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Abstract. Since many companies choose to publish digital video advertisements with creative features on the Internet to promote new products. This study aims to examine the impact of the number of creative strategies (NCS) in advertising messages on consumer review valence and explore whether this impact varies by new product type (incrementally new products vs. really new products). Based on the method of content analysis and empirical analysis on 564 digital video advertisements published by six world-renowned electronic product brands from 2018 to 2019 on YouTube, this study draws three main conclusions: (1) whether new products belong to incremental new products (INPs) or really new products (RNPs), there is an inverted U-shaped relationship between NCS and consumer review valence; (2) the inflection point of NCS (INP) is greater than the inflection point of NCS (RNP) and (3) the maximum value of consumer response for INP is greater than that for RNP. This study not only provides a new theoretical perspective for NCS, but also contributes valuable guiding principles for designing the effective advertising creative strategies for new products. Keywords: Marketing, Consumer behavior, Consumer products, Polynomial regression, Nonlinear analysis.

1 Introduction

The successful development and marketing of new products has created opportunities for most companies to enhance their competitive advantage in a fierce market environment and has also contributed to a significant increase in business performance. Product life cycle theory holds that if an enterprise cannot successfully introduce a new product into the market, it will face a tragic situation of sharp decline in the overall market share [1]. Digital video advertising plays a significant role in the early stages of introducing new products into the market. It can be vigorously disseminated and promoted in a way that consumers like in a short period of time, so that consumers can browse their favorite product advertisements and improve their experience, thus promoting consumers to generate purchase intentions and behavior [2]. This shows that in the stage of new product launch, video advertising has an irreplaceable advantage in conveying product knowledge and persuading purchases [3]. Therefore, in an
era of rapid technological change, sophisticated customers, and ever-compressing product life cycles, how to design an effective advertising message strategy for various new products that are constantly iterating is a major challenge for brand manufacturers and advertising researchers.

Message strategy is the method and means of delivering the message theme, and it is the guiding principle in the design of all advertising messages with the aim of eliciting the desired response from the target audience [4]. Since advertisers need to choose the right media to pay to display message in the complex media to attract the attention of the audience, those who are afraid of wasting money can only use unconventional and innovative means to design advertising message, which means that message strategy needs to present creative strategy. Creative strategy is defined as “a policy or guiding principle which specifies the general nature and character of messages to be designed” [5]. In response to the fact that people generally try to avoid repetitive and boring advertisements, highly creative advertising can garner more attention and lead to even more positive brand attitudes when consumers are using media in a goal-directed way [6]. Therefore, creativity is a key factor in advertising success.

As a new research field, the research on creative strategy has not yet formed a systematic theoretical system [7]. Scholars have carried out extensive exploration on this topic, mainly including the following two aspects: (1) how creative strategy affects consumer response and (2) which elements of creative strategy can affect consumer response. For example, research by Shen et al. (2021) found that advertising creative strategy had an impact on consumers’ recognition and purchase intent, with greater accuracy and more favorable purchase intent for creative advertisements [8]. Chtourou et al. (2002) found that advertisements with promotional rewards (obligation) and free samples (habit-starting) can achieve higher click-through rate than advertisements without these incentives [9].

To sum up, the existing research mainly focus on testing the effects of creative strategy and its elements, that is, how creative strategy and its elements can positively influence consumer behavior. Research on the relationship between the number of creative strategies (NCS) and consumer response is yet to be explored. However, the actual situation is that many video advertisements use several creative strategies at the same time, but more is not necessarily better. Therefore, how to find the moderate number of creative strategies that can maximize the effectiveness of advertising is crucial. In addition, new products can be classified into incremental new products (INPs) and really new products (RNPs) based on the measurement of product newness [10]. Consumers acceptance of NCS for different types of new products (INPs vs. RNP) may also vary widely. Based on aforementioned speculation, this study is committed to examining the inverted U-shaped relationship between NCS and consumer response and exploring the difference in such relationships when new products are INPs or RNPs. It would enrich the current literature by providing a deeper understanding of the “NCS threshold” and offering a new insight into the difference in the inverted U-shaped curve when distinguishing INPs and RNPs. The rest of this paper is organized as follows. In Sect. 2, we review the theories and relevant literature, and develop testable hypotheses. In Sect. 3, research methodology is proposed. Data analysis and empirical results are shown in Sect. 4. Finally, the research results and conclusions are summarized in Sect. 5.

2 Theoretical Background and Hypotheses

2.1 NCS and Consumer Review Valence

The value of creative strategy-enabled video advertising in driving positive consumer reviews has been proven by many advertising researchers. Because advertising creative strategies can garner consumers’ more attention [6], form positive emotional and behavioral responses
through the process of consumers’ perceived humor and perceived value [11], leading to more positive brand attitudes and more favorable purchase intent [8]. Therefore, video ads with creative strategies have a more positive effect on consumer reviews than those without creative strategies.

Content and execution are the two most common elements of creative strategy [12]. The content is an introduction to the relevant features and benefits of the product, reflecting “what the advertisement says”; the execution includes creative elements such as music, action, and situation, reflecting “how the advertisement says”. Therefore, as NCS increases, the content and execution cues in the advertisement become richer, consumers can know more details about new product attributes and benefits through more creative information expressions, which can continuously stimulate the curiosity of consumers, increase their attention to advertisements and their motivation to process product information. Under this circumstance, higher attention and stronger information processing motivation encourage consumers to allocate more cognitive resources to advertising information [13], which is beneficial for consumers to process information more effectively and then better understand the new product when watching advertisements. According to the processing fluency theory, the easier people process information, the higher their processing fluency [14]. Numerous research has confirmed that higher information processing fluency positively influence consumers’ attitude toward the advertisement and the brand, and also increase their purchase intention [15]. Therefore, with the increase in NCS, consumers will allocate more cognitive resources to the advertising information processing, making product-related information easier to understand, thereby improving the consumers’ information processing fluency and promoting consumers to generate more positive evaluations. As a result, it is clear that as the NCS rises, consumers positively react more strongly.

However, when NCS in an advertisement exceeds the optimal value and is overrepresented, consumers’ senses will be gradually overwhelmed, resulting in their negative responses to the product. This can be explained by Too-Much-of-a-Good-Thing (TMGT) effect and innovation overload effect. When the ordinarily beneficial antecedent (i.e. predictor variable) reaches an inflection point, its relationship with the desirable outcome (i.e. criterion variable) ceases to be linear and positive, and the TMGT effect occurs [13]. Exceeding these inflection points is usually undesirable because it results in waste (no additional gain) or harmful repercussions [16]. The TMGT effect is based on the philosophical premise that too much of anything good is ultimately detrimental [13]. Then, when too many creative strategies related to the product features are presented in video advertisements, consumers will instead be alienated from the product due to overly complex marketing cues. Innovation overload emphasizes a consumer’s response to the ever-increasing speed of change in information, knowledge, and innovations, and it usually occurs when the nature of the information is uncertain, ambiguous, novel, complex, or intense [17]. Therefore, when consumers are given too much novel information about creative strategies, they may experience innovation overload, making them feel less confident and more confused. Because an over-abundance of advertising innovation may distract the viewers from the advertising message and decrease their perception that the marketer is reliable when they feel advertisers do not make a serious argument [18], which leads to reduction of message processing motivation and impairment of decision-making abilities [19]. As a result, when creative strategies exceed a specific amount, it means that the innovative information processing capability of consumers is exceeded. Then, consumers’ attention will be distracted, and their perceived reliability of advertising will decline. Eventually, the positive response initially at the highest point will be downward with NCS.

After integrating processing fluency theory, TMGT effect and innovation overload effect, we find that the relationship between NCS and consumer response may have a positive slope
that increases from low to moderate levels of NCS. Once it falls beyond the medium level, it exhibits a downward slope. Therefore, we formulated the following hypothesis:

Hypothesis 1. There is an inverted U-shaped relationship between the NCS and consumer review valence.

2.2 Product Newness on the Inverted U-shaped Relationship

Product newness is the continuum of consumer perceptions of a new product, that is, the extent to which the product being developed is new to consumers. Researchers have identified two distinct consumer impressions regarding the quality of a freshly launched product’s newness: incrementally new products (INPs) and really new products (RNPs) [20]. According to Zhao et al. (2009), INPs are new products with improvements based on the existing products, such as a new version of a laptop [21]. In contrast, RNPs indicate new products with novel benefits that create a new product category [22], such as the iPad. Therefore, consumers have very limited understanding of RNPs compared to INPs.

Although the degree of newness differs, both new products, whether INPs or RNPs, are considered interesting, innovative, and novel [23], causing consumers to experience varying degrees of strangeness before purchasing. And this kind of strangeness caused by the lack of new product knowledge will prevent consumers from fully comprehending new products. Advertising is considered a decisive factor in promoting consumers’ familiarity and acceptance of new products. With an increase in NCS, consumers’ understanding of new products can be deepened in a more vivid way, thereby promoting positive product reviews. However, according to the limited human processing capacity model, consumers are assumed to be limited capacity message processors. Therefore, whether INPs or RNPs, when consumers watch video advertisements with various creative elements, they will process this information with limited cognitive ability. Once NCS provides excessive advertising messages about new products that exceed the cognitive load of consumers, it may exacerbate consumers’ confusion, resulting in a decline in their evaluation of new products. Consequently, regardless of whether the new product is INP or RNP, only a moderate NCS can stimulate consumers optimal reviews. Therefore, we formulated the following hypothesis:

Hypothesis 2a. Product newness has no moderating effect on the inverted U-shaped relationship between NCS and consumer review valence. This relationship applies to both INPs and RNPs.

Cognitive map, as a particularly important research theory in psychology, is defined as the internal mental representation of the constructs employed by the individual to interpret the environment and the relationships between the constructs [24], the size of which is determined by the quantum of specific knowledge [25]. Consumers have different cognition maps for different new products, depending on their knowledge. Compared with RNPs, consumers have more prior knowledge to understand INPs, so consumers’ cognitive maps of INPs are larger than that of RNPs. As the NCS continues to increase, a smaller cognitive map enables consumers to reach the cognitive boundary of RNPs faster, and once this cognitive boundary is exceeded, consumers will gradually have negative valence of the product due to the limited information processing ability. Therefore, we formulated the following hypothesis:

Hypothesis 2b. The inflection point of the INPs’ NCS is greater than that of the RNPs’ NCS.

According to the consumer resistance theory, the usage barrier is the most common reason for consumer resistance to an innovation [26], which emerges when innovation is inconsistent with current habits, practices, and norms [27], resulting in a change in consumers’ equilibrium [28]. Specifically, consumers will be required to devote more time and energy to learning how to use the new products with high degree of innovation in comparison with
those conventional ones. This significant change in consumers’ equilibrium is undoubtedly a huge burden and challenge for consumers, which may make them form more frustration and discomfort in the process of knowledge transfer [29]. Therefore, from the moment consumers perceive NCS in advertising, the learning cost that consumers spend to process NCS of RNPs will continue to be higher than that of INPs since RNPs are more unfamiliar with consumers. This will make consumers to be less accepting of RNPs (vs. INPs) in any certain level of NCS. In other words, when the consumer response reaches its maximum value (RNPs), the corresponding response (INPs) is greater. Therefore, we hypothesize as follows:

Hypothesis 2c. The maximum value of consumer review valence (INPs) is greater than that of consumer review valence (RNPs).

3 Methodology

3.1 Sampling Procedure

This study adopted a multi-stage procedure to collect creative strategy information for new product digital-video advertisements. Specific steps were as follows: (1) The technology-driven industry which is often the first to drive product upgrading was selected as the research objects. According to the fourth edition of ISIC, this study selected three industries with strong technology-driven performance: manufacture of computer, electronic and optical products (MCEOPs); computer programming, consultancy, and related activities (CPCRA); and manufacture of electrical equipment (MEEs). According to the classification of the MCEOP, CPCRA and MEE industries, and the characteristics of each new product, 462 ads represented MCEOP, 77 ads represented CPCRA, and 25 ads represented MEE of the total sample. (2) YouTube is the most visited video website in the world, with 2 billion monthly active users, and more than 90% of users discover new brands or new products through YouTube. Therefore, we selected companies with more than 200,000 official brand subscriptions in the above three industries as the research objects on the YouTube platform, namely: Apple (10,700,000), Samsung (4,210,000), Microsoft (658,000), Huawei (598,000), Asus (506,000) and Lenovo (208,000). (3) Considering the fast update speed of new products, this study only selected a total of 1118 video advertisements published by these brand official accounts within two years from January 1, 2018 to December 31, 2019. And we collected and recorded the online data of these six brands at a unified time node, such as commercial length, brand subscription quantity, number of likes and dislikes, etc. (4) In order to ensure that the coders can clearly understand the advertising information, and accurately divide the new products into INPs and RNPs, those too abstract advertisements and advertisements without subtitles were deleted. Finally, 564 digital-video advertisements were selected as research sample.

3.2 Coding Procedure of Advertising Creative Strategy

This study used ten creative elements proposed by Simon (1971) to identify advertising creative strategies. It consists of ten creative strategy elements: information, argument, motivation with psychological appeals, repeated assertion, command, brand familiarization, symbolic association, imitation, obligation, and habit-starting [30]. This measurement system has strong reliability and validity in the field of advertising since it has been tested by numerous scholars. When a certain creative strategy appeared, it was recorded as 1; if it did not appear, it was recorded as 0. First, six coders from the advertising industry field were selected as candidate coders for the content analysis of this study. Subsequently, 30 digital video advertisements were randomly selected from the overall sample to train the six
candidate coders to ensure that they were familiar with the general characteristics of video advertisements and mastered the basic coding procedures. Finally, after training and assessment, it was determined that two coders were independently responsible for the coding of all 564 video advertisements, while the third coder was responsible for resolving the differences in judgment between the two coders for each advertisement. After two rounds of iterations based on this standard, the final identification data of creative strategy elements was formed. Based on Perreault and Leigh’s (1989) reliability formula, intercoder reliability was 98.16%.

Content analysis revealed that, among the 564 video advertisements, the NCS was generally distributed between 0 and 5, with an average value of 1.78 ($SD = 0.720$). Among them, 559 advertisements contained one or more creative strategy elements, accounting for about 99% of the total sample. Among these advertisements with creative strategies, 301 advertisements (about 54%) were designed with 2 creative strategy elements, while only 2 advertisements (about 0.4%) were designed with 5 creative strategy elements. It could be seen that creative strategies have been widely used in new product digital video advertisements, but advertisers still strictly control the number of creative strategy elements presented in advertisements.

### 3.3 Coding Procedure of Product Newness

According to the expert scoring procedure used by Min et al. (2006), this study defined the new products shown in advertisements into INPs and RNPs [31]. The specific operation steps were as follows: (1) According to previous studies and the characteristics of new products in sample advertisements [10], we determined the benchmark products recognized by the MCEOP, CPCRA and MEE industries. In the MCEOP field, the final benchmark product was QLED 8K TV. In the CPCRA field, the benchmark product was Huawei Track AI. And the benchmark product for MEE was Samsung $POWERbot^TM$ sweeping robot. (2) A total of 9 experts were selected in the above three industries, and they were asked to score the newness of the products to be evaluated and the benchmark products according to the definition of product newness on a Likert scale (INP = 1, RNP = 7). (3) We calculated the average score of each benchmark product in the three industries and used it as the benchmark score of the RNP. If the newness score of a product was higher than or equal to the benchmark score, the product was defined as RNP; otherwise, it was defined as INP. This procedure yielded 363 RNPs and 201 INPs.

In order to quantify the reliability of product newness measurement, we determined Cronbach’s $\alpha$, which estimates the average correlation in the inter-expert ratings. The results indicated that the Cronbach’s $\alpha$ was 0.84, that is, the reliability was acceptable. The sample information is presented in table 1.

### 3.4 Measures

Review valence. In the digital space, review valence is an important measure of consumer responses. It is a mixed expression of consumer emotional, cognitive and behavioral responses.
Table 2. Descriptive statistics and correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 length</td>
<td>64.31</td>
<td>48.424</td>
</tr>
<tr>
<td>2 BSQ</td>
<td>3.46</td>
<td>1.815</td>
</tr>
<tr>
<td>3 industry</td>
<td>1.23</td>
<td>0.513</td>
</tr>
<tr>
<td>4 newness</td>
<td>1.36</td>
<td>0.479</td>
</tr>
<tr>
<td>5 NCS</td>
<td>1.78</td>
<td>0.720</td>
</tr>
<tr>
<td>6 valence</td>
<td>0.9468</td>
<td>0.05082</td>
</tr>
</tbody>
</table>

1 2 3 4 5 6

Notes: *p<0.05; **p<0.01; ***p<0.001

[32], which reflect consumers’ attitudes, cognitive fluency, and purchase intentions, respectively. Review valence was proposed by the bipolar attitude model on a one-dimensional measure, with positive and negative tendencies at the two extremes and a neutral evaluation in the middle [33]. Therefore, this study selected review valence to measure consumer response. The larger the value of this indicator is, the better the consumer response is.

Review valence = number of likes / (number of likes + number of dislikes). (1)

NCS. Based on Simon’s (1971) creative strategy measurement, NCS is a continuous variable representing the total number of creative strategy types presented in each advertisement. The larger the value of this indicator is, the more creative strategies are presented in the advertisement.

Product newness. According to the expert scoring method used by Min et al. (2006), we used a dichotomous variable to measure product newness. 1 = INP, 2 = RNP.

Control variables. To eliminate the influence of some variables on review valence, we controlled commercial length (a scaled variable for the length of time an advertisement was displayed in seconds), brand subscription quantity level (an ordered variable from 1 to 6 formed by sorting the official subscription numbers on YouTube of the six companies from low to high: 1 = Lenovo; 2 = ASUS; 3 = Huawei; 4 = Microsoft; 5 = Samsung; 6 = Apple), and industry category (a categorical variable: 1 = MCEOP; 2 = CPCRA; 3 = MEE).

4 Analysis and Results

4.1 Descriptive Statistics and Correlation Analysis

The descriptive statistics are shown in table 2. The mean value of review valence (valence) is 0.9468 and the standard deviation is 0.05082, indicating that the review valence of the sample advertisements is generally positive. And the mean value of NCS is 1.78, indicating that NCS used in advertisements is generally low. According to the results of bivariate Pearson’s correlation test, there is a significant positive correlation between NCS and review valence (p < 0.01).

4.2 Hypothesis Testing

Following Burnett et al. (2015), we employed hierarchical polynomial regression analysis to test the hypotheses [34]. Particularly, we entered the predictors into the regression equation in five hierarchical steps in the following order: (1) control variables, (2) NCS, (3) quadratic term of NCS-squared, (4) moderator variable of product newness and the interactions between the moderator and NCS and (5) interactions between the moderator variable and the quadratic
Table 3. Results of hierarchical regression analyses predicting review valence

<table>
<thead>
<tr>
<th>Variable</th>
<th>Review valence</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>length</td>
<td>0.000**(0.000)</td>
<td>6.551E-5(0.000)</td>
<td>-0.000(0.000)</td>
<td>-0.000(0.000)</td>
<td>-0.000(0.000)</td>
<td>-0.000(0.000)</td>
</tr>
<tr>
<td>BSQ</td>
<td>0.002**(0.000)</td>
<td>0.003(0.000)</td>
<td>-0.003(0.004)</td>
<td>-0.003(0.004)</td>
<td>-0.003(0.004)</td>
<td>-0.003(0.004)</td>
</tr>
<tr>
<td>industry</td>
<td>-0.002(0.004)</td>
<td>0.004(0.004)</td>
<td>-0.004(0.004)</td>
<td>-0.004(0.004)</td>
<td>-0.004(0.004)</td>
<td>-0.004(0.004)</td>
</tr>
<tr>
<td>NCS</td>
<td>0.008***(0.000)</td>
<td>-0.006**(0.000)</td>
<td>0.012**(0.000)</td>
<td>0.012**(0.000)</td>
<td>0.012**(0.000)</td>
<td>0.012**(0.000)</td>
</tr>
<tr>
<td>NCS²</td>
<td>-0.006**(0.001)</td>
<td>-0.006**(0.001)</td>
<td>0.000(0.002)</td>
<td>0.000(0.002)</td>
<td>1.265E-5(0.001)</td>
<td></td>
</tr>
<tr>
<td>newness</td>
<td>-0.016**(0.005)</td>
<td>-0.016**(0.005)</td>
<td>0.000(0.002)</td>
<td>0.000(0.002)</td>
<td>0.000(0.002)</td>
<td></td>
</tr>
<tr>
<td>NCS² newness</td>
<td>0.934***(0.007)</td>
<td>0.936***(0.007)</td>
<td>0.942***(0.018)</td>
<td>0.960***(0.009)</td>
<td>0.960***(0.009)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.934***(0.007)</td>
<td>0.936***(0.007)</td>
<td>0.942***(0.018)</td>
<td>0.960***(0.009)</td>
<td>0.960***(0.009)</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.017</td>
<td>0.017</td>
<td>0.019</td>
<td>0.044</td>
<td>0.019</td>
<td>0.000</td>
</tr>
<tr>
<td>ΔR²</td>
<td>1.265E-5(0.001)</td>
<td>1.265E-5(0.001)</td>
<td>1.265E-5(0.001)</td>
<td>1.265E-5(0.001)</td>
<td>1.265E-5(0.001)</td>
<td></td>
</tr>
<tr>
<td>ΔF</td>
<td>3.206**</td>
<td>3.206**</td>
<td>3.206**</td>
<td>3.206**</td>
<td>-0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Notes:*p<0.05; **p<0.01; ***p<0.001

In addition to testing the significance of the regression coefficients, we also interpreted the $R^2$ change (Δ$R^2$) associated with a particular step in which a term testing a specific hypothesis was entered.

To improve the interpretability of the model, we standardized the predictor variable (NCS) and then computed higher-order terms to reduce the possible bias of the regression results [34]. As high correlations among predictors may lead to a biased interpretation of the regression results, we additionally conducted collinearity diagnostic analyses to detect potential problems. The variance inflation factors ranged from 1.007 to 1.500, which fell below the normally accepted cutoff value of 10.0.

We examined the hypotheses using a global model. Additionally, we reported the corresponding step-down hierarchical models (table 3). The results found an inverted U-shaped relationship between NCS and review valence. This can be seen in Model 3 of table 3, where $\text{NCS}^2$ was significantly (negatively) related to review valence ($\beta = -0.006, p < 0.001$), and the Δ$R^2$ associated with $\text{NCS}^2$ was statistically significant (Δ$R^2 = 0.044, p < 0.001$). Therefore, Hypothesis 1. was supported. We further calculated the inflection point of the inverted U-shaped curve, which can be used to identify when consumers’ negative reactions to NCS appear. According to the following equation for the polynomial regression of NCS: $Y = AX^2 + BX + C + \epsilon$, its inflection point X can be computed by the equation: $X_{\text{inflection}} = -B/2A$. Our inflection point result indicates that as NCS increased, consumers’ review valence also tended to increase, however, after a standardized inflection point of 1 (the corresponding actual value was 2.5), increased levels of NCS became associated with lower review valences (figure 1).

Furthermore, the inverted U-shaped curvilinear relationship between NCS and review valence was not significantly moderated by product newness. This can be verified from two aspects: first, the interaction between $\text{NCS}^2$ and product newness was not significant in Model 5 of table 3 ($\beta = 0.000, p > 0.05$). Second, Δ$R^2$ was associated with the interactions between the moderator variable and quadratic term, which was not significant (Δ$R^2 = 0.000, p > 0.05$). Therefore, Hypothesis 2a. was verified. Based on this, the study further divided the total sample into two subsamples, INP and RNP, in order to test whether the inverted U-shaped curvilinear relationship between NCS and review valence differs when new products are INPs or RNP. Further details are provided in table 4.

As shown in table 4, we found evidence supporting an inverted U-shaped relationship between NCS and review valence whether the new product was INP or RNP. This evidence can be seen in Model 3 (INP and RNP) of table 4, where the quadratic term of NCS was signific-
Table 4. Results of hierarchical regression analysis when comparing INP and RNP

<table>
<thead>
<tr>
<th>Variable</th>
<th>Review valance (INP)</th>
<th>Review valance (RNP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>length</td>
<td>-4.499E-5(0.000)</td>
<td>-2.806E-5(0.000)</td>
</tr>
<tr>
<td>BSQ</td>
<td>-0.003*(0.001)</td>
<td>-0.002(0.001)</td>
</tr>
<tr>
<td>industry</td>
<td>0.009(0.005)</td>
<td>0.010(0.005)</td>
</tr>
<tr>
<td>NCS</td>
<td>0.009**(0.003)</td>
<td>0.014****(0.003)</td>
</tr>
<tr>
<td>NCS²</td>
<td></td>
<td>-0.006****(0.001)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.952****(0.008)</td>
<td>0.950****(0.008)</td>
</tr>
<tr>
<td>R²</td>
<td>0.024</td>
<td>0.051</td>
</tr>
<tr>
<td>ΔR²</td>
<td>0.024</td>
<td>0.027</td>
</tr>
<tr>
<td>ΔF</td>
<td>2.907*</td>
<td>10.156***</td>
</tr>
</tbody>
</table>

Notes: *p<0.05; **p<0.01; ***p<0.001

| significantly (negatively) related to review valence ($\beta_{\text{INP}} = -0.006, p < 0.001; \beta_{\text{RNP}} = -0.006, p < 0.05$). And $\Delta R^2$ associated with the quadratic term was significant (INP: $\Delta R^2 = 0.054, p < 0.001$; RNP: $\Delta R^2 = 0.024, p < 0.05$). We calculated the inflection point to determine the effect of the NCS on review valence decline. Through the inflection point calculation formula: $X_{\text{inflection}} = -B/2A, Y_{\text{inflection}} = (4AC - B^2)/4A$, the inflection point value of NCS and the maximum value of review valence (INP vs. RNP) were calculated respectively, and it was found that: the standardized inflection point was 1.17 (the corresponding actual value was 2.62) for INP, and 1.08 (the corresponding actual value was 2.56) for RNP; the maximum value of review valence was 0.96 for INP, and 0.93 for RNP. The results confirm that the inflection point of NCS (INP) was more significant than that of NCS (RNP) (1.17 vs. 1.08), and the maximum value of valence (INP) was higher than the maximum value of valence (RNP) (0.96 vs. 0.93). Thus, Hypothesis 2b. and Hypothesis 2c were supported. The inverted U-shaped curves for INP and RNP are shown in figure 2.

Figure 1. Curvilinear relationship between NCS and review valence
5 Discussion

5.1 Conclusion

In this study, 564 digital video advertisements of new products published by six world-renowned companies in industries with strong technology-driven performance on YouTube during 2018-2019 were selected as research samples. We took content analysis techniques to identify the content and quantity of the creative strategies enabled for each video advertisement. Additionally, review valence and degree of product newness for each video ad were identified. We examined the impact of NCS on consumer review valence and explored how this relationship was affected by product newness. Our study confirms that: (1) there is a significantly inverted U-shaped relationship between the NCS and consumer response. Consumer response is highest when NCS is moderate and lowest when NCS is either low or high. (2) From the perspective of product newness, this inverted-U shaped relationship exists for both INP and RNP. (3) The inflection point value of NCS (RNP) is smaller than that of NCS (INP). (4) When consumers present the highest review valence for both INP and RNP, consumers’ review valence for INP is higher than that for RNP.

5.2 Theoretical Contributions

Our study makes several theoretical contributions. First, this research takes a global perspective, studies both western and Chinese enterprises, and tests the influence of NCS on consumer review valence by collecting a large amount of secondary data on YouTube as research samples. Different from most existing studies that verified the linear effect of the use of advertising creative strategies on consumer response, this study proposes a new inverted U-shaped curve model from the perspective of NCS, and verifies the nonlinear relationship between NCS and consumer response. This conclusion not only provides a new perspective for the research of creative strategy, but also helps Chinese enterprises to provide valuable

![Figure 2](https://doi.org/10.1051/e3sconf/202340903003)
decision-making guidance for designing the effective creative strategy of new product video advertising in the process of internationalization. Advertisers should avoid putting too many creative strategy elements in video ads, because there is a threshold for consumers’ positive reviews to NCS presented, and once the threshold is exceeded, consumers will gradually show negative reviews. Refer to the conclusion of this study, the optimal NCS for a digital video ad is about 3.

Second, based on the perspective of product newness, this study examines the difference between INP and RNP in the inverted U-shaped relationship between NCS and review valence. The results show that, compared with INPs with higher familiarities, consumers show negative reviews earlier to the NCS of RNPs with higher strangeness. Based on this conclusion, advertisers should make a reasonable distinction between the NCS when designing INP or RNP video ads. This conclusion provides a guiding principle for the design of new product video advertisements with different degrees of newness.

Third, this study confirms the extensive application of creative strategy in advertising message. Video advertisements with creative strategy accounted for 99 per cent of the total sample. Video advertisements with more than one creative strategy element accounted for 66 per cent of all creative ads. Therefore, creative strategy is an important means for new product video ads to attract consumers, and most advertisers try to attract consumers’ attention to new products by combining various creative strategy elements.

5.3 Limitations and Future Directions

First, in the measurement of creative strategy in this study, creative strategy consists of 10 different elements. Past research has verified the differences in the use of creative strategy elements between different countries and between different product types. For example, for automobile companies, Malaysia’s advertising creative strategy mainly used information, while Britain’s advertising creative strategy mainly used motivation with psychological appeals [35]; and for mobile phone companies, the United States and China all used more motivation with psychological appeals, repeated assertion, and symbolic associations [36]. This means that different creative strategies have different effects on consumer responses. However, this paper only verifies the effect of the quantity of creative strategies in video advertisements on consumer response in general, but does not specifically distinguish which creative strategy has the greatest impact on consumer response. Therefore, future research can in-depth explore the differences in the impact of each of the 10 creative strategy elements on consumer review valence, and then clarify the best choice of advertising creative strategies to maximize the effectiveness of new product video ads.

Second, existing research has confirmed that consumers with different sociopsychological characteristics (like personal involvement, brand familiarity, knowledge structures, learning perspectives) are affected by advertising creative strategies differently. Future research can introduce consumer sociopsychological factors as moderator variables to analyze and study the similarities and differences of the influence of NCS on consumer review valence.

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References

[16] A.M. Grant, B. Schwartz, Perspectives on psychological science 6, 61 (2011)
[33] K.J. Kaplan, Psychological Bulletin 77, 361 (1972)