

UX with regard to interruptive advertising on YouTube: State of the art

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Abstract— Often attached to usability, design, utility, accessibility, ergonomics, system performance, marketing, human-machine interaction, etc., UX is a multidisciplinary concept in continuous evolution. Among the online platforms marking this evolution, we shed light on one of the most manipulated video content sharing websites in Morocco: YouTube having a growing popularity and proposing a diversified digital advertising offer. From this point of view, the current research is theoretical in nature. It attempts to address the concept of user experience from a marketing perspective in general and in light of the evolution of YouTube advertising in particular. The aim is to focus more on the influencing factors attached to interruptive advertising on YouTube.

Keywords— Advertising, marketing, Skip Ad, user experience (UX), YouTube.

I. INTRODUCTION

Defined from several perspectives, UX is a concept that has been growing steadily since the 2000s [88].

According to the Nielsen Norman Group (n.d.), user experience covers all the elements that come from the user's interaction with products or services. "Meeting the specific needs of the user" is the first factor to consider for an optimal user experience. The "simplicity and elegance" factor is also important because of the pleasantness it confers during use. The true meaning of the user experience is therefore summed up in what can be granted and offered to the user, beyond his explicitly expressed needs [48].

Furthermore, Desmet & Hekkert (2007) [21] synthesize the user experience into all the affective states made explicit following the user's interaction with the product. This also includes the level of satisfaction of the senses (the aesthetic experience), the meaning attributed by the user to the product (the experience of meaning) as well as the feelings and emotions uncovered (emotional experience). In other words, it is the value that results from the interaction with the product or service and the supporting role related to the context of use (including the

place, time and disposition of the user in relation to the product/ service [86].

Among the interesting fields to study the concept of UX, this work suggests to shed light on the video sharing sites, having a growing popularity and proposing a digital advertising offering that has also undergone a paradigm shift, to propose to advertisers solutions that are more adapted to video content and more effective for their advertising campaigns.

In the relatively short history of online advertising, various formats have emerged in the quest for more effective forms, moving from static banners to interactive audiovisual ads [53] [6]. This has come to follow the evolution of the contents available online, the consumption habits, as well as the user experiences.

Among the most relevant examples, we mention in this paper YouTube. Founded in 2005, this video hosting platform allows users to post, view, and create links to videos on the website. It is the third most visited website in the world [20]. While YouTube's main source of revenue is advertising, the platform also generates revenue through monthly subscriptions, such as YouTube Premium, which may not be available in all countries around the world, like Morocco in this case. On the one hand, this paid formula

allows users to avoid exposure to advertising. On the other hand, it gives them the possibility to play videos in background and to download them to be watched offline, in addition to an access to YouTube Music Premium.

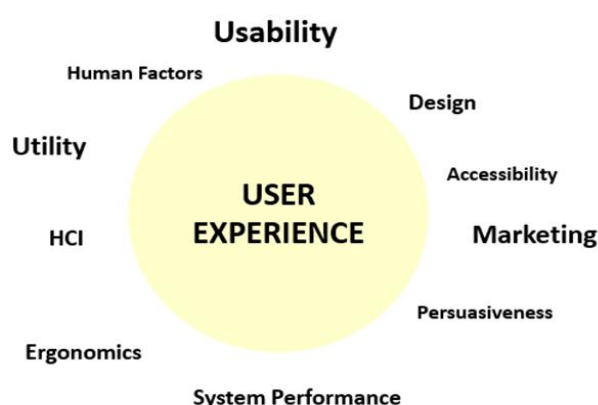
With all its forms of advertising, YouTube invites its users to live a new and different virtual experience. However, some ads of a rather intrusive nature impose themselves on the user, forcing him to adopt an approaching or avoidance behavior towards the entire video platform ; hence, the interest in factors influencing users when dealing with YouTube advertising.

Thus, this article is intended to be theoretical in nature. It focuses on the concept of user experience while putting us in the context of interactive advertising in general and the YouTube video platform in particular.

To do so, we first define the concept of UX from a marketing point of view, while exposing its main components. We then focus on the evolution of online video advertising and on YouTube advertising formats in particular. Finally, we look at the main factors influencing user behavior towards intrusive advertising on YouTube.

II. THE CONCEPT OF USER EXPERIENCE: DEFINING ELEMENTS

The user experience is the set of effects felt by the user following his interaction with the product and taking into account the context of use. The UX is not limited to the moment when the experience is consumed: it impacts the usability, usefulness and emotional state of the user at the moment of interaction and revives memories after the interaction [64].



Main components of UX [33]

Although user experience is often attached to ease of use, it is also influenced by other factors such as usability, design, human factors, usefulness, accessibility, ergonomics, system performance, marketing, human-

machine interaction...etc. The richness of the UX concept puts us in front of several fields of investigation [64].

Thus, defining the concept "user experience" depends on the scope of analysis to which it refers. In this article, we will simply define user experience as seen from the marketing perspective.

2.1. UX in Marketing

Given the notion of "user" that is becoming central to information systems and diversified internet content, marketing strategy is increasingly focused on the user experience. The goal is to generate desire and pleasure in the user experience [27].

In order to describe the user experience, Swenson (2011) defines the user experience in his article combining the user experience and the marketing process as a subjective element, because it is related to the feeling experienced by each user according to his own experience.

In marketing, the aim of studying user experience is related to making the product adopted by its users, even before causing the attachment to the brand image. The fact that the user adopts the product is based on the notion of product acceptability. The latter corresponds to the evaluation of perceptions, feelings and behaviors of the user before, after and during the use of the product. The aim is to understand the reason for the use or non-use of the products in question [31].

2.2. Components of the user experience

By UX components, we mean all the dimensions related to the user's perception and characterizing his experience of using a product, a service or a system. According to the literature, the user essentially evaluates his experience through several factors such as usefulness, searchability, credibility, accessibility, value, desirability, etc. [62]. In the present work we focus on three factors being the most recurrent: usefulness, usability and desirability.

2.2.1. Utility

The term utility is often linked to understanding the user's needs, desires, and objectives [36]. Understanding the user's expectations is what will allow us to define the utility in him while awakening his interest in the product. The utility is therefore multidimensional: it is a service from which the user benefits in order to satisfy his needs and expectations [11] and interests [35].

The utility remains linked to the virtual environment; that of websites. Indeed, a website is qualified as functional and usable when the user manages to accomplish the task efficiently [64].

For a successful user experience and a satisfactory quality of experience on a website, [61] emphasizes the utility of

the system. Indeed, a successful user experience depends on the autonomy that the system allows the user, via the performance that is verified by the response to a well-defined need as a result of the innovative solutions it offers.

We can therefore synthesize utility in its close dependence on the user's need [56] and on the way it is carefully and efficiently met.

2.2.2. Usability

Replacing the terms "user-friendliness" and "ease of use", usability was evoked in 1980. In 1981, Shackel (1981) [79] refers to the usability of a product as the ability of a product to be used easily and effectively by humans [77].

When it comes to web interface design, usability, persuasiveness, and visual appearance are three interrelated elements, forming the design qualities.

Usability and visual appearance influence the persuasive experience in the moment visual appearance impacts the usability experience [64].

According to the International Organization for Standardization (ISO), usability represents the evaluation through which a product, service or system is used or manipulated by a given user, within a specific usage framework, in order to effectively, efficiently and satisfactorily achieve determined objectives.

The ISO usability standard (9241-11) [40] defines usability through three elements: effectiveness, efficiency and satisfaction [4].

In fact, usability is a component of the Human-Machine interaction. This interaction must be effective, efficient and satisfying. Referring to Hartson and Pyla (2012) [35], usability represents the pragmatic component of the user experience [64].

Furthermore, according to Krug (2014), different and numerous definitions of usability intersect in terms of:

- Usefulness: whether the product, service, or system meets the user's need;
- Learnability: if the user is able to understand how to use the product;
- Memorability: if the use of the product requires re-learning;
- Effectiveness: if the product in question allows the work to be done;
- Efficiency: if the use is a function of a reasonable amount of time and effort;
- Desirability: if the user wants the product;
- Agreeableness: if the use of the product inspires fun, pleasure and satisfaction.

In summary, usability is positioned at a primordial level of user experience. A functional user experience is difficult to create without usability. In fact, a product with poor usability will not allow users to achieve their goals effectively, efficiently and satisfactorily.

Thus, poor usability can only lead to a poor user experience. For this reason, when designing a product, it is important to check the usability criterion to minimize any possibility of losing users to rival businesses [64].

2.2.3. Desirability

To understand user experience, the attractiveness of the product or web interface is essential. This is what professionals call desirability. According to Norman (2002) [63], attractive things work better.

Although the attractiveness of a product represents a value relative to the user's emotion, it refers to the attributes of usability and usefulness; not very obvious but with high impact [10].

Because of this, an empirical study shows that for the user, the usability of a website is a function of the perception they had of its visual design, and this is independent of their user experience [68].

Thus, we refer to the desirability factor, when a web interface is desired or appreciated by the user. In other words, desirability refers to the user's subjective appreciation of a website, taking into account its aesthetic appearance and overall design (visual organization of icons etc.) [62].

Desirability, often referred to as aesthetic attribute, corresponds to the agreeable and pleasant aspect that the system allows through the power of design, image and brand, which arouses the user's appreciation [60].

As an example, if we take two different brands of cars: a BMW and a Dacia. Each of these car brands is both useful and usable, except that their level of desirability is very different in the eyes of the users. This is because, in the midst of an array of products that are almost similar in terms of usefulness and usability, desirability is the distinguishing attribute of the product.

In terms of web interface design, usability refers to the rather easy, technical and functional part, where desirability matters more as it is the hook for the user.

III. YOUTUBE: A MAJOR ACTOR IN THE DIGITAL VIDEO ADVERTISING MARKET

In addition to the content, user experience of video content sharing platforms also called video on demand represents a relevant research track in order to have a more global view of the users' perception of these platforms that are an

integral part of the digital sphere today. Among those that have based their economic model on advertising as a source of profit, YouTube remains one of the most interesting examples to study, with its importance in the daily lives of Internet users as well as in the communication strategies of advertisers.

3.1. Evolution of online video ad

Nowadays, different websites and especially social media platforms provide free access to content in exchange for users' attention [75]. In order to generate incomes, these platforms exchange users' data and attention with advertisers who ultimately promote their brands and content to the final viewers [1].

Among the online platforms marking this evolution, we project light on video content sharing sites, which are now popular communication channels for information, education, entertainment, and advertising, especially because video is a rich conducive to user participation [6]; [3]. More and more people are choosing to watch movies, series, documentaries, news, sports competitions, and other content on the Internet that could be generated by users or influencers (UGC). In this perspective, Wang et al. (2018) [92] argue that the online video advertising market has a rapid and sustained development dynamics through huge business opportunities.

In numbers, the online advertising market, in the video segment, is expected to reach \$180 MM in 2022. This market is expected to grow at a compound annual growth rate (CAGR) of 12.06% between 2022 and 2027, bringing the revenue volume to \$318 million by 2027 [82]. In Morocco, the volume is expected to exceed \$81M in 2022 to reach \$125M in 2027, with a CAGR of 9.14% [83].

Among the most popular and operated video sharing platforms in Morocco, YouTube is a key space for advertisers to share their videos and advertise their messages.

3.2. YouTube: The hub of advertisers and users

YouTube, one of the most popular video-sharing platforms, is a good example of the use of advertising to generate revenue on the web. Users (the audience) have access to a wide range of video content on the platform. While YouTube creates advertising auctions to select the ads that will be exposed to these users. These users, through their numbers in the billions, actively contribute to the attractiveness of the platform's advertising offer for advertisers.

By relying on its advertising offer, YouTube's main objective is undoubtedly to monetize as much as possible the videos available on its platform. In common parlance,

this means placing ads on as many videos as possible from which YouTube derives a portion of its revenue [29].

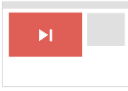
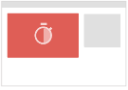
YouTube's design model is thus based on coordinating the interests and valuing its content creators, audience, advertisers, and media partners, in a business environment where YouTube is now competing with other powerful social media and streaming television platforms [14].

While YouTube's main source of revenue is advertising, the platform also generates revenue through monthly subscriptions, such as YouTube Premium, which may not be available in all countries around the world. This paid plan allows users, on the one hand, to avoid exposure to advertising and, on the other hand, it gives the possibility to play videos in the background and download them for offline viewing, in addition to access to YouTube Music Premium.

3.3. YouTube ad formats

YouTube's global ad revenue was \$7.34 billion in second quarter 2022, with a 5% year-over-year increase. YouTube is one of the largest online video platforms in the world, with the most popular YouTube channels accumulating over 100 million subscribers [84].

The YouTube platform offers advertisers four formats that accompany video content uploaded online (Table 1). These ads can be displayed before ("pre-roll"), during ("mid-roll") or after ("post-roll") the video.

Video Ad Format	Description	Technical characteristics
Disabled video ads 	Disabled video ads can be ignored by users after five seconds.	Broadcasting in the video player (possibility to ignore them after five seconds).
Non-disabled video 	Users must view the non-disabled video ads before they can watch the videos.	Broadcasting in the video player. Duration of 15 or 20 seconds depending on regional standards.

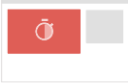
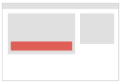
Bumper ads 	<p>Viewers must watch the short, non-disabled video ads, which are no longer than six seconds long, before they can watch the videos.</p> <p>Bumper ads are enabled when disable and non-disable ads are enabled.</p>	<p>Broadcasting in the video player (maximum duration of six seconds).</p>
Overlay ads (computers only) 	<p>Overlaid text or image ads that appear in the bottom 20% of the video.</p>	<p>468 x 60 formats or 728 x 90 pixels</p>

Table 1 : YouTube Ad Formats- Adapted from YouTube (2022)

IV. YOUTUBE ADVERTISING : USER INFLUENCE FACTORS

Dehghani, Niaki, Ramezani, and Sali (2016) [20] identified YouTube advertising factors, which are likely to exert an influence on user behavior. Entertainment, informativeness and irritation represent the most eloquent factors attached to video advertising, which are likely to exert a positive or negative influence on YouTube social media users. In addition to these factors, our literature review has prompted us to also mention the role of other factors that have a relationship with the use behavior of this platform. These are avoidance habit, brand recall and perceived quality of advertising content.

4.1. Entertainment

Advertising entertainment generally refers to the pleasure generated by advertising for the consumer [50]. The likelihood of advertising being used to uncover the hedonic needs of consumers is suggested [76]. Hence the development of the possibility of enjoyment and pleasure [69]. It is from this perspective that many marketers see advertising as an inescapable tool for entertainment, with a view to attracting attention and reaching a maximum number of customers [45].

In several studies such as Le and Nguyen (2014) [49] study, entertainment is presented as a significant predictor of consumers attitudes toward advertising. Entertainment also influences the effectiveness of advertising.

Generally, consumers who feel entertained by online video advertisements may develop positive attitudes toward advertising. For Ramadhani et al. (2020) [72], the entertainment element (including captivating and fun characters, music images, and colors) can attract consumers attention to online video advertising.

Similarly, the study conducted by Tandyonomanu (2018) [89] suggests that when it is an ad with fun and entertaining content, users will be more willing to be exposed to it. However, they will avoid ads whenever possible, when they interfere with the video enjoyment process. Another equally interesting analysis is that of Firat (2019) [28], who argues that it is users aged 30-39 who expect YouTube ads to be more entertaining than other ages.

4.2. Informativeness

Informativeness is an important factor that informs about the usefulness of the information provided by the website [16] [22]; YouTube in our case. For media users, advertising with the ability to inform and convey the message is in itself a reason to accept advertising [18].

Furthermore, informativeness is a dimension that introduces the notion of "advertising value" which is considered to be a subjective assessment of the value or usefulness of advertising in the eyes of consumers. Advertising value is seen as a useful way to evaluate the effectiveness of advertising [23] [73]. Thus, advertising on YouTube is considered reliable and informative [90] [16].

Yang et al. (2017) [95] examines consumers attitudes toward advertising via YouTube and find that informativeness has a positive effect on purchase attitude.

Also, Karadeniz & Kocamaz (2019) [43] argue that, in order to be able to influence purchase behavior, informativeness is among the variables that advertisers should value in their ads on YouTube, just like on Facebook and Instagram.

In terms of attitude, Koshy and Manohar (2018) [93] suggest that informativeness, like relevance, leads to a more positive attitude of consumers towards advertising. Similarly, Wang & Lan (2018) [93], in their study, claim that there is a positive relationship between perceived informativeness and customer attitude toward viral video ads. As for Firat (2019) [28], through his age-based approach, he believes that it is the users aged 40 and above who find YouTube ads more informative.

4.3. Irritation

Irritation is a characteristic present in poorly organized, disorganized or irritating content to net surfers [24]. Several studies show that users become increasingly resistant to advertisements. This results in ignoring the ad

or using the time to participate in another activity [18] [81].

Banner ads and pop-ups are two forms of online advertising that are considered annoying and irritating [23]. For users, irritating banner ads present a source of distraction that detracts from the user experience [22].

Indeed, the irritating character of online advertisements is further amplified when they implement offensive or excessively manipulative techniques [23] [67].

In the case of social media such as YouTube, irritation is still linked to advertising. This is illustrated in particular when the user while viewing a video, is interrupted and unintentionally diverted from his or her goal [19]. Other interesting research, such as Jeon & al. (2019) [41] study, finds that the higher the ad irritation, the higher the ad skipping rate. This work builds on a number of other works that view waiting as an unpleasant experience for Internet users since they are captive and unable to control their ad viewing [34] [37] [65] [70]. This also applies to YouTube usage where even in the case of skippable ads, users typically have to wait (e.g., 5 seconds) before they can click the "skip" button [13].

This phenomenon of irritation is specifically addressed by Firat (2019) [28], who finds that men are more irritated by YouTube ads than women.

4.4. Avoidance Habits

Advertising avoidance refers to the set of techniques and practices employed by consumers to avoid exposure to a form of advertising [44] [78] [81]. It is more specifically defined as "all actions by media users that differentially reduce their exposure to advertising content" [81].

Indeed, Belanche et al. (2017) [6] present prior exposure, skipping habits, and momentary urgency as the main determinants of different ad avoidance behaviors. This supports the findings of some previous work that suggests that:

- Repeated exposure to an ad format increases intrusiveness and reduces enjoyment, even if they are not the same ads [12].
- Users with higher moment-to-moment urgency would be more likely to abandon ads on social media, (or would tend to watch them for a shorter period of time) compared to users with lower urgency [30].
 - The avoidance habit emerges from regular repetition and can be performed with minimal attention [66] [91].

Similarly, other interesting studies shed light on factors related to avoidance behavior. Among them, we cite Singaraju et al.'s (2022) [80] study, which points out that privacy concerns, as well as a perceived goal barrier have a

positive relationship with ad avoidance. Another study is by Lin et al. (2021) [51], who find that the more irritating an in-stream ad is, the more likely the viewer is to click the skip-ad button. Since in-stream ads limit and hinder users desired behaviors. Users tend to get annoyed and therefore avoid ads by clicking the skip-ad button, which reduces the value and ads effectiveness.

4.5. Brand recall

Ensuring that viewers associate the ad content with the advertised brand is critical to increasing brand recall [2] [71]. To address the issue of recall, we find it essential to first address the issue of attention, which is addressed by a considerable amount of research, especially in relation to the placement of the brand in the ad and the placement of the ad itself in the video viewed by the user.

In a more general context, advertisers try to attract the attention of the target audience with stimuli and studied placement of brand names in advertising. To this end, different models are presented to describe the practices used in this sense.

Some models rely on stimuli to get viewers attention and prepare them for the brand name at the end of the ad [26] [57] [58]. Other models are based on the presentation of the brand name earlier, as in the case of brand references made in the middle of advertisements, involving viewers to see the brand name near the attention trigger [7].

Also worth incorporating is the model that suggests that placing the brand name at the beginning of the ad improves brand recall [85].

In the context of YouTube, the results of the Belanche & al. (2020) [7] study suggest that presenting the brand at different positions in the ad does not significantly increase brand recall itself, but only when tailored to the type of format (skippable or non-skippable) through interaction effects.

Other studies complement the thinking around location, such as Krugman (1983) [47], who suggests that viewers pay more attention to an ad placed in the middle of a television program than to an ad placed during a natural break, because of the dynamics created by the program.

Similarly, Moorman, Neijens, and Smit (2005) [59], observe better recall of advertisements that interrupt the program itself than those shown in blocks between programs.

As for Li & Lo (2014) [52], they focus specifically on YouTube video ads and emphasize the placement of the ad within the video viewed by the user. They report that mid-roll ads result in better brand name recognition than pre-roll and post-roll ads, due to the attention transfer effect. However, a mid-roll ad is futile when it has no connection

to the content of the video. On the other hand, post-roll ads can improve brand name recognition in an incongruous context.

4.6. Perceived quality of advertising content

Quality of advertising content is a determining factor in the decision to avoid advertising [38].

Indeed, the perceived quality of advertising content is based on a subjective evaluation, as it responds to individual usefulness, user expectations, and level of engagement with the information content [15].

Basically, the evaluation of the quality of advertising content remains objective. However, it is often impacted by subjective factors [51].

When the quality of the delivered advertising content is favorable in the eyes of the user, informative advertising reduces the user's perceived intrusiveness and leads the user to adopt positive intentions [32] [74].

For many authors, an advertisement is considered useful for the user when the user tends to have a positive experience and a low tendency to avoid [5] [54].

However, the user can afford to skip or turn off an advertisement if they consider the content to be low quality, irrelevant, or even non-entertaining [25] [42]. Indeed, the content of the ad affects the degree of ad avoidance [94].

Furthermore, it has been found that high quality ad content evokes positive engagement in the user. This builds trust and thus reduces ad avoidance [39]. As a result, when perceived quality is high, the user pays more attention to the ad content by ignoring the existence of the ad.

In addition, advertising content with low quality for the user amplifies the intrusiveness of the advertisement which causes the user to engage in avoidance behavior [51].

V. CONCLUSION

In this work, we have addressed the concept of user experience from a marketing perspective, targeting the context of interactive advertising in general and the YouTube video platform in particular.

Alongside usefulness, usability and desirability as the main components of UX, our paper traces the evolution of online video advertising to identify, on a theoretical level, the factors that influence users of the YouTube video platform when confronted with the various forms of interruptive advertising.

Thus, this article theoretically scrolls through the factors that may make enjoyable or hinder the user experience with YouTube advertising. However, we would like to

further highlight the nuisance factors caused by advertisements flying over the YouTube platform.

Indeed, advertisers who buy ad space on YouTube, want their products to be liked by users so much that they often try to get the message across through intrusive, interruptive and disturbing ads [9].

This situation creates a kind of contradiction. On the one hand, the negative feelings aroused by the advertisement and on the other hand, the positive feelings that the user is supposed to develop towards the products being advertised [9].

Thus, the use of interruptive ads generally leads the user to adopt ad avoidance behavior [17] [23].

The ad-skipping behavior causes a psychological reaction from the user that is a function of the increasing amount of advertising. Users become so overwhelmed that they engage in ad avoidance behavior [51].

In the present work, we collected entertainment, informativeness, irritation, avoidance habit, brand recall and perceived quality of advertising content as factors that may affect users, faced with interruptive advertising, during their viewing of YouTube videos.

Thus, we attempt to provide through this research a theoretical basis for an empirical study and to concretely identify the nuisance factors that influence the Moroccan user during his visit to YouTube.

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