



The dis-matching effect: How argumentation type and message design influence persuasion for emerging technology products

Malgorzata (Mag) Karpinska-Krakowiak^{a,e,*}, Wojciech Trzebinski^b, Heejin Lim^c, Beata Marciniak^d

^a University of Lodz, Narutowicza 59a, University of Lodz, 90-131 Lodz, Poland

^b SGH Warsaw School of Economics, Madalińskiego 6/8, 02-513 Warsaw, Poland

^c University of Tennessee, Knoxville, 1215 W. Cumberland Ave, Knoxville, TN 37934, USA

^d SGH Warsaw School of Economics, Al. Niepodległości 162, 02-554 Warsaw, Poland

^e European University Viadrina, Grosse Scharnstr. 59, 15230 Frankfurt (Oder), Germany

ARTICLE INFO

Keywords:

Argumentation type
Concrete versus abstract argumentation
Emerging technology products
Message design
Narrative ads
Psychological temporal distance

ABSTRACT

Emerging technology products, like AI-driven goods or electric vehicles, have the potential to disrupt markets. However, little is still known about how to advance their adoption through advertising. Therefore, we conducted three experiments to explore the persuasive effects of argumentation used in an ad (argumentation type: abstract/concrete) and the design of an ad (message design: narrative/non-narrative) for emerging technology products. Previous studies have proposed a matching principle in advertising, suggesting that abstract argumentation is more persuasive when consumers feel psychologically distant from the message subject, while concrete argumentation is more persuasive when they feel psychologically close to it. However, our research reveals that the matching principle applies to established technology products (Study 1), while the dis-matching principle (aligning abstract argumentation with low psychological distance and concrete argumentation with high psychological distance) is more effective for emerging technology products, particularly when ads are designed in a narrative format (Studies 2–3).

1. Introduction

Emerging technology products are novel products that can potentially disrupt or transform existing markets through advancements in technology or science-based innovation (Seegerbarth, Backhaus, & Woisetschlaeger, 2019). These products, such as electric and autonomous vehicles, 3D printers, and AI-driven goods, remain at the introductory stage of adoption, but they have the power to change our lives significantly. For example, in 2022, electric cars were still at the introductory stage with a penetration rate of 2.2% globally (Kopestinsky, 2022), but they already emerged as technology-driven products with the potential to revolutionize transportation and make it more sustainable. Similarly, 3D printing can disrupt the manufacturing industry and allow for the individual creation of highly customized items. Smart home technology can transform the way we live, enabling us to control our homes remotely using AI-driven devices. Therefore, the timely integration of emerging technology products into consumers' daily routines is

highly important to reveal their full transformative potential (Martin, Javalgi, & Ciravegna, 2018).

However, consumers tend to be hesitant when adopting new products, particularly those that are complex and uncertain (Arts, Frambach, & Bijmolt, 2011). The success rate for new product introductions is <25% (Evanschitzky, Eisend, Calantone, & Jiang, 2012), making it challenging for companies to achieve widespread acceptance and usage of emerging technology products compared to established ones (Seegerbarth, Backhaus, & Woisetschlaeger, 2019). To overcome this challenge, marketers play a crucial role in endorsing the adoption of products through advertising. Their responsibility includes developing advertising messages that educate and persuade consumers. In their advertising endeavors, marketers can utilize a variety of ad components, such as message design (i.e., the structure, format, and style of an ad) and argumentation type (i.e., the type of reasoning used in an ad to support a particular product/brand claim). By employing appropriate ad design and argumentation, marketers can help overcome barriers to

* Corresponding author.

E-mail addresses: malgorzata.karpinska@uni.lodz.pl (M.(M. Karpinska-Krakowiak), wtrzebi@sgh.waw.pl (W. Trzebinski), hlim@utk.edu (H. Lim), bmarci@sgh.waw.pl (B. Marciniak).

<https://doi.org/10.1016/j.jbusres.2023.114207>

Received 27 December 2022; Received in revised form 1 June 2023; Accepted 4 August 2023

Available online 11 August 2023

0148-2963/© 2023 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

adoption and encourage greater consumption of emerging technology products.

The effectiveness of marketers in developing persuasive advertising messages for emerging technology products is particularly important given the limited empirical investigation into whether advertising contributes to new product adoption. Previous research has mainly focused on identifying barriers and success factors for new product introductions (see a meta-analysis by [Evanschitzky, Eisend, Calantone, & Jiang, 2012](#)), as well as the characteristics of the adopter and adoptee (see a meta-analysis by [Arts, Frambach, & Bijmolt, 2011](#)). However, limited empirical investigation has been conducted on whether advertising facilitates new product adoption, and the results have been inconclusive. While some studies show that advertising does not increase sales for new brand introductions ([Ataman, Mela, & van Heerde, 2008](#)), other research indicates that more intensive advertising can foster the trial probability of a new product ([Steenkamp & Gielens, 2003](#); [Bruce, Foutz, & Kolsarici, 2012](#); [Martin, Javalgi, & Ciravegna, 2020](#)). Despite these findings, the question of *how* to persuasively advertise emerging technology products remains largely unanswered, posing an important research gap. Specifically, little is known about how to design an advertising message, and what argumentation to use, to facilitate the timely adoption of emerging technology products by the majority of consumers. To address this research gap, we examine the persuasive effects of argumentation type (abstract versus concrete) and message design (narrative versus non-narrative) for emerging technology products.

Our work offers two important contributions to business theory and practice. First, we draw upon the construal level theory and examine the persuasiveness of two argumentation types for messages that advertise emerging technology products: abstract and concrete. Abstract arguments emphasize the general benefits of using the advertised product (e.g., “Electric cars reduce foreign oil dependence and enhance energy security”), while concrete arguments focus on specific attributes of the product (e.g., “Electric cars have lower center of gravity and instant torque”). Previous research, based on the construal level theory, suggests a matching principle that forms a guideline for creating persuasive messages in advertising: marketers should use abstract argumentation when consumers feel psychologically distant from the message subject, while concrete argumentation should be used when consumers feel psychologically close to it (e.g., [Trope & Liberman, 2000](#); [Jin & He, 2012](#); [Rim, et al., 2015](#); [Lee, 2019](#); [Wang & Lehto, 2020](#)). We extend prior work by revealing that the opposite principle holds true for emerging technology products. Specifically, we found that concrete argumentation became more persuasive when aligned with high psychological temporal distance, whereas abstract argumentation became more persuasive when aligned with low psychological temporal distance. We refer to this new phenomenon as *the dis-matching effect* (see [Table 1.](#)).

Our second contribution to business theory and practice lies in examining message design for advertising emerging technology products. Specifically, we test the effectiveness of narratives in encouraging the adoption of these products. The narrative design utilizes story-like formats, incorporating characters, plots, and settings ([Brechman & Purvis, 2015](#); [Karpinska-Krakowiak & Eisend, 2020](#)). Previous studies have shown that ads designed with narratives enhance persuasion by transporting consumers to the narrated scene ([Kang, Hong, & Hubbart, 2020](#); [Lim & Childs, 2020](#); [Kim, Shoenberger, Kwon, & Ratneshwar, 2022](#)). This narrative transportation should be particularly effective in promoting emerging technology products because it enables consumers to construct vivid mental images of using a product ([Van Laer, Feierisen, & Visconti, 2019](#)), which may otherwise be difficult to visualize. Our study extends prior knowledge by demonstrating how the narrative design of an ad works for emerging technology products, particularly when combined with a specific type of argumentation. Importantly, we reveal that narratives contribute to the dis-matching effect, and we offer a possible mechanism behind this effect (i.e., narrative transportation

Table 1
Matching vs Dis-matching principle: An overview.

		Argumentation type	
		Abstract argumentation (i.e., general benefits such as “Thanks to this product, your time is well organized”)	Concrete argumentation (i.e., detailed attributes such as “This product contains advanced calendar management options”)
Psychological temporal distance	High (i.e., distant future events)	Matching principle	Dis-matching principle
	Low (i.e., near future events)	Dis-matching principle	Matching principle

Note: Throughout the manuscript, when discussing matching/dis-matching, we use either the term “principle” or “effect”. The dis/matching principle is a guideline for creating persuasive messages in advertising, while the dis/matching effect represents the empirical outcome of applying this principle in practice. Specifically, the dis/matching principle suggests the type of argumentation that should be used when a consumer experiences a particular level of psychological temporal distance. On the other hand, the dis/matching effect indicates whether the application of the dis/matching principle influences consumers’ attitudes and/or behaviors towards the advertised product.

reduces psychological temporal distance).

In summary, our work provides a comprehensive perspective on the effectiveness of advertising for emerging technology products by examining multiple ad components, such as message design and argumentation type. This approach has been neglected in prior empirical studies (see [Lee, 2019](#), for a discussion). The paper is organized as follows: first, we discuss the matching principle in construal level theory as demonstrated in the literature. Second, we argue why the dis-matching principle is more appropriate for emerging technology products while the matching principle is more suitable for established technology products. We use schema theory to support our argument. Third, we discuss how narratives, as a message design, can contribute to the dis-matching effect by activating the mechanism of transportation and lowering psychological temporal distance. Finally, we present three experimental studies to test our arguments. Study 1 shows a matching effect for established technology products; Study 2 demonstrates a dis-matching effect for emerging technology products; and Study 3 replicates the findings of Study 2.

2. Theoretical background

2.1. Argumentation type and psychological temporal distance

Psychological distance refers to the perceived degree of separation between the self and some target, such as a product or event, and it can be measured along several dimensions, including spatial, social or temporal distance ([Trope, Liberman, & Wakslak, 2007](#)). Psychological temporal distance reflects how far away in terms of time one feels about (or considers) a particular object, experience, or phenomenon ([Trope & Liberman, 2000](#)). For example, if one perceives something as likely to occur in a remote future or thinks of a future point in time, the psychological temporal distance is high; however, if one expects something to happen soon or imagines proximal events, the psychological temporal distance is low.

According to the construal level theory, the more psychologically distant a target object is, the more abstract mental representations one holds about this object ([Trope & Liberman, 2000](#); [Trope, Liberman, & Wakslak, 2007](#); [Soderberg, Callahan, Kochersberger, Amit, & Ledgerwood, 2015](#); [Lee, 2019](#)). For example, if we consider something as unlikely to happen soon (high temporal distance), we will be using rather abstract features and general benefits to describe it (high construal); if

we consider something as highly likely to happen soon (low temporal distance), we will instead focus on concrete attributes in our descriptions (low construal). These findings gave rise to a matching principle in advertising (Lee, 2019; see Table 1) that guides what type of argumentation one must employ in a message to make it persuasive. Practically, the matching principle suggests that using concrete arguments (e.g., detailed attributes of a product) in an ad is more persuasive when the audience feels psychologically close to the advertised product, while abstract arguments (e.g., general benefits and outcomes from using the product) are more persuasive when shown to individuals who feel more psychologically distant from the advertised product. This effect has been empirically corroborated in diverse contexts, such as service evaluations (Jin & He, 2012), destination advertising (Wang & Lehto, 2020), social media (Kim, Sung, Lee, Choi, & Sung, 2016), political communication (Kim, Rao, & Lee, 2009), charity advertising (Xu, 2019), or considerations about social events (Trope & Liberman, 2000) and images (Kim, Lee, & Choi, 2019).

Despite empirical evidence supporting the matching principle in academic literature, many emerging technology producers appear to overlook or deliberately ignore it in designing their advertisements. A good example can be seen in Audi's recent commercial for its electric vehicle, the e-tron, which uses abstract argumentation to promote the product ("Fall in love with home charging"¹). However, in an older commercial for the same product, Audi used more concrete arguments to persuade consumers ("Not for you"²). A few years ago, the psychological distance of consumers towards electric vehicles was higher; thus – according to the matching principle – abstract arguments would have been more persuasive, but Audi decided to use concrete ones.

In addition, many scholars did not find support for a matching principle. For example, Hu and Winter (2019) did not observe any interaction effect between psychological distance and abstract (versus concrete) mindsets on product evaluations. Lee et al. (2021) demonstrated that abstractly and concretely framed messages generated similar levels of persuasion when the psychological distance was low. Elliot et al. (2015) revealed that people were more likely to invest in a psychologically distant company when it was advertised with concrete language. Connors et al. (2021) investigated social forms of psychological distance, and they found that the matching principle did not apply to every type of product. For example, they argued that "search" products (i.e., no prior interaction is needed to form a judgment about such product; e.g. jewelry) might require an argumentation that is dis-matched with psychological distance; however, some of their results were only marginally significant. Such findings suggest that a matching principle might not be effective for every product category.

We propose that a matching principle may work well for established technology products but should be inverted for emerging ones. This proposition is based on schema theory, which suggests that people organize knowledge into cognitive frameworks known as schemas. A schema is a knowledge structure about a particular stimulus or concept, reflecting its attributes and how those attributes are linked together and valued (Fiske & Taylor, 1991). A strong schema contains many well-specified and valued attributes about an object or phenomenon, while a weak schema incorporates fewer and loosely related attributes (Schutzwohl, 1998). Due to their newness, emerging product categories lack strong and elaborate schemas in consumers' minds. For instance, a self-driving car has considerably fewer and less specified meanings stored in one's memory than a regular gasoline car. In other words, a self-driving car has a weaker schema (such as "a car that can drive itself with minimal human input"), while a gasoline car has a stronger schema (such as "a car consisting of hundreds of moving parts that convert gasoline into energy to power the vehicle, allowing for acceleration, steering, and braking. It also has various attractive features such as air

conditioning, audio systems, and safety features including seat belts and airbags").

Schema strength has been shown to enhance persuasion as it provides a framework to assimilate new incoming information effectively (Meyers-Levy & Tybout, 1989; Halkias & Kokkinaki, 2017). Emerging technology products, lacking strong schemas, may struggle to accommodate new information. In such cases, an advertising message with an appropriate type of argumentation can serve as a viable source of information that helps create a new schema or strengthen an existing one. Specifically, concrete argumentation can help create a new schema by providing a new structure of attributes (e.g., "electric cars have instant torque"), while abstract argumentation can strengthen a schema by adding value to those attributes (e.g., "the instant torque of electric cars enables rapid acceleration"). We propose that for an emerging technology product that is temporally distant, creating a new schema may be necessary (thus, a message should employ concrete argumentation), while for an emerging technology product that is temporally close, strengthening an existing – yet weak – schema may be required (thus, a message should use abstract argumentation).

In sum, for a message to become persuasive, a matching principle should be applied to established technology products because they have relatively strong schemas. Conversely, a dis-matching principle should be applied to emerging technology products because they are relatively new and have considerably less specified schemas due to their novelty. Therefore, emerging (versus established) technology products, as well as the dis-matching (versus matching) principle, serve as moderators in our conceptual model:

H1. For established technology products, the matching principle is more effective than the dis-matching principle: Specifically, (a) when the psychological temporal distance to a product is high, abstract argumentation is more persuasive than concrete argumentation, while (b) when the psychological temporal distance is low, concrete argumentation is more persuasive than abstract argumentation.

H2. For emerging technology products, the dis-matching principle is more effective than the matching principle: Specifically, (a) when the psychological temporal distance to a product is low, abstract argumentation is more persuasive than concrete argumentation, while (b) when the psychological temporal distance to a product is high, concrete argumentation is more persuasive than abstract argumentation.

2.2. Message design and psychological temporal distance

A message design is a strategic vehicle or framework for communicating or otherwise presenting a given topic, and narratives have become a commonly used approach in designing persuasive messages, such as advertisements (Lee, 2019, p. 322). A narrative is a story, and it thereby provides a structure for a message. For example, a narrative depicts a causal series of events with an inciting incident, turning point and closure at the end; it presents protagonists, adversaries, and conflicts to be resolved by the main characters (Lim & Childs, 2020). Thus, the narrative design of a message is often contrasted with a list-based design, using just bullet points or a list of arguments to convey information (Mattila, 2002; Karpinska-Krakowiak & Eisend, 2020).

While many previous studies have demonstrated the positive effects of narratives on persuasion (e.g., Kim, Shoenberger, Kwon, & Ratneswar, 2022; Lim & Childs, 2020), meta-analytical investigations have yielded inconclusive findings. For example, a meta-analysis by Oschatz and Marker (2020) demonstrates a significantly stronger persuasive impact of narratives than non-narratives, while a meta-analysis by Zebregs et al. (2015) reveals that the factual (statistical) message is more persuasive in changing beliefs and attitudes than a narratively-designed message. Yet, a meta-analysis by Shen et al. (2015) shows a surprisingly small effect of narratives ($r = 0.063$). These results suggest that the impact of narratives on persuasion is complex, context-dependent, and requires further investigation to fully understand its effectiveness for

¹ <https://youtu.be/Mt6HJBAbSYg>.

² <https://youtu.be/eUKvKz11-bU>.

different categories of products (see e.g., Yin, Tang, Chiu, Hsieh, & Lai, 2023).

We propose that narratives might work particularly well for emerging technology products because narratively designed messages (unlike list-based messages) activate a mechanism called transportation which has the potential to reduce psychological temporal distance. Specifically, transportation is unique to narratives; it is a cognitive process whereby the recipient of a story becomes absorbed, immersed or otherwise mentally transferred into a narrative presented by a storyteller (Kim, Lloyd, & Cervellon, 2016; Van Laer, Feiereisen, & Visconti, 2019; Lim & Childs, 2020). Transportation involves an experience of “entering a world” depicted in the narrative; thus, it makes the storyline and its components more realistic and vivid. For example, Balakrishnan and Sundar (2011) demonstrated that transportation in narrative video games increased the sense of spatial presence, while Liu and Yang (2020) found that transportation made health threats associated with e-cigarette consumption more temporally imminent. Based on these findings, we predict that narratives (vs non-narratives) will induce transportation, resulting in the increased vividness of the arguments used in the message. This transportation should help viewers or readers visualize possible experiences with a product and reduce the psychological temporal distance to it. In other words, immersion into a story should make a product temporally closer (i.e., it should create the impression that the product will soon become common and widely used in the market). Therefore, we propose the following as a complement to hypotheses H1 and H2 (see Fig. 1.):

H3: Narrative transportation mediates the effects of a narrative (vs non-narrative) message on psychological temporal distance in a way that a narrative message (a) leads to higher transportation than a non-narrative message, and (b) the higher narrative transportation is, the lower psychological temporal distance is.

3. Research design

To test our hypotheses, we conducted four studies. A pilot study was designed to select emerging and established technology products for further experiments. Study 1 was a between-subjects online experiment that examined the matching effect using an established technology product at the majority stage of adoption (i.e., a robot vacuum cleaner). Studies 2 and 3 were designed to experimentally investigate the dis-matching effect and utilized an emerging technology product at the introductory adoption stage (i.e., electric cars). In each experiment, we

manipulated message design and argumentation type while such process variables as transportation and psychological temporal distance were measured.

4. Pilot study

A pilot study was a survey designed to select two technology-driven products that would differ in their level of emergence (i.e., one emerging and one established technology product). We operationalized emerging technology products based on two characteristics: (1) they are at the introductory stage of adoption, indicated by a low market share; but (2) they are relatively well-known. Following the diffusion of innovation theory (Rogers, 1983), products at the introductory stage have a market share of 2.5%, while the (early) majority stage begins above a 16% market share. To determine suitable products, we examined the penetration rates for various technology products (see Online Appendix A). We identified three categories with differing market shares: electric vehicles, robot vacuum cleaners and coffee-making machines. Electric vehicles, for instance, have been experiencing a growth of global penetration rates, yet their sales remain below the sales of gasoline cars, accounting for <3% of automobile sales as of the first quarter of 2020 (Gersdorf, Schaufuss, & Schenk, 2020). In several European countries, electric vehicles account for <10% of all new car registrations (Razyadauskas, 2021). These statistics demonstrate that electric vehicles are at the introductory stage but have significant growth potential because they are supported by increasing political regulations and scholarly interest (Secinaro, Calandra, Lanzalonga, & Ferraris, 2022).

A second product category we chose was robotic vacuum cleaners (e.g., iRobot Roomba, Wyze, or Roborock). This product is at the early majority adoption stage with a 17.7% market share (Statista, 2022), which is distinctively higher than that of electric vehicles. Robotic vacuum cleaners have relatively high penetration rates across European and American markets (Kuokkanen, 2021).

As a control (non-emerging) category, we included coffee-making machines, such as drip-brew or espresso machines. Coffee makers have been in the market for decades and are widely used in almost every household. In sum, electric vehicles, robotic vacuum cleaners and coffee-making machines differ in penetration rates. Yet, to better establish their level of emergence, it was necessary to assess consumer perceptions of familiarity and experiences with these products.

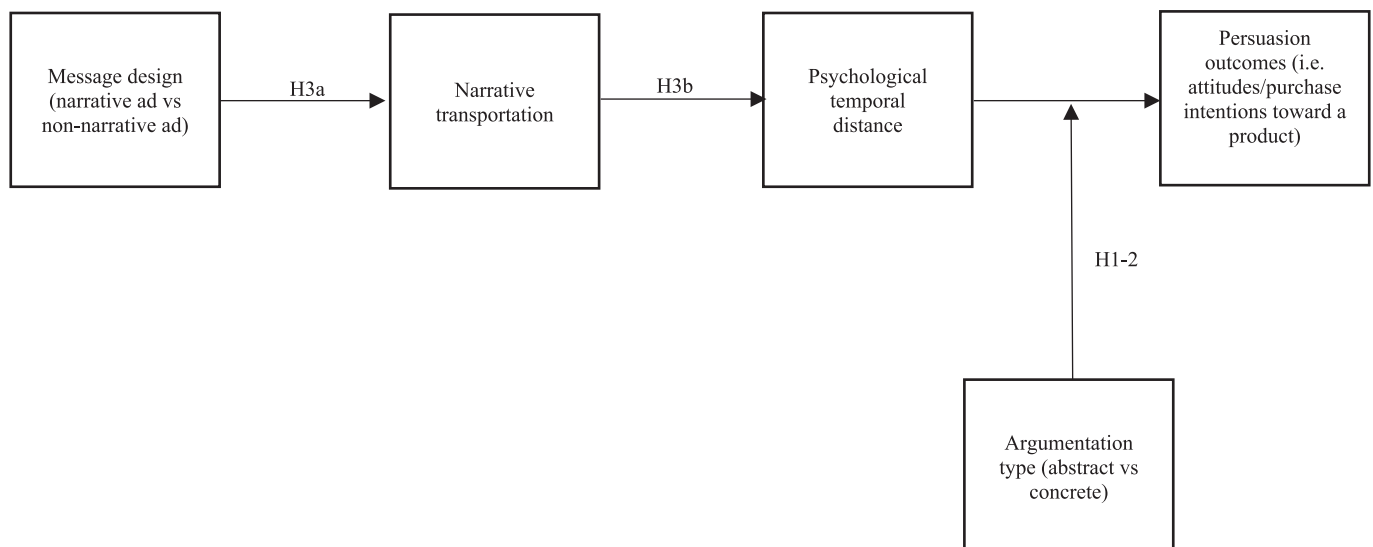


Fig. 1. Conceptual model.

4.1. Procedure and measures

We recruited 100 participants from a consumer panel on [Prolific.co](#), a research company. As the penetration rates of a product category may differ across countries, we introduced location and nationality as the recruitment criteria. Specifically, we invited English-speaking residents from two European countries – the UK and Poland – to participate in our survey. Our final sample comprised 48 Poles and 52 British citizens between 18 and 60 years of age ($M_{\text{age}} = 31.13$; 53% men, 45% women). Each participant was presented with questions about each product selected for the study (i.e., a robotic vacuum cleaner, an electric car and a coffee-making machine); however, the order of products was randomized.

To measure familiarity with a product category, we employed a four-item scale from [Keltng, Duhachek and Whitley \(2017\)](#); $\alpha > 0.91$). To further explore perceptions about the three products selected for our study, we used a variety of additional scales. For example, we assessed the extent to which a product category was viewed as affordable, low-priced and often accompanied with special deals or sales ($\alpha > 0.73$; the scale adapted from [De Langhe, Fernbach, & Lichtenstein, 2016](#)). We also measured perceptions of innovativeness with a four-item scale ($\alpha > 0.78$) borrowed from [Fu, Jones and Bolander \(2008\)](#). We used seven-point scales throughout the questionnaire.

Additionally, we aimed to identify two product categories with varying levels of uncertainty regarding their market availability. We reasoned that a product with a high level of uncertainty about its adoption by the majority of consumers should be considered highly emerging. Since there was no existing scale that captured this phenomenon, we developed five statements and asked our respondents to indicate the extent to which they agreed with them (e.g., “It is hard to predict when [*name of the product category*] will become available to everyone”; see [Online Appendix A](#); $\alpha > 0.79$). We conducted three separate exploratory factor analyses for each of the three product categories. In each case, the items loaded on one factor, explaining $> 56\%$ of the variance for robotic vacuum cleaners and $> 72\%$ for electric cars and coffee machines.

4.2. Results

We conducted a series of repeated measures analyses of variance (ANOVAs) with Bonferroni corrections for multiple comparisons (see [Online Appendix A](#) for descriptive statistics). Different measures of perceptions about the products were included in the model as a within-subject factor, while the country of residence (the UK vs Poland) was considered a between-subject factor. We found the main effects of product categories on perceptions of familiarity ($F(1,98) > 9.43$, $p < .01$), affordability ($F(1,98) > 112.94$, $p < .01$), innovativeness ($F(1,98) > 53.90$, $p < .01$) and uncertainty about the adoption of a product by the majority of consumers ($F(1,98) > 26.29$, $p < .01$). Specifically, participants were most familiar with coffee-making machines, but electric cars and robot vacuum cleaners received similarly high familiarity responses ($F(1,98) = 0.29$, $p = .58$). Furthermore, participants perceived coffee-making machines as the least innovative, but electric cars and robot vacuum cleaners received similar responses regarding innovativeness ($F(1,98) = 0.96$, $p = .32$). The most affordable were coffee-making machines, followed by robotic vacuums and electric cars. This pattern of results was comparable in both countries, with one exception: there was a significant interaction effect between product category and country of residence on uncertainty about the adoption of a product by the majority of consumers (electric cars were viewed as the most uncertain in terms of their market adoption, particularly by residents of Poland; $F(1,98) = 13.86$, $p < .01$).

In sum, electric cars can be considered an example of a highly emerging technology product category. At the time of our research (i.e., 2021–2022), they were at the introductory stage of adoption with low penetration rates but relatively high familiarity. On the other hand,

robot vacuum cleaners were at the majority adoption stage with higher market penetration rates, along with high familiarity and affordability perceptions. Therefore, for further testing, we selected robot vacuums as an established technology product category (Study 1), while electric cars were used as an emerging product category (Studies 2–3). We did not include coffee-making machines because they were perceived as the least innovative. Thus, we were concerned that they might not align with our operationalization of technology-driven products.

5. Study 1: Matching effect for established technology product

To test hypotheses H1 and H3, we conducted an online experiment with a between-subject 2 (abstract vs concrete arguments) \times 2 (narrative vs non-narrative ad) factorial design. We recruited 281 English-speaking UK residents on [Prolific.co](#) (70% women, 28% men; between 22 and 52 years of age; $M_{\text{age}} = 35.99$).

5.1. Stimuli development

We developed four advertisements about a fictitious model of robot vacuums, VAC (see [Online Appendix B](#)). First, we created a list of three abstract and three concrete arguments about VAC. Examples of advertising arguments that we used include “You can get all dust mites and other allergens removed by VAC” for the abstract argument condition (i.e., general benefits) and “VAC is equipped with anti-allergic filter systems” for the concrete argument condition (i.e., detailed attributes). Next, we manipulated narrative and non-narrative ads in a manner similar to prior research on storytelling ([Mattila, 2000](#); [Mattila, 2002](#); [Wentzel, Tomczak, & Herrmann, 2010](#); [Karpinska-Krakowiak & Eisend, 2020](#)). Specifically, in the narrative condition, we embedded the list of arguments (i.e., either abstract or concrete) into a storytelling format, including an inciting incident, conflict, characters, and closure at the end. In the non-narrative condition, we designed the same list of arguments (i.e., either abstract or concrete) in the form of a short argumentative lecture.

5.2. Procedure and measures

We randomly assigned participants to one of the four conditions. First, they were presented with an advertisement for a robot vacuum. Next, they responded to questions measuring our dependent variable (purchase intentions; three seven-point items taken from [Lee et al. 2021](#); $\alpha = 0.90$) and mediators, such as transportation (three seven-point items adapted from [Escalas 2004](#); $\alpha = 0.85$). To measure psychological temporal distance, we developed six seven-point items based on the work by [Wang et al. \(2019\)](#); $\alpha = 0.90$). We averaged the responses, and a higher value of the composite measure indicated a higher temporal distance toward a product.

We tested our manipulation of narrative design using a four-item seven-point scale adapted from [Kim et al. \(2017\)](#); $\alpha = 0.92$). To assess our manipulation of argumentation type, we asked participants to evaluate the extent to which the information about robotic vacuum cleaners in the ad was “Focused on the product’s attributes” versus “Focused on the product’s benefits” and “Focused on what the product has or is” versus “Focused on what we can get from the product” ($r = 0.75$, $p < .01$; higher values indicate greater abstractness of argumentation). Additionally, considering the difference in length between the narrative and non-narrative ads, we also controlled for response time and measured respondents’ fatigue using a scale from [Gawron \(2016\)](#); see [Online Appendix B](#) for details).

5.3. Results

We successfully manipulated narrative versus non-narrative design of advertisement, with participants perceiving the narrative ad ($M_{\text{narrative ad}} = 5.94$, $SD = 0.93$) as more narrative than the non-narrative ad

($M_{\text{non-narrative ad}} = 2.89$, $SD = 1.50$, $F(1,279) = 414.56$, $p < .01$). Furthermore, participants in the concrete argumentation condition reported that the ad presented more concrete arguments, while participants in the abstract argumentation condition responded that the ad presented more abstract arguments ($M_{\text{concrete argument}} = 3.51$, $SD = 1.77$ vs $M_{\text{abstract argument}} = 4.80$, $SD = 1.69$, $F(1,279) = 39.33$, $p < .01$).

We conducted a moderated serial mediation analysis using SPSS PROCESS macro, model 87 (Hayes, 2018). The independent variable was message design (with “narrative ad” coded as 1, while “non-narrative ad” coded as 0). Argumentation type served as the third-stage moderator (with “abstract argument” coded as 1, and “concrete argument” coded as 0). Transportation and psychological temporal distance were the serial mediators, while purchase intentions were the dependent variable.

We found a positive effect of narrative design on transportation, which subsequently had a negative effect on temporal distance toward a robotic vacuum cleaner (see Fig. 2; furthermore, we observed a significant and positive effect of transportation on persuasion; for detailed results, see Online Appendix B). In other words, as participants became more immersed in the presented story, they perceived the advertised product as temporally closer. These findings offer empirical support for hypotheses H3a-b.

In addition, we found a significant interaction effect between temporal distance and argumentation type on purchase intentions. When the temporal distance was low, concrete arguments generated higher purchase intentions than abstract ones (the Johnson–Neyman significance region was below point 1.30 of the temporal distance scale; see Online Appendix B). However, when the temporal distance was high, abstract arguments resulted in more favorable purchase intentions than concrete ones (the Johnson–Neyman significance region was above point 3.68 of the temporal distance scale). The index of moderated mediation was statistically significant (-0.04 ; $\text{bootSE} = 0.02$; $\text{bootLLCI} = -0.09$; $\text{bootULCI} = -0.004$). Such findings provide empirical support for a matching effect (H1).

Furthermore, when we included response time and fatigue as covariates in the model, it did not change the observed pattern of results. Interestingly, when we conducted separate analyses for narrative and non-narrative conditions, the interaction effect between argumentation type and temporal distance remained significant for non-narrative ads ($b = 0.46$, $SE = 0.16$, $t = 2.84$, $p < .01$) but not for narrative ads ($t = 1.17$, $p = .24$).

6. Study 2: Dis-matching effect for emerging technology product

To test hypotheses H2 and H3, we conducted a 2 (abstract vs concrete arguments) \times 2 (narrative vs non-narrative ad) experiment with a between-subjects design. We employed a similar sampling procedure as Glaser and Reisinger (2022) and Nigam et al. (2022). Specifically, we asked Master’s marketing students at a large university in Poland to recruit experimental participants as part of their course assignment. The final usable sample comprised 386 English-speaking adult participants (45.9% women, 51.3% men; between 19 and 31 years of age; $M_{\text{age}} = 22.03$).

6.1. Stimuli development

We created four versions of an advertisement for a fictitious new model of an electric car called EVO. As in Study 1, we manipulated the argument type (i.e., abstract vs concrete argumentation) and message design (i.e., narrative vs non-narrative design). To ensure that any potential confounding effects related to the visual presentation of a product were eliminated, we presented the manipulations as text-based ads, following the approach commonly used in research on narratives (see e.g., Mattila, 2000; Mattila, 2002; Wentzel, Tomczak, & Herrmann, 2010). In Study 2, we aimed to minimize the difference in word count between narrative and non-narrative conditions compared to Study 1 (see Online Appendix C for details).

6.2. Procedure and measures

Participants were randomly assigned to one of the four conditions. First, they were presented with the advertisement for an electric car, EVO. Next, they responded to a battery of questions measuring our dependent variable (ad attitudes; 3 items taken from Lee et al. 2021; $\alpha = 0.83$) and mediators, such as transportation (same items as in Study 1; $\alpha = 0.85$) and psychological temporal distance. Similar to previous research using various measures to capture the same phenomenon across multiple studies (Mendini, Peter, & Maione, 2022), we employed only three – from the pool of six – items on temporal distance used in Study 1. However, as a result of reliability tests, we dropped one item and proceeded with only two items for further analyses ($r = 0.70$, $p < .01$; higher values indicate higher temporal distance). Furthermore, we tested our manipulations using scales adapted from Nielsen and Escalas (2010; four items regarding the narrative design of the stimuli; $\alpha = 0.79$) and Lee et al. (2021; three items regarding argumentation type

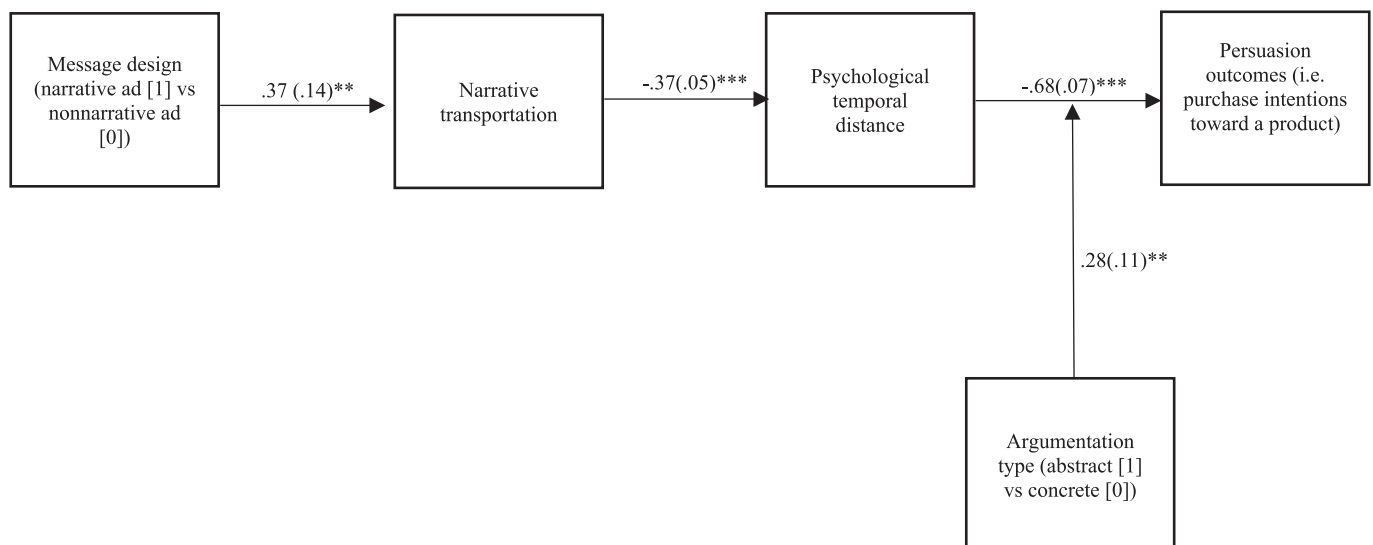


Fig. 2. The results of moderated mediation analysis (Study 1).

used in the stimuli; $\alpha = 0.51$; higher values indicate greater abstractness of argumentation). Seven-point semantic differential scales were used throughout the questionnaire. All materials were presented in English.

6.3. Results

Our stimuli successfully passed manipulation checks. We found significant main effects of message design ($M_{\text{non-narrative ad}} = 3.19, SD = 1.39$ vs $M_{\text{narrative ad}} = 3.83, SD = 1.17$; $F(1,382) = 23.00, p < 0.01$) and argumentation type ($M_{\text{concrete argument}} = 4.24, SD = 1.28$ vs $M_{\text{abstract argument}} = 4.81, SD = 1.17$; $F(1,382) = 20.38, p < 0.01$). These results suggest that participants perceived the experimental conditions as expected.

To test our hypotheses, we conducted a moderated serial mediation analysis using SPSS PROCESS macro, model 87 (Hayes, 2018). We included message design as the independent variable (“narrative ad” = 1, and “non-narrative ad” = 0); argumentation type served as the third-stage moderator (“abstract argument” = 1, and “concrete argument” = 0). Transportation and temporal distance were the serial mediators, while ad attitudes were the dependent variable.

Our analysis revealed a significant positive effect of narrative design on transportation and a negative effect of transportation on temporal distance toward electric cars (see Fig. 3; additionally, we found a significant positive effect of transportation on persuasion; for detailed results, see Online Appendix C). Specifically, participants who read the narrative ad immersed in the story. Furthermore, the higher immersion into the story, the higher the feeling that the advertised product would be available in the market sooner rather than later. Such results provide support for hypotheses H3a-b.

We also observed a significant interaction effect between temporal distance and type of argumentation on attitudes toward the message. Specifically, when the temporal distance was low, abstract arguments generated more positive ad attitudes than concrete ones (the Johnson–Neyman significance region was below point 3.53 on the temporal distance scale; see Online Appendix C). However, when the temporal distance was high, concrete arguments produced more favorable ad attitudes than abstract ones (the Johnson–Neyman significance region was above point 6.88 on the temporal distance scale). The index of moderated mediation was statistically significant (0.05; bootSE = 0.02; bootLLCI = 0.01; bootULCI = 0.11). Such results provide empirical support for a dis-matching effect (H2).

Additionally, in our analysis, we examined whether the interaction effect between temporal distance and type of argumentation was

influenced by the message design of the advertisements. Although we did not find a significant 3-way interaction between message design, temporal distance and argumentation type on ad attitudes, there were significant main effects of message design and argumentation type ($bs > |0.40|, ts > |2.96|$). Thus, we conducted post hoc tests, as suggested in the literature (Wei, Carroll, Harden, & Wu, 2012). We used SPSS PROCESS macro, model 1 (Hayes, 2018), and we built two separate models for narrative and non-narrative ads. Argumentation type served as the independent variable, temporal distance was the moderator, and ad attitudes were the dependent variable. We observed a significant interaction effect between temporal distance and argumentation type on ad attitudes for narrative ads ($b = -0.32, SE = 0.12, t = -2.58, p < .01, LLCI = -0.56, ULCI = -0.07$) but not for non-narrative ads ($t = -1.53, p = .12$). Specifically, in case of narrative ads, abstract arguments produced more favorable attitudes when temporal distance was low (the Johnson–Neyman significance region was below point 3.69 of the temporal distance scale; see Online Appendix C). All these findings suggest that narratives might enhance the dis-matching effect, particularly when abstract arguments are combined with low temporal distance toward a product. Importantly, when we introduced response time as a covariate to control for the difference in word count between narrative and non-narrative conditions, it did not alter the overall pattern of results.

7. Study 3: Dis-matching effect – A replication

In Study 3, we aimed to replicate and extend the findings from Study 2 by examining the dis-matching effect across different narratives and using a more managerially practical outcome variable. Therefore, we conducted another experiment with the same factorial design but with different stimuli and dependent variable (i.e., purchase intentions). Furthermore, we intended to rule out potential language bias: Study 2 was held in English on English-speaking residents of Poland, which might have had an impact on the reliability indicators for some of our scales (e.g., temporal distance measures). Therefore, Study 3 was conducted on a sample drawn from the residents of Poland and in Polish.

7.1. Stimuli

For comparison reasons, we kept the same highly emerging product category as in Study 2 (i.e., electric cars) and used a similar set of abstract versus concrete arguments. Nevertheless, we created a new and more elaborate narrative. As in Study 2, we designed text-based ads;

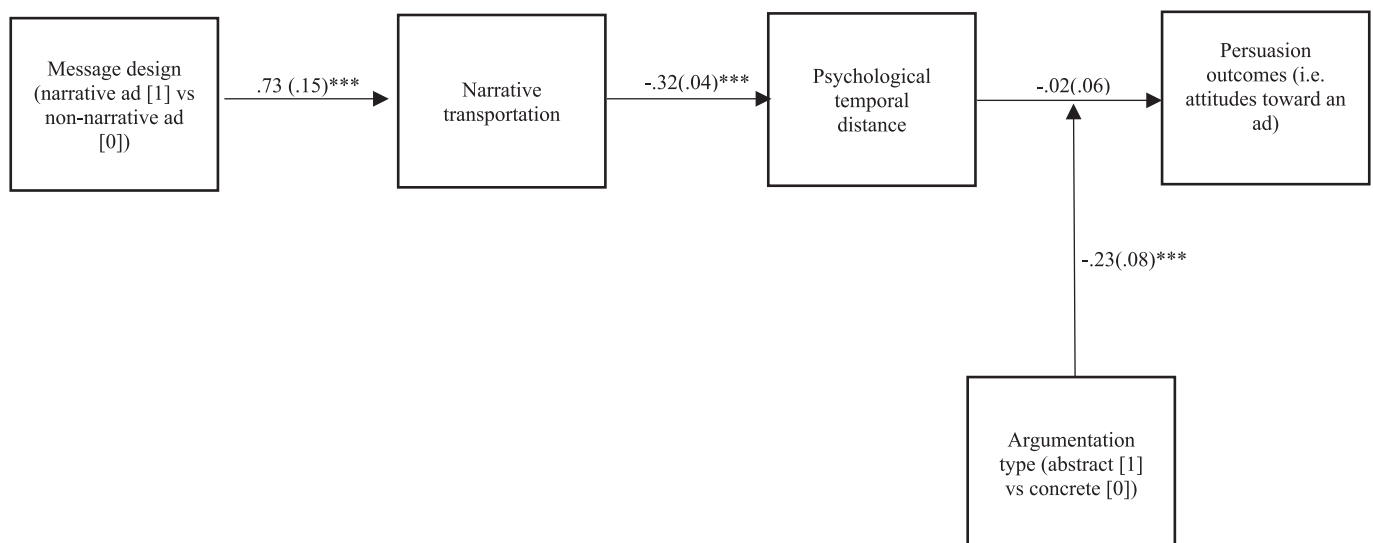


Fig. 3. The results of moderated mediation analysis (Study 2).

however, all the manipulations were held in Polish (see English translations in [Online Appendix D](#)).

7.2. Procedure and measures

We followed the same recruitment procedure as in Study 2 and appointed a fresh sample of 444 new participants. Three hundred ten participants completed the study and met the selection criteria, which included having a driving license but not owning an electric car. The final usable sample consisted of 48.7% women, 50.3% men, between 18 and 86 years of age ($M_{age} = 21.74$).

After random assignment to one of the four conditions, participants were requested to read the advertisement and to answer questions measuring the dependent variable (purchase intentions; $\alpha = 0.87$), as well as mediators, such as transportation ($\alpha = 0.87$) and temporal distance ($\alpha = 0.83$; higher values indicate higher temporal distance). We used the same scales as in Study 2 (including the manipulation checks). Importantly, all the questions were translated from English into Polish and underwent pretesting in individual interviews with 9 participants (7 women). These pretests ensured us that, despite the translation, the intended meaning of the scales was preserved.

7.3. Results

We successfully manipulated message design ($M_{non-narrative\ ad} = 3.18$, $SD = 1.84$ vs $M_{narrative\ ad} = 4.37$, $SD = 1.44$; $F(1,306) = 40.42$, $p < 0.01$) and argumentation type ($M_{concrete\ argument} = 4.15$, $SD = 1.29$ vs $M_{abstract\ argument} = 4.85$, $SD = 1.40$; $F(1,306) = 21.34$, $p < 0.01$). Using SPSS PROCESS macro, model 87 (Hayes, 2018), we conducted a moderated serial mediation analysis. In the model, message design (“narrative ad” = 1; “non-narrative ad” = 0) was the independent variable and argumentation type was the third-stage moderator (“abstract argument” = 1; and “concrete argument” = 0). Transportation and temporal distance were included as serial mediators. Purchase intentions served as the dependent variable.

Our results aligned with those of Study 2, showing a significant main effect of narrative design on transportation (see [Fig. 4](#)). Transportation, in turn, had a negative effect on temporal distance (additionally, it had a positive effect on persuasion – see detailed results in [Online Appendix D](#)). The index of moderated mediation was significant for confidence intervals set at 90% (0.06; bootSE = 0.03; bootLLCI = 0.006; bootULCI = 0.14). These findings provide further support for H3a-b.

Furthermore, we found a significant interaction effect between

temporal distance and argumentation type on purchase intentions. When the temporal distance was high, concrete arguments led to higher purchase intentions than abstract ones (the Johnson-Neyman significance region was above point 4.10 of the temporal distance scale; see [Online Appendix D](#)). However, no significant effects were observed when the temporal distance was low. These results provide support for a partial dis-matching effect, particularly regarding high temporal distance (as suggested by H2b).

Nevertheless, when we conducted separate analyses for narrative and non-narrative ads (SPSS PROCESS macro, model 1), we observed a full dis-matching effect. For narrative ads, there was a significant interaction effect between argumentation type and temporal distance on purchase intentions ($b = -0.46$, $SE = 0.14$, $t = -3.21$, $p < .01$). When the temporal distance was low, abstract arguments were more persuasive than concrete ones (the Johnson-Neyman significance region was below point 1.43 on the temporal distance scale; see [Online Appendix D](#)). Conversely, when the temporal distance was high, concrete arguments were associated with higher purchase intentions than abstract ones (the Johnson-Neyman significance region was above point 3.67 on the temporal distance scale). In the case of non-narrative ads, there was no significant interaction effect between argumentation type and temporal distance. Importantly, these results were qualified by a significant three-way interaction between argumentation type, temporal distance, and message design on purchase intentions (model 3; $b = -0.45$, $SE = 0.20$, $t = -2.24$, $p = .02$). All these findings provide further empirical evidence for a dis-matching effect (H2) and suggest that narratives might significantly enhance it.

8. Discussion

In this study, our aim was to address the limited knowledge and inconclusive findings in prior research regarding the promotion of emerging technology products (Steenkamp & Gielens, 2003; Ataman, Mela, & van Heerde, 2008; Bruce, Foutz, & Kolarici, 2012; Martin, Javalgi, & Ciravegna, 2020). Specifically, we sought to investigate the design of persuasive advertising messages and the type of argumentation that would facilitate the timely adoption of such products. Our findings offer several important contributions to business theory and provide valuable managerial insights.

8.1. Theoretical implications

First, we test and challenge the traditional matching principle in the

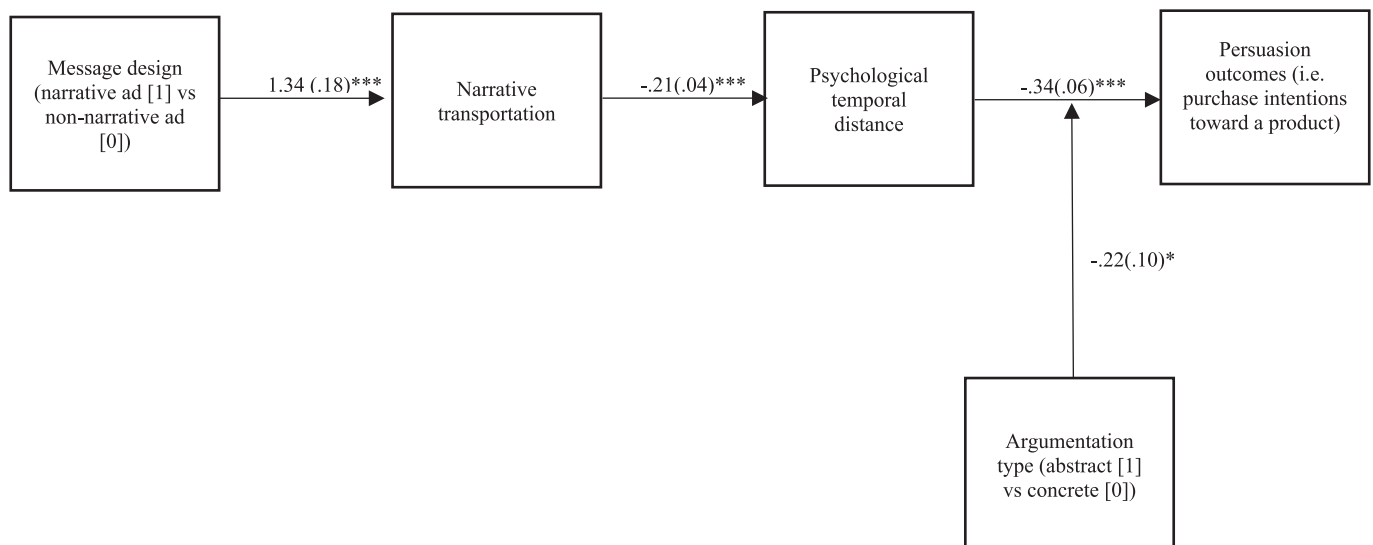


Fig. 4. The results of moderated mediation analysis (Study 3).

literature on construal level theory (Trope & Liberman, 2000; Jin & He, 2012; Rim, et al., 2015; Lee, 2019; Wang & Lehto, 2020). In Study 1, we provided empirical support for the validity of the matching principle for established technology products, such as robot vacuums. We observed that abstract argumentation was more persuasive when participants perceived the product as temporally distant, while concrete argumentation was more effective when the product was perceived as temporally proximal (H1). However, in Studies 2 and 3, we found the opposite effect for emerging technology products, such as electric vehicles. Concrete argumentation was more effective than abstract argumentation when the product was perceived as temporally distant (H2). We call this phenomenon a *dis-matching effect*. While the matching principle has been well-accepted in the extant literature (Lee, 2019), our finding of a dis-matching effect suggests that the persuasiveness of argumentation type depends on the level of temporal distance and category of the product. Thus, our study provides an important product-related boundary condition to the matching principle and helps explain the inconsistencies in prior findings on construal level and psychological distance (e.g., Elliot, Rennekamp, & White, 2015; Hu & Winter, 2019; Lee, Yoo, Kim, & Sung, 2021).

Our second contribution lies in revealing what message design is persuasive for emerging technology products and thus could be effectively used in their advertising along with a proper argumentation type. Specifically, our study demonstrated that using a narrative design in advertising enhanced attitudes and purchase intention by creating vivid mental imagery and reducing perceived temporal distance (H3). While this finding aligns with previous research showing the persuasive power of storytelling (e.g., Kang, Hong, & Hubbart, 2020; Lim & Childs, 2020; Kim, Shoenberger, Kwon, & Ratneshwar, 2022), the role of narratives in reducing psychological distance toward a product has received limited scholarly attention. Although one prior study explored this effect in health communication (Liu & Yang, 2020), our research extends this line of inquiry by showing that narratively designed messages can be employed in advertising to increase persuasiveness and mitigate the potentially negative impact of high temporal distance. This finding is important because previous empirical work has suggested that high psychological distance hinders persuasion (e.g., Kim & Nan, 2015).

Interestingly, our results also demonstrated that the interaction between argumentation type and psychological temporal distance varied depending on the message design (narrative versus non-narrative ad) and the product category (emerging versus established technology product). For emerging technology products, the dis-matching effect between argumentation type and temporal distance only occurred when narrative advertisements were used. This finding suggests the presence of an enhancing condition in which the dis-matching effect is amplified, specifically within the context of narrative message designs for emerging technology products, as opposed to non-narrative designs.

8.2. Managerial implications

Our findings bring managerially relevant suggestions for companies looking to facilitate the adoption of their emerging technology products through advertising. First, marketers might consider the type of argumentation they use in their advertisements and adjust it to the psychological temporal distance of the audience. For example, concrete argumentation (i.e., “what the product is or has”) could be used when the target audience does not believe that the product will be common in the market any time soon, while abstract argumentation (i.e., “what the product can do for a consumer”) could be employed when the target audience feels otherwise.

Second, narratives can effectively enhance persuasion and encourage the adoption of emerging technology products. Our study revealed that narratives could successfully reduce the psychological temporal distance to emerging technology products, allowing marketers to employ story-like designs in their advertisements to make the audience feel more psychologically close to the advertised good. In sum, our findings

suggest that marketers can tailor their advertising messages to their target audience and promote emerging technology products more effectively by using concrete argumentation, abstract argumentation, and narrative design.

8.3. Limitations and future research

Our study comprehensively examines how to design persuasive advertising messages for emerging technology products. However, our research is not without limitations that might be addressed in future empirical endeavors. For example, to maintain high internal validity, we solely investigated text-based narratives and did not explore the impact of alternative visual presentations, such as storyboards or different types of narratives. Furthermore, we focused only on the temporal aspect of psychological distance. Future research could consider incorporating additional factors and dimensions to enhance further our understanding of persuasive message designs for emerging technology products.

CRediT authorship contribution statement

Malgorzata Mag Karpinska-Krakowiak: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Wojciech Trzebinski:** Writing – review & editing, Project administration, Methodology, Investigation, Formal analysis, Data curation. **Heejin Lim:** Writing – review & editing, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Beata Marciniak:** Methodology, Investigation, Data curation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Acknowledgements

Some empirical work that led to the results presented in this paper received partial funding from the National Science Centre in Poland under Grant Agreement No 2020/37/B/HS4/00124.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jbusres.2023.114207>.

References

- Arts, J., Frambach, R., & Bijmolt, T. (2011). Generalizations on consumer innovation adoption: A meta-analysis on drivers of intention and behavior. *International Journal of Research in Marketing*, 28, 134–144.
- Ataman, M., Mela, C., & van Heerde, H. (2008). Building Brands. *Marketing Science*, 27(6), 1036–1054.
- Balakrishnan, B., & Sundar, S. (2011). Where am I? How can I get there? Impact of navigability and narrative transportation on spatial presence. *Human-Computer Interaction*, 3, 161–204.
- Brechman, J., & Purvis, S. (2015). Narrative, Transportation and Advertising. *International Journal of Advertising*, 34(2), 366–381.
- Bruce, N., Foutz, N., & Kolsarici, C. (2012). Dynamic Effectiveness of Advertising and Word of Mouth in Sequential Distribution of New Products. *Journal of Marketing Research*, 49(4), 469–486.
- Connors, S., Khamitov, M., Thomson, M., & Perkins, A. (2021). They're Just Not That into You: How to Leverage Existing Consumer-Brand Relationships Through Social Psychological Distance. *Journal of Marketing*, 85(5), 92–108.

- De Langhe, B., Fernbach, P., & Lichtenstein, D. (2016). Navigating by the Stars: Investigating the Actual and Perceived Validity of Online User Ratings. *Journal of Consumer Research*, 42(6), 817–833.
- Elliott, W., Rennekamp, K., & White, B. (2015). Does concrete language in disclosures increase willingness to invest? *Review of Accounting Studies*, 20(2), 839–865.
- Escalas, J. (2004). Imagine yourself in the product: Mental simulation, narrative transportation, and persuasion. *Journal of Advertising*, 33(2), 37–48.
- Evanschitzky, H., Eisend, M., Calantone, R., & Jiang, Y. (2012). Success Factors of Product Innovation: An Updated Meta-Analysis. *Journal of Product Innovation Management*, 29(51), 31–37.
- Fiske, S., & Taylor, S. (1991). *Social cognition*. New York: McGraw-Hill.
- Fu, F., Jones, E., & Bolander, E. (2008). Product Innovativeness, Customer Newness, and New Product Performance: A Time-Lagged Examination of the Impact of Salesperson Selling Intentions on New Product Performance. *Journal of Personal Selling and Sales Management*, 28(4), 351–364.
- Gawron, V. (2016). Overview of Self-Reported Measures of Fatigue. *International Journal of Aviation Psychology*, 26(3–4), 120–131.
- Gersdorf, T., Schaufuss, P., & Schenk, S. (2020). *McKinsey Electric Vehicle Index: Europe cushions a global plunge in EV sales*. McKinsey & Company. Retrieved 01 18, 2022, from <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/mckinsey-electric-vehicle-index-europe-cushions-a-global-plunge-in-ev-sales>.
- Glaser, M., & Reisinger, H. (2022). Don't Lose Your Product in Story Translation: How Product-Story Link in Narrative Advertisements Increases Persuasion. *Journal of Advertising*, 51(2), 188–205.
- Halkias, G., & Kokkinaki, F. (2017). Schema strength, processing opportunity, and the rewarding nature of incongruity resolution in advertising. *International Journal of Advertising*, 36(3), 415–438.
- Hayes, A. (2018). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. London: The Guilford Press.
- Hu, X., & Winter, S. (2019). The effects of abstract vs. concrete mindsets on the persuasiveness of online reviews: A construal level perspective. *Advances in advertising research*, 10, 43–52.
- Jin, L., & He, Y. (2012). Designing Service Guarantees With Construal Fit: Effects of Temporal Distance on Consumer Responses to Service Guarantees. *Journal of Service Research*, 16(2), 202–215.
- Kang, J., Hong, S., & Hubbart, G. (2020). The role of storytelling in advertising: Consumer emotion, narrative engagement level, and word-of-mouth intention. *Journal of Consumer Behaviour*, 19(1), 47–56.
- Karpinska-Krakiowiak, M., & Eisend, M. (2020). Mini-film advertising and digital brand engagement: The moderating effects of drama and lecture. *International Journal of Advertising*, 39(3), 387–409.
- Kelting, K., Duhachek, A., & Whittler, K. (2017). Can Copycat Private Labels Improve the Consumer's Shopping Experience? A Fluency Explanation. *Journal of the Academy of Marketing Science*, 45(4), 569–585.
- Kim, D., Sung, Y., Lee, S., Choi, D., & Sung, Y. (2016). Are you on Timeline or News Feed? The roles of Facebook pages and construal level in increasing ad effectiveness. *Computers in Human Behavior*, 57, 312–320.
- Kim, E., Ratneshwar, S., & Thorson, E. (2017). Why Narrative Ads Work: An Integrated Process Explanation. *Journal of Advertising*, 46(2), 283–296.
- Kim, E., Shoenberger, H., Kwon, E., & Ratneshwar, S. (2022). A narrative approach for overcoming the message credibility problem in green advertising. *Journal of Business Research*, 147, 449–461.
- Kim, H., Rao, A., & Lee, A. (2009). It's time to vote: The effect of matching message orientation and temporal frame on political persuasion. *Journal of Consumer Research*, 35(6), 877–889.
- Kim, J., & Nan, X. (2015). Consideration of Future Consequences and HPV Vaccine Uptake Among Young Adults. *Journal of Health Communication*, 20(9), 1033–1040.
- Kim, J., Lloyd, S., & Cervellon, M. (2016). Narrative-transportation storylines in luxury brand advertising: Motivating consumer engagement. *Journal of Business Research*, 69, 304–313.
- Kim, K., Lee, S., & Choi, Y. (2019). Image proximity in advertising appeals: Spatial distance and product types. *Journal of Business Research*, 99, 490–497.
- Kopestinsky, A. (2022, 09 29). *Electric car statistics in the US and abroad*. Retrieved from Policy Advice: <https://policyadvice.net/insurance/insights/electric-car-statistics/>.
- Kuokkanen, K. (2021, 11 05). *iRobot Still Dominating Robot Vacuum Cleaner Market with 46% Market Share*. Retrieved from Statzon: <https://statzon.com/insights/global-robotic-vacuum-cleaner-market-is-forecasted-to-reach-13-5bn-by-2030>.
- Lee, S. (2019). The Role of Construal Level in Message Effects Research: A Review and Future Directions. *Communication Theory*, 29, 319–338.
- Lee, S., Yoo, C., Kim, D., & Sung, Y. (2021). Distance matters: The effects of self-brand connections and construal levels on ad responses. *International Journal of Advertising*, 40(3), 403–430.
- Lim, H., & Childs, M. (2020). Visual storytelling on Instagram: Branded photo narrative and the role of telepresence. *Journal of Research in Interactive Marketing*, 25(7), 33–50.
- Liu, S., & Yang, J. (2020). The role of temporal distance perception in narrative vs. non-narrative persuasion related to e-cigarettes. *Journal of Health Communication*, 25(7), 543–553.
- Martin, S., Javalgi, R., & Ciravegna, L. (2018). Service advantage built on service capabilities: An empirical inquiry of international new ventures. *Journal of Business Research*, 88, 371–381.
- Martin, S., Javalgi, R., & Ciravegna, L. (2020). Marketing capabilities and international new venture performance: The mediation role of marketing communication and the moderation effect of technological turbulence. *Journal of Business Research*, 107, 25–37.
- Mattila, A. (2000). The role of narratives in the advertising of experiential services. *Journal of Service Research*, 3(1), 35–45.
- Mattila, A. (2002). The use of narrative appeals in promoting restaurant experiences. *Journal of Hospitality & Tourism Research*, 26(4), 379–395.
- Mendini, M., Peter, P., & Maione, S. (2022). The potential positive effects of time spent on Instagram on consumers' gratitude, altruism, and willingness to donate. *Journal of Business Research*, 143, 16–26.
- Meyers-Levy, J., & Tybout, A. (1989). Schema Congruity As A Basis For Product Evaluation. *Journal of Consumer Research*, 16(1), 39–54.
- Nielsen, J., & Escalas, J. (2010). Easier is not always better: The moderating role of processing type on preference fluency. *Journal of Consumer Psychology*, 20, 295–305.
- Nigam, A., Dewani, P., Behl, A., & Pereira, V. (2022). Consumer's response to conditional promotions in retailing: An empirical inquiry. *Journal of Business Research*, 144, 751–763.
- Oschatz, C., & Marker, C. (2020). Long-term Persuasive Effects in Narrative Communication Research: A Meta-Analysis. *Journal of Communication*, 70(4), 473–496.
- Razyadauskas, F. (2021). *Electric Mobility*. Euromonitor International. Retrieved 01 18, 2022, from <https://www.euromonitor.com/world-market-for-mobility/report>.
- Rim, S., Amit, E., Fujita, K., Trope, Y., Halbeisen, G., & Algom, D. (2015). How Words Transcend and Pictures Immerse: On the Association Between Medium and Level of Construal. *Social Psychology and Personality Science*, 6(2), 123–130.
- Rogers, E. (1983). *Diffusion of innovations*. New York: The Free Press.
- Schutzwohl, A. (1998). Surprise and schema strength. *Journal of Experimental Psychology*, 24(5), 1182–1199.
- Secinaro, S., Calandra, D., Lanzalunga, F., & Ferraris, A. (2022). Electric vehicles' consumer behaviours: Mapping the field and providing a research agenda. *Journal of Business Research*, 150, 399–416.
- Seegerbarth, B., Backhaus, C., & Woisetschlaeger, D. (2019). The role of emotions in shaping purchase intentions for innovations using emerging technologies: A scenario-based investigation in the context of nanotechnology. *Psychology & Marketing*, 36(9), 844–862.
- Shen, F., Sheer, V., & Li, R. (2015). Impact of narratives on persuasion in health communication: A meta-analysis. *Journal of Advertising*, 44(2), 105–113.
- Soderberg, C., Callahan, S., Kochersberger, A., Amit, E., & Ledgerwood, A. (2015). The Effects of Psychological Distance on Abstraction: Two Meta-Analyses. *Psychological Bulletin*, 141(3), 525–548.
- Statista. (2022, 05 11). *Robotic vacuum cleaner market share worldwide from 2014 to 2020, by brand*. Retrieved from Statista.com: <https://www.statista.com/statistics/934089/worldwide-robotic-vacuum-cleaner-market-share/>.
- Steenkamp, J., & Gielens, K. (2003). Consumer and Market Drivers of the Trial Probability of New Consumer Packaged Goods. *Journal of Consumer Research*, 30(3), 368–384.
- Trope, Y., & Liberman, N. (2000). Temporal construal and time-dependent changes in preference. *Journal of Personality and Social Psychology*, 79, 876–889.
- Trope, Y., Liberman, N., & Wakslak, C. (2007). Construal levels and psychological distance: Effects on representation, prediction, evaluation, and behavior. *Journal of Consumer Psychology*, 17(2), 83–95.
- Van Laer, T., Feiereisen, S., & Visconti, L. (2019). Storytelling in the digital era: A meta-analysis of relevant moderators of the narrative transportation effect. *Journal of Business Research*, 96, 135–146.
- Wang, S., & Lehto, X. (2020). The Interplay of Travelers' Psychological Distance, Language Abstraction, and Message Appeal Type in Social Media Advertising. *Journal of Travel Research*, 59(8), 1430–1446.
- Wang, S., Hurlstone, M., Leviston, Z., Walker, I., & Lawrence, C. (2019). Climate change from a distance: An analysis of construal level and psychological distance from climate change. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2019.00230>
- Wei, J., Carroll, R., Harden, K., & Wu, G. (2012). Comparisons of treatment means when factors do not interact in two-factorial studies. *Amino Acids*, 42(5), 2031–2035.
- Wentzel, D., Tomczak, T., & Herrmann, A. (2010). The moderating effect of manipulative intent and cognitive resources on the evaluation of narrative ads. *Psychology & Marketing*, 27(5), 510–530.
- Xu, J. (2019). The impact of self-construal and message frame valence on reactance: A cross cultural study in charity advertising. *International Journal of Advertising*, 38(3), 405–427.
- Yin, C., Tang, Y., Chiu, H., Hsieh, Y., & Lai, Y. (2023). Telling an authentic story by aligning with your product type and price. *Journal of Business Research*, 161.
- Zebregs, S., van den Putte, B., Neijens, P., & de Graaf, A. (2015). The differential impact of statistical and narrative evidence on beliefs, attitude, and intentions: A meta-analysis. *Health Communication*, 30(3), 282–289.

Malgorzata (Mag) Karpinska-Krakiowiak is an associate professor at the University of Lodz (Poland) and visiting professor at the European University Viadrina (Germany). Prior to entering academia, she worked in an advertising agency and was responsible for advertising projects for various brands from portfolio owned by Masterfoods, Nestlé, Storck, Heinz, Colgate-Palmolive, and Kimberly Clark. She runs research on humor and narratives in advertising. She has published her work in *Journal of Interactive Marketing*, *Journal of Advertising Research* and *Journal of Retailing and Consumer Services*.

Wojciech Trzebinski works as an assistant professor at the Warsaw School of Economics (Poland). His research interests are related to consumer behavior and marketing communication, including product evaluations, narrative advertising, humor advertising, AI-based recommender systems and chatbots. He has published his work in *Journal of Product & Brand Management* and *Computers in Human Behavior Reports*.

Heejin (Jeanie) Lim is an associate professor at the University of Tennessee (USA). Her research interests are related to narratives in social media, consumer behavior, women and fashion. She has published her work in *Journal of Services Marketing*, *Journal of Research in Interactive Marketing*, *Psychology & Marketing*, *Journal of Retailing and Consumer Services* and many more.

Beata Marciniak works as an assistant professor at the Warsaw School of Economics (Poland). Her research interests are related to qualitative market research methods, grounded theory, computer-assisted analysis of qualitative data and social psychology. She has published her work in *Journal of Product & Brand Management* and *Computers in Human Behavior Reports*.