

Impact of Virtual Advertising in Sports Events

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Summary

Virtual advertising is a technology that allows digitised superimposition of images (i.e. advertising signage) into a television broadcast. The paper examines the effects of virtual advertising in a sports broadcast setting. We analyse the effects of conspicuousness of virtual advertising and match the results with a media analysis of the sports event. For this purpose, we developed a multiple regression analysis model, with the recall of the advertised brands as a dependent variable. Furthermore, we measure the role of attitude towards advertising in general and its impact on attitude towards virtual advertising and on the recall performance of the respondents.

Our results indicate that virtual advertising is highly recognized by the participants. Advertising effectiveness is extremely driven by the frequency of exposure. A positive attitude towards advertising in general leads to a positive attitude towards virtual advertising but has no effect upon the recall performance of the participants.

Keywords: virtual advertising, sponsoring, virtual signage, billboard advertising

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INTRODUCTION

The diminishing effectiveness of conventional forms of advertising due to an increasing reactance of recipients induces advertisers to turn towards more innovative forms of advertising. These include, among others, split screens, reminders, crawls, end splits, program sponsoring etc. used in the TV sector, or pop-up inserts, China-covers, ads in the center, advertising post-its etc. in the print sector (Fösken 2005). The main purpose of these special forms of advertising is to prevent intentional zapping by viewers, at the same time enhancing the effectiveness of advertising due to their unique feature. These new forms of advertising also include virtual advertising.

Virtual advertising can be defined as the insertion of brands, products, trade marks, logos, slogans and 3D animations by means of digital, computer-supported TV-signal processing (Cianfrone et al. 2006). In recent years, virtual advertising has frequently been used during sports events (e.g. soccer, baseball, basketball) mostly in the U.S. In Europe, especially due to legal insecurity, virtual advertising has not been used very often so far. This form of advertising is only visible to the television viewer. People in the stadium cannot see the imposed sign.

One may distinguish various types of virtual advertising. Virtual advertising may be integrated into live programs or into TV recordings. It may have a static aspect or appear as a dynamic picture (e.g. billboard advertising). Virtual advertising may be employed to substitute the existing advertising by cross-fading or it may appear as additional advertising on spaces previously not used for advertising. Furthermore, virtual advertising may be shown in a fixed, determined place, but the near future will also facilitate presentation on moving objects (e.g. sports shirts) (Virtualvas 2007). Regarding its possible fields of application, one may differentiate between virtual billboard advertising, virtual field paints, virtual advertising on other surfaces, floating balls, game enhancements, and virtual placements.

A significant advantage of virtual advertising is the target group-specific use facilitated by this type of advertising. For example, during international sports events advertisements can be delivered in country-specific broadcasts. Thus, advertisements can be tailored not only according to regional consumers' buying habits and brand preferences, but also to country-specific advertising regulations, e.g. for alcoholic beverages or tobacco products. Additionally, it facilitates a prompt and cost-efficient updating of advertising messages (Eckstein 1999). The time- and cost-intensive production of panels etc. for board advertising be-

comes unnecessary. Regardless of legal restrictions, virtual advertising helps to create additional advertising space such as on the playing field (field paints), in the air (floating balls), or on other advertising areas not used so far (for example in form of boards on the right- and left-hand side of the goal in soccer). Thus, it helps to expand the advertising facilities and allows highly attractive and eye-catching placements. Also, it allows a multiple sale of one and the same advertising space, which expands the revenue facilities of organizers, sports clubs and broadcasters, thus permitting a better refinancing of major sports events.

Little has been known so far about the effects of this innovative form of advertising on potential customers. Our study has therefore been conceived as an exploratory study to deliver first insights into the effectiveness of virtual advertising in sports events. Furthermore, we will show future areas of research in this field.

LITERATURE REVIEW

Academic research on sports advertising and sponsorships has a long tradition. Much of the debate has focused on sponsoring effectiveness, especially concerning brand recall and brand attitude (Harshaw & Turner 1999; Bennet 1999; Turley & Shannon 2000; Pham & Johar 2001; Grohs et al. 2004; Rifon et al. 2004; Wakefield et al. 2007). Among others, the following key factors affect sponsorship recall: affinity between sponsor and sponsored activity, sponsorship integration, sponsor prominence / prior brand awareness, conditions of exposure (frequency and / or duration), sports involvement, product / brand involvement.

Far less studies focus on image effects of sponsorship, especially image transfer (Meenaghan & Shipley 1999; Gierl & Kirchner 1999). Other studies deal with managerial aspects of sponsorships such as sponsorship selection, organisation and control (Farrelly et al. 1997; Quester et al. 1998; Drees 1991). Less attention has been paid so far to the financial value of sponsorships (Olson & Thjømmøe 2009).

Although there is a large body of literature examining various practical and theoretical aspects of sponsorship (see the overview in Walliser 2003 and, for more recent studies, Wakefield et al. 2007), so far there have been only few studies dealing with the effects of virtual advertising. A study conducted by RSL Sponsorship, Sport und Leisure in 1997 to assess the acceptance and effectiveness of virtual advertising during the ATP Tennis Tour (Sasse & Ludwig 2002) showed a generally positive attitude towards virtual advertising, with a higher recognition level for logos inserted on the playing area than for those inserted on the sides of the court. Generally, virtual advertising was perceived as not disturbing; moreover, almost half of the respondents showed a positive attitude towards the firms using virtual advertising

and a high degree of purchase intention. A study by FORSA on virtual advertising during soccer matches (FORSA 1998) also showed a generally positive attitude towards virtual advertising. However, elderly people felt more disturbed (41% of those aged 50 to 59) than the under-thirties, who hardly had any objections against virtual advertising. Also, respondents with a higher degree of soccer involvement felt insertions on the playing area as distracting. As for the effectiveness of virtual advertising, virtual billboard advertising achieved higher recall rates than conventional billboard advertising, especially among younger TV viewers. The results were confirmed by Pyun et al. (2004), with a recognition level for virtually advertised brands nearly doubling that of conventionally advertised brands. However, a focus group study commissioned by GLOBAL SPORTNET pointed out that virtual advertising should be carried out in a not too obtrusive way and should not divert from the sports event. As for the forms of virtual advertising, virtual advertising on the field, insertions next to the goal and virtual 3D animations were rather rejected (Sasse & Ludwig 2002).

In a day-after recall test for a representative household sample, Psyma Psychological Market Analysis analysed the effectiveness of virtual advertising in the match Benfica Lisbon versus FC Bavaria Munich (Psyma 1999). As a result, virtual billboard advertising achieved higher rates of attention than conventional billboard advertising. Younger TV viewers showed higher attention values with regard to virtual advertising than older viewers. Furthermore, the acceptance of virtual advertising among the respondents was very high.

A study conducted by Gallup Mexico for Publicidad Virtual showed that virtual advertising was seen as modern, creative and innovative and would generate a higher perception of brands than all other programme-integrated forms of advertising (Doyle 2000). The central finding of the study was that 60% of the respondents preferred virtual advertising to all other forms of advertising. Cianfrone et al. (2006) compared the effectiveness of virtual advertising to conventional television commercials during a sports broadcast. Different forms of virtual advertising were used, like virtual advertising on the field, virtual insertion of brands into the score display, virtual insertions on the side boundary lines, virtual advertising on or close to the goal posts and virtual billboard advertising. The match was interrupted by a commercial break with several 30-second commercial spots. The study showed that virtual advertising, compared to commercials, came off well in terms of recall levels. The purpose of the study by Bennett et al. (2006) was to analyse the perceptual antecedents of attitude towards advertising in general via television commercials and towards virtual advertising to compare the two media vehicles in a sports broadcast setting. The findings indicate that individual responses to advertising vary according to the type of advertising. Television commercials were perceived

as being more entertaining and informative, but on the other hand more irritating and less credible than virtual advertisements. Location of virtual ads plays also an important role.

Summing up the results of the studies on effectiveness we can state that, in cognitive respects, virtual advertising can reach considerable effects with potential customers. However, a clear-cut statement as to which style of virtual advertising may have the highest promotional effectiveness is not possible; in addition to positioning, the concrete design of virtual advertising plays an essential role here. Furthermore, on the basis of the results from the study by Cianfrone et al. (2006), it may be assumed that a particularly high advertising effectiveness is obtained by combining the classic forms of advertising (TV spots advertisements or program sponsoring) with virtual advertising for brand commercials. In an affective respect, it is noticeable that in almost all studies, virtual advertising was perceived as positive by potential customers. However, a not too obtrusive implementation is regarded as essential; a presentation that is too obtrusive, diverting from the actual sports events, is not accepted. In this case there is an increased danger of TV viewers moving off to other channels – including pay-TV.

HYPOTHESES

None of the studies mentioned above analyses whether customers can recognize virtual advertising in the sense that they can differentiate between virtual advertisements and conventional advertisements explicitly. Given the novelty of this instrument, we expect that virtual advertising attracts a great deal of attention and, at the same time, stands out from conventional forms of advertising (Pyun & Kim 2004; Cianfrone et al. 2006). Hence, the first hypothesis is:

H₁: Virtual advertising as an innovative form of advertising is recognized as such by the majority of viewers.

As earlier studies in the field of traditional sports advertising have shown, the effectiveness of advertising depends on a multitude of variables (Harshaw & Turner 1999; Olivier & Kraak 1997; Moore et al. 1999; Turley & Shannon 2000; Grohs et al. 2004). We expect that exposure time, exposure frequency and prior brand awareness will determine the recall of these brands. As shown in studies on conventional advertising (e.g. Sander 2004; Sandler & Shani 1989; Walliser 1997; Hackforth 1989) it has to be expected that these variables will have a positive impact on recall and recognition rates. Therefore, our second hypothesis is:

H₂: Exposure time, exposure frequency and brand awareness determine the degree of recall of the brands advertised.

Furthermore, the attitude of recipients towards virtual advertising is of relevance. It is particularly interesting to find out whether people with a positive (negative) attitude towards conventional advertising have a positive (negative) attitude towards virtual advertising as well (Wang et al. 2002; Petrovici & Marinov 2007). Hence, our third hypothesis is:

H₃: Respondents with a positive (negative) attitude towards advertising in general have a positive (negative) attitude towards virtual advertising as well.

The attitude towards advertising may also be assumed as a determining factor of the effectiveness of advertising (Mehta 2000; Lutz et al. 1983; James & Kover 1992). This applies both to conventional and to virtual advertising. As a fourth hypothesis, we may therefore state:

H_{4a}: A positive (negative) attitude towards advertising in general has a positive (negative) effect on the recall performance of respondents.

H_{4b}: A positive (negative) attitude towards virtual advertising has a positive (negative) effect on the recall performance of respondents.

DATA AND METHOD

In the present study, students of a German university were interviewed about the effectiveness of virtual advertising. The interview was based on a non-random sample of participants, as customary for exploratory studies (e.g. Cianfrone et al. 2006; Brand & Greenburg 1994). For this purpose, an 18-minute film clip of the soccer match Hertha BSC Berlin versus VfB Stuttgart was chosen, showing both conventional advertising (in form of perimeter advertising billboards and sports shirt advertising) and virtual advertising in form of virtual billboards on the right- and left-hand off-goal sides. The students were shown the match clip, followed by a written standardized interview. A total of 142 students participated in the study whose questionnaires could all be evaluated. The enquiry recorded the participants' gender and their general interest in soccer match broadcasts as a measure of sports involvement. Gender-related differences in the perception of (conventional) advertising have already been found in other studies regarding the effectiveness of advertising (e. g. Brunel & Nelson 2003; Sander 2004); a test set-up including this feature therefore seemed reasonable. Consideration of sports involvement is based on the hypothesis that a pronounced interest in this direction may influence the effectiveness of advertising (Walliser 1997, Meenaghan 2001). Other authors, however, found no significant impact of sports involvement on advertising effectiveness (Turley & Shannon 2000). Because of a low variance in age this variable was not included in the analyses explicitly. The structure of the sample is shown in Table 1.

Sample total n = 142			
Gender	male 90.8 %	female 9.2 %	
Sports involvement ^a	high 34.5 %	medium 23.9 %	low 40.1 %
a = not specified: 1.5%			

Table 1: Structure of the sample

Additionally, the questionnaire comprised questions about attitudes towards advertising in general and towards virtual advertising in particular using some perceptual antecedents of the Brackett and Carr's (2001) model. Like Cianfrone et al. (2006), the focus was, however, on virtual advertising as compared to conventional advertising. We measured this through the respondents' recall of the respective advertisement (Wells 2000), whereby unaided recall was recorded for one half of the respondents (n=71) and aided recall was recorded for the other half (n=71). Furthermore, in a preliminary study we assessed respondents' prior brand awareness, given that different levels of brand awareness may influence the effectiveness of the advertising for these brands. This effect could be measured in other sports event studies with conventional advertisements (Walliser 1997; Sander 2004).

A total of five brands/firms were advertised during the soccer match. Advertising was delivered as advertising on the shirts of players (Arcor and EnBW), the referee and his assistants (Dekra), and also as billboard advertising (Premiere and betandwin.de). Billboard advertising for both brands was made on physical billboards (alongside the pitch) and virtually (on the right- and left-hand off-goal sides).

In addition to questioning, we performed a media analysis of the soccer match clip, including the duration and the frequency of insertion of the individual brands. The duration of exposure is considered as a typical determinant of the recall performance for sports advertising (Pieters & Bijmolt 1997; Nebenzahl & Hornik 1985). Durations of less than a second were not considered within this survey, for it is assumed here that they have no effectiveness at all. This is common practice in this kind of research and is in accordance with the findings of the psychology of perception (Taub & Abrams 1971). We included the frequency of exposure given that effectiveness might vary depending on whether a brand is shown more rarely but longer, or more frequently but for a shorter duration (Longmann 1997; Tellis 1997; Turley and Shannon 2000). We did not include the design of the billboards in the test as none of the billboards used were particularly eye-catching; thus, we could not take into consideration this effect.

ANALYSES AND RESULTS

The fact that virtual advertising had been used in the soccer match was recognized by a total of 77.5% of the participants. 92.7% of these did assign virtual advertising correctly, i.e. they recognized it as off-goal billboard. Therefore, H1 is supported. Further analysis showed that there is no significant impact of gender and sports involvement on the perception of virtual advertising.

	Aided recall level	Unaided recall level
betandwin.de Actual billboard advertising along the pitch	82,1 %	82,9 %
betandwin.de Off-goal billboard advertising (virtual advertising)	71,6 %	52,9 %
Premiere Actual billboard advertising along the pitch	41,8 %	37,1 %
Premiere Off-goal billboard advertising (virtual advertising)	64,2 %	58,6 %
Dekra Sports shirt advertising	44,8 %	42,9 %
EnBW Sports shirt advertising	74,6 %	74,3 %
Arcor Sports shirt advertising	82,1 %	78,6 %

Table 2: Recall performance of different types of advertising

A detailed insight into the effectiveness of different kinds of advertisements can be obtained by regarding the recall levels of these advertisements for the individual brands. Table 2 displays the aided and unaided recall rates for the individual brands in dependence of the kind of advertising for these brands. The participants could choose here between “sports shirt advertising”, “billboard advertising along the pitch”, “off-goal billboard advertising” and “other”, multiple selections being possible (and correct in the case of Premiere and betandwin.de). Overall, the recall levels are very high, with rather small differences in aided and unaided recall in many cases. This result may be explained by the fact that there were only five brands advertised, but also that the questionnaire was administered directly after showing the match.

Nevertheless, as shown in Table 2, the recall values of the individual brands vary to a great extent. For example, the brand “Dekra” was recalled by nearly half as many respondents as the brand “Arcor”. For explaining such effects, we performed an OLS regression

with the recall of the advertised brands as a dependent variable. The following results refer to the aided recall¹. We included the following independent (explanatory) variables:

- the duration of exposure to individual brands, differentiated according to the modality of advertising,
- the frequency of exposure to individual brands, differentiated according to the modality of advertising, and
- prior brand awareness.

	Frequency of exposure	Duration of exposure (in sec.)	Brand awareness level
betandwin.de Actual billboard advertising along the pitch	42	557	93.5 %
betandwin.de Off-goal billboard advertising (virtual advertising)	21	83	
Premiere Actual billboard advertising along the pitch ^a	---	---	99,0 %
Premiere Off-goal billboard advertising (virtual advertising)	15	71	
Dekra Sports shirt advertising	4	23	99,0 %
EnBW Sports shirt advertising	12	38	58.5 %
Arcor Sports shirt advertising	20	79	99,0 %

^a Variable excluded due to poor legibility or duration of exposure < 1 s

Table 3: Frequency of exposure, duration of exposure and awareness of the advertised brands

Table 3 shows the observations for these variables. Billboard advertising along the pitch for the brand “Premiere” was no longer taken into account here, as the billboard was either hardly legible or the duration of exposure was under the assumed limit of one second.

Our model gives an excellent explanation for the effect of the variables affecting the respondents’ recall performance. An r^2 of 0.942 ($r^2_{adj}=0.884$) indicates a very good model fit. The whole model is highly significant ($p=0.023$). The autocorrelation test of the independent variables showed negligible correlation. The frequency of exposure appears here as an out-

¹ Calculations with the unaided recall produced comparable results.

standing explanatory variable ($p=0.014$). This result was also obtained in other studies (Grohs et al. 2004; Tellis 1997; Sander 2004). The importance of this variable, compared to the other independent variables, becomes evident in terms of the beta value, which is clearly higher than with the other variables (the sign is of no relevance here). Of lesser significance is the duration of exposure ($p=0.06$). Furthermore, the sign is wrong. At first this might be surprising, but it is consistent with the results from other studies (Sander 2004). Obviously, it is the frequency and not the duration of exposure that is essential for the recall performance. This indicates that recipients do perceive the advertised brand during a longer exposure, but after perceiving the brand their attention shifts immediately back to the sports event. Prior brand awareness as an explanatory variable proved to be non-significant ($p=0.149$). However, the small variance of these variables might be essential here, as nearly all brands showed very high awareness rates of the respondents (see Table 3). Therefore, H2 is confirmed with regard to the frequency of exposure and rejected with regard to brand awareness and the duration of exposure. The results of the OLS regression are summarized in Table 4.

$r^2 = 0.942$ ($r^2_{adj} = 0.884$) F-value = 16.179 Significance = 0.023			
Explained Variable	Explanatory Variable	Beta-Value	Significance
Aided recall	Brand awareness level	- 0.272	0.149
	Frequency of exposure	1.686	0.014*
	Duration of exposure	- 0.963	0.06

* = highly significant

Table 4: Results of the multiple regression analysis

In order to gain further information about the cognitive structures of the participants and also possible further explanatory variables for the effectiveness of conventional and virtual advertising, we asked the participants to assess their attitude towards advertising in general as well as towards virtual advertising. For this purpose, we used 5-point multi-attribute Likert scales (Churchill 1979; Converse & Presser 1986) including items with a positive phrasing (e.g. “Advertising offers interesting information about products and brands”) as well as reversed items (“I find advertising disturbing”). Possible answers were offered by a scale of one to five, the end points being “I totally agree” (=1) and “I do not agree at all” (=5). The participants’ attitude towards advertising in general is summarized in Table 5.

Item	I rather agree (1+2)	I rather disagree (3+4+5)
I find advertising disturbing	50.7 %	49.3 %
Advertising offers interesting information about products and brands ^a	17.6 %	81.7 %
Advertising creates new jobs	70.9 %	29.1 %
Advertising is entertaining	20.4 %	79.6 %
a = not specified: 0.7 % Cronbachs Alpha = 0.42		

Table 5: Attitudes of respondents towards advertising in general

The respondents' critical attitude towards advertising in general is in line with the findings of other studies (Barnes 1982; Witkowski & Kellner 1998), with only the item "Advertising creates new jobs" displaying a strongly positive attitude towards advertising. The feedback regarding attitudes towards virtual advertising, as shown in Table 6, was better. A clear majority agrees that by means of virtual advertising, advertising space can be better marketed. Nearly three quarters of all respondents disapprove of a prohibition of this form of advertising. Equally, a majority is of the opinion that virtual advertising does not have an irritating effect. This finding, however, should not be generalized, as the kind of virtual advertising certainly plays a significant role here. As we postulated that attitudes towards advertising in general might influence attitudes towards virtual advertising, we also verified the relationship of the participants' attitudes towards advertising in general and towards virtual advertising by means of correlation analysis. This correlation is highly significant ($p=0.000$) and, as it had to be assumed, positive ($r=0.40$). Therefore, the results support H3.

Finally, we investigated whether attitudes towards advertising in general and towards virtual advertising in particular affect the participants' recall level, measured by the number of correctly recalled brands. We could not find a significant correlation between these variables; hence, in our sample, a positive (or negative) attitude towards advertising did not influence advertising recall (this is supported by the findings of Gupta & Gould 1997 and Zajonc 1968). Further analysis showed that there is no significant difference in gender and sports involvement with regard to the recall level. H4a and H4b are therefore rejected.

Item	I rather agree (1+2)	I rather disagree (3+4+5)
Virtual advertising is an interesting, new form of advertising ^a	37.3 %	60.6 %
Virtual advertising irritates television viewers ^a	42.3 %	55.6 %
By virtual advertising playing areas can be better marketed ^a	62.7 %	35.2 %
Virtual advertising should be prohibited ^b	23.3 %	73.9 %
a = not specified: 2.1 % b = not specified: 2.8 % Cronbachs Alpha = 0.69		

Table 6: Attitudes of respondents towards virtual advertising

DISCUSSION

Managerial implications

The results of our study are consistent with previous studies, but they allow more differentiated and extensive statements. Basically, virtual advertising is of importance for the viewer's attention. In our study, virtual advertising was recognized and associated correctly by a vast majority of respondents.

An essential result of this study is the fact that the duration of exposure does not play a strong role, whereas the frequency of exposure has a significant influence on the effectiveness of advertising. As already mentioned, this is consistent with the results from other studies and, for advertising decisions, this suggests implementing virtual advertisements in frequent alteration in order to achieve stronger attentiveness effects. However, consideration must be taken of legal limitations, which sometimes prohibit the use of additional advertising space for virtual advertising on frequently visible sites (FIFA 1999). Despite a positive tendency in the assessment of virtual advertising, a too obtrusive implementation of this new form of advertising is perceived as rather disturbing. Our investigation indicates that more than 40% of the participants are irritated by virtual advertising. A main reason for this may be the fact that this communications tool is hardly known to potential customers as yet. Above all, virtual advertising should not divert from the sports event, in order not to jeopardize the acceptance by television viewers. This applies both to virtual advertising on the playing field and to virtual 3D animations during the game coverage. Similar to product placement, a too obtrusive use of virtual advertising will cause reactance and may lead to viewers switching to other TV stations like pay-TV with less or no advertising (Gupta & Gould 1997; Russel 2002). For this

reason, a cautious implementation is recommendable, which does not differ too much from the familiar forms of TV advertising, at least at the initial stage of the use of virtual advertising in sports broadcasts. At a later stage, when virtual advertising is implemented on a larger scale and viewers have become accustomed to this new form, one may resort to more conspicuous forms of virtual advertising. However, care should always be taken not to impair the credibility of television as a medium. This is the case when viewers feel that contents are arbitrarily manipulated at the TV station.

As clearly shown in other studies (Babin & Sheri 1996; Russell 2002; Sander 2004), prior brand awareness also tends to have a positive effect on brand recall. As mentioned, the non-significance of this variable in the present study is probably due to the small variance of this variable.

The investigation whether attitudes towards advertising in general and towards virtual advertising have an impact on the participants' recall showed no significant effect. This means that some consumers with a tendency to negative attitudes towards advertising can nevertheless have positive reactions towards advertising, e.g. high recall rates. From a managerial perspective advertising budgets which hit these consumers are not wasted per se.

Limitations and future research

Similar to the other studies mentioned above, our survey was a laboratory study, where a certain distortion occurs due to the inherent monitoring effect (Lynch 1982; Winer 1999). As the aim of our study was camouflaged, however, we can assume that the internal validity was guaranteed (Schram 2005). Furthermore, valid conclusions can be drawn from the comparison between the effectiveness of conventional and virtual advertising, as both forms of advertising were affected in equal measure by the laboratory situation.

Our study was conceived as an exploratory analysis. Further studies should broaden the sample to include demographics to represent the audience of sports broadcasts. Also, in our study we could only examine the effects of virtual off-goal billboard advertising on consumer response. Further research should evaluate the effectiveness of different kinds of virtual advertising (3D animation, animated virtual advertising etc.) as well as of different locations, as already suggested by the study of Cianfrone et al. (2006).

We could not measure the impact of an integrated communication strategy on the effects of virtual advertising because other communications instruments were missing in our video clip. Further studies should evaluate the effectiveness of virtual advertising when com-

bined with other forms of advertising (e.g. TV spots or programme sponsoring) to assess the effects of integrated communication and cross-media advertising.

Virtual advertising may also be implemented outside sports events, e.g. as virtual placements in motion pictures (d' Astous & Séguin 1999). Future research has to show whether the advertising effects of virtual placements are similar to the effects of conventional product placement especially with respect to brand recall and brand image.

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