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Advertising on the edge: appeal effectiveness when advertising in extreme sports

This is the final peer-reviewed author's accepted manuscript (postprint) of the following publication:

Published Version:

Advertising on the edge: appeal effectiveness when advertising in extreme sports / Raggiotto F.; Scarpi D.; Moretti A.. - In: INTERNATIONAL JOURNAL OF ADVERTISING. - ISSN 0265-0487. - ELETTRONICO. - 39:5(2020), pp. 655-678. [10.1080/02650487.2019.1653009]

Availability:

This version is available at: <https://hdl.handle.net/11585/720135> since: 2020-02-01

Published:

DOI: <http://doi.org/10.1080/02650487.2019.1653009>

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<https://doi.org/10.1080/02650487.2019.1653009>

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Extreme sports are a solid international industry enjoyed by millions of people, and many brands use extreme sports as contexts for advertising in the US and EU. Interpreting extreme sports through different psychological theories, in two experiments the authors compare the effects on persuasiveness, product attraction and behavioural intention of challenge- and difficulty-focused messages in extreme and traditional sports contexts, for high- and low-involvement brands. They find those appeals to affect ad persuasiveness, product attractiveness, purchase intention and willingness-to-pay positively in extreme sports, but negatively in traditional sports. Qualitative interviews highlight that extreme and traditional sports are perceived as different worlds. Results hold regardless of consumers' participation type or preferred sport type and are based on hundreds of respondents across the US and different EU countries.

Introduction

Extreme sports (also known as action, lifestyle and alternative sports) are activities where the participant is subjected to great physical and mental challenges such as speed, height, depth, natural forces, where often risks and/or extreme endurance are involved (Gyimothy and Mykletun 2004). They are characterized by the involvement in physical prowess and a particular attitude towards the world and the self (Breton 2000). Examples are BMX, skydiving, base jumping, snowboarding, cliff jumping and ice climbing (Brymer and Houge Mackenzie 2016), but also bungee jumping, caving (Bentley, Page, and Laird 2001) and triathlon (Atkinson 2008, for extreme endurance).

There is a tight relationship between sports and advertising. Sports can be incorporated in advertising and used as a context to convey advertising appeals, and the most obvious example is sports sponsorship. But besides sponsoring activities (Olson 2010), sports often serves as a meta-linguistic tool to convey specific meanings and appeals and to achieve positioning (McDonald 1996), as advertising within sports contexts can influence consumer perceptions of appeals, brands and products.

(Chandrasekaran, Srinivasan, and Sihi 2017). In this vein, 7 years ago, Pyun and James (2011) noted how sport had become 'an important advertising platform for many corporations because of the flexibility, broader reach and higher levels of brand or corporate exposure that sport platforms afford' (p. 33). Their words have been prophetic, as 7 years later sport advertising has become a mass phenomenon and has wildly trespassed that original domain. Nowadays, hundreds of brands advertise in the context of sports on any possible media, including social media, even for products and services that are unrelated to sports (e.g. Unicredit Bank).

In the 2000s, the phenomenon under everyone's eyes was sport advertising, and everyone meant by that traditional sports, as the interest of major brands in extreme sports was very limited (Puchan 2005). While Lyberger and McCarthy (2001) and Pyun and James (2011), among many others, highlighted in those years the importance of evaluating the effectiveness of advertising in traditional sport, the present research highlights instead the importance of investigating the effectiveness of advertising in extreme sports. In the 2000s, there was no need to specify that 'sports' were traditional sports when investigating sport advertising. Even the name 'extreme sport' came later, as 'free sports', 'adventure sports', 'lifestyle sports', 'alternative sports' and 'action sports' were competing and often confusing terms (Brymer and Houge Mackenzie 2016). But extreme sports saw a gargantuan growth in popularity since the 2000s: from being a young, largely unknown and niche phenomenon, they become a whole new multi-billion dollars industry (NFS-Sport Management 2017). For instance, wakeboarding has surged 32% in the US alone (3.5 million people), Triathlon claims over 6 million U.S. participants and BMX participation has grown so much that it is now an Olympic sport (Xtremesports 2008; Triathlete 2014; Team USA 2016). Overall, more than 22 million people per year regularly participate in extreme sports in the US alone (TBI 2014) (that's half the population of Spain, or two-thirds the population of Canada), be it BMX (Bennett and Lachowetz 2004), skydiving, base jumping, snow-boarding, cliff diving or ice climbing (Brymer and Houge Mackenzie 2016) as well as bungee jumping, caving (Bentley, Page, and Laird 2001) or triathlon (Atkinson 2008). Illustrating this global growth in popularity (Thorpe 2014; Forward with Toll 2016), annual extreme sports events such as the X Games are attended by hundreds of thousands of people and viewed by 12.5% of adults and 8.6% of young adults in the US (STATISTA 2018).

Thus, it is no surprise that marketing and advertising investments in extreme sports have increased to catch up, as reflected by the interest in extreme sports of internationally renowned brands and media operators, and by the number of advertising campaigns set into the context of extreme sports. For instance, Red Bull has been a pioneer in advertising its products in the context of snowboarding, BMX and extreme motor racing. But many other brands advertise their products in the contexts of extreme sports, from Timex watches to Oakley glasses, from Argon 18 bicycles to Vans apparel.

In their rush to find trendy new sports disciplines and attractive contexts, marketers today are increasingly using extreme sports as an advertising setting, drawing from their imagery to communicate values and visions and to enlarge their customer base; extreme sports are used also by a number of brands that often sell products unrelated

to sports (e.g. watches, batteries, cameras, perfumes). Even advertising strategies from major producers of traditional sports equipment set their advertising in the context of extreme sports, like the 2011 Nike campaign 'The Chosen', likely to engage a new market segment whose estimated potential in revenue was \$390 million for Nike alone (The New York Times 2011). Last but not least, the spending power of extreme sports lovers tends to be higher than the national average (ChronReport 2011).

People into extreme sports, however, behave and think differently from the average consumer (Buckley 2012): they perceive painful challenges and threatening difficulties as positive rather than negative, have a high tendency to seek sensations, and enjoy watching and/or doing activities that push their physical and psychological limits as they attribute a cathartic value to difficulties and risky challenges (Laurendeau 2006). Unable to explain the behaviour of individuals who love extreme activities in terms of cognitive adaptation, the literature in psychology has advanced edgework theory (Lyng 1990; Brymer and Houge Mackenzie 2016), posing that such individuals voluntarily seek out challenges (Bunn 2017), pain, and potential danger (Laurendeau 2006), driven by feelings of self-enhancement and invincibility through struggle. Yet, few studies – if any – have so far translated these considerations into the domain of advertising. Thus, the question is left open as to whether brands change something when switching from traditional to extreme sports as a setting for their communication. And given the multi-billion-dollar value of extreme sports and the merchandising surrounding them, this question is no mere academic speculation.

In the present research, the authors adopt the theoretical perspective of cognitive adaptation and edgework theory to establish a link between ad and sports type (extreme vs. traditional). This theoretical base would help explain some of the mixed outcomes in the success of previous advertising campaigns by brands that staged themselves in the context of extreme sports, and would provide a rationale for the dos and don'ts for brands considering advertising in the context of extreme sports.

The underlying assumption and – ultimately – the main finding of the present research is that, due to their specificities, extreme sports as contexts for advertising work differently than traditional sports; thus, ads must differ and employ different psychological mechanisms.

Theoretical background and hypotheses

There is a tight relationship between sports and advertising. Sports can be incorporated in advertising and used as a context to convey advertising appeals. The most obvious example is sports sponsorship; but besides sponsoring activities, sports often serves as a meta-linguistic tool to convey specific meanings and appeals and to achieve positioning (McDonald 1996). Advertising within sports contexts can influence consumer perceptions of appeals, brands and products (Chandrasekaran, Srinivasan, and Sihi 2017).

Extreme sports are activities where participants voluntarily subject themselves to risky physical and mental challenges such as height, or natural forces and often require extreme endurance and/or quick reflexes. They are pursued for strong

sensations, achieved through challenging and threatening situations, and are spectacular both to watch and to do (Brymer and Houge Mackenzie 2016).

As Lee et al. (2011) suggested in their – mostly unanswered – pioneering call for studies on extreme sports advertising, the key for understanding advertising in the context of extreme sport is understanding consumers' psychology. While they investigated consumers' psychology in terms of personal involvement and attitudes towards sport, nowadays much more is known about the psychological drivers of consumers of extreme sports. Specifically, studies in psychology have assessed that extreme sports adhere to a behavioural pattern of voluntarily exposing oneself to dangers, that can be explained in light of edgework theory (Lyng 1990). Indeed, the psychology literature agrees that extreme activities (sports are no exception) are a setting where individuals think differently, displaying unique psychological drivers and reactions. So much so that the literature has not used the difficulty in the performance or the sense of challenge in the execution as criterion to separate between traditional and extreme sports. Instead, it is the participant's deliberate willingness to actively seek (avoid) dangerous situations (Lyng 1990; Laurendeau 2006) envisioning them with positive (negative) value and meanings (Laurendeau 2006) that characterizes extreme (traditional) sports. Extreme activities are sought precisely because they require pushing one's physical and mental limits to the edge and are pursued to discover and push forward those limits (i.e. the 'edge') (Milovanovic 2005; Brymer and Houge Mackenzie 2016). The ultimate goal for extreme sport lovers is feeling strong sensations (Gyimothy and Mykletun 2004) whose successful overcoming feeds the idea of belonging to an elite group of 'superior' men/women and a feeling of catharsis (Lyng and Matthews 2007). In summary, difficulty and challenge are positive values in extreme sports, leading to, rather than discouraging, their undertaking (Kaiser et al. 2007); thus, extra difficulties are not uncommonly added to already-challenging situations to make them even harder and to provide even more sensation. But while marketers have grasped the visual, spectacular side of extreme sports, they may have neglected the psychological underlying mechanisms.

Cognitive adaptation theory (Taylor 1983, 2011) explains instead threat-related behaviours in traditional activities. According to cognitive adaptation, difficulties and challenges are present in traditional activities but are unsought and actively minimized to restore a safe condition (Taylor 2011). Indeed, situations pushing one to the limits and exposing one to difficulty lead to painful psychological processes of positive adjustment (Taylor et al. 2003) to rebuild self-identity and to minimize the perception of those challenges and difficulties (Jayawickreme and Blackie 2014). Coherently, actions that threaten self-preservation actions are often against the rules in traditional sports, where sensationalism does not usually stem from putting oneself in dangerous situations, but from gameplay, extraordinary actions, choreography, etc.

Literature has widely documented that congruency between the message and the picture used in an ad is a powerful driver of positive reactions (Moorman, Neijens, and Smit 2002) and that congruency in general positively affects various kinds of consumer responses, such as credibility and perceived value (Orth and Malkewitz 2008; Van Rompay and Pruyn 2011), be it congruency between visual and verbal information (Heckler and Childers 1992), product type and colour (Bottomley and Doyle 2006) or

shape and typeface (Van Rompay and Pruyn 2011). Yet, congruency or fit-based theories such as perceptual fluency (Reber, Winkielman, and Schwarz 1998) would be unable to provide an explanation of the difference between traditional and extreme sports in this regard, as the latter do not fit better with difficulty and challenge than the former. Indeed, the difficulties and challenges found in traditional and extreme activities often require similar levels of training and dedication, self-discipline and self-regulation (Brymer 2010), but the sets of cognitive, behavioural and motivational processes they activate are very different, if not opposites (Laurendeau 2011; Lyng 2014). Consistently, literature in sport psychology has posited metacognitive inferences and domain-general skills as integral to the genesis of performance in sports (Ericsson, 2006). Training athletes to develop and engage in metacognition equips them with the proper beliefs and mental setting to excel in sports, be their traditional or extreme (MacIntyre et al. 2014). Yet, the required mental setting of thoughts and feelings is different between traditional and extreme sports (e.g. Laurendeau 2006), so that the psychological skills and self-regulation differ and lead to the application of different psychological strategies (MacIntyre et al. 2014), triggering different meta-cognitive control processes that allow a different mind-set in accordance with the perceived task demands (MacIntyre and Moran 2012). Contemporary evidence from cognitive psychology further supports the different valence of difficulties and risky challenges between traditional and extreme sports, as they activate a different meta-imagery, that is 'beliefs about the nature and regulation of their own imagery skills' (Moran 2002, p. 415). Meta-imagery refers to the voluntary nature of imagery and the conscious awareness during sport tasks and has recently received attention in psychology, emerging as key in differentiating individuals engaging in sport activities (Morana et al., 2012). By asking sport enthusiasts to indicate what mental imagery processes they used, literature documented that athletes employ imagery in creative ways while living the sport experience, beyond the mere activation of motor skills (MacIntyre and Moran 2007). Meta-imagery is sometimes akin to introspection (MacIntyre et al. 2014), and in this vein, literature has found that individuals participate in extreme sports driven by specific psychological needs and desires (Willig 2008), and has provided evidence of differences in the personality traits of extreme and traditional sports enthusiasts (Rhea and Martin 2010) and of a difference idea of the self (Hardie-Bick and Bonner 2016). Accordingly, other studies have associated extreme sports participation to thrill-seeking (Self et al. 2007), need for control (Milovanovic 2005), self-sufficiency and openness to change (Rhea and Martin 2010), that are consistent with the adoption of different meta-imagery processes. Evidence from neuroscience further supports the differences in the psychological processes between traditional and extreme sport lovers (Thomson, Carlson, and Rupert 2013), as neuropsychological reward mechanisms are activated when individuals are subjected to extreme experiences and fear, releasing dopamine. The feeling of transformation that extreme sport lovers reported (e.g. Lyng and Matthews 2007) may stem from the release of this hormone that alters feelings of self-improvement and incentive salience.

Hence, the authors posit that advertising appeals related to difficulty and challenge might work differently in the contexts of extreme and traditional sports. Specifically,

translating into the domain of advertising the aforementioned theoretical considerations, the authors derive the following hypotheses:

(H1) Difficulty-based appeals positively affect message persuasiveness (H1a), product attractiveness (H1b), brand attitude (H1c) and purchase intention (H1d) when advertising in the context of extreme sports, (H2) but not when advertising in the context of traditional sports.

(H3) Challenge-based appeals positively affect message persuasiveness (H3a), product attractiveness (H3b), brand attitude (H3c) and purchase intention (H3d) when advertising in the context of extreme sports, (H4) but not when advertising in the context of traditional sports.

It is worth noticing that challenge refers to challenging oneself (or the viewer) as opposed to difficulty that is referred to the activity. In other words, challenges encourage the performer to try harder to achieve a better self (Breton 2000) and are centred on the evaluating self (Zimmerman 2000) and emotions (Brymer 2010). Instead, difficulty refers to the struggle of handling and overcoming the ordeal; it is task-centred and processed in the frontoparietal brain area that constitutes the cognitive control network (Cole and Schneider 2007).

Active and passive sports participation

Individual participation in sports can be passive (e.g. spectatorship) or active (actual participation). Different drivers for active and passive participation have been identified in the literature, such as escapism from ordinary life (Trail, Fink, and Anderson 2003) and social significance (Jae Ko et al. 2011) for passive participation; and competition (Crofts, Schofield, and Dickson 2012) and willingness to pursue healthy lifestyles (Mallett and Hanrahan 2004) for active participation. Yet, there is a lack of consensus on the effects of active/passive participation, and there are calls in the literature for their comparison (Kaplanidou and Vogt 2010; Ramchandani et al. 2015). This problem is new in the literature, as traditional sports research has almost always focused on passive participants, especially regarding advertising. There are two major reasons for the lack of focus on active participants and for a comparison of active and passive participants. These can be easily explained by two considerations. First, there is a disproportionate number of passive participants, compared to the actives, in traditional sports. Second, a fundamental source of revenues in the sports industry involves merchandising expenditures (Correia and Esteves 2007), which are often driven by advertising (Fink, Trail, and Anderson 2002) and, at least in traditional sports, come from the passive participants. However, when it comes to extreme sports these two arguments lose much of their strength. In extreme sports, the participation is intrinsically more active, entailing an extraordinary involvement and commitment, so much that even passive participation in extreme sports frequently has some connection with active participation (Bennett and Lachowetz 2004). Second, while merchandising is a relevant source of revenues for extreme sports, accounting for over 50% of total revenues (TBI 2014), over 70% of those revenues come from the active consumer-athletes rather than from the (passive) spectators (NerdWallet 2015; ISPO 2016; Nielsen Scarborough 2017).

From a theoretical point of view, it is worth noticing that there are no studies on the effects of active/passive engagement in extreme sports that account for the psychological specificities of extreme individuals. However, some considerations on the relationship between active and passive participation in extreme sports may be derived by taking into account sensation-seeking (Zuckerman 2015). Sensation seeking is a characteristic of edgework individuals (Schroth 1995; Bakir 2010) and has been frequently associated with extreme sports (Marengo, Monaci, and Miceli 2017). It refers to the continuous search for an optimal level of stimulation (Zuckerman 1994) through 'the seeking of varied, novel, complex and intense sensations and experiences, and the willingness to take physical, social, legal and financial risks for the sake of such experiences' (Zuckerman 1994, p. 27). To maintain that optimal level of stimulation, sensation-seekers look for risk, difficulty and challenge in increasing levels in order to enhance the intensity of the stimulation (Roberti 2004). However, such craving for emotions can be satisfied both by actively engaging in risky, challenging situations (Brymer and Houge Mackenzie 2016) and by passively watching others engaging in those activities (Palmgreen et al. 1995): for instance, by watching action-oriented media (Hoffner and Levine 2007). In this vein, there is empirical support for the idea that passively watching action-oriented, sensational sports can satisfy edgework individuals' sensation-seeking tendency (McDaniel 2003). Furthermore, passive and active participation are not mutually exclusive, and each can boost the probability of engaging in the other (Ramchandani et al. 2015). Reading previous findings through the theoretical lenses of edgework and cognitive adaptation theory, both active and passive participation are rooted in commitment to and interest in the sporting events (Hinch and Higham 2001). Though the final choice about which specific sport or event to follow might differ between active and passive participants, they both share the same psychological drivers (Hallmann, Kaplanidou, and Breuer 2011). These considerations would suggest that, overall, attitudes and psychological drivers for those watching and performing extreme sports might be comparable (McDaniel 2003). Thus, the following hypothesis:

H5. The efficacy of difficulty- and challenge-based appeals is the same for active and passive sports participants.

Note that H5 is relevant managerially also, as it pertains to the need to split, or not, the audience into two separate segments.

Empirical studies

Stimuli selection and testing

Stimuli selection underwent four phases with a total of 400 respondents recruited from an online panel by Toluna, a global provider of online consumer panels. In the first pre-test, 50 respondents ($M_{age} = 35.22$; 47% female) were provided a definition of extreme sports based on Gyimothy and Mykletun (2004) with examples from Brymer and Houge Mackenzie (2016), then shown pictures of various products and asked about their match with and meaningfulness to extreme and traditional sports on a scale from 1 ('not all') to 7 ('completely'). Watches were chosen because they scored

equally high for extreme ($M = 6.02$) and traditional sports ($M = 6.11$, $p > .10$). Observation of real ads suggests that many watch brands set their advertising in traditional (e.g. Wyler, Citizen), in extreme (e.g. Alpine, Sector) and in both sports types (e.g. Seiko, Suunto, TAG Heuer, Timex).

In the second pre-test, 100 respondents ($M_{\text{age}} = 38.68$; 50% female) were shown, in random order, 15 verbal appeals from real ads set in the context of sports. Respondents rated how much the appeals focused on difficulty or challenge (on two items ranging from 1 = 'not at all' to 7 = 'completely'). Based on the absolute and relative ratings, the authors identified three appeals: one scored highest on difficulty ('If it was easy, everyone would do it'; $M = 6.03$, $p < .05$) and one on challenge ('Don't limit your challenges. Challenge your limits'; $M = 6.23$, $p < .05$). A third appeal was identified that scored equally low (3) on both dimensions and was retained as the baseline appeal ('I live for these moments'; $p > .10$).

In the third pre-test, another 100 respondents ($M_{\text{age}} = 36.61$; 42% female) were shown, in random order, 40 images from print ads set in the context of sports. Respondents rated how much the images pertained to traditional or extreme sports (on one item ranging from 1 = 'traditional' to 9 = 'extreme'). Two images were selected for extreme ($M_1 = 7.98$, $M_2 = 8.28$) and two for traditional sports ($M_1 = 1.88$, $M_2 = 2.02$). The four images had a similar layout, referring to traditional versus extreme biking, and were equally liked ($p > .10$).

In the fourth pre-test, an international graphic agency mocked-up 12 ads to be used as stimuli, joining the three appeals with the four images (controlling for colour balance, saturation, proportions, size of the endorser and overall 'melting' the images to make them graphically consistent). Six mock-up ads closely mimicked the structure, layout, size and graphic of a real ad by TAG Heuer and were used in Study 1. The other six mock-up ads closely mimicked the structure, layout, size and graphic of a real ad by Timex and were used in Study 2. These brands were chosen to represent high and low involvement as identified by another 50 respondents ($M_{\text{age}} = 37.51$; 40% females).

Finally, the stimuli were tested on a sample of another 100 respondents ($M_{\text{age}} = 40.72$; 44% females) who – using a 7-point scale – rated them for realism (all mean scores 6.11) and readability (all mean scores 6.21). Because the graphic elements of an ad might contribute to its overall appeal alongside the written text, those respondents evaluated again the focus on difficulty and challenge (mean scores 6.12 for respective focus; mean score 3.05 for baseline appeal; 7-point scale) and the extremeness of the sport (mean scores 6.14 and 3.14, respectively; $p < .05$).

Congruency between the written and pictorial part of the ad was also pretested (Moorman, Neijens, and Smit 2002), to ensure that differences in the outcomes were not due to higher or lower congruency in certain stimuli, but to different reactions toward difficulty and challenge (mean scores 4.82; $p > .10$; – 7-point scale).

Examples of the stimuli are in the Appendix.

Design and sample

Study 1

Based on the results from the four pre-tests, respondents were randomly assigned to one of six conditions according to a 2 (sports type: extreme vs. traditional biking) 3

(ad focus: difficulty, challenge, neither) between-subjects experimental design. Respondents were asked to assess ad persuasiveness (Chang 2011), product attractiveness (Fuchs, Schreier, and van Osselaer 2015), brand attitude (MacKenzie and Lutz 1989) and purchase intention (Yoo and Donthu 2001). Next, they were asked about the perceived extremeness of the sport, as a manipulation check, the match between brand image and sport type (Tingchi Liu, Huang, and Minghua 2007), and sensation seeking (Hoyle et al. 2002) as controls. Items ranged from 1 ('not at all') to 7 ('completely'), except for willingness-to-pay. Finally, respondents were asked to provide demographic information and to describe their sports participation (active/passive; extreme/traditional).

Four hundred eighty participants were recruited from an online panel by the Toluna market research company for Study 1 ($M_{age} = 36.40$; 45.80% female; 50.20% active participants).

Study 2

To increase the validity of the findings from Study 1, Study 2 replicated the analysis using a lower-involvement brand (Timex; defined as a common brand also by Noseworthy and Trudel 2011, p. 1013), the other set of pictures identified from the stimuli pre-test, and offline respondents from a European country. By considering a different brand and country, and different ads, Study 2 also rules out that the effects from Study 1 apply only to those ads.

Not only is France one of the most important markets in the world in the industry of traditional sports (Nielsen Sports 2016), but it has been a pioneer of extreme sports since the earliest days and has since developed into one of the most relevant countries for these disciplines. Thanks to its unique natural features – like the Mont Blanc, the highest mountain on the European continent – France offers unparalleled opportunities for extreme activities like free climbing and paragliding. For lovers of extreme endurance sports, France offers one of the oldest (founded 1989), largest (more than 50,000 members and over 800 clubs) and most active (about 3000 events per year) federations in Europe (FFTRI 2018), while Ironman France is one of the largest in Europe, with over 2000 athletes in 2018 (EU-Ironman 2018). Meanwhile, the French-born FISE Festival (International Extreme Sports Festival) is the largest freestyle sports event in the world and has taken place in France since its creation in 1997. The festival encompasses BMX, skateboarding, roller blading, wakeboarding and slopestyle mountain biking, and draws 600,000 spectators, 1800 athletes and 400,000 digital followers (VoGo 2019). As a consequence, France has powered a huge sporting community and is not uncommonly addressed as a reference country in the study of extreme sports (e.g. Saris et al. 1989; Midol and Broyer 1995; Breton 2000; Brymer and Oades 2009). Based on these considerations, France was chosen as the target country. A sample of 250 offline French participants naive to the purpose of the study was drawn from the general population for Study 2 (48.50% active participants). Respondents were recruited from different areas of France, such as the North (Paris-Troyes area), West (Bordeaux-Toulouse area) and South (Montellier area). In addition, the socio-demographical profile of the sampled respondents ($M_{age} = 37.83$; 47.50% female) aligns with that of the target market, according to recent reports (STATISTA 2018).

Results: Study 1

Scales

Scale reliability ranged from .85 to .92; factor analysis (maximum likelihood; oblimin rotation) confirmed that brand attitude, ad persuasiveness, product attractiveness and purchase intention are distinct factors (75.72% of variance explained; composite reliability (CR) > .7 and average variance extracted (AVE) > .5; Fornell and Larcker 1981).

Manipulation check

Respondents correctly recognized the sports context of the ad as being traditional ($M_{\text{trad}} = 2.84$) or extreme ($M_{\text{extr}} = 5.63$, $F(1, 474) = 427.87$, $p < .001$).

Control

The match between brand image and sports type confirmed that the chosen brand has no particular association with one sports type ($M_{\text{trad}} = 4.37$ vs. $M_{\text{extr}} = 4.47$, $F(1, 474) = .410$, $p = .522$). Lovers of extreme sports scored higher in sensation-seeking than lovers of traditional sports ($M_{\text{trad}} = 3.67$ vs. $M_{\text{extr}} = 4.94$, $F(1, 474) = 104.070$, $p < .001$).

Main study

All respondents passed an attention check. A multivariate analysis of variance was run with ad appeal, sports type and participation as independent variables, and with ad believability, brand attitude, product attractiveness, purchase intention and willingness-to pay as dependent variables. No significant main effect was found for sports type (Wilks $\lambda = .978$, $F(5, 454) = 2.038$, $p = .072$) or ad appeal (Wilks $\lambda = .941$, $F(10, 908) = .434$, $p = .930$), but a significant Appeal Sport interaction emerged (Wilks $\lambda = .862$, $F(10, 908) = 6.992$, $p < .001$). Follow-up univariate analyses revealed that the interaction has an impact on ad persuasiveness ($F(2, 459) = 21.400$, $p < .001$), product attractiveness ($F(2, 459) = 11.373$, $p < .001$), purchase intention ($F(2, 459) = 5.852$, $p = .003$) and willingness-to-pay ($F(2, 459) = 3.522$, $p = .030$), but not on brand attitude ($F(2, 459) = .022$, $p = .978$).

This evidence provides initial support for H1 through H4, except for H1c and H3c (i.e. appeals' impact on brand attitude). Thus, the authors ran post-hoc comparisons of the appeals. Challenge- and difficulty-based appeals were found to be equally effective ($p_{\text{persuas}} = .782$, $p_{\text{attract}} = .183$, $p_{\text{purch}} = .360$, $p_{\text{wtp}} = .476$). However, in extreme sports they were more effective than the baseline appeal in shaping persuasiveness ($M_{\text{base}} = 3.85$ vs. $M_{\text{ChalandDif}} = 4.64$; $F(1, 226) = 22.106$, $p < .001$), product attractiveness ($M_{\text{base}} = 4.21$ vs. $M_{\text{ChalandDif}} = 4.84$; $F(1, 226) = 7.835$, $p = .006$), purchase intention ($M_{\text{base}} = 2.58$ vs. $M_{\text{ChalandDif}} = 3.24$; $F(1, 226) = 6.789$, $p = .010$) and (marginally) willingness-to-pay ($M_{\text{base}} = 2.37$ vs. $M_{\text{ChalandDif}} = 3.24$; $F(1, 226) = 3.006$, $p = .084$). Instead, a pattern switch was found in traditional sports, where the baseline appeal

was more effective for ad persuasiveness ($M_{\text{base}} = 4.74$ vs. $M_{\text{ChalandDif}} = 3.82$; $F(1, 237) = 19.462$, $p < .001$), product attractiveness ($M_{\text{base}} = 4.88$ vs. $M_{\text{ChalandDif}} = 4.11$; $F(1, 237) = 12.865$, $p < .001$), purchase intention ($M_{\text{base}} = 3.39$ vs. $M_{\text{ChalandDif}} = 2.90$; $F(1, 237) = 4.392$, $p = .037$) and willingness-to-pay ($M_{\text{base}} = 3.36$ vs. $M_{\text{ChalandDif}} = 2.47$;

$F(1, 237) = 3.927, p = .049$). Overall, this evidence supports hypotheses H1a,b,d, H2a,b,d, H3 and H4.

Finally, the authors addressed active/passive participation, finding no significant main effect (Wilks $k = .991, F(5, 454) = .861, p = .507$) or interaction (participation sport: Wilks $k = .987, F(5, 454) = 1.214, p = .301$; participation appeal: Wilks $k = .986, F(10, 908) = .665, p = .758$). This evidence supports H5. Noticeably, results do not change between extreme and traditional sports-loving respondents (Wilks $k = .984, F(5, 454) = 1.458, p = .202$), suggesting that effects are due to the sports type used as the ad context, rather than to the sports type preferred by the respondents.

No effects emerged for gender (Wilks $k = .988, F(5, 418) = 1.028, p = .401$), age (Wilks $k = .991, F(5, 418) = .726, p = .604$) or favourite sport-type (Wilks $k = .990, F(5, 418) = 1.002, p = .406$).

Results: Study 2

Scales

When interviewing consumers from different countries, the questionnaire items often do not only have to be translated linguistically, but also adapted culturally. Because the English version of the scales had been previously validated, this study adopted forward-back translation, in line with Chen, Holton III, and Bates (2005). Thus, the items were translated and back-translated by bilingual personnel. Only a few minor inconsistencies arose from this process, which were solved based on Beaton et al.'s (2000) four points to ensure equivalence of the measurements at a conceptual level (semantic, idiomatic, experiential, conceptual). Finally, the questionnaire was pretested on a convenience sample of 20 respondents (not included in further analyses) who were asked what they thought was meant by each questionnaire item and the chosen response (Beaton et al. 2000). This procedure ensured that the adapted version retained its equivalence. As a further confirmation, the adapted measures retained the psychometric properties of the questionnaire: factor analysis (maximum likelihood; oblimin rotation) showed that brand attitude, ad persuasiveness, product attractiveness and purchase intention are distinct factors (76.11% of variance explained), that reliability ranged from .83 to .91, and that CR and the AVE exceeded their, respectively, recommended thresholds of .7 and .5 (Fornell and Larcker 1981).

Controls

As in Study 1, respondents passed the check for sports type ($M_{\text{trad}} = 2.81$ vs. $M_{\text{extr}} = 5.58, F(1, 248) = 160.341, p < .001$) and match-up ($M_{\text{trad}} = 4.94$ vs. $M_{\text{extr}} = 4.76, F(1, 248) = .566, p = .453$); sensation-seeking was higher for extreme-sports lovers ($M_{\text{trad}} = 3.84$ vs. $M_{\text{extr}} = 4.60, F(1, 248) = 7.932, p = .005$). An independent samples t-test showed that brand involvement is significantly lower in Study 2 than in Study 1 ($t(1, 703) = -6.899, p < .001$).

Main study

Overall, results from Study 2 corroborate the findings from Study 1, providing evidence in support for hypotheses H1 through H5, except for H1c and H3c (i.e. appeals'

impact on brand attitude). Specifically, a multivariate analysis of variance showed again no main effect for sports type or ad appeal, but a significant Appeal Sport interaction (Wilks $k = .924$, $F(5, 203) = 2.509$, $p = .032$). Follow-up univariate analyses showed an impact on ad persuasiveness ($F(1, 193) = 6.042$, $p = .015$), product attractiveness ($F(1, 243) = 19.583$, $p < .001$), willingness-to-pay ($F(1, 243) = 10.218$, $p = .002$), and (marginally) purchase intention ($F(1, 243) = 3.335$, $p = .069$), but not on brand attitude ($F(1, 243) = 16.81$, $p = .196$), as in Study 1.

Despite the change in brand and ads, in Study 2, similar to Study 1, for extreme sports challenge- and difficulty-based appeals were more effective than the baseline appeal for purchase intention ($M_{\text{base}} = 4.49$ vs. $M_{\text{ChalandDif}} = 5.13$; $F(1, 118) = 4.919$, $p = .029$), product attractiveness ($M_{\text{base}} = 3.89$ vs. $M_{\text{ChalandDif}} = 5.09$; $F(1, 118) = 16.856$, $p < .001$), and willingness-to-pay ($M_{\text{base}} = 2.51$ vs. $M_{\text{ChalandDif}} = 3.83$; $F(1, 118) = 4.271$, $p = .042$), but not for persuasiveness ($M_{\text{base}} = 3.21$ vs. $M_{\text{ChalandDif}} = 3.37$; $F(1, 118) = .128$, $p = .722$).

Again, the pattern switched for traditional sports, where challenge- and difficulty-based appeals were instead the least effective for purchase intention ($M_{\text{base}} = 4.11$ vs. $M_{\text{ChalandDif}} = 3.15$; $F(1, 122) = 4.690$, $p = .033$), product attractiveness ($M_{\text{base}} = 5.10$ vs. $M_{\text{ChalandDif}} = 4.44$; $F(1, 122) = 5.165$, $p = .025$), and willingness-to-pay ($M_{\text{base}} = 4.66$ vs. $M_{\text{ChalandDif}} = 2.87$; $F(1, 122) = 5.736$, $p = .019$), but not for persuasiveness ($M_{\text{base}} = 4.63$ vs. $M_{\text{ChalandDif}} = 4.38$; $F(1, 122) = 1.472$, $p = .228$).

No effect emerged for gender (Wilks $k = .979$, $F(5, 186) = .595$, $p = .704$), age (Wilks $k = .975$, $F(5, 186) = .702$, $p = .623$) or favourite sport-type (Wilks $k = .960$, $F(5, 186) = 1.129$, $p = .348$).

Ruling out congruency-based explanations

To rule out that findings from Studies 1 and 2 are merely a consequence of higher (lower) congruency between the message and the picture used in the ad for extreme (traditional) sports, respondents in both studies were asked to rate how congruent they felt the messages were with the pictures they saw. Consistently with pre-test 4, difficulty- and challenge-based messages were not perceived less consistent when associated with the traditional rather than extreme sport picture ($M_{\text{trad}} = 4.86$ vs. $M_{\text{extr}} = 4.64$, $F(1, 475) = .926$, $p = .337$ in Study 1; $M_{\text{trad}} = 5.13$ vs. $M_{\text{extr}} = 5.35$, $F(1, 244) = 1.041$, $p = .305$ in Study 2). This evidence rules out that respondents' more positive reactions towards difficulty- and challenge-based appeals in extreme sports stem as a consequence of higher or lower congruency with the sport type and rather shows that challenge and difficulty have a different valence in the context of extreme sport, in accordance with Edgeworth theory and Cognitive Adaptation.

Finally, respondents were also asked to rate the two sports in terms of difficulty and challenge, to ensure once more that the effects are due to the different meaning and value of difficulty and challenge between the two contexts, in line with the body of addressed theories, and not due to higher (lower) perception of difficulty and challenge in extreme (traditional) sports. Results are in line with pre-test 4 and confirm

that traditional and extreme sports were perceived equivalent in difficulty ($M_{\text{trad}} = 6.03$ vs. $M_{\text{extr}} = 6.14$, $F(1, 475) = .323$, $p = .571$ in Study 1; $M_{\text{trad}} = 5.75$ vs.

$M_{extr} = 6.00$, $F(1, 244) = 1.257$, $p = .264$ in Study 2) and challenge ($M_{trad} = 6.29$ vs. $M_{extr} = 6.16$, $F(1, 475) = .438$, $p = .475$ in Study 1; $M_{trad} = 6.13$ vs. $M_{extr} = 6.25$, $F(1, 244) = 1.041$, $p = .509$ in Study 2).

Qualitative study

Study 3: Qualitative analysis

Study 3 qualitatively explored consumers' reactions to advertising in the domain of extreme sports and provided further insights to the numerical evidence from Studies 1 and 2.

Ascertaining that active and passive participants for extreme and traditional sports were equally represented, respondents recruited in Study 2 were asked if they were willing to participate to more in-depth interviews. It was decided to continue the interviews on those who agreed until there was convergence. No predefined number was targeted; rather interviews were conducted till there was no new information gain (Grace and O'Cass 2002). Following this line of thought the research was terminated after 16 interviews (40% females, mean age = 37).

In-depth, semi-structured interviews were conducted with an introspective approach to explore consumers' reactions to difficulty- and challenge-based appeals in extreme and traditional sports, following McCracken (1988) recommendations. The interviews were directed as an open dialogue to encourage participants to describe their perceptions and were moderated by two researchers and audio recorded (mean length = 45 min).

Each interview began with a set of 'grand tour' questions (McCracken 1988) about participants' personal backgrounds, sports interests, and activities. It also helped the interviewers develop empathy with the respondents and increase familiarity with their vocabulary. The second phase of the interview turned to the description of how respondents chose sporting events to watch/attend and their motivations for their choice of extreme/traditional sports.

During the third phase of the interview, the authors gathered the data to pursue the study's aim. The researchers' guide consisted of questions such as 'When a product not related to extreme sports is advertised using content and images related to difficulty and challenge, what is your reaction?'; 'What values should a "true" extreme athlete respect, according to you?'; and 'How do you feel about the use of difficulty-and challenge-related themes in advertising goods for traditional/extreme sports?'

Finally, respondents were shown the advertisements used in Studies 1 and 2 and other ads set in traditional and extreme sports settings and asked to describe the feelings and reactions the ads elicited. Note that the authors had already identified consumers' reactions to the ads from the two empirical studies but did not present the findings to respondents during the interviews because they wanted to elicit their feelings spontaneously.

Analysis

To comprehend how an individual perceives, feels, judges, makes sense of, and talks about a phenomenon, the authors attempted to enter the participant's world using

and interpreting each personal view (Patton 2005). Specifically, they content-analysed the data using an interpretational analysis to reveal patterns and themes.

Several levels of analysis were completed by reviewing the transcription from the interviews. The authors identified raw data themes that captured the primary ideas characterizing each participant's response (e.g. fear of jumping from a height) and grouped them into patterns, or first-order themes (e.g. risk avoidance). The secondary level of analysis evaluated specific second-order themes within the data (e.g. endurance, victory, control), which were then classified into general dimensions (e.g. self-enhancement).

Results

The results of the interviews aligned with those of the two empirical studies in conjunction with the addressed literature, further validating the ecological validity of the findings. Specifically, participants' opinions quickly converged on the idea that, in the context of traditional sports, individuals are likely not meant to dangerously push their personal limits or to engage in situations whose difficulty pushes the limits of their physical and mental abilities to the point of posing a threat. Challenge and difficulty were perceived as relevant in traditional sports too, and pertained to the challenge of the game, to the match against an adversary, to the feeling of being able to perform the task, and to dedication, self-control physical effort and training, in line with similar findings by Brymer (2010). This reverberated on perceptions of marketing communications set within traditional sports, where the emphasis was on attributes such as the positive values of sports (e.g. respect for others, teamwork, self-control), sociable experiences, and sometimes the presence of celebrity athlete endorsers. Those views were shared equally by respondents favouring traditional or extreme sports. The qualitative interviews provided significantly different insights about extreme sports. Respondents (passively and actively) following extreme sports saw challenges to one's mental and physical limits and extreme, even life-threatening difficulties as the positive core of the sports experience, consistent with similar findings by Self et al. (2007) and with the activation of a different creative meta-imagery beyond the mere activation of motor skills, consistent with (MacIntyre and Moran 2007). Respondents were keen on marking the difference between extreme and traditional sports as two different worlds and saw the main difference in extreme sports as related to pushing one's own limits forward through actively seeking difficulty and ordeals by successfully mastering increasingly complex and dangerous situations. Consistent with the results from the ruling out in the quantitative studies, respondents did not state that traditional sports are less congruent with effort, training, dedication or difficulty than extreme sports, but they perceived painful challenges and threatening difficulties as negative in the former and positive in the latter. Words such as difficulty and risk were used to describe extreme sports with a positive valence (seeking), but with a negative valence in traditional sports (avoidance), another finding that aligns with previous qualitative research on sports (Hardie-Bick and Bonner 2016).

The authors thus posit that results from Studies 1 and 2 might be explained by the fact that traditional and extreme sports activate different meta-imagery, where – despite

difficulty and challenge in the execution being equal – the psychological meaning changes for the individuals, and so does the way they react to communication.

Sample quotations regarding these explanations of and insights into the findings of the previous analyses include the following:

I don't separate between sports and challenge. I'd say that when you feel the challenge, you might be able to master any situation, no matter how difficult and threatening. (Andrea, 35, financial advisor)

You know, it is not that traditional sports do not have difficulty, no way, they are hard to do, god knows, but you do not want to see the sweat there, you want the result, the medal, the finish line, not the blood. I have done traditional sports for about 10 years, was like a professional you know, but now I'm in extreme sports, the spirit is entirely different you know. It's not harder or easier for me, it's a different philosophy. (Ciril, 39, clerk)

At the beginning, I wasn't exactly looking for extreme. I was looking for something different. I used to do mountain biking; however, at some point I got bored. I began practicing [downhill]. I was looking for more, for thrill, adventure, see how far I could go. [...] It was exciting to face increasingly risky roads, with the worst weather possible; sometimes I thought I was really going to kill myself. At that time, I considered mostly only those brands inspiring the same feelings and relating to that. (Ronald, 24, unemployed)

I can't compare extreme with ordinary sports, I don't even like the idea! Extreme sports are a world apart, that's why I like watching them. Only when you push your limits can you see who you really are. (Michelle, 46, employee)

Discussion

Extreme sports have received much attention internationally in marketing theory and practice, yet few if any studies have investigated their efficacy as a setting for advertising. The present research is not meant to be conclusive but to advance knowledge in several directions. First, this research builds on the previous literature on traditional sports as a context for advertising (e.g. Pyun and James 2011), but updates its findings to the present-day context of extreme sports. To the best of the authors' knowledge, this is the first attempt to specifically investigate the effectiveness of advertising in extreme sports. Furthermore, the present research provided an empirical analysis that focused on variables of particular relevance for practitioners. While previous studies on advertising in traditional sports typically considered message memorization and liking of the ad as dependent variables, the present research focused instead on message persuasiveness, product attraction and behavioural intention.

Second, the present research adopted the theoretical lenses of cognitive adaptation (Taylor 1983, 2011) and edgework theory (Lyng 1990) to identify potential drivers of individuals' reaction to sport advertising. In doing so, the present research linked the unique psychological features of extreme sport lovers to managerially relevant consequences, such as purchase intention and willingness-to-pay, in the context of sport advertising. The proposed research is unique in its use of theoretical constructs that are well established in the domain of psychology, but novel in the domain of advertising. Its value stems from the fact that previous management research is unsuited to

investigating the behavioural drivers and intentions in extreme sports, as it does not account for edgework individuals' love for extreme difficulty and pursuit of risky challenges (Brymer and Houge Mackenzie 2016), whose search for pushing the limits is instrumental to their feelings of self-enhancement (Laurendeau 2011). Thus, from a theoretical point of view, the present research explicitly addresses those psychological drivers of consumers' behavioural intentions towards brands advertised in the context of extreme sports, which has clear relevance for advertisers. Specifically, based on a heterogeneous body of literature, the authors proposed a theoretical perspective to interpret the link between sport type and ad appeal focus, identifying two key elements: difficulty and challenge. While difficulty and challenge are logically related to a stereotypical 'warrior myth' embedded in certain sport advertising campaigns (Gee 2009, 2015), the present research addressed the efficacy of specific appeals in shaping persuasiveness, behavioural intentions, willingness-to-pay and purchase intention in extreme sports. It showed that difficulty- and challenge-based appeals work well for ads set in the context of extreme sports but not when applied to brands advertising in traditional sports. Although consumers acknowledge difficulty and challenge in both sport contexts, they envision them with different 'eyes of the mind'. The results hold regardless of the viewer's sports participation (active vs. passive) or favourite sport, which aligns with recent findings in traditional sports (Masanovic, Zoric, and Gardasevic 2017; Bajramovic, Zoric, and Masanovic 2018), and are backed by two empirical studies with over 700 respondents.

The quantitative findings are further validated by qualitative interviews that increase the study's robustness and ecological validity, and support that results are not due to congruency or fit between text and image, but because of the psychological meaning and valence that difficulties, risks and challenges have in extreme sports, as the authors predicted on the base of the addressed body of theories from psychology and sport psychology.

Overall, the present research offers a theory-based explanation of the phenomenon and findings and might help explain some of the contradictory results experienced by brands that advertise(d) in the context of extreme and traditional sports.

Managerial implications

Extreme sports are a multi-billion-dollar international market that is gaining momentum worldwide as a setting for advertising for many brands, from Monster Energy to Sector, from Mercedes to Panasonic. Advertisers are increasingly turning to extreme sports in the effort to target new, profitable markets where to sell their products and services.

By setting the analysis in the context of extreme sports – whose estimated worth exceeds \$US 6 billion (Forbes 2014) – referring to specific appeals and focusing on purchase intention and willingness-to-pay, the present research offers implications that may help practitioners invest in the industry of extreme sports.

The present research shows that the definition of the advertising context (extreme vs. traditional sports) is only a first step towards establishing an effective communication strategy. The results show that the success of the communication depends not

only upon the context of ad, but also on the ad's ability to involve the audience using specific messages, imagery, and themes tailored for the domain of extreme sports. In this sense, practitioners need to understand that extreme sports enthusiasts are driven by different motivations and psychological mechanisms. Borrowing communication strategies from different media and contexts will likely prove ineffective. Instead, advertisers need to consider the complex nature of the extreme sports phenomenon, which reflects its consumers' deep and specific needs (Raggiotto and Scarpi 2019). On this point, the study results provide actionable evidence. First, they establish the unique psychological structures, needs and perceptions that characterize the audience of extreme sports. Second, results demonstrate that advertising in the context of extreme sports requires to differentiate the communication strategy from traditional and extreme sports, as advertising works differently in the two contexts. Specifically, emphasizing difficulty and challenge is positive for using extreme sports to advertise the brand, but it is negative in the context of traditional sports. With these findings, practitioners may have an easier time distinguishing between effective and ineffective claims. Furthermore, in-depth qualitative interviews confirm that difficulty and challenge carry special psychological importance in extreme sports. Given the different psychological drivers between traditional and extreme sports, practitioners should be aware that jumping on the bandwagon of extreme sports is not always advisable for brands, and should carefully ascertain whether their brands can be properly adapted to these diverging contexts. The present research offers specific examples of images and text that can be used to successfully manage advertising in the context of extreme sports.

Finally, this research clearly shows that what matters is the sporting context that the ad is set in, not the way the audience lives sports. This is good news for practitioners as they do not need to separate consumers based on sports participation or sport preference. Advertisers should be aware that extreme sports lovers do not deny effort, training, dedication and challenge in traditional sports, yet they do not want "common people" to meddle in their disciplines. On the other hand, managers might find it useful to know that traditional sport lovers do not want to focus on limits-pushing ordeals, though also traditional sports require a considerable amount of discipline, endurance and hard training.

Overall, the authors propose an easy yet effective way to increase the efficacy of advertising in the context of extreme sports – based on edgework theory, cognitive adaptation and meta-imagery – that appears useful to implement or at least to be aware of. Practitioners could take advantage of the suggestions from the present research to read their current advertising campaigns with the practical examples and theoretical lenses provided here.

Limitations and future research

The present research found that difficulty- and challenge-based appeals can work efficiently for brands advertising in extreme sports, in the category of watches. Broadening the spectrum of product and appeal types might result in a better understanding of the efficacy of advertising brands in extreme sports.

Also, generalizability is a typical problem in social sciences. With this regard, we conducted two quantitative studies using independent samples collected in different contexts, online and offline, that provide converging evidence. However, caution would be needed before generalization of these findings.

Furthermore, future research could investigate the effectiveness of the appeals in time, as more exposure to difficulty and challenge might reduce their effect through habituation. Also, despite appearing often in international advertising studies (e.g. Naderer, Matthes, and Zeller 2017; Yim et al. 2017), offline samples usually feature limits on generalizability. Although the sample used in Study 2 reflects the demographics of the target market (STATISTA 2018), and its main purpose was to test the robustness of the findings from the sample in Study 1, the authors acknowledge that the lack of full generalizability is a limitation (De Bondt, Van Kerckhove, and Geuens 2018). Thus, future studies in international advertising should address possible solutions for this issue.

In addition, advertisers should be aware that there may be differences in marketing an extreme sport versus another. Extreme sports are diverse, with disciplines having their own set of rules, values, and social dynamics. Thus, future research could investigate different extreme sports separately.

Finally, this research focused on a very specific application of edgework theory and cognitive adaptation. Future research should investigate what these theories could mean for other, broader areas of marketing. For example, studies in sociology have linked edgework theory to negative or potentially negative behaviours, due to its relationship with desiring strong sensations (Miller 2005). In this vein, for instance, Kaminski et al. (2019) recently used edgework theory to explain adolescents' propensity to use drugs, while Hart (2017) used it to explain why people post naked selfies of themselves on the Internet. Thus, future research in marketing could use edgework theory to explain dark-side behaviours like shoplifting or other risky consumer actions.

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Appendix

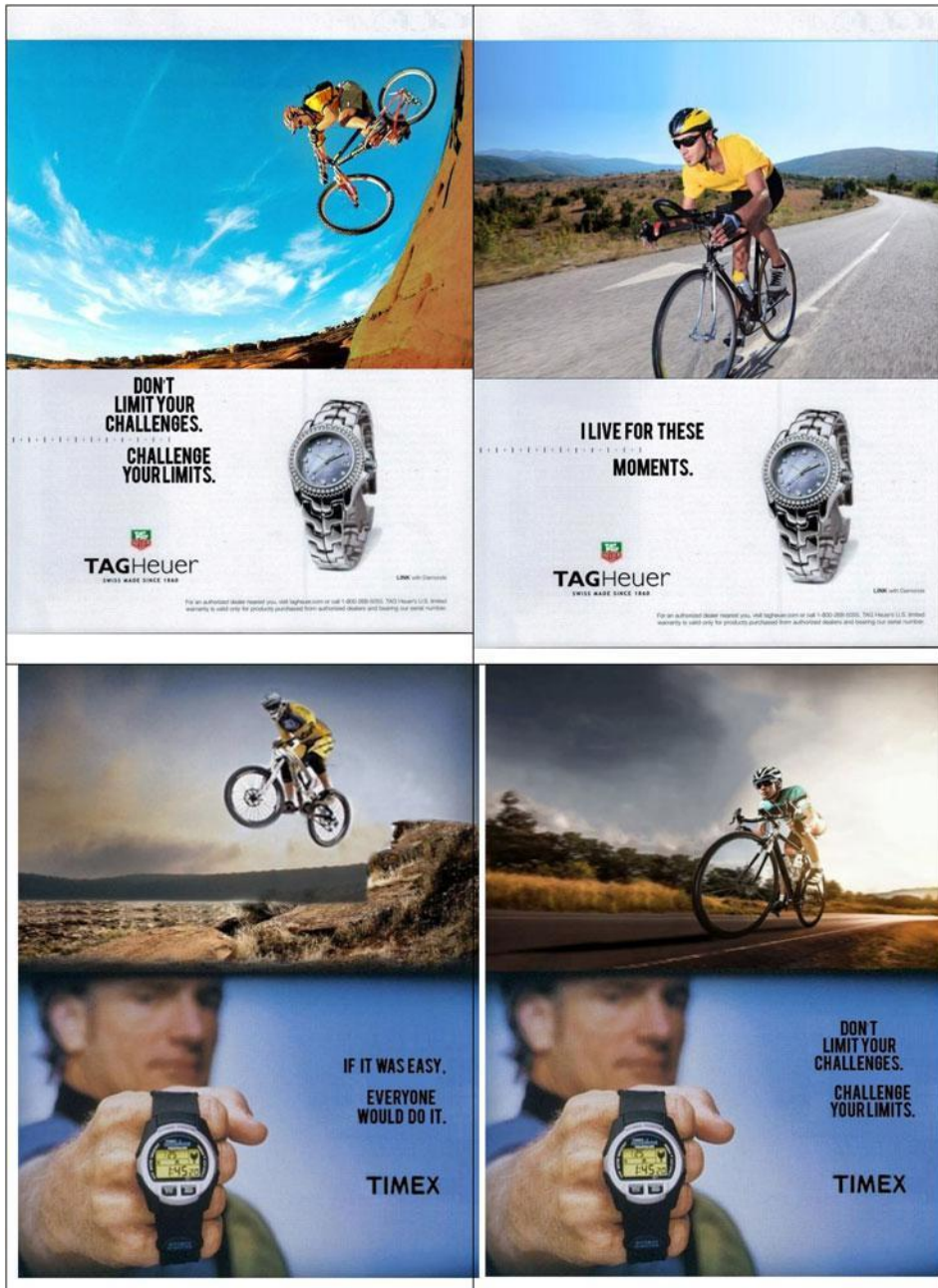


Figure A1. Examples of the stimuli.