A model of tourism advertising effects

Lisheng Weng [a], Zhuowei Huang [b,d,*], Jigang Bao [c]

[a] College of Humanities & Social Development, Nanjing Agricultural University, 1 Weigang, Nanjing, 510275, PR China
[b] School of Tourism Management, Sun Yat-sen University, Zhuhai, 519080, PR China
[c] Center for Tourism Planning and Research, School of Tourism Management, Sun Yat-sen University, 135 Xingangxi Road, Guangzhou, 510275, PR China
[d] Center for Leisure, Tourism and Social Development, Sun Yat-sen University, No. 135 Xingangxi Road, Guangzhou, 510275, PR China

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ABSTRACT

This study develops the AIEDA tourism advertising effects model and examines this model by tourism destination types and advertising formats in a field experiment. The AIEDA model extends the traditional AIDA model in the advertising field and additionally considers the unique features of tourism products. It includes five hierarchical stages: Attention→ Interest→Evaluation (Perceived Usefulness→ Perceived Credibility) → Desire →Action. Findings of experimental research indicate that destination type and advertising format have main effects and interaction effects on tourism advertising effects. In addition, this study discovered that, for natural and cultural destinations, video ads yielded similar or more positive advertising effects than virtual reality ads, whereas print was the least effective advertising format.

1. Introduction

Marketing researchers and practitioners have shown great interest in evaluating advertising effects. It has been commonly accepted that consumers go through three hierarchical processing stages when responding to advertisements: cognition, affect, and conation (e.g., Barry & Howard, 1990). Based on this hierarchy, many advertising effects models have been proposed and examined in advertising literature, such as Hierarchy-Of-Effects theory (Awareness, Knowledge, Liking, Preference, Conviction, Purchase) (Lavidge & Steiner, 1961), DAGMAR model (Awareness, Comprehension, Conviction, Action) (Colley, 1961), AIDA model (Attention, Interest, Desire, Action) (Strong, 1925), and so on. AIDA is one of the most influential and widely adopted models for advertising effects evaluation. It proposes that advertising messages need to accomplish a series of sequential tasks before reaching the purchase decision step. Stimulated by advertisements, consumers are expected to be aware of the product/brand, become interested in it, develop favorable dispositions, and finally form a purchase intention/trial or make a purchase. The AIDA model has been validated in various settings, such as sport management (Mohammadi, Esmaeily, & Salehi, 2012), banking (Li & Yu, 2013), and gaming (Ghirvu, 2013).

However, little effort has been made to examine tourism advertising effects by using the hierarchy of effects. In fact, research on tourism advertising effects can be divided into two streams: behavioral aspects and cognitive aspects. Behavioral aspects evaluate tourism advertising effects as the "cause of visits and sales" with a focus on visitation number and travel expenditure (e.g., Burke & Gitelson, 1990; Woodside & Reid, 1974). Cognitive aspects assess tourism advertising effects by awareness of the destination, further information inquiries, attitudes to the destination, and so on (e.g., Byun & Jang, 2015; Kim, Hwang, & Fesenmaier, 2005; McWilliams & Crompton, 1997). While structured frameworks with hierarchy of effects have been widely adopted in advertising literature for decades, they remain scarce in tourism literature.

The present study draws upon advertising theories on hierarchical effects to develop a tourism advertising effects model. This model differentiates itself with general advertising effects models by considering unique characteristics of tourism products. In addition, the tourism advertising effects model developed in the present study will be tested at World Heritage Sites (WHS) through a field experiment with two variables: tourism destination type and advertising format. Tourism destination type of World Heritage Sites by UNESCO includes cultural and natural. Three advertising formats examined in this study are print (one dimension), video (two dimensions) and virtual reality (three dimensions).

2. Literature review and research framework

2.1. Advertising effects in tourism research

In tourism research, the definition of advertising effects has been widely agreed upon as consumers' responses to advertisements (Byun & Jang, 2015; Choe, Stienmetz, & Fesenmaier, 2017; Kim et al., 2005). Despite the commonly accepted definition, the measurements of this concept vary across studies. In conversion studies, variables within the behavioral aspects were adopted to measure advertising effects: visitation after advertisements and visitor expenditure if visitation occurs (Kim et al., 2005; Park & Nicolau, 2015; Park, Nicolau, & Fesenmaier, 2013; Pratt, McCabe, Cortes-Jimenez, & Blake, 2010; Wöber & Fesenmaier, 2004). Conversion studies yield a conversion rate, referring to the percentage of inquirers who visited the destination after being exposed to the advertising campaign. Accordingly, efficiency ratios, economic impact, and return on investment can be estimated based on the conversion rate (Choe et al., 2017; McWilliams & Crompton, 1997; Zhou, 1997). Since conversion studies are easy to implement and interpret (Burke & Gitelson, 1990; Cai, 1998) and the cost is relatively inexpensive (Choe et al., 2017), it has been the dominant approach to assess tourism advertising effects since 1970s (McWilliams & Crompton, 1997; Messmer & Johnson, 1993; Silberman & Klock, 1986; Woodside, 1990; Woodside & Reid, 1974).

Serious concerns with the validity of conversion studies were raised in the 1990s. This approach is criticized because it focused more on actual visits and failed to incorporate the cognitive responses that might not bring immediate visits to destinations but result in long-term attitudinal and behavioral changes (Johnson & Messmer, 1997; Kim et al., 2005; Weilbacher, 2003). Thus, cognitive aspects, such as awareness of the destination, perceptions, and attitudes were added to assess tourism advertising effects (e.g., Byun & Jang, 2015; Kim et al., 2005; McWilliams & Crompton, 1997). For example, Kim et al (2005) evaluated tourism advertising affects by examining the three cognitive and behavioral aspects of tourism advertising: top-of-mind awareness, advertising awareness, and requesting travel information. Similarly, Byun and Jang used tourists' attitudes and behavioral intentions toward destination advertisements to gauge the destination advertising effects (Byun & Jang, 2015). Li and her coworkers also used affective variables such as consumers' interest and desire toward destinations to measure tourism advertising effects (Li, Huang, & Christianson, 2016). However, the three hierarchical processing stages of responding to advertisements (i.e., cognition, affect, and conation suggested in general advertising effects research) were not examined in tourism advertising effects studies.

2.2. The proposed tourism advertising effects model

The tourism advertising effects model proposed in the present study is based on the AIDA model and adopts the three hierarchical processing stages. Steps in hierarchical processing sequence in advertising response has been proposed and debated by researchers in advertising, marketing, psychology, and communication fields over six decades (Barry, 1987). It is believed that advertising is a long-term investment that moves consumers over time through a variety of steps and ultimately to actual purchase (Barry & Howard, 1990). To that end, information obtained from an advertisement may not immediately yield purchases by consumers, no matter how interesting the displayed stimulus within advertising message is (Wijaya, 2012). People go through internal psychological processes after they receive advertising messages to formulate their attitude and behavior (Palda, 1964). Therefore, researchers added to their models such steps as "knowledge", "perception", "comprehension", "understanding", "evaluation", "conviction" between "awareness" and "purchase intention-action" stages (e.g., Lavidge & Steiner, 1961; Robertson, 1971; Thorson, 1984). Research also noted that consumers' psychological or economic commitment and

involvement have impacts on their progression through the hierarchy (Lavidge & Steiner, 1961). Highly involved consumers take longer to go through the hierarchy, while less involved consumers are passive to advertising messages and tend to skip steps (Krugman, 1965).

Similar findings are reported in tourism research, although tourism products are different from consumer goods, which have intangible and inseparable characteristics (e.g., Gonza'lez, 2008; Govers, Go, & Kumar, 2007; McCole, 2002). Tourists cannot try the products in advance and tourism experiences can only be consumed once tourists arrive at destinations. Therefore, tourism ads may not generate purchases immediately, as many tourists are highly involved in travel decision making (Gursoy & Gavcar, 2003). To that end, perceptions and evaluations of tourism advertising messages become very important for tourists as they move through the hierarchy, providing assurance and certainty, and reducing risks (Fodness & Murray, 1997; Hu, Su, & Zhang, 2012; Snepenger, Meged, Snelling, & Worrall, 1990). Tourists have reported information about attractions, transportation, activities, lodging, and travel costs are useful in tourism information searches (Filiatrault & Ritchie, 1980; Perdue, 1985). Useful information perceived by tourists has been used in studies to measure tourism advertising effects (Kim et al., 2005). With abundant information available to consumers from a variety of sources, building credibility and recognition is an essential task for destination marketers (Choi & Rifon, 2002; Smith, 2002). Credible information in advertisements is more likely to gain consumers' trust and lead to purchase intentions (Choi & Rifon, 2002; Kamins, Brand, Hoeke, & Moe, 1989). Tourism researchers have used perceived credibility to measure advertising effectiveness (Kim, Chung, & Lee, 2011; Loda, Norman, & Backman, 2005).

Based on the above analysis, a model of tourism advertising effects is proposed. It extends the AIDA model in general advertising literature by adding *perceived usefulness* and *perceived credibility* due to the unique features of tourism products (Kim et al., 2005; Lavidge & Steiner, 1961). Both variables refer to individuals' perception and evaluation of advertising messages. They are therefore combined into one variable of Evaluation in this new model. The AIEDA tourism advertising effects model includes five stages in the hierarchy: Attention, Interest, Evaluation (perceived usefulness and perceived credibility), Desire and Action (Fig. 1). Attention refers to consumers being attracted to the tourism advertisements. Interest refers to consumers' attention to the destination as stimulated by the tourism advertisements. Evaluation delineates the stage at which consumers perceive and assess advertising messages in two steps: 1) whether the information is helpful and useful; and 2) whether the information is authentic and credible. Desire is defined as consumers' aspiration to travel to the destination. Action refers to consumers' actual visit to the destination.

2.3. Hypotheses and the conceptual framework

Studies on tourism advertising effects have identified a variety of advertisement design elements that influence consumers' responses to tourism advertisements, such as types of destinations or attractions (e.g., Byun & Jang, 2015; Chaudhuri & Micu, 2014; Wan, Tsaur, Chiu, & Chiou, 2007), objects presented in the advertisements (e.g., language, pictures, texts) (e.g., Byun & Jang, 2015; Hirschman, 1986; Kronrod & Danziger, 2013; Lewis, Whitler, & Hoegg, 2013), and advertising presentation formats, such as audio, video, and print (e.g., Decrop, 2007; Kim et al., 2005; Wu, Wei, & Chen, 2008). This study tests the impacts of tourism attraction type and advertising format on tourism advertising effects to further confirm and verify the AIEDA model. Fig. 2 presents the conceptual framework with three hypotheses as follows.

2.3.1. Tourism destination type

Multiple criteria can be used to categorize destinations and tourism attractions into different types. For example, Alhemoud and Armstrong (1996) classified tourist destinations into four types based on the landscapes: theme, natural, historic, and cultural. Kim et al (2005) divided
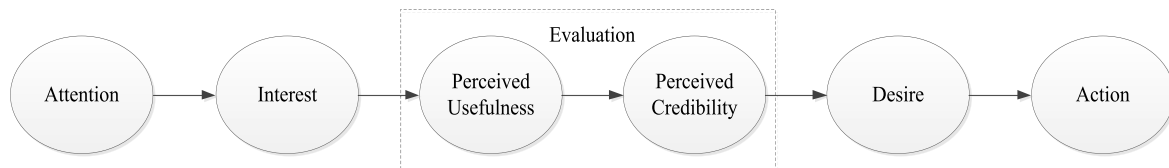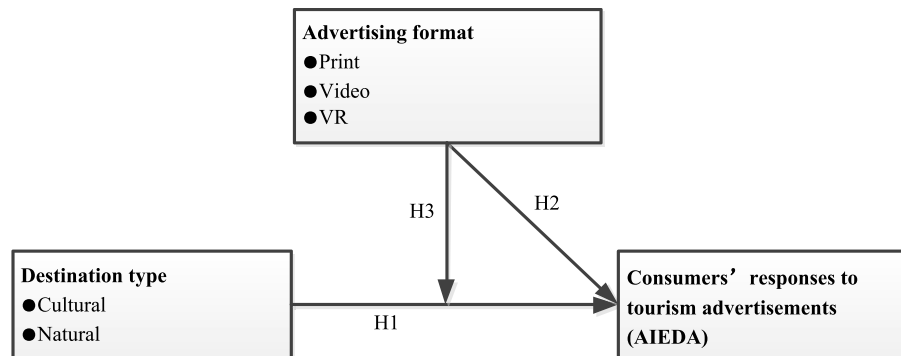
Fig. 1. The AIEDA model.

Fig. 2. The conceptual framework of this study.

destinations into several types based on sports activities, such as golf, skiing, and hunting. Byun and Jang (2015) categorize destinations as either hedonic or utilitarian on the basis of tourists' travel experiences. Different destinations have different personalities and images (Chen & Phou, 2013; Hudson & Ritchie, 2009). Different destinations also design specific advertisements to effectively communicate the tourism information, including attractions, activities, etc. (Buhalis, 2000).

Destinations in different types can influence consumers' responses to tourism advertisements (Byun & Jang, 2015; Wan et al., 2007). Byun and Jang (2015) found tourists' attitudes to advertisements differ between a utilitarian destination and a hedonic destination. It has been shown that, when using virtual experience in advertising, viewers reported more favorable responses to theme parks ads than natural parks ads (Wan et al., 2007). It is commonly accepted that many destinations can be categorized into natural or cultural, as reflected in the UNESCO world heritage list categories. Natural destinations usually feature significant natural landscapes, allowing tourists to sightsee and relax, whereas cultural destinations may provide tourists with history, culture, and/or religious pilgrimage (Luo & Deng, 2008). However, the differences of tourists' responses to advertisements of destinations with natural scenery versus cultural landscapes have not been examined in the existing literature. This study selects natural and cultural as two destination types to examine the differences of consumers' responses to tourism advertisements. The first hypothesis is proposed below:

H1. Consumers' responses to tourism advertisements are different between the cultural and natural destinations.

2.3.2. Advertising format

Advertising format refers to the presentation of the advertisements, such as print, audio, video, and virtual environments (Burns & Lutz, 2006; Dahlén & Edenius, 2007). Each advertising format has its own strengths and weaknesses in terms of communicating with consumers (Dahlén & Edenius, 2007; Wolf, Stricker, & Hagenloh, 2013). Studies have shown that different formats of advertisements tend to result in varied consumer responses (Byun & Jang, 2015; Decrop, 2007; Kim et al., 2005). For example, Kim et al (2005) examined tourism advertising effects of different media channels and found that print ads lead to more requests for travel information, whereas television ads appear to be more effective in increasing awareness. Dahlén and Edenius (2007) investigated the advertising effects by comparing consumers' responses

to new advertising formats (such as advertorials) with traditional advertising formats (print, radio, TV), and argued that consumers' reactions to the new formats were more effective than the traditional ones. All of the abovementioned advertising formats can be grouped in three broad categories based on their dimensional shapes: 1 dimension (1D: print), 2 dimensions (2D: video), and 3 dimensions (3D: virtual reality). The second hypothesis is therefore proposed as follows:

H2. Consumers' responses to tourism advertisements are different between three types of advertising formats: print (1-D), video (2-D), and VR (3-D).

2.3.3. Interaction effect between destination type and advertising format

It is worth noting that the effects of destination type on consumers' responses to a tourism advertisement could differ depending on the advertising format. Existing studies have found that both destination type and advertising format influence consumers' response towards tourism advertisements (Byun & Jang, 2015; Dahlén & Edenius, 2007; Kim et al., 2005; Wan et al., 2007). Consumers' responses to tourism advertisements of a natural destination might be distinct from a cultural destination when different advertising formats (print, video, and VR) are employed. Thus, the third hypothesis is proposed below:

H3. There is an interaction effect between destination type and advertising format on consumers' responses towards tourism advertisements.

3. Methods

3.1. Research design

The present study adopted a 2 (destination type: cultural vs. natural) by 3 (advertising format: virtual reality (VR) vs. video vs. print) between-subject experimental design. As a result, six experimental conditions (advertisements) were generated, as shown in Table 1. Each participant of the experiment was asked to view one advertisement among the six and answer a series of questions regarding their responses to the ads. Two world heritage sites in China, Longmen Grottoes and Longhushan, were selected to represent the two types of destinations. These two world heritage sites were selected for two primary reasons. First, they are both named by UNESCO as World Cultural Heritage Site

Table 1
Experimental conditions.

Experimental factors		Destination type	
		Cultural destination	Natural destination
Advertising format	VR	Cultural-VR	Natural-VR
	Video	Cultural-Video	Natural-Video
	Print	Cultural- Print	Natural- Print

Table 2
Variables and measurement items.

Dependent Variables	Items
Attention	This advertisement is very attractive
	This advertisement catches my attention
Interest	I hope to learn about history and culture of this place
	I would like to see more about this place
Evaluation	
Perceived usefulness	This advertisement is helpful in making travel decisions
	This advertisement contains useful information
Perceived credibility	I believe information presented in this advertisement is trustworthy
	I believe information presented in this advertisement is real
Desire	I plan to travel to this place
	If everything goes as I think, I would like to visit this place in the future

and World Natural Heritage Site, with their landscapes and destination images featuring cultural and natural destinations, respectively. Second, the advertising materials are available on official websites.

Three different forms of advertisement (VR, video, and print) were obtained from the official websites of each destination. Three ads for Longhushan were selected primarily featuring natural sceneries, while the ads for Longmen Grottoes demonstrate the cultural landscapes there. To manage the possible confounding variables in the experiment, the six ads for two destinations were originally obtained from the official destination websites and adjusted based on the following standards. First, three ads for each destination were designed with the similar landscapes and descriptions. Furthermore, the textual messages used in the three ads for each destination remained the same. Second, the print ads of both destinations were adjusted to the same style: 2-page brochures with four pictures and texts accordingly. Third, the lengths of video ads and VR ads were almost same as about 2 min and 50 s. They were all obtained from official destination tourism websites. Experimental stimuli used in this study are attached in Appendix A.

3.2. Instrument development

The questionnaire assessed participants' responses to tourism advertisements, including attention, interest, evaluation (perceived usefulness and perceived credibility) and desire. Given that "Action" refers to the actual behavior of potential tourist to travel to a destination, A (Action) is dropped in the examination of the AIEDA model for two reasons. First, it cannot be directly measured. Second, according to previous studies on advertising effects, tourism advertising may not immediately lead to purchase behavior. In addition, Evaluation is a summarized variable with two aspects of perceived usefulness and perceived credibility, which were added to the model due to the unique features of tourism products. Therefore, it was decided that attention, interest, evaluation - perceived usefulness, evaluation-perceived credibility and desire would be tested as the dependent variables in the experiments. The measurements for variables used in the questionnaire were first identified through the review of relating literature in general marketing and tourism marketing fields (Bousquie & Malicki, 2009; Byun & Jang, 2015; Hassan, Nadzim, & Shiratuddin, 2015; Hu & Guo, 2014; Hu et al., 2012; Kim et al., 2011; Kim et al., 2005; Lam & Hsu, 2006; Lee, Song, Lee, & Petrick, 2017; Li, 2010; Li et al., 2016; Loda et al., 2005; Ponte, Carvajal-Trujillo, & Escobar-Rodríguez, 2015). Each variable is measured by two items that were most frequently used in previous studies on consumers' responses to advertisements. The complete list of variables and measurement items are listed in Table 2. All the measurements used a five-point Likert scale with one as "strongly disagree" and five as "strongly agree". The second section of the questionnaire included questions about the respondents' demographic information, such as gender, age, education, and monthly income.

The questionnaire was first drafted in English and then translated into Chinese. The questionnaire in Chinese was tested in a pilot study with 60 Chinese consumers in Guangzhou. Two criteria were used to select qualified participants in the pilot study. First, the participants in this study should never have visited the two World Heritage Sites. Thus, the confounding effect of previous experiences of destinations could be avoided. Second, participants should be aged between 18 and 35 years. Considering virtual reality is used in this study, viewers in different ages tend to react differently to this new technology (Guttentag, 2010; Morris

& Venkatesh, 2000). It has been commonly accepted that Millennials (born 1983–2000) hold similar values and attitudes to technology advancement (Eastman, Iyer, Liao-Troth, Williams, & Griffin, 2014; Gibson & Sodeman, 2014). Therefore, Chinese consumers from 18 to 35 years old were selected for this study to reduce the confounding effect of age. Comments, concerns, and suggestions regarding the measurement scales and wording were collected from 60 participants in the pilot study. Chinese wording of some items was modified slightly to enhance clarity of the questions and to improve participants' comprehension. The measurement development process involves procedures of translation and back-translation between Chinese and English. Authors' bilingual backgrounds and familiarity with the tourism literature in Chinese and English facilitated the process (Chen, Bao, & Huang, 2014).

3.3. Data collection and analysis

The formal data collection involved a field experiment using a questionnaire. The sample used in this study was selected from Millennials in the city of Guangzhou, China, who are potential tourists to the two selected World Heritage Sites. The two criteria used to choose participants in the pilot study remained in the formal data collection. The field experiment was conducted in Guangzhou for the following reasons. First, Guangdong Province, with Guangzhou as its capital city, is the largest source of domestic tourism. In 2019, about 280 million of domestic visits originated from Guangdong Province and, on average, Guangdong residents traveled 2.4 times per person.[1] Second, the two selected World Heritage Sites are located in Jiangxi Province and Shanxi Province, both of which have Guangdong province as one of their top five tourism source markets.[2] Thus, a sample drawn from Guangzhou represents, to a large extent, visitors to the two selected destinations in the experiment.

Data were collected in the following steps. First, six professional research assistants who had professional training on quantitative data collection techniques were hired to collect data. Prior to the fieldwork, they attended a specific training workshop conducted by the first author on the data collection procedures for this study. The usage of self-reporting questionnaires may raise concerns about common method variance (CMV; Podsakoff & Organ, 1986). To minimize common method biases, research assistants were trained, following Podsakoff, MacKenzie, Lee, and Podsakoff (2003), to provide certain information to participants before the experiment started. Participants were assured of the confidentiality of their responses, which helped them to be candid about the questions. Participants were also told that there were no right or wrong answers to lessen their concerns of being evaluated (Hu, Horng, & Sun, 2009).

Six research assistants worked in pairs to recruit qualified

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[1] Source: https://zhuanlan.zhihu.com/p/96415180.
[2] Source: http://www.cankaoxiaoxi.com/society/20160729/1250210.shtml.

respondents to participate in this study. After the screening questions, the procedure of the study was explained to each qualified participant and his/her willingness to participate in this study was confirmed. One of the six advertisements was randomly provided to a qualified participant. Each participant took about 2 min and 50 s to complete viewing the selected advertisement. The print ads were viewed on the hard copy and video ads were viewed on a smartphone. The VR was played by the "UtoVR" app and viewed on the smartphone through an output device called VR Box, through which participants experience the 3-D simulated destination. All participants were recruited in a public space with covered shelter along the Pearl River in Guangzhou, China, so that they could view the ads clearly without interference from the sunshine. Upon completion of the advertisement, each participant was asked to fill out the questionnaire reporting their responses to the ad he/she had just watched.

Each participant received a small gift as compensation for their time upon completion of the questionnaire. The research assistants walked each participant through the entire process of the experiment to reduce confusion and ensure high quality data (Abernethy & Franke, 1996; Vakratsas & Ambler, 1999; Wan et al., 2007; Zaichkowsky, 1986). As a result, a total of 360 questionnaires were collected. Fifty-three were excluded from the final analysis due to missing values, leaving 307 valid questionnaires.

The data were analyzed using SPSS 20 and Amos 21. First, confirmation factor analysis (CFA) was applied to confirm the measurement model. Second, the AIEDA hierarchical model was tested based on the result of CFA. Finally, the Multivariate Analysis of Variance (MANOVA) and Analysis of Variance (ANOVA) were employed to test the hypotheses. Tourism destination type (cultural vs. natural) and advertising format (print vs. video vs. VR) were independent variables and participants' attention, interest, evaluation and desire towards the tourism advertisements were dependent variables.

4. Results

4.1. Sample profile

The sample profiles are outlined in Table 3. Among the 307 respondents, 52.8% (n = 162) were male and 47.2% (n = 145) were female. Most of the participants (72.3%) had received an associate degree or higher. Over 80% of the participants reported their profession as enterprise employee, self-employed/owner, or student. Most of the participants (65.1%) had a personal monthly income of more than 3000 RMB ($470).

Table 3
Sample profile.

Variables		Frequency (n = 307)	Percentage (%)
Gender	Male	162	52.8
	Female	145	47.2
Education	High school or below	85	27.7
	Associate degree	70	22.8
	Bachelor's degree	140	45.6
	Master's degree or above	12	3.9
Occupation	Enterprise employee	125	40.7
	Self-employment or owner	48	15.6
	Student	93	30.3
	Government official	21	6.8
	Other	20	6.5
Personal monthly income (RMB)	Less than 3000	107	34.9
	3001–6000	129	42.0
	6001–10,000	54	17.6
	10,001–15,000	10	3.3
	More than 15,000	7	2.3

4.2. AIEDA model of tourism advertising effects

Three steps were conducted to examine the AIEDA model. First, the normality of the data was tested for skewness and kurtosis. Results indicated that skewness ranged from −0.645 to 0.124, and kurtosis ranged from −0.644 to 1.523, suggesting a normal distribution of the data (Hair, Black, Babin, Anderson, & Tatham, 2006). Second, a confirmatory factor analysis (CFA) was conducted to verify the measurement model of the AIEDA model. The model fit indices shown in Table 4 satisfy the cutoff points (Hu & Bentler, 1999). Validity of each construct in the measurement model is confirmed as AVE and C.R. are both above the cutoff points (0.5 and 0.7), respectively (Hair et al., 2006). To conclude, the CFA result proves the measurement model of AIEDA model fits well with the data.

The common method variance (CMV) was also tested in this step. According to Podsakoff et al. (2003), the CMV problem emerges if a single factor extracted from the factor analysis accounts for most of the variance. Therefore, if a CMV problem exists, a single-factor measurement model should fit the data well (Hu et al., 2009; Korsgaard & Roberson, 1995). In this study, the CFA results indicated that the single-factor model does not show a good fit of the data ($\chi2/df = 13.08$, NFI = 0.434, CFI = 0.446, RMSEA = 0.199, SRMR = 0.130). Its indices are much worse than the proposed measurement model ($\chi2/df = 1.467$, NFI = 0.955, CFI = 0.985, RMSEA = 0.039, SRMR = 0.027). Therefore, it can be concluded that CMV is not a significant concern for the measurement model.

The hypothesized hierarchical relationships between the variables in the AIEDA model were tested using SEM. As shown in Fig. 3, the model fit indices satisfied the cut-off points (Chen, 2016; Podsakoff, MacKenzie, & Podsakoff, 2012). The causal relationships from Attention to Interest to Evaluation (Perceived usefulness to Perceived credibility)

Table 4
CFA results.

Dependent Variables	Mean (SD)	Standardised estimate	AVE	CR
Attention				
This advertisement is very attractive	3.49 (0.82)	0.830	0.616	0.762
This advertisement catches my attention	3.63 (0.83)	0.737		
Interest				
I hope to learn about history and culture of this place	4.01 (0.65)	0.807	0.617	0.763
I would like to see more about this place	3.93 (0.63)	0.763		
Evaluation				
Perceived **usefulness**				
This advertisement is helpful in making travel decisions	3.85 (0.65)	0.914	0.604	0.746
This advertisement contains useful information	3.93 (0.68)	0.611		
Perceived **credibility**				
I believe information presented in this advertisement is trustworthy	3.79 (0.74)	0.784	0.557	0.715
I believe information presented in this advertisement is real	3.94 (0.73)	0.707		
Desire				
I plan to travel to this place	3.53 (0.78)	0.796	0.571	0.726
If everything goes as I think, I would like to visit this place in the future	3.87 (0.84)	0.713		

Model fit indices: $\chi^2/df = 1.467$, NFI = 0.955, CFI = 0.985, GFI = 0.977, AGFI = 0.950, RMSEA = 0.039, SRMR = 0.027.
Note: "Action" was excluded in the test due to the difficulty of measurement.
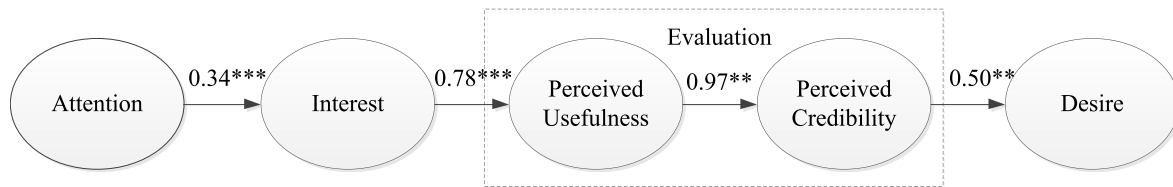
Fig. 3. The AIEDA tourism advertising effects model.

and finally to Desire are proved to be significantly positive. Therefore, the tourism advertising effects framework is verified and confirmed with five variables that are hierarchically related.

4.3. Manipulation checks

Manipulation checks in this study were conducted separately from the main study to avoid the bias because manipulation questions could influence answers to the questions in the main study (Hautz, Füller, Hutter, & Thürridl, 2014; Khan, 2011; Palazon & Delgado-Ballester, 2011; Perdue & Summers, 1986; Söderlund, 2017). Following the approach suggested by Kidd (1976), a study with 60 participants was conducted particularly for manipulation checks, using the same sample selection criteria of the formal data collection. For the manipulation check of destination type, it was measured by "I found this advertisement cultural" along a five-point scale, with one as "strongly disagree" and five as "strongly agree". Results of an ANOVA test showed that participants who engaged in the advertisements of the world cultural heritage site perceived them as more cultural than those who were involved in the advertisements of the world natural heritage site ($F_{(1, 58)} = 232.72$, $p < 0.001$; $M_{cultural} = 4.23$, $SD = 0.63$ vs. $M_{natural} = 1.83$, $SD = 0.59$). The manipulation check of the advertising format employed the method suggested by Magnini and Kim (2016). Participants were asked one dichotomy question (yes/no) after watching one advertisement: "Is this advertisement played on VR", "Is this advertisement played on video", or "Is this advertisement printed on brochure". All three ads formats performed as expected in this manipulation check. Therefore, the manipulation checks were confirmed as successful for both destination type and advertising format.

4.4. Hypotheses testing

The MANOVA test indicated significant main effects for destination type (Wilk's $\lambda = 0.931$, $p = 0.001$) and advertising formats (Wilk's $\lambda = 0.734$, $p < 0.000$). In addition, the interaction effect was also significant (Wilk's $\lambda = 0.913$, $p = 0.002$). Considering the significance of the MANOVA test, the study proceeded with a series of the 2 (destination type: cultural vs. natural) x 3 (advertising format: VR vs. video vs. print) between-subject ANOVA analysis (Tables 5–9).

4.4.1. Main effect of destination type

The ANOVA analysis revealed a significant main effect of destination

Table 5
ANOVA results for participants' attention.

	SS	df	MS	F	Sig.	Partial Eta Squared
Destination type	2.250	1	2.250	5.160	**0.024**	0.017
Advertising format	30.831	2	15.416	35.351	**0.000**	0.190
Destination * format	2.805	2	1.402	3.216	**0.041**	0.021
Error	131.259	301	0.436			
Total	4055.750	307				
Corrected Total	167.945	306				

Table 6
ANOVA results for participants' perceived usefulness.

	SS	df	MS	F	Sig.	Partial Eta Squared
Destination type	0.318	1	0.318	1.015	0.315	0.003
Advertising format	6.109	2	3.055	9.743	**0.000**	0.061
Destination * format	4.905	2	2.452	7.822	**0.000**	0.049
Error	94.371	301	0.314			
Total	4753.750	307				
Corrected Total	106.094	306				

Table 7
ANOVA results for participants' interest.

	SS	df	MS	F	Sig.	Partial Eta Squared
Destination type	0.015	1	0.015	0.047	0.828	0.000
Advertising format	1.567	2	0.784	2.463	0.087	0.016
Destination * format	0.599	2	0.300	0.942	0.391	0.006
Error	95.783	301	0.318			
Total	4934.250	307				
Corrected Total	97.956	306				

Table 8
ANOVA results for participants' desire.

	SS	df	MS	F	Sig.	Partial Eta Squared
Destination type	2.407	1	2.407	4.946	**0.027**	0.016
Advertising format	4.595	2	2.297	4.722	**0.010**	0.030
Destination * format	3.408	2	1.704	3.502	**0.031**	0.023
Error	146.448	301	0.487			
Total	4364.250	307				
Corrected Total	156.979	306				

Table 9
ANOVA results for participants' perceived credibility.

	SS	df	MS	F	Sig.	Partial Eta Squared
Destination type	3.226	1	3.226	8.173	**0.005**	0.026
Advertising format	7.698	2	3.849	9.751	**0.000**	0.061
Destination * format	2.819	2	1.409	3.571	**0.029**	0.023
Error	118.818	301	0.395			
Total	4726.250	307				
Corrected Total	132.907	306				

type on participants' attention ($F_{(1,301)} = 5.160$, $p = 0.024$), desire ($F_{(1,301)} = 4.946$, $p = 0.027$), and perceived credibility ($F_{(1,301)} = 8.173$, $p = 0.005$) towards tourism advertisements, but not on perceived

usefulness (F$_{(1,301)}$ = 1.015, p = 0.315) and interest (F$_{(1,301)}$ = 0.047, p = 0.828) (Tables 5–9). Specifically, as shown in Fig. 4, participants paid more attention (M $_{natural}$ = 3.65 vs. M $_{cultural}$ = 3.47) and reported higher perceived credibility (M $_{natural}$ = 3.97 vs. M $_{cultural}$ = 3.77) to ads for the natural heritage site than ads for the cultural heritage site. Yet, participants showed less desire for the natural heritage site than the cultural heritage site (M $_{natural}$ = 3.61 vs. M $_{cultural}$ = 3.79).

4.4.2. Main effect of advertising format

The analysis uncovered a significant main effect of advertising format on participants' responses to tourism advertisements when measuring attention (F$_{(2,301)}$ = 35.351, p < 0.001), perceived usefulness (F$_{(2,301)}$ = 9.743, p < 0.001), desire (F$_{(2,301)}$ = 4.722, p = 0.010) and perceived credibility (F$_{(2,301)}$ = 9.751, p < 0.001), but not on interest (F$_{(2,301)}$ = 2.463, p = 0.087) (Tables 5–9). Thus, advertising format does not significantly influence viewers' desire to know and see more about the destination. Due to the three advertising formats used in this study, post hoc analysis was adopted to further identify the differences between three formats. A Bonferroni adjustment at alpha was used in the post hoc analysis, as suggested by Wang, Kirillova, and Lehto (2017). The adjusted alpha for three comparison groups was 0.05/3 = 0.017. Only when p value was less than 0.017 can it be considered significant (Wang et al., 2017). The post hoc analysis result is presented in Table 10. Several major findings can be summarized from the analyses in this section. First, print is the least effective advertising format compared to VR and video. Second, advertising effects as reported by viewers do not differ significantly between VR and video. This suggests that participants reported similar responses to VR ads and video ads (Fig. 5).

4.4.3. Interaction effect

The findings indicated significant interaction effects between destination type and advertising format on participants' attention (F$_{(2,301)}$ = 3.216, p = 0.041), perceived usefulness (F$_{(2,301)}$ = 7.822, p < 0.001), desire (F$_{(2,301)}$ = 3.502, p = 0.031) and perceived credibility (F$_{(2,301)}$ = 3.571, p = 0.029), but not on interest (F$_{(2,301)}$ = 0.942, p = 0.391). Similarly, Bonferroni comparisons were used to examine the differences of the three advertising formats between cultural and natural destinations, as shown in Table 11 and Figs. 6–9.

For the world cultural heritage site, it seems that, in general, the print advertisement is the least effective among the three formats, particularly for attracting attention, as well as providing helpful and trustworthy information. While participants paid significantly different attention to ads in the three formats for world cultural heritage site (M$_{VR}$ = 3.91 > M $_{video}$ = 3.58 > M $_{print}$ = 2.92), their desire to travel to this destination does not differ between three formats. In addition, advertising effects reported by viewers are similar between VR ad and video ad, except for attention. This finding indicates that, for the world cultural heritage site, VR ads and video ads tend to induce similar advertising effects, but print is the least effective advertising format.
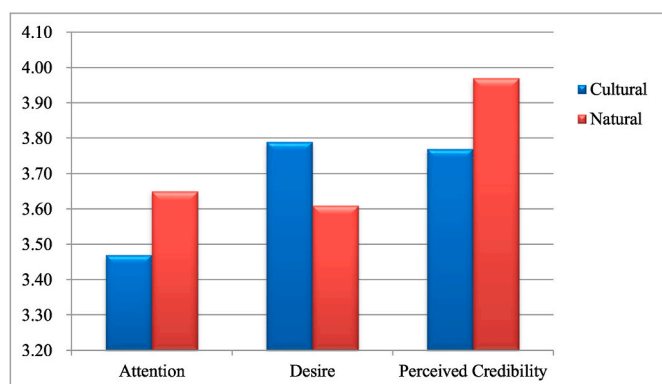
Fig. 4. Main effect of destination type on tourism advertising effects.

Table 10
Bonferroni comparison of three advertising formats.

| Dependent variables		VR vs video	VR vs print	Video vs print
Attention	Mean Diff.	0.187	**0.761***	**0.574***
	SE	0.092	0.925	0.929
	Sig.	0.126	0.000	0.000
Perceived usefulness	Mean Diff.	0.058	**0.337***	**0.279***
	SE	0.078	0.078	0.079
	Sig.	1.000	0.000	0.001
Perceived credibility	Mean Diff.	0.179	**0.401***	0.222
	SE	0.087	0.088	0.088
	Sig.	0.124	0.000	0.038
Desire	Mean Diff.	−0.264	−0.012	0.253
	SE	0.097	0.098	0.098
	Sig.	0.020	1.000	0.032

Note: * <0.017.
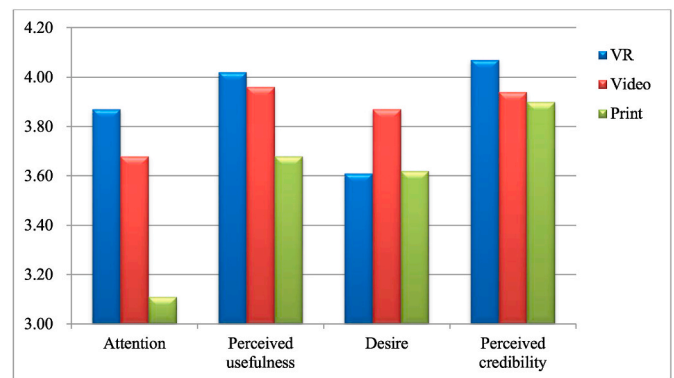
Fig. 5. Main effect of advertising format on tourism advertising effects.

The similar influence on advertising effects between VR and video is also observed in the results for the world natural heritage site. A close look at the Bonferroni comparison results induces more detailed findings. First, participants expressed lower desire for the natural heritage site after watching its VR ads than after watching the video ads (M$_{VR}$ = 3.38 < M $_{video}$ = 3.82). This finding confirms the concern from tourism industry that VR usage in destination marketing may backfire and the prior "immersive" experience may lead to the decision not to travel there. Second, the majority of comparisons between three advertising formats for world natural heritage sites are not significant, except that print ads attract less attention than VR and video ads, and that the video ads lead to a stronger desire to the visit than the VR ads. To sum up, the above two major findings suggest that video is the most effective advertising format for natural destination when compared to VR and print.

5. Conclusion and implications

This study developed the AIEDA model of tourism advertising effects and empirically examined it. Drawning upon the AIDA model in the general advertising field, the present study identified five variables in a hierarchy to measure tourism advertising effects: Attention, Interest, Evaluation (Perceived usefulness, Perceived credibility), Desire and Action. The AIEDA model, excluding Action due to the measurement difficulty, was then empirically tested on destination type and advertising format in a 2 (destination types: cultural vs. natural) × 3 (advertising formats: print vs. video vs. VR) between-subject experiment.

More findings can be summarized from the data analysis results of the experiment. First, the advertisements of the natural destination tended to receive more attention from participants and be perceived by them as more credible than those of the cultural destination. Nevertheless, the cultural destination was desired more by viewers after

Table 11
Bonferroni comparison of three advertising formats between cultural and natural destination.

| Dependent variables		Cultural destination			Natural destination		
		VR vs video	VR vs print	Video vs print	VR vs video	VR vs print	Video vs print
Attention	Mean Diff.	**0.329***	**0.983***	0654*	0.043	**0.518***	**0.476***
	SE	0.130	0.130	0.130	0.129	0.132	1.328
	Sig.	0.012	0.000	0.000	1.000	0.000	0.001
Perceived usefulness	Mean Diff.	0.161	**0.632***	**0.471***	−0.047	0.020	0.067
	SE	0.115	0.115	0.115	0.104	0.107	0.107
	Sig.	0.486	0.000	0.000	1.000	1.000	1.000
Perceived credibility	Mean Diff.	0.230	**0.615***	**0.385***	0.126	0.163	0.037
	SE	0.117	0.117	0.118	0.129	0.132	0.133
	Sig.	0.156	0.000	0.004	0.991	0.655	1.000
Desire	Mean Diff.	−0.084	0.234	0.317	**−0.449***	−0.263	0.185
	SE	0.137	0.137	0.138	0.136	0.139	0.139
	Sig.	1.000	0.272	0.068	0.004	0.181	0.561

Note: * <0.017.
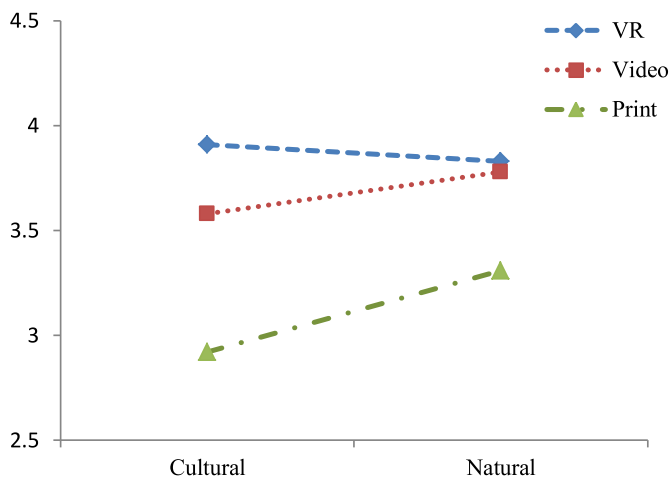
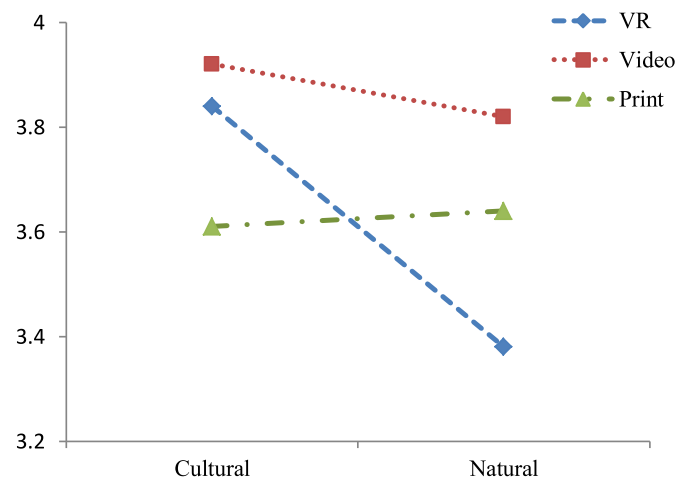**Fig. 6.** Interaction effects on participants' attention towards tourism advertisements.

Fig. 8. Interaction effects on participants' desire towards tourism advertisements.
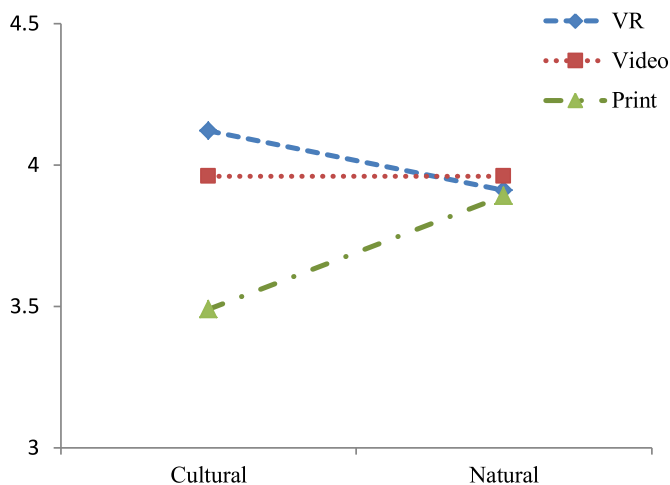

Fig. 7. Interaction effects on participants' perceived usefulness towards tourism advertisements.
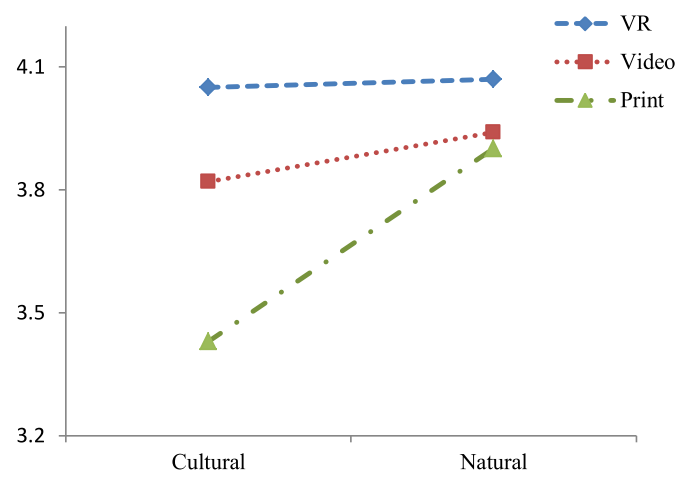

Fig. 9. Interaction effects on participants' perceived credibility towards tourism advertisements.

watching the ads. Second, print is the least effective advertising format compared to VR and video for both types of destinations. Third, for the culture destination, VR ads and video ads tend to induce similar advertising effects, but print is the least effective advertising format. Fourth, for the natural destination, video is the most effective advertising format compared to VR and print. Participants demonstrated more

desire for the natural destination after watching the video ads than the VR ads.

The present study makes several significant contributions to the existing literature. It is among the first to propose and empirically examine the structural model for tourism advertising effects. Consumer goods marketing research has widely adopted three stages of people's

responses to advertisements (cognition-affect-behavior) in structural models to measure advertising effects, such as AIDA and DAGMAR. However, tourism marketing and advertising research has largely fallen behind on this topic. Existing studies tend to randomly select variables to measure tourism advertising effects. For example, Byun and Jang (2015) used tourists' attitudes and behavioral intention in their study to measure tourism advertising effects, while Li et al. (2016) used four variables: interest to the destination, desire for visit, perceived usefulness of the ads information, and perceived helpfulness for travel decision making, to measure advertising effectiveness of tourism photographs. The measurement development of tourism advertising effects lacks consistency, rigor, and scientific reasoning. The AIEDA model developed in this study fills this research gap by providing a reliable and structured model to measure tourism advertising effects. It will serve as the foundation for future research on this topic.

The AIEDA model developed in this study differentiates itself by highlighting the unique features of tourism products that consumer goods do not have: intangibility and inseparability. Tourists cannot try the products in advance, and tourism experiences can only be consumed when tourists are at the destinations. These unique features have significant influences on people's cognitive, affective, and behavioral responses to tourism advertisements, particularly on their evaluations of useful and trustworthy messages in tourism advertisements (Choi & Rifon, 2002; Filiatrault & Ritchie, 1980; Perdue, 1985; Smith, 2002). The present study recognizes these two unique features of tourism products and includes the variable of *Evaluation* in the AIEDA model to address this issue. This variable includes *Perceived usefulness* and *Perceived credibility*, referring to individuals' perception and evaluation of advertising messages.

Furthermore, the results of experimental analysis in this study support the position stated earlier that the AIEDA tourism advertising effects model should include *Evaluation (Perceived usefulness* and *Perceived credibility)*. Testing results of main effects and interaction effects on these two variables in Section 4.4 all show the significant differences between the comparative groups, which prove to be important variables to measure tourism advertising effects. However, the variable of "*Interest*", which is extracted from consumer goods advertising literature, does not demonstrate significant differences by destination type or advertising format in any of the results. Further research is needed to examine if *Interest* should be included in the tourism advertising effects model.

The present study contributes to tourism advertising effects research by involving the VR ad format in the research design and examining its effectiveness in marketing communications. An abundance of extant literature on tourism advertising effects has mainly compared the effectiveness of tourism ads in 1-Dimensional format (e.g., magazines, brochures, audio) and 2-Dimensional format (e.g., television, video) (Dahlén & Edenius, 2007; Kim et al., 2005). Newly applied in tourism marketing practices, VR offers 3-Dimensional immersive experiences and a sense of "being there" to viewers (Loureiro, Guerreiro, & Ali, 2020; Tussyadiah, Wang, Jung, & tom Dieck, 2018). Questions emerged along with its application: could VR ads be a threat to real tourism purchases and lead to dimished desire and tourist arrivals due to its "almost real" experiences? It seems that tourism research has merely examined the effects of VR tourism ads (e.g., Tussyadiah et al., 2018), but failed to address the abovementioned questions. Further comparsion between VR and exisiting 1D and 2D ads formats are omitted in exisiting tourism research. The present study fills this gap by investigating the advertising effects of VR ads, video ads, and print brochure. Furthermore, the present study tests the interactive effects of advertising formats (VR vs. Video vs. Print) and destination types (Cultural vs. Natural) on consumers' responses towards tourism advertisements. The findings of this study indicate that VR may backfire and substitute actual travel to destinations. While VR ads can gain more attention from potential tourists, people's desire for traveling to a destination after watching VR ads is not higher for cultural destinations and even lower for natural

destinations than the video ads.

5.1. Managerial implications

Findings of the present study provide important implications to tourism advertising in terms of designing effective tourism ads and measuring tourism advertising effects based on consumers' responses to ads. The AIEDA model developed in this study indicates that consumers take multiple steps responding to tourism advertisements. The measurement items established in this study provide a constructive and rigorous guideline for destinations to understand and evaluate the effectiveness of tourism advertisements, and accordingly the Input-Output Ratio (ROI) of tourism advertising. This guideline is expected to help Destination Marketing Organizations (DMOs) formulate the tourism advertising budget, reasonably justify it, and wisely use it.

The step of *Evaluation* in the AIEDA model confirms existing research findings that consumers' perceived credibility and perceived usefulness are crucial to measure tourism advertising effects (Brackett & Carr, 2001; Fishbein & Ajzen, 1975; Loda et al., 2005). This study argues that consumers tend to have more desire for the destination after they receive useful and credible advertising information about it (e.g. attractions, transportation, travel routes, etc.). Suggestions about the design of tourism advertisements are twofold based on these findings. First, tourism ads should include some travel related information, such as attractions and prices, to increase the perceived usefulness for potential tourists. Second, tourism ads should provide real and honest information to enhance consumers' perceived credibility. "Deliver the promise" should be the key principle in tourism advertising design, linking to experience delivery.

Interaction testing results (in Table 11) suggest tourism marketers should consider both destination type and advertising format to achieve the best advertising effects. Natural destinations have more flexibility to choose advertising formats across print, video and VR, according to the results. However, cultural destinations should pay more attention when choosing the appropriate format to fulfill the different purposes of tourism advertisements. For example, VR ads tend to attract more attention and be more effective at increasing awareness among potential visitors. If the aim is to help consumers receive and evaluate advertising messages in order to entice desire, then performances of VR ads and video ads are similarly better than print ads.

Furthermore, the findings of this study clearly indicate that "appropriate and effective ads format" does not necessarily have to be the newest, most fascinating, most high tech, or coolest media format. As this study discovered, VR ads result in similar or less advertising effects than video ads. For the natural destination, viewers even reported more desire for the natural destination after watching the video ads than the VR ads. Today, VR is being applied more in tourism marketing communications with the expectation of attracting more interest and visitations. The result of this research indicates the opposite: consumers may not travel to the natural destination after they have the immersive and simulated experiences of the natural destination. Producing a VR advertisement costs much more than a video one, while providing similar or less advertising effects. Thus, this study makes some new discoveries about VR advertising that can help DMOs with decisions regarding advertising media format selection and budget utilization.

5.2. Limitations and future research

The present study is not without limitations. First, this study employed VR Box as the output devices, which are headsets that use a mobile device as a display. This may present a limitation due to the mobile devices processing power and limited ability to provide an immersive experience (Tussyadiah et al., 2018). VR is predicted to become more sensory oriented in the future, to go beyond the boundaries of the human body into the digital world, and to help tourists to augment/expand the perception of reality (Loureiro et al., 2020). Future

research is expected to use advanced technology devices that can offer more immersive 3D content, such as AR goggles, HMDs, or CAVEs. Second, although this study acknowledges the three hierarchical stages and developed the AIEDA model to measure tourism advertising effects, "Action" was dropped because it was difficult to measure consumers' practical actions. Future studies could consider the longitudinal approach by including the variable of *Action/real purchase* to assess tourism advertising effects.

Several interesting questions are left unexplored in the present study, which could form the basis for future research on tourism advertising effects. First, the findings of this study demonstrate no significant impacts on the variable of "*Interest*" for either destination type or advertising format. Further investigations are needed to verify whether *Interest* is a necessary variable to assess tourism advertising effects. Second, this study selected Millennials (born 1983–2000) as participants to avoid bias due to age differences. Future studies are encouraged to examine the tourism advertising effects as reported by other age groups (e.g., Generation X, Baby Boomers). Comparative studies exploring differences of tourism advertising effects between various age groups are also welcomed and necessary in future research. Third, given the exploratory nature of the present study, the two most frequently used items from previous studies on consumers' responses to advertisements were chosen cautiously to measure the AIEDA model. These measurement items can be expanded upon in future studies through other methods such as interviews or observations. Finally, destination types can have different categorizations besides cultural vs. natural. Future research can include other destination types to understand better tourists' responses to their advertisements.

Impact statement

This study provides a multi-step guideline for destinations to understand and evaluate tourism advertising effects from the perspective of consumers, which helps DMOs reasonably formulate and wisely use tourism advertising budget. In particular, findings of this study indicate that tourism advertising effects differ between cultural and natural destination types and between three advertising formats: print, video, and VR. Video ads have similar or better effects than VR ads, while print ads have the least effects. In particular, viewers even reported less desire for the natural destination after watching the VR ads than video ads of the natural destination. This finding clearly indicates that "appropriate and effective ads format" does not necessarily have to be the most fascinating and advanced technology.

Author credits

Lisheng Weng: Conceptualization, Data curation, Data analysis, Software, Visualization, Preparing the original draft. Zhuowei Huang: Conceptualization, Writing – Reviewing and Editing, Methodology, Project Administration. Jigang Bao: Funding acquisition, Supervision.

Declaration of competing interest

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tourman.2020.104278.

References

Abernethy, A. M., & Franke, G. R. (1996). The information content of advertising: A meta-analysis. *Journal of Advertising, 25*(2), 1–17.

Alhemoud, A. M., & Armstrong, E. G. (1996). Image of tourism attractions in Kuwait. *Journal of Travel Research, 34*(4), 76–80.

Barry, T. E. (1987). The development of the hierarchy of effects: An historical perspective. *Current Issues and Research in advertising, 10*(1–2), 251–295.

Barry, T. E., & Howard, D. J. (1990). A review and critique of the hierarchy of effects in advertising. *International Journal of Advertising, 9*(2), 121–135.

Bousquie, C., & Malicki, P. (2009). *Internet advertising of banks in Sweden during the present financial crisis*. University of Halmstad School.

Brackett, L. K., & Carr, B. N. (2001). Cyberspace advertising vs. other media: Consumer vs. mature student attitudes. *Journal of Advertising Research, 41*(5), 23–32.

Buhalis, D. (2000). Marketing the competitive destination of the future. *Tourism Management, 21*, 97–116.

Burke, J. F., & Gitelson, R. (1990). Conversion studies: Assumptions, applications, accuracy and abuse. *Journal of Travel Research, 28*(3), 46–51.

Burns, K. S., & Lutz, R. J. (2006). The function of format: Consumer responses to six on-line advertising formats. *Journal of Advertising, 35*(1), 53–63.

Byun, J., & Jang, S. C. (2015). Effective destination advertising: Matching effect between advertising language and destination type. *Tourism Management, 50*, 31–40.

Cai, L. A. (1998). Effects of destination advertising on financial returns—a comparative analysis of two inquiring methods. *Journal of Hospitality Financial Management, 6*(1), 61–73.

Chaudhuri, A., & Micu, C. C. (2014). The effect of hedonic and utilitarian verbal descriptions and pictures on willingness to try an innovation: Do emotions matter? *Journal of Marketing Communications, 20*(5), 307–324.

Chen, W. J. (2016). The model of service-oriented organizational citizenship behavior among international tourist hotels. *Journal of Hospitality and Tourism Management, 29*, 24–32.

Chen, G., Bao, J., & Huang, S. (2014). Developing a scale to measure backpackers' personal development. *Journal of Travel Research, 53*(4), 522–536.

Chen, C. F., & Phou, S. (2013). A closer look at destination: Image, personality, relationship and loyalty. *Tourism Management, 36*, 269–278.

Choe, Y., Stienmetz, J. L., & Fesenmaier, D. R. (2017). Measuring destination marketing: Comparing four models of advertising conversion. *Journal of Travel Research, 56*(2), 143–157.

Choi, S. M., & Rifon, N. J. (2002). Antecedents and consequences of web advertising credibility: A study of consumer response to banner ads. *Journal of Interactive Advertising, 3*(1), 12–24.

Colley, R. (1961). *Defining advertising goals for measured advertising results*. New York: Association of National Advertisers.

Dahlén, M., & Edenius, M. (2007). When is advertising advertising? Comparing responses to non-traditional and traditional advertising media. *Journal of Current Issues and Research in Advertising, 29*(1), 33–42.

Decrop, A. (2007). The influence of message format on the effectiveness of print advertisements for tourism destinations. *International Journal of Advertising, 26*(4), 505–525.

Eastman, J. K., Iyer, R., Liao-Troth, S., Williams, D. F., & Griffin, M. (2014). The role of involvement on millennials' mobile technology behaviors: The moderating impact of status consumption, innovation, and opinion leadership. *Journal of Marketing Theory and Practice, 22*(4), 455–470.

Filiatrault, P., & Ritchie, J. B. (1980). Joint purchasing decisions: A comparison of influence structure in family and couple decision-making units. *Journal of Consumer Research, 7*(2), 131–140.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Reading, MA: Addison-Wesley. Mifflin.

Fodness, D., & Murray, B. (1997). Tourist information search. *Annals of Tourism Research, 24*(3), 503–523.

Ghirvu, A. (2013). The AIDA model for advergames. *The USV Annals of Economics and Public Administration, 13*(1), 90–98.

Gibson, L. A., & Sodeman, W. A. (2014). Millennials and technology: Addressing the communication gap in education and practice. *Organization Development Journal, 32* (4), 63–75.

González, M. V. (2008). Intangible heritage tourism and identity. *Tourism Management, 29*(4), 807–810.

Govers, R., Go, F. M., & Kumar, K. (2007). Promoting tourism destination image. *Journal of Travel Research, 46*(1), 15–23.

Gursoy, D., & Gavcar, E. (2003). International leisure tourists' involvement profile. *Annals of Tourism Research, 30*(4), 906–926.

Guttentag, D. A. (2010). Virtual reality: Applications and implications for tourism. *Tourism Management, 31*(5), 637–651.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis*. Upper Saddle River, NJ: Pearson Education.

Hassan, S., Nadzim, S. Z. A., & Shiratuddin, N. (2015). Strategic use of social media for small business based on the AIDA model. *Procedia - Social and Behavioral Sciences, 172*, 262–269.

Hautz, J., Füller, J., Hutter, K., & Thürridl, C. (2014). Let users generate your video ads? The impact of video source and quality on consumers' perceptions and intended behaviors. *Journal of Interactive Marketing, 28*(1), 1–15.

Hirschman, E. C. (1986). The effect of verbal and pictorial advertising stimuli on aesthetic, utilitarian and familiarity perceptions. *Journal of Advertising, 15*(2), 27–34.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55.

Hudson, S., & Ritchie, J. R. (2009). Branding a memorable destination experience. The case of 'Brand Canada'. *International Journal of Tourism Research, 11*(2), 217–228.

Hu, T & Guo, Y, Z. A study on tourism consumers' trust, satisfaction and loyalty in online purchasing. Tourism Science, 28(6), 40-50.

Hu, M. L. M., Horng, J. S., & Sun, Y. H. C. (2009). Hospitality teams: Knowledge sharing and service innovation performance. *Tourism Management, 30*(1), 41–50.

Hu, X. B., Su, Q., & Zhang, Y. S. (2012). Research into the motivations and contents of domestic tourists' online information search. *Tourism Tribune, 27*(11), 105–112.

Johnson, R. R., & Messmer, D. J. (1997). The relationship between inquiry and visitation: What is (or should be) conversion? *Journal of Travel & Tourism Marketing, 6*(2), 101–109.

Kamins, M. A., Brand, M. J., Hoeke, S. A., & Moe, J. C. (1989). Two-sided versus one-sided celebrity endorsements: The impact on advertising effectiveness and credibility. *Journal of Advertising, 18*(2), 4–10.

Khan, J. (2011). Validation in marketing experiments revisited. *Journal of Business Research, 64*(7), 687–692.

Kidd, R. F. (1976). Manipulation checks advantages and disadvantages. *Representative Research in Social Psychology, 7*(2), 160–165.

Kim, M. J., Chung, N., & Lee, C. K. (2011). The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea. *Tourism Management, 32*(2), 256–265.

Kim, S. S., Chun, H., & Petrick, J. F. (2005). Positioning analysis of overseas golf tour destinations by Korean golf tourists. *Tourism Management, 26*(6), 905–917.

Kim, D. Y., Hwang, Y. H., & Fesenmaier, D. R. (2005). Modeling tourism advertising effectiveness. *Journal of Travel Research, 44*(1), 42–49.

Korsgaard, M. A., & Roberson, L. (1995). Procedural justice in performance evaluation: The role of instrumental and non-instrumental voice in performance appraisal discussions. *Journal of Management, 21*(4), 657–669.

Kronrod, A., & Danziger, S. (2013). "Wii will rock you!" the use and effect of figurative language in consumer reviews of hedonic and utilitarian consumption. *Journal of Consumer Research, 40*(4), 726–739.

Krugman, H. E. (1965). The impact of television advertising: Learning without involvement. *Public Opinion Quarterly, 29*(3), 349–356.

Lam, T., & Hsu, C. H. C. (2006). Predicting behavioral intention of choosing a travel destination. *Tourism Management, 27*(4), 589–599.

Lavidge, R. C., & Steiner, G. A. (1961). A model for predictive measurements of advertising effectiveness. *Journal of Marketing, 25*, 59–62.

Lee, S., Song, H., Lee, C. K., & Petrick, J. F. (2017). An integrated model of pop culture fans' travel decision-making processes. *Journal of Travel Research*, 1–15.

Lewis, M., Whitler, K. A., & Hoegg, J. (2013). Customer relationship stage and the use of picture-dominant versus text-dominant advertising: A field study. *Journal of Retailing, 89*(3), 263–280.

Li, Z. (2010). Research on comprehensive evaluation of online advertising effects. *Science and Technology Management Research, 23*, 52–54.

Li, Q., Huang, Z. J., & Christianson, K. (2016). Visual attention toward tourism photographs with text: An eye-tracking study. *Tourism Management, 54*, 243–258.

Li, J., & Yu, H. (2013). An innovative marketing model based on AIDA: - a case from E-bank campus-marketing by China construction bank. *iBusiness, 5*, 47–51.

Loda, M. D., Norman, W., & Backman, K. (2005). How potential tourists react to mass media marketing: Advertising versus publicity. *Journal of Travel & Tourism Marketing, 18*(3), 63–70.

Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on virtual reality and augmented reality in tourism context: A text-mining approach. *Tourism Management, 77*, 104028.

Luo, Y., & Deng, J. (2008). The new environmental paradigm and nature-based tourism motivation. *Journal of Travel Research, 46*(4), 392–402.

Magnini, V. P., & Kim, S. (2016). The influences of restaurant menu font style, background color, and physical weight on consumers' perceptions. *International Journal of Hospitality Management, 53*, 42–48.

McCole, P. (2002). The role of trust for electronic commerce in services. *International Journal of Contemporary Hospitality Management, 14*(2), 81–87.

McWilliams, E. G., & Crompton, J. L. (1997). An expanded framework for measuring the effectiveness of destination advertising. *Tourism Management, 18*(3), 127–137.

Messmer, D. J., & Johnson, R. R. (1993). Inquiry conversion and travel advertising effectiveness. *Journal of Travel Research, 31*(4), 14–21.

Mohammadi, S., Esmaeily, N., & Salehi, N. (2012). *Prioritization of promotion tools based on AIDA model by Analytic Hierarchy process in production sector of sport industry*.

Morris, M. G., & Venkatesh, V. (2000). Age differences in technology adoption decisions: Implications for a changing work force. *Personnel Psychology, 53*(2), 375–403.

Palazon, M., & Delgado-Ballester, E. (2011). The expected benefit as determinant of deal-prone consumers response to sales promotions. *Journal of Retailing and Consumer Services, 18*(6), 542–547.

Palda, K. S. (1964). *The measurement of cumulative advertising effects*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Park, S., & Nicolau, J. L. (2015). Differentiated effect of advertising: Joint vs. separate consumption. *Tourism Management, 47*, 107–114.

Park, S., Nicolau, J. L., & Fesenmaier, D. R. (2013). Assessing advertising in a hierarchical decision model. *Annals of Tourism Research, 40*, 260–282.

Perdue, R. R. (1985). Segmenting state travel information inquirers by timing of the destination decision and previous experience. *Journal of Travel Research, 23*(3), 6–11.

Perdue, B. C., & Summers, J. O. (1986). Checking the success of manipulations in marketing experiments. *Journal of Marketing Research, 23*(4), 317–326.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539–569.

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12*(4), 531–544.

Ponte, E. B., Carvajal-Trujillo, E., & Escobar-Rodríguez, T. (2015). Influence of trust and perceived value on the intention to purchase travel online: Integrating the effects of assurance on trust antecedents. *Tourism Management, 47*, 286–302.

Pratt, S., McCabe, S., Cortes-Jimenez, I., & Blake, A. (2010). Measuring the effectiveness of destination marketing campaigns: Comparative analysis of conversion studies. *Journal of Travel Research, 49*(2), 179–190.

Robertson, T. S. (1971). *Innovative behavior and communication*. New York: Holt, Rinehart (Winston).

Silberman, J., & Klock, M. (1986). An alternative to conversion studies for measuring the impact of travel ads. *Journal of Travel Research, 24*(4), 12–16.

Smith, C. (2002). Virgin's reputation gives its e-activity instant credibility. *Marketing, 19*.

Snepenger, D., Meged, K., Snelling, M., & Worrall, K. (1990). Information search strategies by destination-naive tourists. *Journal of Travel Research, 29*(1), 13–16.

Söderlund, M. (2017). Employee display of burnout in the service encounter and its impact on customer satisfaction. *Journal of Retailing and Consumer Services, 37* (October), 168–176.

Strong, E. (1925). *The psychology of selling and advertising*. New York: McGraw-Hill.

Thorson, E. (1984). *Episodic and semantic memory: Implications for the role of emotion in advertising. Paper presented at the advertising division of the association for education in Journalism and Mass Communication*. Gainesville, Florida.

Tussyadiah, I. P., Wang, D., Jung, T. H., & tom Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. *Tourism Management, 66*, 140–154.

Vakratsas, D., & Ambler, T. (1999). How advertising works: What do we really know? *Journal of Marketing, 63*(1), 26.

Wang, S., Kirillova, K., & Lehto, X. (2017). Reconciling unsatisfying tourism experiences: Message type effectiveness and the role of counterfactual thinking. *Tourism Management, 60*, 233–243.

Wan, C.-S., Tsaur, S.-H., Chiu, Y.-L., & Chiou, W.-B. (2007). Is the advertising effect of virtual experience always better or contingent on different travel destinations? *Information Technology & Tourism, 9*(1), 45–54.

Weilbacher, W. M. (2003). How advertising affects consumers. *Journal of Advertising Research, 43*(2), 230–234.

Wijaya, B. S. (2012). The development of hierarchy of effects model in advertising. *International Research Journal of Biological Sciences, 5*(1), 73–85.

Wöber, K. W., & Fesenmaier, D. R. (2004). A multi-criteria approach to destination benchmarking: A case study of state tourism advertising programs in the United States. *Journal of Travel & Tourism Marketing, 16*(2–3), 1–18.

Wolf, I. D., Stricker, H. K., & Hagenloh, G. (2013). Interpretive media that attract park visitors and enhance their experiences: A comparison of modern and traditional tools using GPS tracking and GIS technology. *Tourism Management Perspectives, 7*, 59–72.

Woodside, A. G. (1990). Measuring advertising effectiveness in destination marketing strategies. *Journal of Travel Research, 29*(2), 3–8.

Woodside, A. G., & Reid, D. M. (1974). Tourism profiles versus audience profiles: Are upscale magazines really upscale? *Journal of Travel Research, 12*(4), 17–23.

Wu, S. I., Wei, P. L., & Chen, J. H. (2008). Influential factors and relational structure of Internet banner advertising in the tourism industry. *Tourism Management, 29*(2), 221–236.

Zaichkowsky, J. L. (1986). Conceptualizing involvement. *Journal of Advertising, 15*(2), 4–34.

Zhou, Z. (1997). Destination marketing: Measuring the effectiveness of brochures. *Journal of Travel & Tourism Marketing, 6*(3–4), 143–158.

Dr. Lisheng Weng conducts research on destination development and management.

Dr. Zhuowei Huang specializes in consumer behavior research in tourism and hospitality management.

Jigang Bao is a professor in the School of Tourism Management at Sun Yat-sen University. His research focuses on destination planning and management, sustainable development of tourism, and tourism geography.