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Communicating concrete and abstract product attributes: the role of evaluation mode and inter-attribute trade-offs

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ABSTRACT

Products advantageous in terms of concrete technical attributes ('concrete-superior' product options) are, in terms of abstract attributes, often evaluated lower than certain competitors' products ('abstract-superior' options). Two research questions are addressed: (1) How does the purchase intent for 'concrete-superior' options depend on the evaluation mode in product presentation involving such inter-attribute trade-offs? (2) What is the role of product information trustworthiness, helpfulness, and benefit perception in the above relationship? In two online experiments (Study 1 in Polish consumers, N = 427 and Study 2 in European consumers, N = 405), the joint evaluation mode (i.e. a 'concrete-superior' option presented side-by-side with a competitor's 'abstract-superior' option) was contrasted with the separate mode (i.e. only the 'concrete-superior' option presented). Purchase intent, perceived benefits (Studies 1 and 2), perceived trustworthiness, and helpfulness (Study 1) were measured. Data were analyzed with ANOVA and PROCESS models. The findings indicated that the purchase intent regarding the 'concrete-superior' option was higher in the joint evaluation mode. This effect was mediated by the perceived trustworthiness and helpfulness of the abstract product information (which were lower in the joint evaluation mode), the perceived benefits of the 'concrete-superior' option (Study 1), and its concrete attributes (Study 2). The paper applies the means-end chain theory linking the concepts of evaluation mode and inter-attribute trade-offs. In practical implications, it is suggested that marketers can (1) present their technically advantageous products alongside the corresponding competitors' products highly rated in their abstract attributes, (2) emphasize the benefits of the technical advantages, and question competitors' high abstract-attribute ratings' trustworthiness.

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Introduction

Product inherent attributes have been long evidenced as an essential determinant of consumer choice between brands and products (e.g. Ha, 2021; Haugom & Malasevska, 2019; Hoek et al., 2000; Hu et al., 2020; Krystallis, 2013; Myers, 2003; Puth et al., 1999; Suttikun & Meeprom, 2021; Trzebiński et al., 2022; Vo et al., 2022). While choosing products based on attribute information, consumers may struggle with inter-attribute trade-offs (Bettman et al., 2008; Luchs et al., 2012; Luchs & Kumar, 2017; Skard et al., 2021). Namely, a product may be highly evaluated in one attribute but considered weak in another attribute. An important context of such a trade-off is the positioning strategy based on concrete vs. abstract product information (Fuchs & Diamantopoulos, 2010). For example, some product options may be communicated as advantageous in terms of their detailed technical characteristics (e.g. 'wire enhancement with

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solid material' in the case of headphones). Several studies demonstrated that more concrete information was perceived more positively by consumers (Elliott et al., 2015; Feldman et al., 2006; Miller et al., 2007; Pérez et al., 2020; Robinson & Eilert, 2018; Wulf et al., 2021). Specifically, technical nomenclature in product descriptions may evoke a positive impression of the product's scientific sophistication (Hsee & Tsai, 2007; Wu et al., 2020). On the other hand, some competitors' product options may be communicated as excelling in more abstract attributes (e.g. 'overall durability') that could be related to the company or brand reputation (Rust et al., 2021).

This research uses the means-end chain theory (MECT) (Gutman, 1982; Liu et al., 2022; Ratakam & Petison, 2023) as its theoretical underpinning. According to MECT, abstract product information (attribute) is defined as information (attribute) less directly related to a product (e.g. general properties connected with reputation, like headphones 'durability'), while concrete product information (attribute) relates to its detailed features (e.g. technical characteristics, like headphones 'wire enhancement'). Those concrete attributes may be instrumental to the abstract ones. That is, consumers may consider the former as a means to achieve the latter (e.g. wire enhancement may lead to the durability of headphones). In the context of inter-attribute trade-offs (Luchs & Kumar, 2017; Skard et al., 2021), the product option which is positioned as technically advantageous, thus, better in terms of concrete attributes (here called '*concrete-superior*', Trzebiński et al., 2021) may be perceived as relatively weaker in terms of more abstract, reputation-related attributes. Meanwhile, some competitors' product options, positioned through abstract attributes (here called '*abstract-superior*', Trzebiński et al. (2021)), may be perceived as relatively weaker in terms of their concrete attributes.

The way consumers resolve inter-attribute trade-offs may depend on the mode of product evaluation, i.e. whether two product alternatives are presented separately (*separate evaluation*) or together (*joint evaluation*) (Hsee & Leclerc, 1998). The concept of evaluation mode has been heavily studied (Hsee & Tsai, 2007; Hsee & Zhang, 2004, 2010; Tan et al., 2018; Zhao & Xia, 2020), also in the context of inter-attribute trade-offs (Hsee & Leclerc, 1998; Hsee & Tsai, 2007; Hsee & Zhang, 2004, 2010). However, to the authors' best knowledge, its applications to the trade-offs between concrete and abstract product attributes, instrumentally related within the means-end chain, are not widely represented in the existing literature. Specifically, the role of product information trustworthiness (Miller et al., 2007; Robinson & Eilert, 2018; Wulf et al., 2021), product information helpfulness (Huang et al., 2020), and product benefit perception (Khare, 2023) remains understudied. In other words, the means-end chain theory (MECT) remains insufficiently linked with the concepts of evaluation mode and inter-attribute trade-offs as it is not well evidenced how consumer response to abstract vs. concrete product attributes depends on the mode in which the product option is evaluated (i.e. separately or together with another option, which contrasts the former in terms of its performance in those attributes). For marketers attempting to make their technically advantageous ('concrete-superior') products more trusted and perceived as more beneficial, this gap represents the following dilemma: Is it better to present the 'concrete-superior' product option separately or jointly with competitors' 'abstract-superior' product options (i.e. the ones perceived as excelling in abstract attributes)? Aimed to bridge this gap in the applications of the means-end chain theory (MECT), the current research raises the following research questions: How does evaluation mode determine consumer evaluation of textually presented 'concrete-superior' and 'abstract-superior' products? What is the role of product information trustworthiness, helpfulness, and benefit perception in the above relationship?

Below, it is proposed that the joint (vs. separate) evaluation mode positively affects the purchase intent of the concrete-superior product option. Two novel underlying mechanisms are offered. As the abstract product information is negatively valenced in the case of 'concrete-superior' options, the first proposed mechanism is related to the abstract information's perceived trustworthiness and helpfulness, which may be diminished in the joint evaluation. The second mechanism is that consumers may perceive the benefits of the concrete attributes of a concrete-superior option as stronger in the joint evaluation. Those relationships are evidenced in two experiments using headphones as a product category. The current research applies the means-end theory (MECT) (Gutman, 1982; Liu et al., 2022; Ratakam & Petison, 2023) to advance the knowledge about evaluation mode and inter-attribute trade-offs (Hsee & Leclerc, 1998; Hsee & Tsai, 2007; Hsee & Zhang, 2004, 2010) by linking those concepts to the abstractness/concreteness of product information, its trustworthiness and helpfulness, and perceived product benefits.

Conceptual background

Evaluation mode

Consumers may evaluate products in separate vs. joint evaluation modes (Hsee & Zhang, 2004). In the *separate evaluation* mode, consumers are exposed to a single product option, while in the *joint evaluation* mode, they see two or more options simultaneously, side by side. Several studies demonstrated that evaluation mode might influence product evaluation. For example, Zhao & Xia (2020) evidenced that in the visual presentation of products, joint evaluation may lead to higher mental imagery of the presented products and, in turn, to higher psychological ownership and product evaluation. Presenting a search-type product (i.e. demanding an excessive amount of information before purchase) on blogs was evidenced to make brand attitude higher when the product was compared to another one (vs. separately) (Pant et al., 2014).

Given the complexity of the technical aspects of certain product categories (e.g. consumer electronics), joint evaluation is especially important for consumers. Sales channels offer convenient opportunities to make comparisons between product alternatives. For example, Amazon.com offers the 'compare with other items' function, allowing users to see several product options (e.g. headphones models) at the same time and compare textual information about their attributes. As a result, apart from viewing product options in a separate evaluation mode (e.g. one headphone model on the screen), consumers can also view the options jointly. Specifically, a product option of a weak-reputation brand may be viewed separately or side by side with a product option of a strong-reputation competitor's brand.

The context of inter-attribute trade-offs

Evaluation mode may determine consumer response to inter-attribute trade-offs. For example, product alternatives with inter-attribute trade-offs may be evaluated higher in the separate (vs. joint) mode when they were better (vs. worse) than a third alternative presented in advance (Hsee & Leclerc, 1998). Inter-attribute trade-offs are generally considered an important aspect of consumer decision-making, as they may engage consumers emotionally (Bettman et al., 2008). The evaluability theory (Hsee & Tsai, 2007; Hsee & Zhang, 2004, 2010) posits that in the joint (vs. separate) evaluation, the attributes that are more difficult to evaluate inherently are more influential in consumer response. Specifically, attributes related to numeric values may be inherently inevaluable, that is, incomprehensible to consumers in the separate evaluation mode if consumers have no standard of reference for those values. However, when such an attribute is presented in the joint evaluation, consumers may easily compare the numeric values and evaluate products using this attribute. This way, the evaluation mode may shift consumer evaluations in the case of inter-attribute trade-offs where one attribute is numeric, and another one is inherently evaluable (Tan et al., 2018).

Inter-attribute trade-offs may involve abstract vs. concrete product attributes. The concept of abstractness (vs. concreteness) of product attributes stems from the means-end chain theory (MECT) (Gutman, 1982; Liu et al., 2022; Ratakam & Petison, 2023) positing that consumer product knowledge is organized along the continuum from information directly related to products (i.e. concrete product attributes, including product technical characteristics, like wire enhancement in the case of headphones) to information related to the perspective of consumers' lives (including consumer goals, needs, and values). Between those two extreme layers of knowledge, there is a layer of product benefit information, translating product characteristics into consumers' life perspectives. Finally, between the concrete product attribute layer and product benefit layers, there is a layer of abstract product information related to more general product properties (like wire durability), which translates product characteristics into benefits. This way, product concrete attributes are instrumental to product abstract attributes (e.g. wire enhancement may act as a means to achieve wire durability), which is, in turn, instrumental to product benefits (e.g. wire durability can lead to the benefit of using the headphones for a long time). It was evidenced that consumers respond differently to product abstract vs. concrete information. For example, several studies (e.g. Lee, 2019; Wang et al., 2019) demonstrated that when a product was perceived to be closer to a consumer, concrete information was more persuasive.

Inter-attribute trade-offs involving abstract vs. concrete attributes (e.g. sustainability vs. functional performance) were demonstrated to be powerful in evoking consumer emotions like guilt or distress (Luchs et al.,

2012; Luchs & Kumar, 2017). However, the existing literature lacks the application of the concept of evaluation mode to the context of inter-attribute concrete-abstract trade-offs. That is, to the best of the authors' knowledge, there are no studies directly investigating consumer response to a product option with high performance in a concrete attribute (like wire enhancement) and low performance in an abstract attribute (like wire durability) (*concrete-superior* option, Trzebiński et al., 2021) when this option is presented separately vs. next to the option with high performance in the abstract attribute and low performance in the concrete attribute (*abstract-superior* option, Trzebiński et al., 2021). In line with the considerations presented above, this context may be relevant to the product communication of emerging brands, which may be presented as 'concrete-superior' vs. the 'abstract-superior' products representing stronger brands. The next section proposes mechanisms by which consumer response to a 'concrete-superior' product option may depend on whether it is presented separately or jointly with an 'abstract-superior' one.

Hypothesis development

Consider two product options using headphones as an example of product category. Assume headphone experts describe the inherent attributes of both options in terms of two sets of information. The first set contains concrete information (attributes) related to the technical features of the headphones (e.g. wire enhancement with solid material, the ease of the endings to fit the ears, and the range of wire length regulation). The second set contains abstract information (attributes) related to the benefits (e.g. overall durability, comfort, and practicality in everyday life). Moreover, the abstract information corresponds to the concrete information. Specifically, the concrete attributes may be perceived as instrumental to the abstract ones. For example, wire enhancement may be interpreted as aimed at supporting the durability of the headphones, easy-to-fit endings may be aimed at improving comfort, and wire length regulation may enhance the headphones' practicality of the headphones. Finally, assume that the first option (that may represent an emerging, weak-reputation brand), ed *concrete-superior*, is depicted by the experts as superior in terms of concrete information (e.g. excellent wire enhancement, endings very easy to fit, a wide range of wire regulation) while being depicted as inferior in terms of abstract information (e.g. poor overall durability, poor overall comfort, poor practicality in everyday life). On the other hand, the second option (that may represent a strong-reputation brand), *abstract-superior*, is described by the experts as superior in terms of abstract information (e.g. excellent overall durability, excellent overall comfort, excellent practicality in everyday life) but inferior in terms of concrete information (e.g. poor wire enhancement, endings difficult to fit, a narrow range of wire regulation). In other words, it is assumed that an inter-attribute trade-off occurs between the abstract attributes and the corresponding concrete (instrumental) ones. As argued above, this kind of trade-off may be connected to brand reputation. That is, an emerging, less reputable brand may be poorly evaluated in more abstract terms while trying to attract consumers with attractive technical details of its products (here, 'concrete-superior' options). On the other hand, products of a stronger brand (here, 'abstract-superior' options) may enjoy being highly appreciated in abstract terms, even when it is not advantageous in certain technical details. These two options may be displayed jointly or separately, and the question aimed to investigate in the current research is whether and how the joint evaluation leads to a different evaluation of the concrete-superior option.

It is proposed below that. In the inter-attribute trade-offs between abstract and concrete information, at least two mechanisms may lead to higher evaluations of the concrete-superior option in the joint (vs. separate) evaluation mode.

The first mechanism proposed may involve perceived product information trustworthiness and helpfulness. Perceived information trustworthiness is defined as the degree of consumer confidence that the information source provides accurate information, such as being honest, believable, and having integrity (Yang et al., 2021). Previous studies demonstrated the positive consequences of perceived information trustworthiness on consumer behavioral outcomes like purchase intent (Cabeza-Ramírez et al., 2022) and message adoption in buying decision-making (Obeidat et al., 2022). Perceived information helpfulness is defined as the degree to which a consumer considers the information helpful in facilitating product evaluation and other shopping tasks across different stages of the purchase decision process (Wu et al., 2021). Perceived information helpfulness may increase positive consumer responses, such as consumer attention to the information (Xu et al., 2022) and its adoption (cf. Ling et al., 2021; Upadhyay & Tripathi, 2023).

Consumers may perceive the product category experts who provide the ratings of the product options as potentially cooperating with marketers. Thus, consumers may tend to attribute the positive ratings given by the experts to their promotional efforts. Likewise, it was demonstrated that a set of product reviews containing more positive opinions is perceived as less trustworthy (Shoham et al., 2017). In the joint evaluation (but not in the separate evaluation), the abstract information appears in a positive valence (i.e. in the description of the abstract-superior option). Thus, consumers are then more likely to consider the experts less trustworthy in evaluating abstract product attributes. The second cause of consumer doubt in abstract information in the joint evaluation stems from the instrumental relationships between the presented attributes as conceptualized in the means-end chain theory (MECT) (Gutman, 1982; Heinze et al., 2017; Houston & Walker, 1996; Lin et al., 2019; Lin & Fu, 2018; Liu et al., 2022; Ratakam & Petison, 2023). Namely, the positive valence of the abstract attributes of the abstract-superior option is accompanied by the negative valence of its concrete attributes, which are instrumental to the former. For example, if wire enhancement (a concrete attribute) is considered to lead (i.e. be instrumental) to durability (an abstract attribute), evaluating the same product option as poor in terms of wire enhancement and good in terms of durability may appear awkward to consumers ('If durability is implied by wire enhancement, why are the headphones durable despite not having well-enhanced wire?'). Noteworthily, on top of the above concerns, the abstract (vs. concrete) information is generally perceived as vaguer (Snelders & Schoormans, 2004), less objective and truthful (Feldman et al., 2006), less authentic and realistic (Pérez et al., 2020), less clear (Elliott et al., 2015), and less trustworthy (Miller et al., 2007; Robinson & Eilert, 2018; Wulf et al., 2021). In sum, in the joint mode, consumers have several reasons to doubt the trustworthiness of the abstract information provided by the experts. Such a decrease in perceived (here: abstract) information trustworthiness may diminish the perceived helpfulness of that information (Choi & Leon, 2023), making the use of such information less likely (Ling et al., 2021), which may ultimately lead to a higher purchase intent of a concrete-superior product option as it is negatively evaluated in terms of that abstract information. These concerns over abstract information should be smaller in the separate evaluation of the concrete-superior option, as the abstract information occurs only in a negative valence. Thus, it is expected that:

H1. In the joint evaluation of the concrete-superior and abstract-superior product options, the consumer purchase intent for the concrete-superior option is higher compared to the separate evaluation of the concrete-superior option.

H2. The positive relationship between the joint (vs. separate) evaluation mode and the purchase intent for a concrete-superior option (H1) is serially mediated by the perceived trustworthiness and the perceived helpfulness of abstract information in product descriptions.

The second proposed mechanism may involve perceived product benefits, which is viewed, according to the means-end chain theory (MECT) (Gutman, 1982; Heinze et al., 2017; Houston & Walker, 1996; Lin et al., 2019; Lin & Fu, 2018; Liu et al., 2022; Ratakam & Petison, 2023), as the degree to which a consumer considers themselves to gain positive consequences of product attributes. Previous studies suggest that perceived product benefits are positively influenced by consumer knowledge of product attributes and increase product purchase intent (Khare, 2023; Schulte et al., 2022). Drawing on the means-end chain theory (MECT), it is proposed that in the separate evaluation of a concrete-superior option, the perceived benefits of its attributes are lower due to substantial instrumentality concerns. Specifically, consumers may question whether a good performance in concrete attributes is beneficial for them. For example, when concrete-superior headphones are depicted as having excellent wire enhancement but poor overall durability, the benefits of the former are doubtful. That is, one may see no advantage in the enhanced wire if it is aimed to ensure durability, and this is not achieved. These instrumentality-related concerns may be diminished (or even vanish) in the joint evaluation as consumers see two options that both break the instrumentality beliefs. Namely, an abstract-superior option said to meet the end (e.g. durability) does not possess the means (e.g. wire enhancement). In this case, the instrumentality relationship between abstract and concrete parts of the product descriptions becomes unclear. Therefore, in the joint evaluation, this kind of means-end chain instrumentality concerns (including the above doubts related to the concrete-superior option) may be discounted by consumers as poorly grounded. Thus, in the joint

evaluation, consumers may perceive more benefits from the concrete attributes of the concrete-superior option. In other words, while the negative valence in terms of a concrete-superior option's abstract attribute may suggest the low benefits of this option, consumers are more likely to ignore such concerns in the joint evaluation. Consequently, a concrete-superior option may be perceived as more beneficial in the joint evaluation (vs. separate evaluation of this option), which, in turn, leads to a higher purchase intent for this option. Therefore, it is hypothesized that:

H3. The positive relationship between the joint (vs. separate) evaluation mode and the purchase intent for the concrete-superior option (H1) is mediated by the perceived benefits of the concrete-superior option.

H4. The positive relationship between the joint (vs. separate) evaluation mode and the purchase intent for the concrete-superior option (H1) is mediated by the perceived benefits of the concrete attributes of the concrete-superior option.

The above hypotheses (see the conceptual model in Figure 1) were tested in two online experiments, which manipulated the evaluation mode. The first one (Study 1) tested the basic effect of the evaluation mode (H1), the mediation through the perceived trustworthiness and helpfulness of abstract information (H2), and the perceived benefits of the concrete-superior option (H3). The second experiment (Study 2) replicated the testing of H1 and tested the mediation through the perceived benefits of the concrete attributes of the concrete-superior option (H4).

Overview of the studies

In both studies, headphones were used as a product category. Headphones are widely used consumer electronics with numerous product options available in the marketplace and are communicated through concrete or abstract attributes (PR Newswire, 2018; Headphonescompared.com. 2021). Young adults served as the studied population. Homogeneous sampling is recommended for testing theorized relationships (Calder et al., 1981; Duncan & Nelson, 1985). Younger adults are typically early adopters of innovations in consumer electronics (Huh & Kim, 2008). Therefore, the studied population may be considered an essential and prospective target group for electronic products like headphones. For example, an Italian study (Statista, 2021) showed that the proportion of people who use headphones to listen to the radio is 22% for 18–24 y.o., 17% for 25–34 y.o., and below 10% for older people.

Stimuli pretest

Descriptions of two fictitious models of headphones, i.e. a concrete-superior option and an abstract-superior option, were composed. Each description contained information about three pairs of attributes (each of them containing one concrete attribute and one abstract attribute, where the concrete attribute would be instrumental to the abstract one). By including more than one pair of attributes, it was aimed to make the stimuli more engaging and realistic to participants and better represent the difference between concrete and abstract information related to a product. To select the attributes for the stimuli, a pretest was run (41 Polish young adults aged 21 to 36, recruited through an online consumer panel, Ariadna, 46.3% females, M_{age} = 29.0, SD = 4.48). An initial list of eighteen attribute pairs was developed for the pretest and its participants were asked to evaluate the abstractness of each attribute (slider scale, 'describes headphones very specifically' = 1, 'describes headphones very generally' = 100), the perceived instrumentality of the concrete attributes vs. the corresponding abstract ones ('possessing [a concrete attribute] may lead to [the corresponding abstract attribute]', slider scale, 'strongly disagree' = 1', strongly agree' = 100), and the perceived realism of the attributes ('How probable is it that this attribute could be found in headphones descriptions presented on actual websites?'; slider scale, 'surely could not be found' = 1, 'surely could be found' = 100). After filtering for the attribute pairs with significant differences in the abstractness between the attributes (paired-samples t-Student test; $p < .05$), they were listed in descending order by the perceived instrumentality, and the level of the perceived realism was checked. The pair with the highest

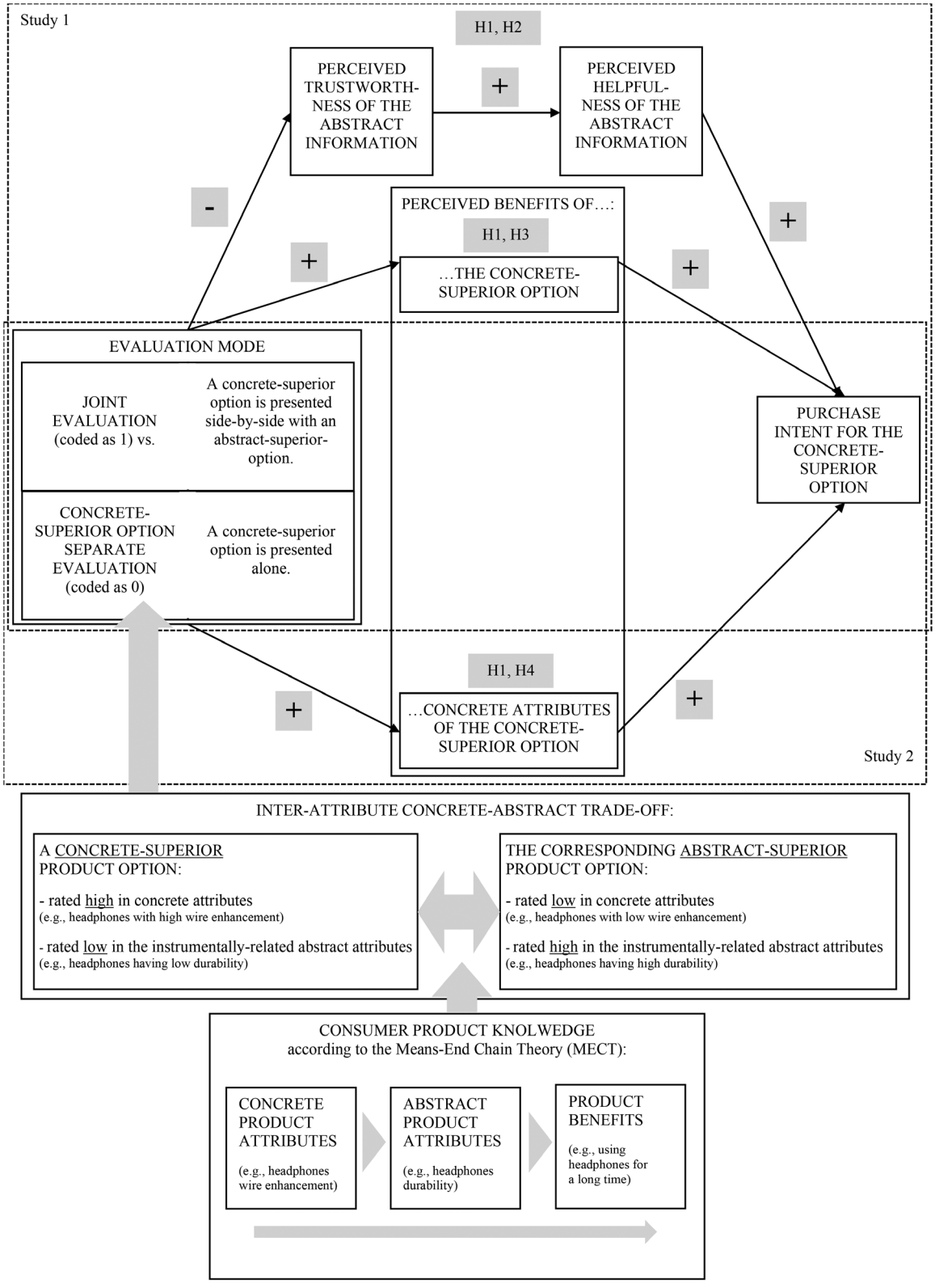

Figure 1. Conceptual model.

perceived instrumentality was (here and below, the concrete attribute is mentioned first)' wire enhancement with solid material' vs. 'durability' ($M_{instrumentality}$ = 69.4; abstractness: $M_{abstract\ attribute} - M_{concrete\ attribute}$ = 9.1, t(40) = 2.233, p = .031; perceived realism: $M_{concrete\ attribute}$ = 51.5, $M_{abstract\ attribute}$ = 45.8). The pair' weight' vs. 'comfort' had the second-highest instrumentality ($M_{instrumentality}$ = 68.12; abstractness: $M_{abstract\ attribute}$

– $M_{concrete\ attribute}$ = 22.1, t(40) = 4.351, $p < .001$; perceived realism: $M_{concrete\ attribute}$ = 37.5, $M_{abstract\ attribute}$ = 46.9). The following three pairs on the list referred to 'comfort' as the abstract attribute (like in the first pair), so they were skipped to differentiate the stimuli. Among the remaining pairs, the pair' availability of adapters to various devices' vs. 'practicality in everyday life' had the highest instrumentality ($M_{instrumentality}$ = 63.2; abstractness: $M_{abstract\ attribute} - M_{concrete\ attribute}$ = 28.2, t(40) = 5.836, $p < .001$; perceived realism: $M_{concrete\ attribute}$ = 41.8, $M_{abstract\ attribute}$ = 55.2). As the level of perceived realism was moderate, the descriptions were presented to six university students (gender-balanced) to discuss the clarity and realism of the attributes. Based on those discussions, the first attribute pair was kept unchanged, but the concrete attributes in the two other pairs were modified, as they were perceived as relatively unclear and unrealistic. Specifically, the modified second pair was 'ease of the endings to fit the ears' vs. 'comfort', and the last pair was 'the range of wire length regulation' vs. 'practicality in everyday life'. In both cases, the modified concrete attributes were perceived as associated with the original ones (i.e. endings falling out the ears may be considered heavy, and the wire length is related to the way the headphones can be connected with the source device).

Based on these three attribute pairs, descriptions of headphones were developed, indicating a positive expert evaluation by a thumb-up icon and a negative expert evaluation by a thumb-down icon. This way, descriptions for the two options were composed, i.e. a concrete-superior option (thumbs-up for concrete attributes and thumbs-down for abstract ones) and an abstract-superior option (thumbs-up for abstract attributes and thumbs-down for concrete ones). The final stimuli used in Study 1 and Study 2 are presented in Figure 2.

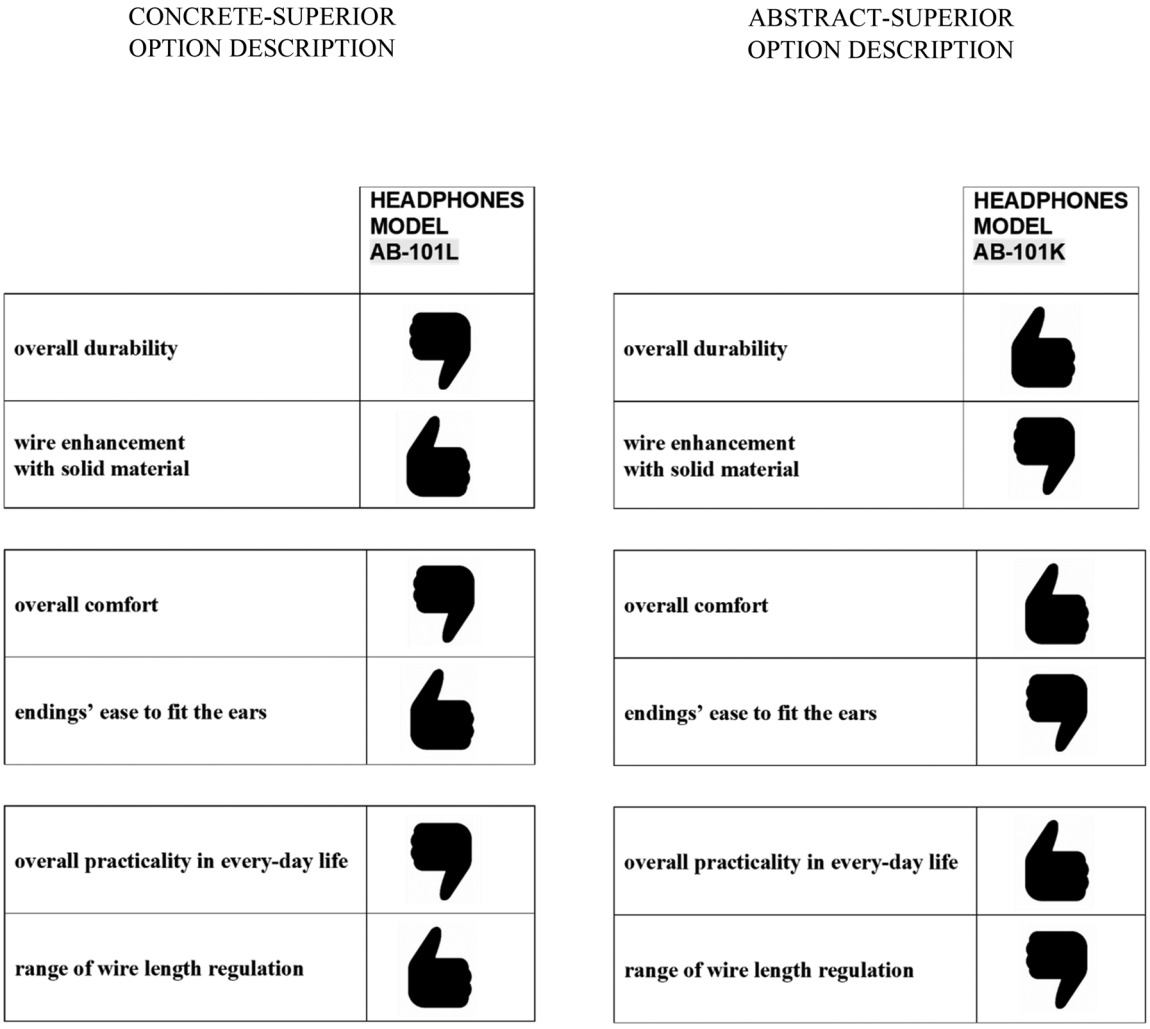

Figure 2. Final stimuli for Study 1 and Study 2 – descriptions of headphone models.
In the joint evaluation mode, ratings for the concrete- and abstract-superior options were presented side by side.

Study 1

Procedure

Four-hundred twenty-seven young adults aged 19 to 35, living in Poland, studying or working, with at least high school education (53.4% females, M_{age} = 28.1, SD = 4.48), were recruited through a Polish online consumer panel (online panel, Ariadna, located in Warsaw, Poland) and randomly assigned to three evaluation-mode conditions (i.e. the separate evaluation of the concrete-superior option vs. the joint evaluation of both options; additionally, the separate evaluation of the abstract-superior option was introduced as a control condition). Appropriate informed consent has been collected from the participants. The procedure was revised by the SGH Warsaw School of Economics Ethics Committee (approval no. 16_2022).

The participants were asked to imagine that they were searching for new headphones. To enhance the engagement in the survey, the participants were asked to briefly answer an open-ended question about the purpose for which they could use such new headphones. Next, they were asked to imagine that they decided to visit a website where different offers of headphones are characterized by product category experts. Then, respondents were exposed to the product descriptions. In the separate evaluation-mode conditions, the participants saw only one option, while in the joint evaluation-mode condition, they saw both options side by side (the order of the options was counterbalanced). After viewing the stimuli, the participants rated their purchase intention for the presented options, the perceived benefits of the presented options, and the perceived helpfulness and trustworthiness of the abstract and concrete information in the descriptions. To reduce self-generated validity issues (Feldman & Lynch, 1988), the order of the measurements countered the hypothesized causality (Lunardo & Rickard, 2019). Namely, the purchase intent was measured first, followed by the perceived benefits, helpfulness, and trustworthiness. The interviews ended with a demographics section including questions about the realism of the stimuli ('How probable is it that such headphone description could be presented on actual websites?'; 65.8% chose' very probable' or' somewhat probable') and the easiness to imagine the situation ('How easy was it to imagine yourself in the situation of buying headphones as presented in this survey?'; 76.1% chose' very easy' or' rather easy').

Measurements

Purchase intent was measured separately for the abstract-superior and concrete-superior product options using a three-item scale adapted from Lepkowska-White et al. (2003) ($\alpha_{abstract\text{-}superior}$ = .934, $\alpha_{concrete\text{-}superior}$ = .957): (1) I will definitely not buy/I will definitely buy; (2) I would definitely not consider buying/I would definitely consider buying; (3) I really do not want to buy it/I really want to buy it. Responses were collected using slider scales and were coded from 1 to 100, where the higher values indicated a higher purchase intent. The scores from the three items were pooled into a single index.

Perceived benefits of an option were measured separately for each option presented in the stimuli using a single item (absolutely no benefits/exceptionally beneficial). Responses were collected using slider scales and were coded from 1 to 100, where the higher values indicated higher perceived benefits.

Perceived helpfulness and trustworthiness were measured separately for concrete and abstract product information presented in the stimuli. To ensure the participants understood well which information in the stimuli was concrete or abstract, the stimuli presentation was repeated, highlighting the concrete and abstract attributes subsequently. The perceived helpfulness was measured using a three-item scale based on Huang et al. (2020) (helpful, useful, usable; response scales anchored with totally disagree/totally agree, $\alpha_{abstract\ information}$ = .956, $\alpha_{concrete\ information}$ = .945). The perceived trustworthiness was measured separately for concrete and abstract information presented in the stimuli with a three-item scale adapted from Ghazisaeedi et al. (2012) (insincere/sincere, not credible/credible, not trustworthy/trustworthy; $\alpha_{abstract\ information}$ = .933, $\alpha_{concrete\ information}$ = .947). All the above responses were collected using slider scales and were coded from 1 to 100, where the higher values indicated higher perceived helpfulness and trustworthiness, respectively. For both of the above measurement scales, the scores from the respective items were pooled into a single index.

Results

The analyses were conducted in SPSS v. 28, and the mediation models were analyzed using the PROCESS macro v. 3.5.3. Two focal evaluate-mode conditions (the separate evaluation of the concrete-superior option vs. the joint evaluation) were compared. The purchase intent for the concrete-superior option was higher in the joint evaluation than in the separate evaluation of the concrete-superior option (Figure 3, independent-sample t-Student test with evaluation-mode condition (joint vs. separate concrete-superior) as an independent variable and purchase intent as a dependent variable; M_{joint} = 48.67, $M_{separate\ concrete\text{-}superior}$ = 37.00, t(276.715) = 4.260, $p < .001$), supporting H1. Next, in the joint evaluation, the perceived trustworthiness of the abstract product information was lower (independent-sample t-Student test with evaluation-mode condition (joint vs. separate concrete-superior) as an independent variable and perceived trustworthiness as a dependent variable; M_{joint} = 60.20, $M_{separate\ concrete\text{-}superior}$ = 67.62, t(281) = 3.518, p = .001), similar to the perceived helpfulness of abstract product information (independent-sample t-Student test with evaluation-mode condition (joint vs. separate concrete-superior) as an independent variable and perceived helpfulness as a dependent variable; M_{joint} = 67.91, $M_{separate\ concrete\text{-}superior}$ = 73.07, t(281) = 2.126, p = .034). Importantly, unlike the perceived trustworthiness of the abstract information, the perceived trustworthiness of the concrete information was not differentiated by the evaluation mode when comparing the joint evaluation and the separate evaluation of the concrete-superior option ($p > .6$), and the difference in perceived trustworthiness between the abstract and the concrete information was qualified by the interaction between the information type (abstract vs. concrete) and the evaluation mode in repeated-measures ANOVA on the perceived trustworthiness (Wilk's Lambda = .968, F(1,281) = 9.259, p = .003).

In line with H2, the perceived trustworthiness and helpfulness of the abstract information serially mediated the relationship between the evaluation mode (the joint mode coded as 1, and the separate concrete-superior mode coded as 0) and the purchase intent (Figure 4, PROCESS model 6, Hayes, 2017: VIFs < 1.7, β_{total} = .489, $p < .0001$, β_{direct} = .453, p = .0001, $\beta_{indirect}$ = .048, 95%CI[.006, .107], 5000 bootstrap samples).

Interestingly, the above pattern was mirrored in the comparison between the joint evaluation and the control condition (i.e. the separate evaluation of the abstract-superior option). Namely, the purchase intent for the abstract-superior option was higher in the joint evaluation than in the separate evaluation of the abstract-superior option (independent-sample t-Student test with evaluation-mode condition (joint vs. separate abstract-superior) as an independent variable and purchase intent as a dependent variable; M_{joint} = 57.18, $M_{separate\ abstract\text{-}superior}$ = 51.42, t(279) = 2.315, p = .021). Additionally, the perceived trustworthiness of the concrete information was lower in the joint evaluation (independent-sample t-Student test with

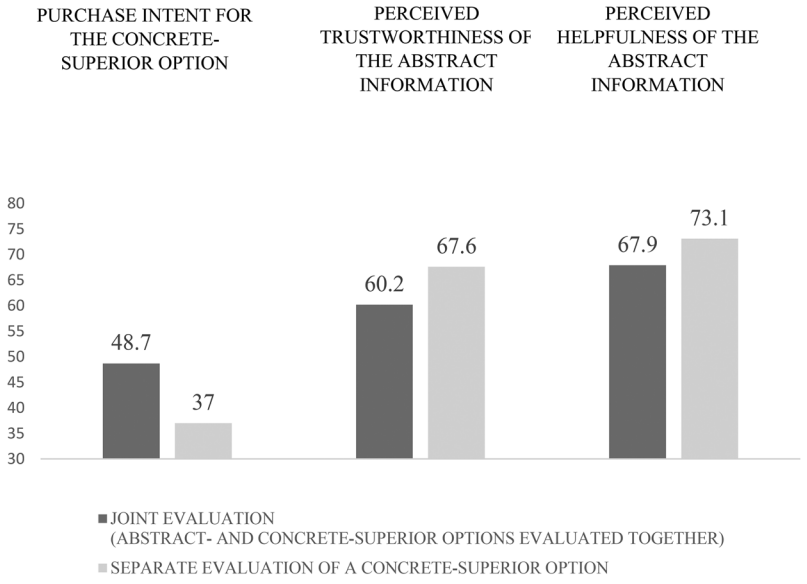

Figure 3. Effects of the evaluation mode (Study 1).

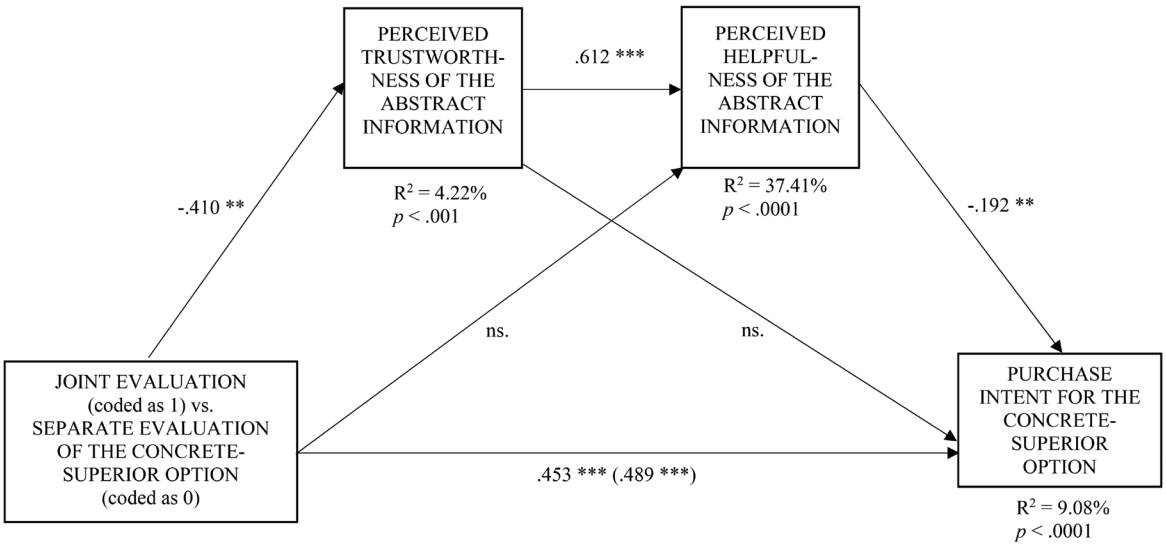

Figure 4. Serial mediation between the evaluation mode and the purchase intent (Study 1).

evaluation-mode condition (joint vs. separate abstract-superior) as an independent variable and perceived trustworthiness as a dependent variable; M_{joint} = 62.09, $M_{separate\ abstract\text{-}superior}$ = 67.32, t(279) = 2.367, p = .019).

The perceived benefits of the concrete-superior option were higher in the joint evaluation than in the separate evaluation of the concrete-superior option (independent-sample t-Student test with evaluation-mode condition (joint vs. separate concrete-superior) as an independent variable and perceived benefits as a dependent variable; M_{joint} = 49.85, $M_{separate\ concrete\text{-}superior}$ = 37.15, t(277.685) = 4.658, p < .001). Moreover, the perceived benefits mediated the relationship between the evaluation mode (the joint mode coded as 1, and the separate concrete-superior mode coded as 0) and the purchase intent (Figure 5, PROCESS model 4, Hayes, 2017: VIF = 1.1, $\beta_{indirect}$ = .409, 95%CI[.239, .576], 5000 bootstrap samples), supporting H3. Noteworthily, the direct effect was non-significant (p_{direct} > .3), indicating full mediation.

This pattern was not mirrored in the comparison between the joint evaluation and the separate evaluation of the abstract-superior option. Namely, the perceived benefits of the abstract-superior option were not differentiated by the evaluation mode (p > .05).

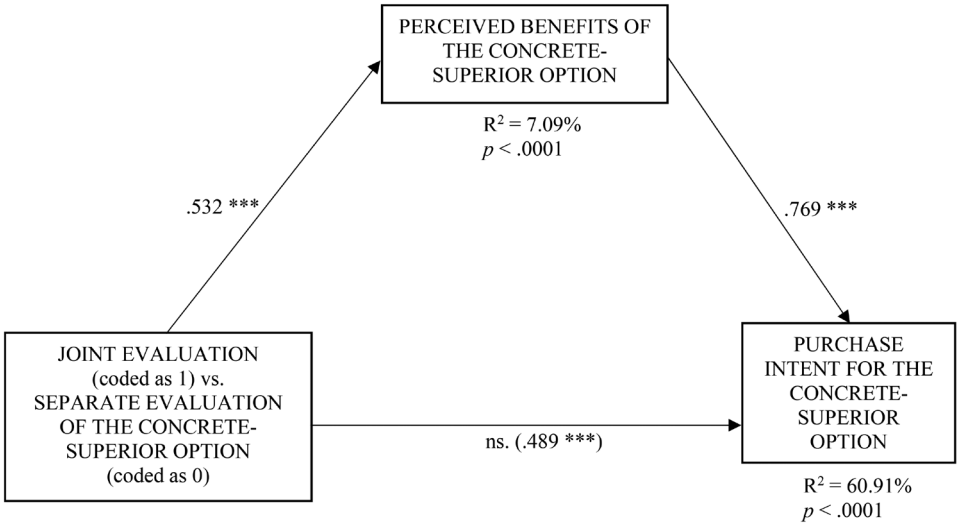

Figure 5. Mediation between the evaluation mode and the purchase intent (Study 1).
The number in brackets represents the total effect. *** p < .001, ns. – non-significant.

Study 2

Procedure

This study aimed to replicate the positive effect of the joint evaluation mode on the purchase intent regarding the concrete-superior option (H1) and to test the mediation through the perceived benefits of the concrete attributes of this option (H4). In Study 2, the participants were young adults aged 18 to 30, living in Europe, with at least a high school education, recruited by a team of marketing research undergraduates at the SGH Warsaw School of Economics (Warsaw, Poland), similar to Glaser & Reisinger (2022). After excluding ten people aged above 30, four hundred-five participants (48.6% females, M_{age} = 22.1, SD = 1.75) remained in the sample. Appropriate informed consent has been collected from the participants. The procedure was revised by the SGH Warsaw School of Economics Ethics Committee (approval no. 16_2022).

The participants were randomly assigned to two evaluation-mode conditions (i.e. separate evaluation of the concrete-superior option vs. joint evaluation of the concrete- and abstract-superior options). The introduction and stimuli were the same as in Study 1. After viewing the stimuli, the participants rated their purchase intention for the presented options and the perceived benefits of the concrete attributes of the concrete-superior option. Like in Study 1, to reduce self-generated validity issues (Feldman & Lynch, 1988), the order of the measurements countered the hypothesized causality (Lunardo & Rickard, 2019); the purchase intent was measured first, followed by the perceived benefits. The interviews ended with a demographics section including questions about the realism of the stimuli ('Might a similar situation of thinking of a product purchase when browsing websites, as it was described in this questionnaire, actually happen to you?'; 70.9% chose 'very similar situation' or 'rather similar situation'), and easiness to imagine the situation ('Was it easy for you to imagine yourself browsing a website and thinking of a product purchase, as it was described in this questionnaire?'; 71.9% chose 'very easy' or 'rather easy').

Measurements

Purchase intent was measured for each option presented in the stimuli using the same three items as in Study 1, except from the response format, which was seven-point, coded from 1 to 7, where higher values indicated a higher purchase intent. The scores from the three items were pooled into a single index.

Perceived benefits of concrete attributes were measured for the concrete-superior option. Three seven-point items, adapted from Cox & Cox (2002) (not useful/extremely useful, not functional/extremely functional, not beneficial/extremely beneficial) were used. The last item of the original scale contained the adjective 'practical', which was replaced by 'beneficial' to avoid possible confounds resulting from the presence of the word 'practical' in the current stimuli. The responses were coded from 1 to 7, where higher values indicated higher perceived benefits. The scores from the three items were pooled into a single index.

Results

Similar to Study 1, the analysis was conducted in SPSS v. 28, and the PROCESS macro v. 3.5.3 was used for the mediation model. In line with H1, in the joint evaluation (vs. the separate evaluation of a concrete-superior option), purchase intent for a concrete-superior option was higher (independent-sample t-Student test with evaluation-mode condition (joint vs. separate concrete-superior) as an independent variable and purchase intent as a dependent variable; M_{joint} = 3.64, $M_{separate\ concrete\text{-}superior}$ = 3.20, t(403) = 2.993, p = .003), as were the perceived benefits of concrete attributes of that option (independent-sample t-Student test with evaluation-mode condition (joint vs. separate concrete-superior) as an independent variable and perceived benefits as a dependent variable; M_{joint} = 4.42, $M_{separate\ concrete\text{-}superior}$ = 3.98, t(403) = 3.374, p = .001). Moreover, the perceived benefits mediated the relationship between the evaluation mode (the joint mode coded as 1, and the separate concrete-superior mode coded as 0) and the purchase intent (Figure 6, PROCESS model 4, Hayes, 2017: VIF = 1.0, β_{total} = .295, p = .003, $\beta_{indirect}$ = .173,

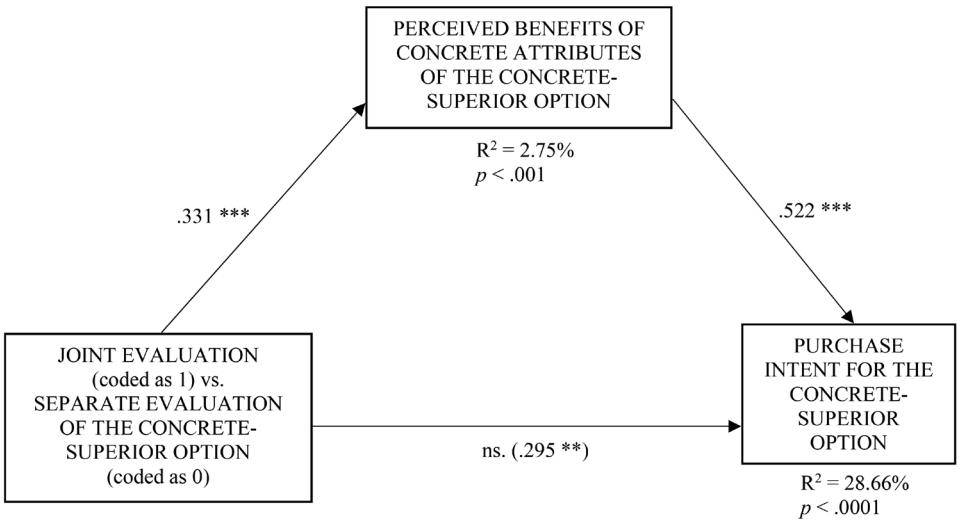

Figure 6. Mediation between the evaluation mode and the purchase intent (Study 2).
The number in brackets represents the total effect. ** $p < .01$, *** $p < .001$, ns. – non-significant.

95%CI[.073, .277], 5000 bootstrap samples). This provides support for H4. Noteworthily, the direct effect was non-significant ($p_{direct} > .1$), indicating full mediation.

Discussion of the results

The results of both studies, conducted on different consumer populations, consistently suggest that concrete-superior product options (which may represent brands with comparatively lower in terms of the overall image, albeit depicted by experts as having certain technical advantages) are better evaluated and intended to be purchased by consumers when presented jointly with abstract-superior options (which may represent stronger brands, depicted by experts positively in terms of the overall image). Specifically, the results of Study 1 indicate that, in the joint evaluation, abstract information on the product options (which speaks against the concrete-superior options) may be perceived as less trustworthy. It suggests a trustworthiness-related mechanism that may contribute to the positive effect of joint evaluation. This is in line with the proposition that in the joint evaluation (vs. separate evaluation of the concrete option), the abstract information (containing positive ratings) may be rather attributed by the consumers to the promotional efforts of the experts. Moreover, the results of both current studies indicate that, in the joint evaluation, consumers may perceive more benefits of concrete-superior options (Study 1) and, more specifically, their concrete attributes (Study 2). It suggests a benefit-related mechanism that may contribute to the positive effect of joint evaluation. This is in line with the proposition that the instrumentality concerns may be diminished (or even vanish) in joint evaluation, enabling the concrete attributes to be perceived as more beneficial. The theoretical implications of those results is that they suggest a novel positive effect of the evaluation mode (joint vs. separate presentation of a concrete-superior product) on the purchase intent for the concrete-superior product), which may be based on the trustworthiness-related and benefit-related mechanisms. For marketers aiming to promote their concrete-superior products with concrete technological advantages but of relatively low reputation, this effect provides the opportunity to improve the products' sales by presenting the concrete-superior products alongside the corresponding abstract-superior products (with no such advantages but having higher reputation) (see details in the Theoretical implications and Practical implications sections below).

Although not hypothesized, the findings of Study 1 suggest that the joint evaluation mode (compared to the separate evaluation of the abstract-superior option) might also increase the purchase intent of the abstract-superior options and decrease the trustworthiness of the concrete information on the presented product options. Perhaps concrete information, which contains the positive valence in the joint evaluation mode (vs. separate evaluation of an abstract-superior option), might also be attributed by consumers more to the promotional efforts of the experts.

As the current results have certain limitations (see details in the Limitations and further research perspectives section below), more research is needed to involve AI-generated product ratings, pricing, and brand information, different product categories and consumer populations, relevant constructs like consumer product expertise and general trust in marketing, real marketplace product options, field experiments, and capturing consumer response to products with eye-tracking and text mining of user-generated content.

Theoretical implications

The current research adds to the existing literature on inter-attribute trade-offs (Luchs et al., 2012; Luchs & Kumar, 2017) and the evaluation mode (Hsee & Tsai, 2007; Hsee & Zhang, 2004, 2010; Tan et al., 2018; Zhao & Xia, 2020) by examining the role of the evaluation mode in consumer evaluation of textually presented products in the presence of an inter-attribute trade-off involving instrumentally related abstract vs. concrete product attributes. Specifically, the positive effect of the joint evaluation of the concrete- and abstract-superior option (vs. separate evaluation of the concrete-superior option) on the purchase intent for the concrete-superior option was proposed and evidenced. Two underlying mechanisms were evidenced.

In the first mechanism (trustworthiness-related) suggested by the current results, the above positive effect of the joint evaluation mode on the purchase intent of the concrete-superior option is serially mediated by the abstract information trustworthiness and helpfulness, which are lower in the joint evaluation, and negatively related to the purchase intent of the concrete-superior option (as the latter is described as poorly performing in terms of an abstract attribute). The instrumental relationship between abstract and concrete attributes, as defined in the means-end chain theory (MECT), is proposed to contribute to this mechanism, as it raises doubts about positive expert ratings of the abstract-superior product option in terms of an abstract attribute because the option is rated low in terms of an instrumentally related concrete attribute. As such, the proposed mechanism links the concepts of evaluation mode and inter-attribute trade-off with MECT. As, to the best of the authors' knowledge, that link was not studied before, the current research adds to the abundant and growing literature applying MECT (Heinze et al., 2017; Houston & Walker, 1996; Lin et al., 2019; Lin & Fu, 2018; Liu et al., 2022; Ratakam & Petison, 2023). By evidencing the positive effect of the joint evaluation on information trustworthiness, this research supports the existing literature on the causal attribution of marketing communication (Folkes, 1988) and, more specifically, on the negative effect of the frequency of positive ratings on the perceived trustworthiness of product reviews (Shoham et al., 2017). Namely, the current results are consistent with the proposition that consumers tend to attribute positive-valence expert ratings of a product to the experts' promotional efforts. By examining the trustworthiness-based mechanism, the current study adds to the field of perceived information trustworthiness and helpfulness (Cabeza-Ramírez et al., 2022; Ling et al., 2021; Obeidat et al., 2022; Wu et al., 2021; Xu et al., 2022).

In the second mechanism (benefit-related) suggested by the current results, the positive effect of the joint evaluation mode on the purchase intent of the concrete-superior option is mediated by the perceived benefits of this option and, more specifically, its concrete, technical attributes. Similar to the first mechanism, the benefit-related one pertains to the means-end chain theory (MECT), as the instrumentality concerns, based on the instrumentality relationships between abstract and concrete attributes as defined in MECT, raised from a poor evaluation of abstract attributes of the concrete-superior option (which might harm the benefit perception of its concrete attributes) are proposed to be diminished (or even vanish) in the joint evaluation. As this conclusion emphasizes the link between the concepts of evaluation mode and inter-attribute trade-off with MECT, it further adds to the recent MECT literature (Heinze et al., 2017; Houston & Walker, 1996; Lin et al., 2019; Lin & Fu, 2018; Liu et al., 2022; Ratakam & Petison, 2023). By examining the benefit-based mechanism, the current study adds to the field of perceived product benefits (e.g. Khare, 2023; Schulte et al., 2022).

Practical implications

The presented research may guide marketers in communicating their products, which are technically advantageous compared to competitors' products (possibly of high-reputation brands) that are perceived as

excelling in their abstract attributes. Specifically, it is suggested that those technically advantageous ('concrete-superior') products should be presented alongside the strong-reputation competitors' ('abstract-superior') products. Marketers can provide promotional content that includes comparisons with the strong-reputation brands, ensure that their offer is exposed side-by-side with these brands in sales channels, and encourage salespersons and web influencers to make such comparisons. For example, marketers may want to promote headphones that are low-rated in terms of general reputation (e.g. being considered to have poor durability). Suppose the headphones are highly rated in terms of technical features (like wire enhancement), which are absent in the offer of highly reputable competitors. In that case, the marketers should display a direct comparison of those ratings between their headphones and the competitors' headphones. Based on the current results, such a two-sided message should be more persuasive (in favor of their headphones) than presenting it alone. While displaying their product together with the competitors' headphones, the marketers may expect that abstract product information (that rather works against their 'concrete-superior' product) is perceived as less trustworthy, and the technical advantages of their concrete-superior product are perceived as more beneficial. Hence, they may enhance this effect by pointing out these advantages and questioning the credibility of the abstract, reputation-related beliefs.

Limitations and further research perspectives

The current study is not free of limitations. Particularly, the investigation of the role of evaluation mode and inter-attribute concrete-abstract trade-offs on purchase intent should involve new technologies omnipresent in e-commerce, like Big Data and Artificial Intelligence (AI), allowing for AI-generated personalized product recommendations (Bawack et al., 2022). While our study assumed product attribute ratings come from product experts, in today's technology settings, AI-enabled algorithms may generate such ratings using large amounts of data. Compared to human experts, who may be perceived as subjective and, therefore, attributed to experts' interest in supporting marketers, AI may be perceived as more objective and unbiased, which is conceptualized as 'machine heuristics' (Sundar & Kim, 2019) and based on the data gathered from other consumers (Singh & Chakrabarti, 2020) instead of marketers. Moreover, AI-generated product recommendations based on abstract (vs. concrete) information tend to be more discounted by consumers as AI is perceived as more appropriate to speak about concrete, objective product characteristics instead of abstract product information that is more related to the perspective of human needs, goals and values (Kim & Duhachek, 2020; Longoni & Cian, 2022; Trzebiński et al., 2023; Wien & Peluso, 2021). Those characteristics of AI perception may make consumer response to evaluation mode and inter-attribute concrete-abstract trade-offs different when product attribute ratings are provided by AI vs. humans. Future studies need to investigate that possible difference.

The current studies used fictitious product options. This approach allowed the development of the stimuli containing the pairs of concrete-abstract product attributes with specified expert ratings and instrumentality relationships. However, real marketplace product options and field experiments could be used in further studies to increase external validity. New technologies allow for deepened data analysis in e-commerce, including text mining of user-generated content (Bawack et al., 2022), which was not utilized in the current studies. Thus, future field studies on inter-attribute concrete-abstract trade-offs should involve sentiment text analysis to capture consumer responses to products presented in different evaluation modes. Specifically, such studies can assess whether concrete-superior products presented jointly with the corresponding abstract-superior products (vs. separately) reach more positive user-generated comments.

Apart from studying purchase intent and purchase behavior as dependent variables, future research should apply eye-tracking to investigate what type of product information (abstract or concrete) draws consumer attention depending on the evaluation mode in the context of inter-attribute trade-offs.

The current experimental settings did not consider pricing and brand information, as they aimed to isolate the effect of the evaluation mode and trade-offs between the inherent product attributes. However, the price and brand may serve as cues or arguments in choosing weak- or strong-brand products. For that reason, future studies may investigate the effect of the evaluation mode on the inter-attribute

trade-offs, including brand labels and price differences between weak and strong brands, especially in field experimental settings.

While the current paper focuses on concrete-superior, weak-reputation products, further studies may also consider the evaluation of abstract-superior, strong-reputation products. Particularly, the analysis for Study 1 revealed the positive effect of the joint evaluation mode on the purchase intent of abstract-superior products, which is worth investigating.

The effects of the evaluation mode in the inter-attribute trade-offs may be examined with different product categories (including high-involvement ones like smartphones) and different consumer groups (e.g. older consumers).

Finally, involving other constructs in exploring the interplay of evaluation mode and inter-attribute trade-offs is a promising avenue for future research. Specifically, further studies should consider consumer product expertise, which may influence the perceptions of instrumental relationships between concrete and abstract product attributes. Consumers with high product expertise may recognize more such instrumental relationships, leading to a larger role of instrumentality-related concerns, enhancing the mechanisms evidenced in the current research. Another meaningful construct may be the general trust in product communication and product experts, which may intervene in the trustworthiness-related mechanism. Consumers with low general trust may be more sensitive to the above instrumentality-related concerns.

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No potential conflict of interest was reported by the author(s).

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Data availability statement

The datasets used in the current studies are available from the corresponding author upon reasonable request.

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