Can AI-Powered Avatars Replace Human Trainers? An Empirical Test of Synthetic Humanlike Spokesperson Applications

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ABSTRACT

Purpose – This study experimentally evaluates the viability of AI-animated humanlike avatar technology vs actual organic human spokespersons for use in learning videos. It is guided by a convergence of AI Literacy Theory, the Technology Acceptance Model, and the Theory of Reasoned Action.

Design/Methodology/Approach – Findings are determined through an experimental test of onboarding video variations. Employing a randomized 2x2 trial design, over 250 professionals assessed training videos featuring either synthetic avatars or organic human spokespersons. Variables such as training effectiveness, knowledge transfer, and brand perception were analyzed using ANOVA.

Findings – Synthetic avatars matched the effectiveness of human counterparts in all scenarios where participants were unaware of the avatar's synthetic nature. The majority of participants did not detect the avatars' syntheticness, which was undisclosed to them. However, when there was perceived syntheticness, it triggered the negative uncanny valley phenomenon, albeit weakly statistically.

Originality/Value – Synthetic avatars, as outlined here, are a viable new option in the array of available learning technologies. This research is thus highly valuable for practitioners and scholars interested in the effectiveness of cutting-edge learning tools. The foundational quantitative assessment here provides a benchmark for evaluating future improvements in the technology. This study provides actionable recommendations for integrating AI-powered avatars into professional development, enhancing our understanding of advanced technologies' roles in our educational/training programs.

Keywords: synthetic media, digital media, avatar, artificial intelligence, computer mediated communication, video, professional communication, onboarding, training, uncanny valley

1. INTRODUCTION

1.1 Effectiveness of Ubiquitous Video

This study examines an artificial intelligence (AI) powered revolution in business video content creation. The use of video for workplace purposes, however, is not new. Industry use of training videos has been ubiquitous for decades, spanning back to world war era film reels shown to train soldiers to VHS tapes used in retail associate training in the 1980s and 90s to online courses and interactive policy compliance videos provided

by governments and employers of the modern digital age (Cohen, 2022; Derouin et al., 2005; Krämer and Böhrs, 2018).

Scholarly and practitioner research has regularly supported the ubiquitous use of video. Learners often prefer watching video over other onboarding modalities (Stoiber et al., 2022), and the genre can produce high levels of engagement (Marshall, 2019). It is a medium that learning and development leaders regularly encourage industry practitioners to use (Pierce, 2018), and extensive scholarly research justifies this positive social sentiment, empirically demonstrating video modalities are viable methods for producing knowledge acquisition and for eliciting the intended action in participant viewers (Catania et al., 2009; Erath et al., 2021; Moore and Fisher, 2007; Vladescu et al., 2012). Distinct skills can be learned through video-based training (Ahmet et al., 2018) Video is not just a viable alternative, according to the research, but is often a significantly more effective means at producing high performance and engagement amongst trainees compared to static alternatives (Chen, 2012; Kwon and Lee, 2016). Of course, the power of this useful medium can also be seen in its less savory activations as well, such as video's comparative effectiveness as spreading "fake news" than other media (Sundar et al., 2021).

1.2 The Video Spokesperson's Importance

While it is certainly true that users can learn from an interact with materials and technologies that have not been anthropomorphized (Strohmann et al., 2019), when developing video content for viewers, a strong preference prevails for the use of an embodied human spokesperson ("Why the Human Face," 2022). Embodied training videos, with a person's face and voice present, according to the Association for Talent Development, allow for connection between the trainee and the organization. "It doesn't matter who speaks on camera," ATD consultant Vern Oakley contends, "—the CEO, an HR leader, a rising-star assistant—but someone must. Viewers won't feel a connection if they don't see a person behind the company logo" (Oakley, 2017). This tactic is a useful one, as even in mediated contexts, higher levels of trust and satisfaction are predicted by stronger levels of social presentness (Gunawardena, 1995; Gunawardena and Zittle, 1997) – an effect that even digital bodies have been suggested to elicit in previous research (Bente et al., 2008). The embodied other, even on the screen with its pseudo-immediacy, holds the potential to produce a sufficiently salient sense of realness and presentness, and thus to produce a sense of connection or trust, satisfaction or perceived effectiveness.

This parasocial connection can increase when a spokesperson is present in the video, even if faceless videos may at times produce the equivalent knowledge gain as embodied training videos (Fiorella and Mayer, 2018). This is particularly true when the spokesperson is strategically edited into the video, adding social cues but not overly disrupting attention from depiction of the subject at hand (Stull et al., 2021). Even further, the majority of learners have been found to prefer training videos with an embodied speaker (Kizilcec et al., 2015). Students in classroom settings have also reported stronger connections to their instructor when the instructor was in the video (Rose, 2009). That is to say, the trainee's interest in viewing the video, their perceived level of learning, and their social connection to the learning environment may be positively impacted by an embodied spokesperson, even if their discrete task knowledge would be equivalent with or without a faced spokesperson in the video.

While embodied video is a preference in training applications, this can be an impediment to its creation. Embodied training videos are a form of "digital oratory," a genre that is most effective when it "takes advantage of the developing/flux-laden conventions that the online video context provides" (Lind, 2012). Simply put, not all teams have a member that possesses the skills to perform as spokesperson, let alone a spokesperson that understands the nuances of performing for the camera.

2. EXIGENCE

2.1 Avatars as Risky Alternative

A high demand on human resources and learning and development teams for professional quality video combined with spokesperson unavailability has given rise to a variety of avatar options. A term with ancient etymological roots (Holzwarth et al., 2006), avatar is now a common term for character stand-ins in a variety of media contexts. They are any animated representation of a personified character, humanlike or otherwise – simply put, they are "a graphical representation of the user" ("Virtual worlds provide real learning benefits," 2016). According to decades of existing literature, these animated representations offer great potential for training effectiveness, but the mere inclusion of an avatar does not guarantee statistically advantageous results (Dehn and Van Mulken, 2000).

In many empirical cases, adding a personified trainer or guide in the form of an embodied animated agent, tested through in a variety of designs from humanlike to cartoon animal, has been found beneficial. Avatars have been found to build trust with potential customers (Keeling et al., 2010), and to increase learner motivation, problem solving, knowledge retention, and transfer (Atkinson, 2002; Guo and Goh, 2015; Lester et al., 1997).

While imaginative character design of avatars is nearly limitless, if one has the budget for it, the interpersonal draw of the human spokesperson nonetheless looms large. The literature understandably suggests that humanlike avatars are often preferred by users (Luo et al., 2006) and can produce higher results than cartoonish alternatives (Van Der Land et al., 2015). Having high fidelity humanlike avatars accessible at a consumer grade is thus very desirable.

Yet decades of research also points to limitations and potential disadvantages of deploying humanlike avatars, namely provoking the uncanny valley phenomenon – a well-documented effect whereby the humanlike but not accurately or totally believably human qualities produce a negative sense of eerie and wariness (Ho and MacDorman, 2017; Mori, 1970). This perceived essential weirdness is typically accompanied by heightened psychophysiological effects and increased negative emotions (Ciechanowski et al., 2019). While task goal priorities can override the sense of uneasiness (Patel and MacDorman, 2015), the uncanny valley phenomenon is generally considered a real negative risk, and has been found to decrease a participant's trust and desire to interact with the synthetic agent further (Song and Shin, 2024). Because of this, practitioners have been right to be wary of avatar options, hoping instead to find a skilled performer to act as the spokesperson for their company's training videos, often with difficulty and at a very high cost.

2.2 Synthetic Humanlike Spokespersons Renaissance

Because of the combination of demand and a need for adoption without technological expertise, a variety of innovative new applications, powered by significant advancements in AI computing, have entered the training video creation market. These apps position themselves as a means to absolve business leaders and educators of the need to be camera-ready or A/V-proficient themselves, offering synthetic avatars as human stand-ins and an easy-to-use portal as a supplement for technical proficiency.

In 2023, the companies Synthesia and HeyGen emerged as leaders in the space. Both are examples of a new wave of consumer-available applications powered by AI. The user simply inserts their text into the app, and the app generates not only the audible voice that speaks the script but it also animates the mouth and facial gestures of a selected humanlike avatar to match the synthesized voice. Editing options are streamlined through an easy-to-use interface in Synthesia and HeyGen, making video creation no more complicated than creating a slide deck. A wide variety of demographic features are offered across hundreds of available avatars, consistent with previous research on the conformity-adherence power of online virtual appearances (Lee, 2004). These avatar systems are powered by an AI comprised of "[trained] neural networks to reproduce

3

the photorealistic look and movements you see in existing videos" ("Synthesia Research," 2023). Based on highly analyzed video footage of actual actors, the AI modelling can generate novel high-fidelity footage that was never practically recorded, custom matched to the specific text input. That is to say, the companies purport to be able to create a believable humanlike avatar spokesperson video based merely on the script text input of the user. This is achieved by basing the avatar on authentic human source material instead of raw CG wireframing. By using actual human video footage as its base, these companies posit that they can produce embodied avatars that can reasonably pass as an actual person on video, bypassing the uncanny valley phenomenon, and meeting the goals of the contextual application.

The result is what we might define as a *synthetic spokesperson*(SS), or more particularly a *synthetic humanlike spokesperson*(SHS). We can define the SHS as a humanlike animated character, designed to accurately resemble or even impersonate an actual organic human person, that is controlled and animated to deliver a recorded address in support of a particular group, individual, or business. Contrary to "animated interface agents" (Dehn and Van Mulken, 2000) that function by interacting with computer users, the SHS at present is performative character only, not reactionary. Because they are recorded in advance, the creator has the potential for more control over their performance. Computing speeds require moderate processing time, roughly two to three minutes of processing per one minute of video at present, to render the final product. This makes live interaction with an SHS impossible at the time of writing, which comes with the added benefit of avoiding the frustrations and limitations experienced to-date with attempts at live synthetic conversational agents (Diederich et al., 2021). This will change quickly, though, as the programming gets lighter and the processors faster, or as programs sacrifice animation quality for speed. Even when high-fidelity live interaction is possible, identifying and defining the avatar as an SHS affords us a theoretical foundation with a uniquely valuable alternative perspective – that is, the lens of SHS analysis focuses not just on the role the avatar plays or their technical programming, but rather it also highlights their unique pseudo-physical characteristics, opening up fertile grounds for additional analysis.

Corporate users have bought into the expected outcomes of these SHS avatars at a massive scale. Synthesia was valued at $1 billion through a large investment by computing leader nVidia (Browne, 2023), and HeyGen made waves through its translation cloning software (Schwaiger, 2023), suggesting their staying power in the market and likelihood of improving advanced features. creating a pervasive social attitude of positive acceptance across workplace video creation spaces. Users range from individuals paying small monthly fees to large enterprise clients. Users regularly report positive experiences with the tool. Time savings is one common positive refrain, with users reporting an average of 62 percent time savings in video production (Kasparova, 2023).

Yet despite the fervent interested in this new technology across a variety of applications, and despite its ancestral technological forerunners, most questions specific to this new technological opportunity have yet to be answered. Studies on this new wave of consumer grade SHS options is scarce, save for marketing materials from the providers, due to the newness on the market. Can this new AI-powered avatar be effective, justifying the positive expectation attitudes with actual outcomes? Can it be as effective as an actual organic human spokesperson alternative, especially at great cost savings? This study thus seeks to advance our understanding of a mass-adopted recent tool yet to be thoroughly studied, especially in the context of its primary market entry use – workplace training videos for adult learners.

2.3 Theoretical Intervention

The Theory of Reasoned Action (TRA) provides insights into this longstanding professional practice. TRA postulates that one's attitudes towards a behavior's likely outcome, when corroborated by positive social norms supporting the behavior, will result in an intent and eventual actualization of said behavior (Fishbein and Ajzen, 1975). This theoretical framework directly describes the creation of training materials by people leaders like human resources or learning and development professionals. Said leaders believe that video-based training materials are likely to produce positive results within their organization, a belief positively

reinforced by decades of use across industries, and thus it is common for training professionals to intend to and eventually create training materials for their organization. Specific to the context of training videos, McKinsey outlines the five core goals that learning leaders seek to achieve when creating learning content. These goals are to attract and retain talent, develop people capabilities, create a values-based culture, build an employer brand, and motivate and engage employees (Brassey et al., 2019).

TRA is consistent with Davis' Technology Acceptance Model (TAM) , which identifies two variables impacting use of new technology – the ease of use and the perceived effectiveness (Davis, 1989). However, while simple interface and expected positive outcomes explains the rapid and robust adoption of SHS avatar technology, AI Literacy Theory (AILT) suggests that those interested in using SHS avatar technology tread cautiously. Applying AILT to TRA and TAM suggests that it is advisable to take the positive billions worth of social support for the technology with a proverbial grain of salt, given the lack of evidence supporting its effectiveness. AILT outlines four key tasks when choosing to use AI tools for content creation: agency, accountability, authenticity, and application (Cardon et al., 2023). All four are essential for consideration here as checks against over-excitement. That is, the scholar and professional must avoid ceding control to tool-inevitability, but must instead retain agency in right decision making, even in the face of mass-adoption. The professional must take accountability for the effectiveness and reliability of the products they create, ensuring that an authentic level of humanity is retained. All of this requires a sufficient level of understanding of the tool being applied in the use-case, ensuring that the tool aligns sufficiently with the desired outcomes.

3. METHOD

3.1 Research Questions

Simply put, this study thus seeks to determine if a synthetic, AI generated avatar produced by a consumer grade tool (like Synthesia) can be as effective in the role of training spokesperson as an actual organic human spokesperson, relative to the goals of training professionals. In particular, this study tests the outcomes of three of McKinsey's five strategic goals: developing people capabilities (i.e., training them in necessary professional knowledge; To be tested in RQ1), motivating and engaging employees (i.e., sufficiently convincing them that the time they are putting into their learning is time worthwhile spent; To be tested in RQ2), and building an employer brand (i.e., creating a positive impression of the company through the training materials; To be tested in RQ3).

RQ1 – Actual Effectiveness: Is a SHS avatar as effective at knowledge training as an organic human spokesperson?

Effectiveness is operationalized as a composite score of quiz style questions designed to test knowledge retention.

H1: Yes SHS avatar videos will produce equivalent quiz scores as the synonymous organic human counterpart

RQ2 – Perceived Effectiveness: Does a SHS avatar produce an equivalent level of perceived knowledge transfer toward the company as an organic spokesperson?

Perceived knowledge transfer is operationalized as a composite score of three learning questions – clarity, memorableness, and task confidence.

H2: Yes, SHS avatars will produce equivalent self- perceptions of successful knowledge transfer as the synonymous organic counterpart.

RQ3 – Brand Impression: Does a SHS avatar produce an equivalent level of positive sentiment toward the company as an organic spokesperson?

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Positive sentiment is operationalized as an average score on three sentiment questions –belonging, trustworthiness, and competence.

H3: Yes, SHS avatars will produce equivalent sentiment ratings toward the company as the synonymous organic counterpart.

RQ4 – The Fake Out: Will respondents perceive a SHS as an AI-generated synthetic avatar?

H4: No more than half (<50%) of respondents will perceive their SHS as synthetically AI generated.

3.2 Video Production

To answer the research questions, this study used a 2x2 comparison methodology. Unlike the comparatively saturated method of understanding training technology as studied on elementary to college-aged students (Derouin et al., 2005), this study is contextualized within a workplace scenario for adult professionals. Two pairs of synonymous training videos for a fictitious business called "Plant Haul" were created in which a new hire was shown how to conduct inventory at the plant store. All four video variations were identical, save for the spokesperson and accompanying voice. Adult working professionals were randomly shown one of the four videos and then proceeded to answer a series of questions. Details of the methodology include:

Organic Spokesperson Production

Two experienced spokesperson actors were hired in Los Angeles to film the organic training videos. The actors, one male and one female, were cast to broadly fit within the same perceivable demographic categories (age, race/ethnicity, bodily ability, native language) to control for demographic bias. Wardrobe was provided to the actors to match the wardrobe of the avatars in Synthesia.

Actors were provided a script and filmed the training in a professionally equipped and staffed studio with a plain white background. The actors performed multiple takes from a teleprompter and were directed to restrict arm and hand gestures so as to replicate the feature limitations of the avatar program at the time in the summer of 2023.

An otherwise identical two-and-a-half-minute video training was edited using professional editing software for each spokesperson from their individual footage. B-roll video, still images, and text were edited into the video to highlight key components of the training task, based on modern video editing standards.

SHS Production

Two SHS avatars, one male and one female, were selected from the Synthesia database to match the demographics of the organic spokespersons (see Figure 1). Minor corrections were entered into the Synthesia platform to ensure the test-to-speech audio generator pronounced words correctly. The script provided to the avatars was identical to the organic spokespersons. The videos were edited in the Synthesia platform identical to the edits made in Adobe Premiere Pro for the organic spokesperson videos.

All four videos were identical in script and edits, save for the body and voice delivering the message.

To support the study, Synthesia waived the monthly user fee. No other expectations or involvement occurred between Synthesia and the research.
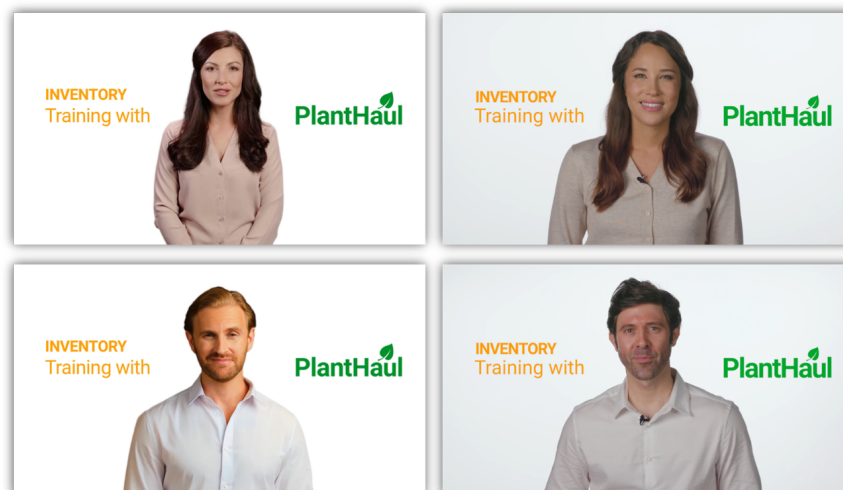
Figure 1. Screenshots of the four onboarding training videos. SHS avatars are on the left. Organic spokespersons are on the right (Actors: Mercy Joy Moore; Steve Olson).

3.3 Participants

To test the research questions, the videos were embedded in a survey sent to working professionals in the United States via SurveyMonkey's online survey participant recruitment tool. The participants solicited through the pool was balanced for gender and age. The questionnaire protocol included a series of quality control questions, such as "There is a code above the video. Please carefully select which code you see," to ensure that only active participants' results were measured. Responses that failed the quality control questions were removed. A total of 314 participant responses were collected. Forty-seven were excluded for failing the quality control question. A total of 267 successful responses were thus collected and analyzed from working professionals across the U.S.

3.4 Survey Tool

Survey participants saw a randomized video at the start of the survey, with roughly one quarter of participants seeing each of the videos. Thus, roughly half of respondents (141) saw synthetic videos and half (126) saw organic videos. Participants were instructed that the survey was testing the viability of a workplace training video. IRB approval was granted to not disclose that the study was testing AI technology so as to garner more authentic responses. This was particularly important in order to test for RQ4 – do participants recognize the SHS avatars as being AI-generated.

After viewing the video, respondents completed a series of questions. These included questions regarding effectiveness of the training and business/brand impression, with answers given on a five-point Likert scale. Participants then answered several quiz questions, designed to test not their perceived learning but rather their actual learning from the video. Additional questions then included demographic questions and the series of quality control questions. A final question asked the participants whether or not they had viewed a video with an organic, actual human spokesperson or if they had seen a version of the video with a synthetic, AI-generated avatar spokesperson.

7

3.5 Data Analysis

For the statistical analysis, a significance level of 0.05 was adopted. That is, findings were determined with a 95% confidence level, reported in the p-values. Independent Samples t-Tests were utilized to compare the mean scores of respondents' evaluations across different categories, such as effectiveness, memorability, and brand impression, based on the type of video viewed – synthetic vs. organic – and the gender of the spokesperson. Additionally, Chi-Square Tests of Independence were employed to examine the associations between categorical variables, particularly in analyzing the relationship between respondents' gender and their accuracy in perceiving the nature of the spokesperson.

Analysis of the data incorporated both One-Way and Two-Way ANOVA within a 2x2 factorial design. This analysis assessed the effects of video type (synthetic vs. organic) and the gender of the spokesperson on training effectiveness and brand perception. The primary aim was to evaluate the influence of video type on these outcomes. However, by including the gender of the spokesperson as a factor in the Two-Way ANOVA, we controlled for any potential impact of gender, ensuring the focus on video type remained unbiased. This methodological strategy allowed the analysis to discern the specific effects of synthetic versus organic videos on learner outcomes while accounting for gender as a secondary, controlled variable. Partial η^2 values are reported in order to give practitioners and scholars a deeper understanding of the degree to which syntheticness is related to a difference in outcomes.

4. RESULTS

4.1 Results Overview

At a high level, the results confirm the hypothesis for each research question. Synthetic humanlike spokespersons can be as effective at generating actual knowledge transfer, at producing the perception of knowledge transfer, and at building a positive brand impression. This is aided and moderated by SHS ability to fake the participant into believing it is an organic human spokesperson. However, a more complex look reveals important distinctions that under the right conditions, the hypotheses for RQ2 and RQ3 would be negated. That is, when the audience perceives their spokesperson to be synthetic, perceived knowledge transfer and overall brand impression are negatively impacted.

4.2 Actual Effectiveness (RQ1)

Respondents were asked three quiz style questions, based on information provided in the training video, and were scored according to whether they got the question correct. Respondents/trainees scored equally as well on this discrete test of effectiveness when they watched the synthetic video as those that watched the organic spokesperson video. Respondents watching the organic training video scored an average of 54.5% while those training with a synthetic video scored an average of 51.54%. The difference was not statistically significant (p = .47). H1, that the SHS will be equally as actually effective, i.e., will produce equivalent quiz scores as the organic human, was confirmed.

Whether the respondent perceived the spokesperson to be an organic human or a SHS did not make a statistically significant difference (Perceived Organic: 56.41%; Perceived Synthetic: 55.56%; p = .85)

4.3 Perceived Effectiveness (RQ2)

H2 was also confirmed – i.e., respondents perceived the synthetic videos to be as effective as the organic videos in training them for the task at hand (conducting inventory at Plant Haul), according to the composite score

(see Table I). The composite effectiveness score was based on the combined average weight of three question Likert scale scores to questions that asked how confident the respondent now felt that they could complete the task (inventory) if they needed to, how memorable the video was, and how clear/understandable the video was. There was meaningful variation across answers with a standard deviation of 0.93 for task confidence and 0.94 for understandable and memorable.

Table I. Averaged weighted scores (based on 1-5 Likert scale) for questions asking the respondent to rate how much they agree with statements that the video was memorable, understandable, and made them confident in completing the requested task, categorized by whether their spokesperson was actually organic or synthetic.

Category	Org.	Synth.	Significance (p)	F	$\eta_\pi{}^2$
Composite Effectiveness Score	3.82	3.73	No (p = 0.34)	0.88	0.0033
Task Confidence	3.87	3.77	No (p = 0.38)	0.75	0.0028
Understandable	4.02	3.89	No (p = 0.28)	1.12	0.0042
Memorable	3.59	3.53	No (p = 0.63)	0.23	0.0008

However, the respondents were also asked to identify, without giving them the accurate answer, whether they perceived their video to be an organic human spokesperson or a SHS avatar. When the trainee believed their spokesperson to be a synthetic, AI-generated avatar, the trainee perceived the training video to be significantly less effective (see Table II). While the overall respondent data confirms H2, those in the group that perceived their spokesperson as synthetic rated its effectiveness significantly lower. The Partial η^2 values suggest a small to moderate effect size, indicating that the perception of the spokesperson as organic or synthetic does have an effect on these outcomes, with statistically significant differences across all categories as indicated by the p-values.

Table II. Averaged weighted scores (based on 1-5 Likert scale) for questions asking the respondent to rate effectiveness questions, categorized by whether they perceived their spokesperson to be organic or synthetic.

Effectiveness Category	Perceived Organic	Perceived Synthetic	Significance (p)	F	$\eta_\pi{}^2$
Composite Effectiveness Score	3.93	3.58	Yes (p = 0.002)	9.02	0.0382
Task Confidence	3.97	3.58	Yes (p = 0.004)	8.30	0.0353
Understandable	4.11	3.77	Yes (p = 0.013)	6.14	0.0264
Memorable	3.70	3.38	Yes (p = 0.020)	5.40	0.0233

4.4 Brand Impression (RQ3)

H3 was likewise confirmed when looking at the totality of the data. Synthetic videos produced the same overall impression of the brand as the organic videos (see Table III). This was true across both the composite average and the three individual brand impression questions. Those questions were five-point Likert scale questions, asking respondents to rate their agreement with three statements that Plant Haul as a business seems competent, the business seems trustworthy, and that the business seems like a place in which the respondent could feel like they belong.

Table III. Averaged weighted scores (based on 1-5 Likert scale) for questions asking the respondent to rate their impression of Plant Haul, categorized by whether their spokesperson was actually organic or synthetic.

Brand Impression Category	Org.	Synth.	Significance (p)	F	η_{π}^2
Composite Brand Impression	3.82	3.77	No (p = 0.58)	0.30	0.0011
Competence	3.92	3.91	No (p = 0.89)	0.01	0.0000
Trustworthiness	3.89	3.80	No (p = 0.42)	0.64	0.0024
Belonging	3.66	3.60	No (p = 0.63)	0.23	0.0008

However, when the trainee respondent believed their spokesperson to be a synthetic, AI-generated avatar, the trainee garnered a significantly less favorable overall view of the business brand (see Table IV). Thus, like with H2, while the overall average scores were equivalent, confirming the hypothesis, sectioning out the condition of perceiving the avatar as synthetic would produce data that negates H3. The difference in perceived competence and perceived trustworthiness were statistically significant, while the perceived difference in ability to feel like the respondent belongs at the business was not statistically significant.

The Partial η^2 values suggest a small effect size for the composite brand impression score, competence, and trustworthiness, indicating that the perception of the spokesperson as organic or synthetic does have an effect on these outcomes, with statistically significant differences for the first three categories. However, the effect size for belonging is very small and not statistically significant, suggesting that perceptions of belonging are not as strongly influenced by the perceived nature of the spokesperson.

Table IV. Averaged weighted scores (based on 1-5 Likert scale) for questions asking the respondent to rate their impression of Plant Haul, categorized by whether they perceived their spokesperson to be organic or synthetic.

Brand Impression Category	Perceived Organic	Perceived Synthetic	Significance (p)	F	η_{π}^2
Composite Brand Impression	3.92	3.68	Yes (p = 0.039)	4.28	0.0185
Competence	4.04	3.75	Yes (p = 0.016)	5.80	0.0250
Trustworthiness	3.98	3.70	Yes (p = 0.033)	4.56	0.0197
Belonging	3.73	3.60	No (p = 0.34)	0.88	0.0039

4.5 AI Awareness (RQ4)

Synthesia's AI-powered humanlike avatar system is effective at disguising its synthetic nature. H4 was confirmed, hypothesizing that less than half would notice that it was an avatar. In fact, less than one-third of respondents knew, without being told, that their synthetic spokesperson was actually an AI-generated avatar. Over half (53.9%) incorrectly believed that they were watching an actual human speak to them, with another large minority (14.89%) being unsure (see Table V).

While a sizable minority who viewed a human spokesperson also answered the question incorrectly, that may be due in part simply to suspicion caused by the unexpected question being asked at the end of a survey that had not previously mentioned the possibility of AI avatars.

Table V. Percentage of respondents who correctly and incorrectly perceived the organic/synthetic nature of their video spokesperson.

Video Type	Correctly Perceived	Incorrectly Perceived	Not Sure
Organic Spokesperson Videos	73.81%	12.70%	13.49%
Synthetic Avatar Videos	31.21%	53.90%	14.89%

4.6 Demographic Features

Demographic features of neither the respondents nor the spokespersons/avatars appear to have had a meaningful impact on the results of the study. The gender of the spokesperson (both organic and synthetic) did not have a statistically significant impact on how respondents viewed the training effectiveness or the brand impression garnered by the video. This suggests that future studies may not need a 2x2 male/female structure to be reliable. The survey also collected demographic data on the respondents. Contrary to previous research on male/female attitudinal responses to synthetic speakers (Gong and Nass, 2007), gender of the participant did not have a statistically significant impact on how they responded.

Other demographic categories did have statistically significant impacts on average scores across effectiveness and brand impression questions, but those impacts applied across both organic and synthetic video types. Those categories were age and household income. Older respondents, for example, especially those in the 45 to 60 years age group, tended to rate the videos higher when compared to younger respondents, but that was true in both synthetic and organic categories.

5. DISCUSSION

5.1 AI Avatar Viability for Informative Communication

The advent of high-fidelity AI-driven avatars marks a pivotal shift in the landscape of video-based training across corporate and other professional educational spaces. The efficacy of synthetic humanlike avatars in training videos presented in this study demonstrates that SHS avatars can operate on par with organic human spokespersons. Simply put, learning and development managers designing content with an AI-driven synthetic avatar are justified in considering that choice. The positive practitioner sentiment and cross-industry adoption appear to be warranted. The data in this study demonstrates that SHS videos can be equally as effective as organic corollaries. When respondents did not know they were watching an AI avatar, synthetic videos produced results just as strong as those from human counterparts. Even when detected and lower, the overall scores were still generally positive. This underscores the potential of AI avatars to serve as competent facilitators in both corporate training modules and educational content delivery. From the perspective of AILT, the SHS tool appears to be a viable option across a variety of applications. When connected to adaptive learning journey tools, for example, these avatars may also pose great potential for virtual e-mentoring (Neely et al., 2017) and adaptive learning (Wilkens, 2020).

The tool scored very well across all of the test strategic learning goals outlined by McKinsey – producing an equitable brand impression and perception of effectiveness and thus likely engagement. This viability of avatars as the video spokesperson becomes even stronger, though, when the risk of synthetic detection is irrelevant – that is, when the goal of the video is expanding employee capabilities through discrete knowledge training. If being able to get quiz questions right regardless of one's perception of the video's effectiveness is the goal of the application, then the SHS approach is virtually without comparative risk.

The ability of AI to mimic human instructional delivery not only broadens the scope of how training can be conducted but also introduces a level of flexibility and scalability previously unattainable with traditional video production methods. Cost-effectiveness coupled with high production efficiency will likely make AI

avatars a mainstay in training scenarios, especially in contexts where rapid content creation and updating are necessary.

5.2 The Impact of the Fake on Actual Outcomes

It should not be lost on the practitioner instructional designer that over half of respondents did not know they were watching an AI avatar when they were. With continued advancements being made in this app space, those numbers are almost guaranteed to rise exponentially. This is particularly likely as multi-million dollar investments and Fortune 500 adoption continue (Bergen, 2023). That said, the perceived effectiveness and brand impression scores were significantly lower from those that did identify their spokesperson as an AI avatar. Given the value of these features, including facilitating learner interest in continuing engaging the technology because they find it to be a satisfying experience (Kashive et al., 2020), it is essential for the creator to take these risks seriously. While the apps continue to add additional features, like more natural voices, gestural animations, and additional angles, the video creator should nonetheless take care to edit in a manner that does not draw unnecessary attention to the synthetic nature of the spokesperson. Attention to the expanded options will not only help avoid provoking AI-rejection but will also allow the creator to take advantage of the power that instructional agent gestures have in further aiding learning (Craig et al., 2015), even when the gestures are performed by a synthetic agent.

Given the implications of TRA and AILT, this data is essentially important for learning leaders to grapple with. Both individual attitudes and social pressures around the use of SHS avatars could radically shift if the prevailing use was rendered in poor fashion, drawing attention to the artifice. This may be especially problematic when the synthetic nature is not announced, not only not achieving immediate realness but also producing active suspicion. Even worse, when the audience is confident that it is artificial, one can reasonably postulate that the response may escalate past suspicion into hostility. Learning leader practitioners should take care not to over-indulge in the expediency of the tool at the expense of its elegance. Tool creators likewise would do well to heavily encourage the use of templates and diction edits that would minimize viewer speculation.

This conundrum of being able to fake the audience but not wanting to get caught, raises interesting questions surrounding the announcement of syntheticness. This study did not announce to the viewer that their trainer was an AI avatar, but that may be an option that mitigates the negative impact of syntheticness. Previous research indicates that human users have been able to form intimate social relationships with AI chatbots (Brandtzaeg et al., 2022), so perhaps awareness of syntheticness is not an inherently negative feature, when it is done in a forthright manner. This may prevent a dramatic shift from user acceptance to rejection when the fake is suspected by never trying to fake at all. An opening phrase like "Hi, I'm Noah, your digital avatar for Plant Haul, ready to teach you about conducting inventory" may have shifted the schema by which respondents interpreted the artificial nature of delivery. Owning up to syntheticness in such a manner may be a way to curtail criticism. Future study will be required to address this possibility.

5.3 Limitations and Future Study

This study is not intended to offer a wholesale statement on the replacement value of avatars over human counterparts. On the contrary – the experimental constraints demonstrate the vast array of potential the human still has compared to the avatar. The human actors, for example, were placed in a sterile studio and were instructed not to gesture or move, so as to test the avatars on the avatars' terms. Other limitations to the study include only testing short-term knowledge retention and the use of only one, generally clear, informative business script. Future studies could expand and complicate the scenarios beyond those limitations.

With the data presented here, this study offers a foundation for a wide array of future studies in this burgeoning new AI-driven space. Future studies, for example may place these videos within a more explicit

scholastic educational context where an educator has a more prolonged relationship with students. Other studies may longitudinally track audiences' evolving relationships with AI-driven content, with particular focus on avatars. As computing speeds advance and the possibility for live humanlike avatar interaction becomes possible, additional studies will be needed to parse out the effectiveness and implications of those scenarios as well.

It will be important that other studies also take a more theoretical and less empirical approach. As the technology improves and the wariness produced by the uncanny valley (Kätsyri et al., 2017; Stein and Ohler, 2017) no longer exists as a deterrent against widespread avatar use, sociological and ethical inquiries into what our corporate and social cultures look like with rampant avatar use will be important.

6. CONCLUSION

This study provides important data needed for learning leaders considering the use of synthetic features in their work. It not only provides a useful application of TRA in the wake of AILT needs to the specific questions posed by learning leaders as they create content, but it also provides a distinct baseline for our understanding of synthetic options now available to learning content creators. Synthetic representations now possess many communicative effectiveness equivalencies, from knowledge transfer acumen to social presence salience, that had previously been at the disposal only of actual organic humans employed to fulfill learning spokesperson roles. Because of AI-powered advancements in SHS avatar technology – the human-based physiognomy, humanlike vocal tone and dynamics, and sufficiently synchronized mouth movements to the phonic sounds of the voice – this innovative technology has achieved a sufficient level of success in bypassing the uncanny valley, vindicating the corporate learning leader's robust interest in the tool for employee training purposes.

Most practically, and with implications across disciplines, this study establishes fundamental data while justifying even more potential exploration in the emerging field of AI-generated content activations. In the context of training videos, it unveils a landscape full of potential for both practitioners, theorists, and empirical scholars. The findings outlined in this study suggest that SHS avatars, now often undetectable, can rival human spokespersons in delivering training content. While challenging traditional human-centric educational paradigms, this provides data-driven justification for industry trainers to seriously consider using this advancing technology to create instructional and informative videos. At this same time, though this study highlights the readiness of SHS AI avatars to act as viable substitutes for corporate human instructors, it also underscores the importance of mindful implementation, particularly in acknowledging the impact of perceived artificiality on learners' reception. As AI continues to advance across creative contexts and modalities, our awareness of the essential components of training, human and otherwise, will need to continue to likewise advance. This study lays the foundation for further exploration of our complex organic/synthetic dynamic.

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