, personalization, and the number of (observable and non-observable) cues and channels used, including gestures, tone, and body language, among other cues (Daft & Lengel, 1986). Face-to-face interactions are the richest form of information processing because the medium can provide immediate feedback (Daft & Lengel, 1984). These four elements explain why media richness can lead to different user experiences, for example, in navigation systems (Lin & Chen, 2015), e-learning (Zhao et al., 2020), and mobile data services (Chen & Demirci, 2019). Trust is a construct within studies in distinct disciplines, including psychology, management, social sciences, and other areas of knowledge (Zhang et al., 2019). Trust can be considered “the perceived credibility and benevolence of a target of trust” (Doney & Cannon, 1997, p. 36). In the present research context, trust might be identified as the extent to which news consumers perceive video news as credible, reliable, and trustworthy. Recent literature considers trust to be a key construct in technology-acceptance studies due to its capability of influencing user behavior, attitude, and acceptance (Acharya & Mekker, 2022; Lee & Choi, 2017; Liu et al., 2022; Zhang, et al., 2019). That is, trust may be capable of conditioning both user behavior and technology acceptance. The theory acceptance model (TAM; Davis et al., 1989) was created to comprehend user acceptance of information systems (Davis et al., 1989). At the core of the model there are two fundamental constructs: perceived usefulness (U), “the degree to which a person believes that using a particular system will enhance his or her job performance” (Davis, 1989, p. 320), and perceived ease of use (E), which is “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989, p. 320). While perceived usefulness corresponds to the user’s view on the extent to which a technology can enhance his/her work, perceived ease of use measures the user’s belief about what the use of technology requires in terms of effort. Together, perceived usefulness and perceived ease of use are the main determinants of user acceptance.

By combining these six constructs according to the literature, seven different hypotheses are created:

*H1: Perceived ease of use has a positive effect on perceived usefulness in video news.*

*H2: Perceived intelligence will positively influence perceived usefulness in video news.*

*H3: Social attraction will positively influence perceived usefulness in video news.*

*H4: Media richness has a positive impact on perceived ease of use in video news.*

*H5: Media richness has a positive impact on perceived usefulness in video news.*

*H6: Perceived ease of use positively influences trust in video news.*

*H7: Perceived usefulness positively influences trust in video news.*

With the goal of comparing the levels of trust in AI-generated personalized video news to human-generated content, two moderation hypotheses have been developed:

*H6a (moderation): Perceived ease of use has similar effects on trust in human-generated video news and AI-generated personalized video news.*

*H7a (moderation): Perceived usefulness has similar effects on trust in human-generated video news and AI-generated personalized video news.*

For assessing the proposed hypotheses, a sample of 306 respondents was asked to participate in an online experiment between April and May 2022, without any kind of financial benefit. Out of the total respondents, 152 were randomly assigned to an AI-generated news video and a description of the personalized news technology. The remaining 154 watched the same video presented by a human presenter, with no mention of personalization. A PLS-SEM analysis was used to test all seven hypotheses of this research.

The results of this investigation show that the proposed conceptual model is free of common method variance and that both the outer and the inner models are consistent and reliable. Four out of the seven hypotheses tested in this investigation are supported, namely: hypothesis 1 (perceived ease → perceived usefulness), hypothesis 2 (perceived intelligence → perceived usefulness), hypothesis 4 (media richness → perceived ease of use), and hypothesis 7 (perceived usefulness → trust). All of them confirm what is suggested by the literature. Nevertheless, hypothesis 3 (social attraction → perceived usefulness), hypothesis 5 (media richness → perceived usefulness), and hypothesis 6 (perceived ease of use → trust) are not supported. These outcomes might have been influenced by different elements in the experiment, including the user experience, the content of the video displayed, an overload of information, and the lack of brand identity.

Lastly, the results of hypothesis 6a and hypothesis 7a, which intend to compare results for those who have experienced AI-generated personalized video news and those who have watched human-generated content, reveal that there are no significant differences between the groups in terms of the relationships perceived ease of use → trust and perceived usefulness → trust. These results support H6a and H7a, which defend similar effects on trust in AI-generated personalized video news and human-generated video news respectively through perceived ease of use (H6a) and perceived usefulness (H7a). Both hypotheses consider that the determinant effect of visual appeal (Pengnate & Sarathy, 2017) and the possibility of resembling human interactions were enough to provide similar experiences and consequently comparable outcomes on trust in human-generated video news and AI-generated personalized video news (Han & Yang, 2018; Hsieh & Lee, 2021).

To this end, the levels of trust among those who have experienced AI-generated personalized video news and those who have watched human-generated video news were compared. The results evidence that there was no significant distinction in trust between both groups. In terms of limitations, the research presents a constraint related to the measurement of trust. Trust is a complex construct with functional qualities and non-functional qualities (Balakrishnan & Dwivedi, 2021; Shin, 2021; Wirtz et al., 2018). This research only focuses on the functional qualities of trust without assessing non-functional elements.

In conclusion, this research has investigated the levels of trust that users potentially have in AI-generated personalized video news in comparison to human-generated video news. This study is just a small step in the research on the possibility of generating content through AI, personalized video news included. The ideas, concepts, evaluations, and conceptual model contained in this investigation can certainly be extended for future research.

**Keywords:** Artificial Intelligence, Personalized News, Trust, TAM

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