



**The Hassle of Pop-Up Ads:
Investigating User Fatigue and Interrupted Engagement**

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DOI - 10.5281/zenodo.14603674

Abstract:

This study delves into users' opinions about pop-up ads, especially when these users are busy, on a tight schedule. Given the mounting pressure of having to get things done as soon as possible, pop-ups become annoying for many users. Furthermore, when such pop-ups appear during a conference or any similar gathering, embarrassment is yet another factor that contributes to negative user experience. This research applies the mixed-method approach, using the survey as the primary data-gathering tool. It will explore the views of the user in the case of pop-up ads, but not critique their efforts toward marketing. It emphasizes the trade-off between pop-up ad efficiency and workflow disruption, engagement, and user satisfaction. Most of the users do not utilize pop-up blockers because most are unaware of their benefits, fear compatibility issues or desire easier browsing. A section of users also faces difficulty in blocking ads offering free content.

Keywords: *Fatigue, Irritation, Browsing, Task Disruption*

Introduction:

Several studies have reported that consumers despise advertisements, especially those that pop up or under a site, and sometimes feel “violated” and “molested” by their presence (Wegert, 2002). Ad intrusiveness has been recognized as a leading cause of annoyance (Bauer & Greyser, 1968). Pop-up ads are pop-up ads, a relatively long-standing form of Web advertising. They are usually graphical user interface elements representing small windows that “pop up” suddenly, some of them unsolicited; others pop up in accordance with user actions. Often, even though the user is negatively emotionally responding to the pop-up ad, he or she may not

associate the brand with a bad perception if the brand relates to quality products or services. A negative reaction toward the ad format does not automatically result in a negative opinion about the brand.

Also, it does not undermine the efforts of the marketers who choose to advertise in this manner. Both pop-ups and pop-under can wear on users, leading to feelings of fatigue and frustration. This could adversely influence the whole experience of those online. Beyond just being annoying, these ads can also represent security concerns. In this research, we shall investigate how pop-up ads can affect a person during browsing, the mental stress involved, and any potential dangers posed by such

advertisements in our increasingly digital world. These dynamics, as people and advertisers navigate the online world, must be understood.

Literature Review:

Banners, skyscrapers, pop-ups, interstitials, wallpaper, and floating are some of the advertising media over the internet. The pop-up ads are the most common sense of anger and annoyance (Harms et al., 2019; Kariyawasam & Wigley, 2017). People who hold a negative attitude towards pop-ups do not usually have negative thoughts about the brands whose pop-up advertisements are shown. Advertising has moved away from traditional media (print, television, radio) over the last 10 years. Online advertising provides market researchers with rich user information (Evans, 2009) but is generally perceived as intrusive and disruptive (Diao Sundar, 2004). To counter such a trend, marketers try to make ads that improve the user experience. Overall, pop-up ads, specifically, when designed carefully, should be powerful, as they are unlikely to elicit user reactance (Edwards, Li, "Lee," 2002). This study investigates if goal-related pop-ups are able to have a positive effect on the user experience. Meeting the user needs can make pop-ups seem less intrusive and more pleasing (Hassenzahl et al., 2013).

Whether or not advertisements are able to generate brand awareness is highly dependent on the user's memory of the information and their recognition of the brand name, which further reinforces both product recall and product recognition. Perceived intrusiveness is defined as the

Prachi Dhotre & Sharmin Shaikh

psychological distress resulting from advertisements which intrude on the users' online activity. This interference can impair cognitive function, divert attention and restrict information retrieval. Along with the other in-banner ads, pop-up ads are especially egregious because they are known to be very intrusive, interrupting the users' experiences and requiring a quick response. These interruptions frequently result in adverse affective responses and secondary advertising avoidance. The marketers may come up with advertisements that combine the effectiveness of increasing brand awareness with the lack of user interference and a negative emotional response. (*View of the Effect of Pop-Up Advertising and Perceived Intrusiveness on Brand Awareness and Advertising Avoidance With Advertising Value as a Moderation Factor*, n.d.)

As it is in the title, a review of the effects of online advertising on the User experience: Silvia Gabrielli and Giorgio Brajnik:

In that, the authors described how online advertising affects the user experience with a possible psychological and behavioural aspect. It was discussed that human affective and emotional systems were one of the main ways to achieve response from the advertisement. The affective system was said to perform rapid unconscious judgments of experiences, while the emotional system received conscious attribution and explanation for those affective states (Norman, 2003, as cited in Brajnik & Gabrielli, 2010).

The authors mention the halo effect and identify it as the tendency to associate positive characteristics with an attractive person or advertisement, such as intelligence. They quote the Internet Advertising Bureau UK (2004) for an impression to represent a filtered measurement of an ad's delivery, so that actual opportunities for user engagement can be reflected accordingly (Brajnik & Gabrielli, 2010).

The authors introduce the concept of click-through rate (CTR), meaning the ratio of false impressions to clicked ones. For Gabrielli and Brajnik, cognition, affection, and behaviour become significant forces to influence what action or reaction users make. Arousal is defined as heightened physiological engagement and usually measured using skin conductance and others, while it is noted that perceptual fluency defines the ease by which people process ad content (Brajnik & Gabrielli, 2010).

The authors clarify the principle of wear out: repeated viewing of commercials typically increases positive receptions (wear-in phase) before boredom and avoidance set in. An inverted-U relationship is cited as an appropriate explanation of this effect. One speaks of Reactance, which refers to behaviour reversal or resistance caused by an unfavourable influence.

Limitations:

In terms of limitations, the study was prone to social desirability bias in self-reported data, and its survey format

excluded certain demographics by being available online only.

Research Methodology:

This study employed the mixed-method approach. However, it mainly relied on a survey to collect data from participants' opinions. The methodology comprised survey design, sampling technique, data collection procedure, and data analysis. The goal of the main study was to examine whether the forced pop-ups were perceived as interruptive causing disturbance from the user's perspective.

Objective:

The purpose of this research is to establish how intrusive pop-up ads induce user fatigue and irritability, eventually leading to engagement collapse and decreased browsing satisfaction.

Sample:

The study includes 117 internet users aged 18 to 55 from the urban areas using Random sampling technique to ensure representation of all internet users.

Data Collection:

A structured close-ended questionnaire with questions related to irritation, task disruption, fatigue, and embarrassment was adapted as some of the themes.

Analysis:

Data were analysed using Spearman's rank correlation to regress relations between various variables such as fatigue, irritation, and embarrassment that

might have appeared because of pop-up ads.

A. Hypothesis:

○ Null Hypothesis (H_0)

There is no significant relationship between fatigue, irritation, and embarrassment caused by pop-up ads.

○ Alternative Hypothesis (H_1)

There is a significant relationship between fatigue, irritation, and embarrassment caused by pop-up ads.

B. Data Analysis:

Spearman's Rank Correlation assesses the strength and the direction of association between the mentioned variables. A correlation matrix is a square matrix where: Each cell in the matrix shows the correlation coefficient between two variables.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Frequency of Encounter	1	0.58	0.55	0.5	0.47	-0.08	-0.09	0.15	0.53	0.5	0.48	0.3
2. Irritation Level	0.58	1	0.65	0.6	0.55	-0.1	-0.12	0.2	0.6	0.57	0.55	0.35
3. Task Disruption	0.55	0.65	1	0.7	0.65	-0.15	-0.12	0.18	0.65	0.63	0.6	0.4
4. Fatigue Experience	0.5	0.6	0.7	1	0.63	-0.12	-0.11	0.17	0.6	0.58	0.57	0.33
5. Embarrassment in Public	0.47	0.55	0.65	0.63	1	-0.09	-0.08	0.19	0.57	0.55	0.52	0.3
6. Brand Perception	-0.08	-0.1	-0.15	-0.12	-0.09	1	0.2	-0.03	-0.12	-0.1	-0.08	-0.05
7. Utilization of Pop-up Blockers	-0.09	-0.12	-0.12	-0.11	-0.08	0.2	1	0.18	-0.1	-0.09	-0.07	-0.02
8. Awareness of Security Risks	0.15	0.2	0.18	0.17	0.19	-0.03	0.18	1	0.2	0.18	0.15	0.1
9. Browsing Satisfaction	0.53	0.6	0.65	0.6	0.57	-0.12	-0.1	0.2	1	0.65	0.6	0.4
10. Interruption Sensitivity	0.5	0.57	0.63	0.58	0.55	-0.1	-0.09	0.18	0.65	1	0.55	0.38
11. Pop-up Ad Design	0.48	0.55	0.6	0.57	0.52	-0.08	-0.07	0.15	0.6	0.55	1	0.35
12. Content Relevance	0.3	0.35	0.4	0.33	0.3	-0.05	-0.02	0.1	0.4	0.38	0.35	1

C. Data Interpretation & Result:

The table provided appears to represent the Spearman's Rank Correlation coefficients between

various variables related to user experiences with pop-up ads and their impact. From the correlation table above:

Variables	Fatigue Experience	Irritation Level	Embarrassment in Public
Fatigue Experience	1	0.6	0.55
Irritation Level	0.6	1	0.57
Embarrassment in Public	0.55	0.57	1

Degree of Irritation and Fatigue Level:

Pearson correlation coefficient, $r=0.60$. Here, the relationship with positive moderate correlation coefficient lies at 0.60 which means that with rising levels of irritation, users become more fatigued when exposed to pop up advertisements.

Fatigue Experience and Embarrassment in Public:

Correlation coefficient $r=0.55$ $r=0.55$, showing a moderate positive correlation. This means that users experiencing higher fatigue from pop-up ads are more likely to feel embarrassed in public places because of these ads.

Irritation Level and Embarrassment in Public:

Correlation coefficient $r=0.57$ $r=0.57$, which further suggests a moderate positive correlation. It implies that the irritation level is associated with higher embarrassment in public.

Conclusion:

Interpretation: The correlation analysis is able to indicate that all the three attributes, fatigue, irritation, and embarrassment have some degree of moderate but positive correlation. That means one going up leads to increases in others.

Hypothesis Testing: With these correlations, we hence are reasonably comfortable with our conclusion to reject the null hypothesis (H_0). There is a significant correlation between fatigue, irritation, and embarrassment in relation to the pop-up ads.

Implications: Thus, that the irritation and embarrassment caused by them would very

assuredly reduce fatigue experienced by users. Improving the design and frequency of pop-up ads might therefore enhance the user experience and lessen these adverse consequences.

There is a clear negative impact of frequent pop-up ads on user experience, with high correlations between irritation, task disruption, fatigue, and dissatisfaction. Awareness of security risks and pop-up ad blockers can mitigate some of the negative effects, suggesting that reducing the frequency and improving the design of pop-up ads could improve the overall user experience.

- Frequent encounters with pop-up ads lead to increased irritation, task disruption, fatigue, and decreased browsing satisfaction.
- Awareness of security risks has a moderate effect on the utilization of pop-up blockers.
- Pop-up ad design and content relevance have strong effects on user irritation and task disruption, which are inversely related to browsing satisfaction.
- Task disruption and fatigue are strongly related, both negatively affecting the user experience.
- With all the factors combined, speaking in totality, forced pop-ups may be more frustrating, or at least less endearing, rather than more endearing. It will give users a reason to become annoyed or have some kind of negative feeling that

comes from getting rid of such popups.

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