



Specificities Introduced by Mobile Phones in the Relationship Between Children and Commercial Content

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Citation: Feijoo, B., & Sádaba, C. (2022). Specificities Introduced by Mobile Phones in the Relationship Between Children and Commercial Content. *Online Journal of Communication and Media Technologies*, 12(1), e2022xx. <https://doi.org/10.30935/ojcm/12338>

ARTICLE INFO

Received: 23 May 2022

Accepted: 6 Aug 2022

ABSTRACT

This article explores the specificities of the relationship between children and the advertising to which they are exposed through their cell phones, and reports on a mixed methodology study conducted in the metropolitan area of Santiago de Chile. The study aims to learn about children's predisposition, interaction, and perceptions with regards to mobile advertising. Most significant is the finding that this young generation (10-14 years old) identify commercial messages with which they claim low levels of interaction. Regarding interaction, the ads which most likely attract minors' attention are placed on social networks, are presented in formats which provide some value (in terms of information or entertainment) and are for on products of interest to the audience studied. Finally, for many minors advertising eminently belongs to the digital world and their perceptions may not be transferable to traditional media.

Keywords: advertising, mobile phone, children, mixed method, attitude, entertainment

INTRODUCTION

Nowadays mobile devices and smartphones are the main access point for internet browsing. 69% of the world population owns a smart mobile phone, with highest penetration in the USA, 81.6% (O'Dea, 2021). Improvements in bandwidth accessibility and in the availability of quality wireless networks, as well as the diversification of types of connectivity have heavily increased the uses given to this device. The same also proves to be true in Chile, a country in which mobile access to Internet is comparable to that of other OECD countries (Subtel, 2020). Children are no different in this respect. Chilean children currently access the internet mainly through mobile phones, as compared to other modes of connection such as computers or tablets (Cabello et al., 2020; Feijoo & García, 2019; Subtel, 2020). The widespread use of mobile phones has turned this device into a key advertising platform for brands and companies as they strive to be present in the media to which audiences are exposed. Investment in mobile phone advertising has been steadily growing in recent years, and commercial strategies have become increasingly sophisticated and diversified. The consolidation of mobile phones as an advertising medium has brought along the interest of the academia.

So far, the identification of the variables that affect user attitudes and intention towards mobile phone commercial messages has been the focus of researchers. Attitude, following Aaker et al. (2013), is understood as the predisposition developed by users to respond favorably or unfavorably to an advertisement; intention refers to the personal disposition to being exposed to a commercial message (Izquierdo-Yusta et al., 2015). In their literature review, Maseeh et al. (2021) refer to five key variables associated with attitude and intention towards mobile advertising: personalization, entertainment, credibility, informational value, and irritation.

This study focuses on how children interact in a real context and incorporates attitudinal analysis. The goal is to understand how children interact with the mobile phone advertising to which they are exposed, and the nature of the final perception generated by this type of commercial message among this particular audience (Shaheen et al., 2017; Sinkovics et al., 2012). These two factors were explored with mixed method research: first, children's predisposition towards advertising on mobile phones was quantitatively analyzed; second, the interaction between children and mobile phone advertising in standard daily context was observed in an experimental study; finally, children's impressions were collected through interviews.

MOBILE PHONE ADVERTISING ADDRESSED TO CHILDREN

The increase in mobile phone penetration and its consolidation in children's lifestyles has been matched by a growing number of studies on this topic (Mascheroni & Ólafsson, 2014). Mobile phone portability, immediacy, and ubiquity (Duffett, 2015; Wang et al., 2016) promote highly individualized and de facto, autonomous use of these devices for which parental mediation becomes harder to implement (Feijoo et al., 2020a). The increasing level of autonomy gained by children in their use of mobile phones has sparked the interest of the academia in the advertising that has accompanied it (De Jans et al., 2017). Feijoo et al. (2020b) experimentally showed that among children, exposure to advertising while browsing on their mobile phones was higher when compared to exposure while watching television.

When analyzing the literature on the differentiation and categorization of mobile phone advertising messages addressed to children, the notion of a certain level of disorganization commonly arises (An & Kang, 2014; Chen et al., 2013; Terlutter & Capella, 2013). The dynamism of mobile phone phenomenon and lack of regulation are responsible for this situation. For instance, Chen et al. (2013) showed that the age appropriateness methods used to classify apps services or content make no reference to in-app ad supervision. In the case of advergaming, there seems to be no differentiation between sponsored and non-sponsored video games on the part of content providers (An & Kang, 2014, p. 526). In other words, these young generations are currently participating in a media reality with diffuse mobile advertising rules. This hints at the relevance of studying how this environment may influence children whether attitudes and intentions present age-related differences. For example, it would seem reasonable to think that the entertainment variable would be particularly relevant among younger users (Feijoo et al., 2021) given that adults seem to be less interested in hedonic or pleasurable experiences (Charles & Carstensen, 2010; Hofer et al., 2014).

Researchers have studied children's attitudes to the advertising they are exposed to on their mobiles (Jebarajakirthy et al., 2021; Maseeh et al., 2021). As is the case with online advertising (Andersen et al., 2008; Sandberg, 2011), unsolicited mobile phone advertising irritates users (Martínez et al., 2013). However, their attitude may be more positive if users perceive advertising as incorporating entertainment or as being useful in some way (Martí-Parreño et al., 2013). In any case, the most common behavior is to avoid ads, especially in online gaming (Martínez et al., 2013; Martí-Pellón & Saunders, 2015). Martínez (2019) states that avoiding advertising requires from minors investing a certain amount of effort and this is done with an emotional cost which leads them to manifest their dislike and discomfort toward advertising (Livingstone et al., 2014), particularly with push formats.

Studies on the impact on user attitude (Feng et al., 2016; Maseeh et al., 2021) by advertisement formats or services in which the mobile advertising is inserted were not found in an extensive literature review. Hence, this study begins by analyzing children's disposition towards commercial messages in relation to the service in which they are inserted:

RQ1: What is children's predisposition towards the advertising they are exposed to on mobile phones services (SMS, phone call, mail, WhatsApp, YouTube, Facebook, Twitter, Instagram, and video games)?

Predisposition towards advertising was measured in terms of detection, attitude and level of trust placed on the studied services. The relevance of advertising recognition by children derives from the need for them to treat and process it as such, as concluded by An et al. (2014); hence, recognition is taken as the first variable of analysis. Likewise, as Jebarajakirthy et al. (2021) and Maseeh et al. (2021) state that user attitude is a key variable in describing the relationship between children and mobile phone advertising, and thus this study assumes that prior attitude towards the service affects how children interact with the advertising to which

they are exposed. Some researchers have suggested that minors' perception of privacy risk negatively affects their attitude towards mobile advertising (Gao et al., 2012, 2013; Mansour & Fathelrahman, 2012); hence, following Jebarajakirthy et al. (2021), the trust variable was incorporated and analyzed in this study to gain insight on the services in which children trust the advertising to which they are exposed.

Researchers have tended to consider customers' intention to receive mobile advertisements as the outcome variable in their studies on mobile advertising [...] However, the literature investigating customers' actual adoption/acceptance (actual behavior) of mobile advertising is scarce. Therefore, it is recommended that future studies examine customers' actual acceptance of mobile advertising (Maseeh et al., 2021, p. 48). Therefore, a second research question is posed to be answered by data collected by non-participant observation:

RQ2: In a real context, what type of advertising are children exposed to on their mobile phones and which ones generate an interaction?

Three variables were established to describe the type of advertisement: exposure service, ad format and advertised product. Feng et al. (2016) argue that advertising format in the mobile context (for example, banners, video, in-app ads) can moderate the relationship between content and user attitude, and thus format can be considered a moderating variable. Likewise, Lin and Chen (2015) and Lee et al. (2017) refer to the relevance of the type of product being advertised as variable when analyzing the response of those exposed to advertising.

Ad clicks (clicks from here on) have been considered a way to measure user interaction with digital advertising (Greenberg, 2012) and for this study clicks will be considered as the maximum level of interaction. Additionally, other studies have correlated mouse cursor gestures (movements, clicks, etc.) with eye movement and, by extension, with attention and intentionality (Huang et al., 2011), and still other authors have interpreted gaze permanence as an indicator of attention (Chen et al., 2001).

Research on the variables which positively influence the attitude toward mobile phone advertising have shown entertainment as being the most influential variable (Maseeh et al., 2021). This would point to the fact that individuals are more likely to pay attention to an advertisement if it perceived as entertaining, especially while being exposed to online games and videos (Boyd, 2014; Burroughs, 2017; Castelló-Martínez & Tur-Viñes, 2020; Feijoo et al., 2020a; Ito et al., 2010; Pires et al., 2019). The emerging phenomenon of influencers has also captured the attention of researchers (Del Moral et al., 2016; Feijoo & Sádaba, 2021; Núñez-Gómez et al., 2020) for their ability to benefit from the closeness of the relationship that is established through mobile phones. In the search for the most attractive combination to reach children, brands include games and entertainment and in doing so call upon emotions with ties to social experiences rather than rationality (Nairn & Fine, 2008). Despite there being suggestions that irritation generates negative attitudes towards mobile advertising (Jebarajakirthy et al., 2021; Maseeh et al., 2021), there are no studies on the causes of this irritation (Raines, 2013). In order to explore and deepen our understanding on the factors that influence the effectiveness of advertising messages in the mobile context from a qualitative perspective, a third research question is posed:

RQ3: What perceptions are generated by the advertisements to which children are exposed?

The mobile phone, minors and advertising triad greatly interests researchers, as there is a need to continue exploring the relationships among these three elements and in doing so, provide evidence to support families, educators, legislators, and companies in their quest to act responsibly to the challenges posed by active and ubiquitous participation of these new generations in the digital environment. The need for research is particularly relevant in the Latin American context, in which research has been rather scarce (Jebarajakirthy et al., 2021; Maseeh et al., 2021).

METHODOLOGY

This study presents the results of a research project that sought to explore the relationship between children and the mobile phone advertising to which they are exposed. To this end, a quantitative and qualitative approach was chosen (Tashakkori & Teddlie, 2010), and a mixed methodology study was conducted for two years (2018 and 2019) over the same sample, as suggested by the authors who have

Table 1. Description of the sample

	1 st stage	2 nd stage	3 rd stage
	Questionnaire (n=501)	Mobile monitoring (n=45)	Interviews (n=20)
Age	10-12: 60% (300) 13-14: 40% (201)	10-12: 47% (21) 13-14: 53% (24)	10-12: 50% (10) 13-14: 50% (10)
Gender	Boys: 46% (230) Girls: 54% (271)	Boys: 31% (14) Girls: 69% (31)	Boys: 40% (8) Girls: 60% (12)
Socioeconomic group of household	High (AUC1): 7.2% (36) Medium (C2 & C3): 46.9% (235) Low (D): 42.9% (215) NS/NC: 3% (15)	ABC1: 69% (31) C2 & C3: 18% (8) D: 13% (6)	ABC1: 50% (10) C2 & C3: 30% (6) D: 20% (4)
Mobile phone ownership	Minor*: 82% (411) Father: 14% (70) Mother: 27% (135)	Minor: 62% (28) Father/mother: 38% (17)	Minor: 55% (11) Father/mother: 45% (9)

Note. *In some cases, shared ownership

extensively reviewed mobile advertising (Jebarajakirthy et al., 2021; Maseeh et al., 2021). Three stages were established in the research design.

In the first stage, a survey was conducted in Santiago, Chile, to explore the uses and level of exposure to mobile phones by children aged 10 to 14, and their perceptions on mobile phone advertising in terms of detection, attitude, and confidence level. The survey included these minors' parents (or guardians) to provide data to compare perspectives on the same reality. In the second stage, daily use of mobile phones by children was monitored by collecting evidence on the real impact of advertising and then categorizing the advertisements to which children had been exposed with reference to service, format, type of product advertised, and level of interaction generated. In the last stage, semi-structured interviews were conducted among some of the children who had participated in the previous phases, seeking to collect their opinions and expectations on the advertising to which they were exposed.

Sample Description

The initial face-to-face survey included a sample of 501 households in the Santiago de Chile Metropolitan Area in which a minor aged 10 to 14 lived. An area probability sampling design was chosen (Center, North, East, West, and South), and each area was assigned the same sample size (100 cases). Case distribution within areas was proportional to the number of households with children aged 10 to 14 within the districts that make up each area. Sample individuals were randomly selected at the level of neighborhood, home, and interviewee. A representative sample was obtained considering a margin of error of $\pm 4.4\%$ and 95% confidence. Field work was conducted from May to July 2018.

For the second stage, direct collection of information on the type of advertising to which minors were exposed during routine navigation was needed. To this end, researchers requested the collaboration of participants from the first phase who voluntarily agreed to have their mobile phone screens recorded while browsing the internet (screen recorder). Navigation sessions were recorded daily for a week (Monday to Sunday). It was requested that they ideally generate one daily recording with a suggested minimum duration to ensure the quality standards of the recorded samples were met. The invasiveness of the method needed for sample collection, determined the difficulty to engage participants, especially among lower socioeconomic groups. In total, 45 users provided 356 audiovisual files which extended for a total of 41 hours, 45 minutes, and 39 seconds, and included 2,406 mobile ads. Audiovisual recordings were subjected to content analysis and children were given a gift card as a compensation. Finally, 20 of the 45 participants who had participated in the second phase were selected to participate in the third, final and qualitative part of the study: an interview. Age, gender, and telephone ownership variables were used to define sample, and interviews were held between June and September 2019. **Table 1** summarizes a characterization of the samples for all phases.

The fact that this study incorporated children as participants meant the need for methodological evaluation and monitoring by the Ethics Committee of the university which hosted the research project. Minors' rights were always safeguarded and written parental consent forms were validated by this committee. These were signed and collected prior to information collection. Anonymity, voluntary participation, and the exclusive use of the results for scientific purposes were ensured.

Measures

This exploratory study aimed to establish an initial diagnosis on the exposure of children to the mobile phone advertising, and thus contribute to the incipient research on this topic (De Jans et al., 2017).

In the first stage, a set of variables were incorporated into the questionnaire to quantitatively analyze the attitude children declared having toward the mobile phone advertising to which they were exposed (**RQ1**):

1. Identification of mobile phone advertising service (WhatsApp, Facebook, Instagram, Twitter, YouTube, games, email, phone call, and SMS), by means of a dichotomous question: (1) yes; (0) no (M=0.52; SD=0.42).
2. Reaction to advertising messages, described by four indicators: (1) "I totally ignore it", (2) "I close /block it", (3) "I pay attention to it" or "I pay attention to it and click on it" ($\alpha=0.77$; M=1.72; SD=0.88).
3. Level of confidence declared by children with respect to the service on which advertising appeared (SMS, phone call, email, WhatsApp, YouTube, Facebook, Twitter, Instagram, and games), was assessed with a Likert scale and rated as (1) "not trustworthy", (2) "slightly trustworthy", (3) "neither very nor slightly trustworthy", (4) "quite trustworthy" and (5) "totally trustworthy" ($\alpha=0.86$; M=2.11; SD=1.33).

In the second stage, after monitoring children's actual use of mobile phones for one week, content analysis of the audiovisual record obtained was conducted and minors' reaction was identified (**RQ2**). For this, the following analysis variables were defined:

1. Level of interaction with advertising, made up of three dimensions: (1) no interaction, in which user's navigation flow remains unchanged during exposure; (2) visual interaction, in which it is assumed that minors pay attention to the advertisement; (3) click on the advertisement (M=1.29; SD=0.567) (Chen et al., 2001; Feijoo et al., 2020b; Feijoo & Sádaba, 2020; Huang et al., 2011; Tsang et al., 2004).
2. Interruption level, a dichotomous variable in which (0) is no interruption; (1) an interruption occurs.
3. Service in which the advertisement appears. Variable categorization was defined based on commonly used services (IAB Spain, 2021): (1) Instagram (app); (2) Instagram (explorer); (3) Game (app); (4) Games (explorer); (5) YouTube (app); (6) YouTube (explorer); (7) Facebook (app); (8) Facebook (explorer); (9) TikTok; (10) Spotify; (11) WhatsApp; (12) email; (13) Twitter; (14) website; and (15) other.
4. The advertisement format, as referenced in the IAB Spain (2018) classification: (1) display; (2) social networks; (3) search/SEM; (4) SMS; (5) proximity advertising; (6) emailing; (7) content marketing, (own media and native advertising both included); (8) commercial content created by influencers, whether marked or as advertising or not.
5. Type of product advertised, namely (1) fashion; (2) toys; (3) sport; (4) food, beverages, and candy (including home delivery services); (5) electronics (devices, displays, and video games); (6) culture and education; (7) beauty and hygiene; (8) automotive; (9) transportation, travel, and tourism; (10) telecommunications and the Internet services; (11) entertainment (series, movies, and VOD); (12) entertainment (music); (13) e-commerce; (14) social networks and applications; (15) financial services; (16) real estate; (17) health; (18) home; and (19) others.

Fieldwork concluded by interviewing selected participants in semi-structured interviews divided into three sets of questions:

- (1) opinions on the mobile phone advertising to which they were exposed,
- (2) feelings toward the commercial messages to which they were exposed (liking the advertisement, discomfort, and willingness to watch), and their imaginary ideal advertising, and
- (3) identification and comments on a selection of mobile phone advertisements to which they had been exposed during phase 2 of the study.

The aim was to collect reflections on how children perceive advertising by answering the third research question. **Figure 1** summarizes the methodological approach used to answer the research questions.

Ethical Considerations

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of La Universidad de los Andes, Chile.

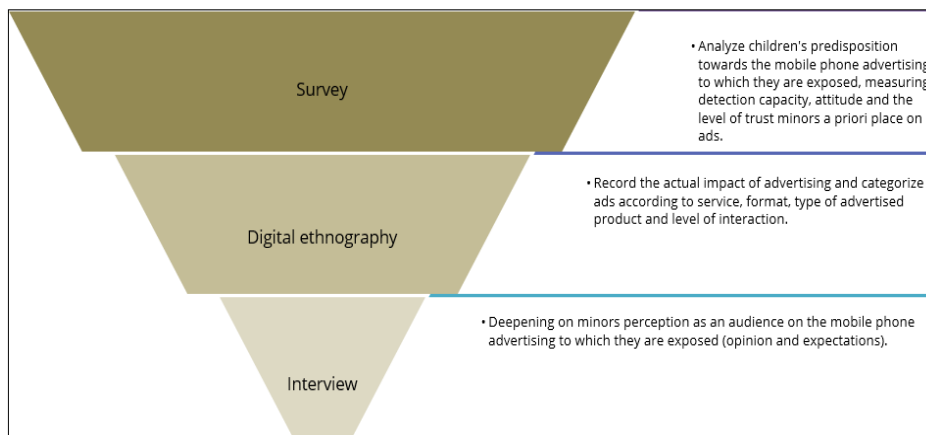


Figure 1. Description of the proposed mixed method

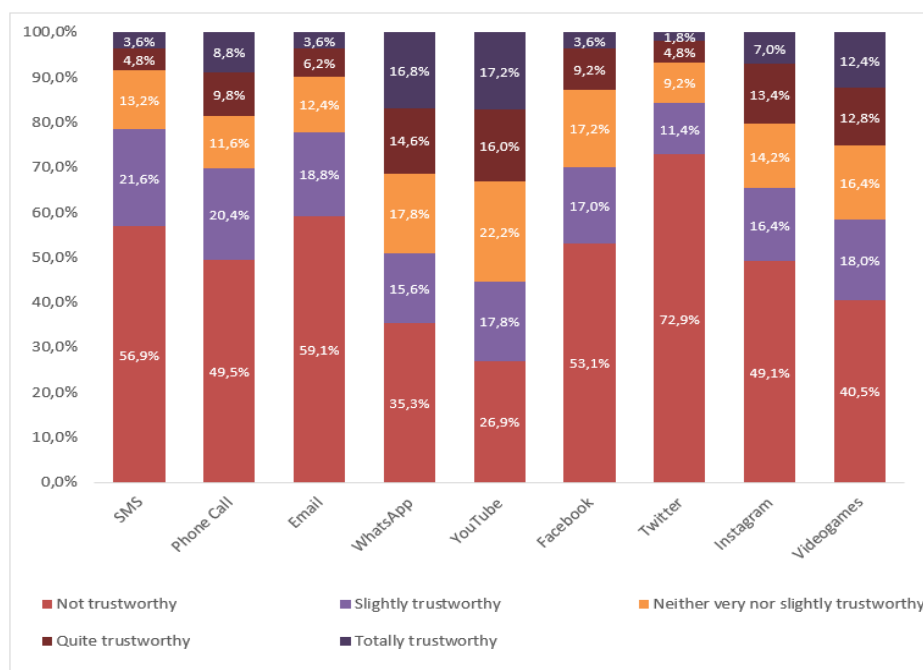


Figure 2. Level of trust by service on which mobile phone advertising appears

RESULTS

Predisposition Brought About by Mobile Advertising: Recognition, Rejection, and Distrust

In the first phase of the project, declarative methodology was used to collect quantitative data on minors' predisposition towards the advertising to which they are exposed while browsing on the mobile phone they routinely use. When participants were directly asked whether they had identified advertising on the services that were listed, more than half of the sample stated having identified commercial messages on YouTube (86%), Facebook (77%), within games (74%), Instagram (73%), or Twitter (66%). A second set of services included WhatsApp (30%) and other less-used ones by participants of this age range: phone call (25%), SMS (22%), and email (18%) (Figure 2).

Among those who stated having identified advertising, more than half said they completely ignored the advertisements to which they had been exposed (52%), 24% closed or blocked them, 21% paid attention to them, while a minority (3%) asserted having paid attention to the advertisements to which they had been exposed and having clicked on them. Likewise, the data collected also showed that, in general, children do not trust the mobile phone advertising to which they are exposed. More than 50% of the children stated not

Table 2. Level of interaction and interruption of ads by the channel/service in which ads are inserted

		I (A)	I (B)	G (A)	G (B)	YT (A)	YT (B)	F (A)	F (B)	TT	S	E-M	WP	O	T
Level of interaction with the ad	NI	27.8%	0.3%	48.7%	4.2%	9.8%	4.0%	0.3%	0.8%	0.0%	0.1%	0.3%	1.6%	2.1%	100%
		513	6	898	78	180	73	6	15	0	2	5	29	38	1,843
Click	VI	74.6%	0.9%	4.7%	0.7%	9.9%	2.8%	2.6%	1.9%	0.9%	0.0%	0.2%	0.5%	0.2%	100%
		317	4	20	3	42	12	11	8	4	0	1	2	1	425
Does ad interrupt the navigation?	Click	15.2%	0.0%	39.9%	2.2%	18.8%	8.7%	2.2%	0.0%	0.7%	0.0%	2.2%	9.4%	0.7%	100%
		21	0	55	3	26	12	3	0	1	0	3	13	1	138
Total number of ads	No	46.0%	0.5%	30.4%	2.4%	9.6%	3.7%	1.1%	1.2%	0.3%	0.0%	0.5%	23%	1.9%	100%
		851	10	563	45	177	69	20	23	5	0	9	42	35	1849
	Yes	0.0%	0.0%	73.6%	7.0%	12.7%	5.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.4%	0.9%	100%
		0	0	410	39	71	28	0	0	0	2	0	2	5	557
		35.4%	0.4%	40.4%	3.5%	10.3%	4.0%	0.8%	1.0%	0.2%	0.1%	0.4%	1.8%	1.7%	100%
		851	10	973	84	248	97	20	23	5	2	9	44	40	2,406

Note. NI: No interaction; VI: Visual interaction; A: App; B: Browser; I: Instagram; G: Game; YT: YouTube; F: Facebook; TT: TikTok; S: Spotify; E-M: E-mail; WP: Webpage; O: Others; & T: Total

trusting advertisements that appeared on services such as Twitter, SMS, email, and Facebook. On the other hand, higher levels of trust were recorded from children on services such as YouTube (33%), WhatsApp (32%), video games (25%), and Instagram (20%).

This quantitative study sheds light on the notion that children identify commercial messages, are aware that frequently used services contain advertising and, in general, interact very little with advertising. Also, despite a prevailing feeling of distrust, children seem to consider the advertising to which they are exposed on frequently used services as more trustworthy (such as YouTube, games, Instagram, and WhatsApp).

Type of Advertising According to Level of Interaction

In addition to collecting data on the degree of interest children declare having in the mobile phone advertising to which they are exposed, data was collected on the type of advertising (in terms of channel/service, format, and type of advertised product) which led to interaction (whether visual or as a click).

Chi-square tests revealed that the interaction level variable is not independent on the service in which advertisements are inserted, their format and type of advertised product, variables which were defined to categorize the registered advertisements: $\chi^2(24, N=2,406)=547.881, p<.05$ (channel*interaction); $\chi^2(12, N=2,407)=612.541, p<.05$ (format*interaction); $\chi^2(36, N=2,383)=328.333 p<.05$ (type of product*interaction).

Starting with the highest level of interaction, clicking on the advertisement, and considering the service in which the clicked-on advertisement appeared (Table 2), nearly 40% of the ads that generated clicks appeared in game apps (N=55 of the total of 138 ads clicked on); 18.8% (N=26) in the YouTube app and 15.2% (N=21) in the Instagram app.

As it was not possible to know what had motivated responses, an interruption variable was introduced to determine whether the interaction could respond to the fact that the advertisement had interfered with the user's browsing routine, thus assessing the "quality" of the click.

Almost 75% (N=410) of the advertising messages that interrupted the browsing were inserted in game apps, and the rest, on YouTube (N=71). No Instagram advertisements interfered with the users' routine. As shown in Table 5, 94.5% (N=52) of the ads that generated clicking in game apps interrupted browsing, which could question the relevance of clicking in this setting. Likewise, the 100% (N=20) that caused visual interaction also interfered with the game. On the contrary, a high percentage (96.2%; N=25) of the ads that got clicked on did not interrupt browsing was in the YouTube app.

By type of advertising format, display was the one that generated the highest click rate (48.2%; N=67). However, when the interruption variable is observed (Table 3), the vast majority of the advertisements interrupted (82.2%; N=457) are in display format. Almost 81% (N=54) of the clicked-on display advertisements interrupted browsing.

Content marketing (native advertising and promotional publications in own media) and commercial content from influencers were two other formats which exhibited no interruptions and thus their click rates are perceived as particularly interesting.

Table 3. Level of interaction and interruption of ads according to ad format

		D	SN	S-SEM/ASO	M (SMS)	E-MM	CM	ICC	T
Level of interaction with the ad	NI	60.5%	26.5%	1.7%	0.3%	0.1%	10.1%	0.9%	100%
		1115	488	31	5	2	186	17	1,844
	VI	7.8%	72.2%	0.0%	0.0%	0.2%	13.0%	6.8%	100%
		33	306	0	0	1	55	29	424
	Click	48.2%	6.5%	10.8%	0.0%	0.0%	24.5%	10.1%	100%
		67	9	15	0	0	34	14	139
Does ad interrupt the navigation?	No	41.0%	38.1%	2.5%	0.2%	0.2%	14.9%	3.2%	100%
		758	706	46	3	3	275	60	1851
	Yes	82.2%	17.4%	0.0%	0.4%	0.0%	0.0%	0.0%	100%
		457	97	0	2	0	0	0.0%	556
Total number of ads			50.5%	33.4%	1.9%	0.2%	0.1%	11.4%	2.5%
			1,215	803	46	5	3	275	60

Note. NI: No interaction; VI: Visual interaction; D: Display; SN: Social networks; S-SEM/ASO: Search-SEM/ASO; M: Messaging; E-MM: E-mail marketing; CM: Content marketing; ICC: Influencers' commercial content; & T: Total

Table 4. Level of interaction and interruption of ads according to type of advertised product

		F	Ts	S	FDC	E	CE	BH	A	TTT	TIS
Level of interaction with the ad	NI	12.2%	0.7%	3.2%	18.4%	19.1%	2.6%	5.2%	1.2%	8.5%	3.0%
		222	12	58	335	347	47	94	22	155	54
	VI	20.5%	2.1%	3.8%	10.1%	9.7%	3.5%	9.0%	2.4%	4.2%	1.2%
		87	9	16	43	41	15	34	10	18	5
	Click	14.4%	5.0%	1.4%	3.6%	46.0%	1.4%	0.7%	0.7%	2.2%	3.6%
		20	7	2	5	64	2	1	1	3	5
Does ad interrupt the navigation?	No	17.2%	1.4%	3.7%	16.6%	12.3%	2.8%	6.5%	1.5%	6.5%	2.5%
		314	26	68	304	225	52	118	28	118	45
	Yes	2.7%	0.4%	1.4%	14.2%	40.8%	2.2%	2.7%	0.9%	10.4%	3.4%
		15	2	8	79	227	12	15	5	58	19
Total number of ads		13.8%	1.2%	3.2%	16.1%	19.0%	2.7%	5.6%	1.4%	7.4%	2.7%
		329	28	76	383	452	64	133	33	176	64

		E	EM	EC	SNA	FMIS	RE	H	O	HDC	T
Level of interaction with the ad	NI	3.6%	2.7%	5.9%	4.1%	2.5%	1.4%	0.8%	3.2%	1.9%	100%
		65	49	107	75	45	25	15	58	35	1,820
	VI	5.7%	13.9%	2.4%	2.6%	0.5%	0.7%	1.2%	4.2%	2.4%	100%
		24	59	10	11	2	3	5	18	10	424
	Click	9.4%	0.0%	3.6%	3.6%	0.7%	0.0%	0.0%	3.6%	0.0%	100%
		13	0	5	5	1	0	0	5	0	139
Does ad interrupt the navigation?	No	5.0%	5.3%	5.3%	3.4%	2.0%	0.8%	0.8%	4.2%	2.1%	100%
		92	96	97	63	37	15	14	76	39	1,827
	Yes	1.8%	2.2%	4.5%	5.0%	2.0%	23%	1.1%	0.9%	1.1%	100%
		10	12	25	28	11	13%	6	5	6	556
Total number of ads		4.3%	4.5%	5.1%	3.8%	2.0%	1.2%	0.8%	3.4%	1.9%	100%
		102	108	122	91	48	28	20	81	45	2,383

Note. NI: No interaction; VI: Visual interaction; F: Fashion; Ts: Toys; S: Sports; FDC: Food, drinks, & candy; Es: Electronics; CE: Culture & education; BH: Beauty & hygiene; A: Automotive; TTT: Transportation, travel, & tourism; TIS: Telecommunications & the Internet services; E: Entertainment (series, movies, & VOD); EM: Entertainment (music); EC: E-commerce; SNA: Social networks & applications (not games); FMIS: Financial, management, & insurance services; RE: Real estate; H: Health (clinics, opticians, & health plans); O: others; HDC: Home, decoration, & cleaning; & T: Total

User response was also assessed according to the type of product advertised. As can be seen in **Table 4**, highest click rates appeared in advertisements for electronics (46.0%; N=64), followed by fashion (14.4%; N=20), entertainment (9.4%; N=13), and toys (5.0%; N=7). However, electronics advertisements accounted for 40.8% (N=227) of those that interfere with browsing while fashion, toys, and entertainment commercials hardly caused any alteration.

Among the most clicked-on product categories (electronics, fashion, toys, and entertainment), more than 70% (N=45 of 64) of the click-generating advertisements for electronics interrupted browsing, compared to 5% (N=1) and 7.7% (N=1) for fashion and entertainment advertising respectively. In the case of toys, no click-generating advertisement interrupted browsing (**Table 5**).

Table 5. Level of interaction of certain channels, formats, and types of products depending on whether or not user's browsing is interrupted

		No interruption							
		General	Channel		Format		Product type		
			App games	YT app	Display	Electronics	Fashion	Toys	E
Level of interaction with the ad	NI	75.4%	62.4%	72.2%	65.7%	52.2%	94.6%	91.7%	87.7%
		1390	560	130	733	181	210	11	57
	VI	88.5%	0.0%	52.4%	36.4%	61.0%	97.7%	88.9%	95.8%
		376	0	22	12	25	85	8	23
Click		61.2%	5.5%	96.2%	19.4%	29.7%	95.0%	100.0%	92.3%
		85	3	25	13	19	19	7	12
		Interruption							
		General	Channel		Format		Product type		
			App games	YT app	Display	Electronics	Fashion	Toys	E
Level of interaction with the ad	NI	24.6%	37.6%	27.8%	34.3%	47.8%	5.4%	8.3%	12.3%
		454	338	50	382	166	12	1	8
	VI	11.5%	100.0%	47.6%	63.6%	39.0%	2.3%	11.1%	4.2%
		49	20	20	21	16	2	1	1
Click		38.8%	94.5%	3.8%	80.6%	70.3%	5.0%	0.0%	7.7%
		54	52	1	54	45	1	0	1

Note. NI: No interaction; VI: Visual interaction; YT: YouTube; & E: Entertainment

Data analysis reveals that the click rates on advertisements that do not interrupt browsing is mainly generated by advertisements inserted in social networks (YouTube and Instagram); are advertisements that come in formats that provide added value such as content marketing or influencer commercial publications; and promote products which interest users aged 10 to 14, such as fashion, toys, and entertainment.

Children Perception on the Advertising to Which They are Exposed on Their Mobile Phones

In the third phase of the study, we sought to explore the reasons that led children to react to advertising. Interestingly, children stated feeling more exposed to advertising through mobile phones than in other media. Thus, the first screen that they spontaneously associate with advertising is mobile phones. “[Advertising is] what you get on the networks, what people offer you on mobile phones” (I4-girl, 10-12 years old, own mobile). Unlike other media, such as television, in which these new generations consider that advertisements are displayed in an “orderly” manner, participants stated that advertisements appear unexpectedly on mobile phones which leads them to perceive that advertising is continually “going after them.” “On television, advertisements are placed in separate programs and that’s fine” (I1-girl, 10-12 years old, parents’ mobile).

However, while children perceive advertising overexposure on gaming apps and YouTube, Instagram is perceived as freer of commercial messages. This may be caused by the disruptive nature of advertisements in games and on YouTube: “You can swipe down on Instagram and advertisements are gone. But not on YouTube, there you must wait fifteen, twenty seconds for them to disappear” (I16-child, 10-12 years old, own mobile). Interruption is one of the characteristics that interviewees associate most with mobile phone advertising and generates a fear of missing out on relevant content. “If you are watching a video and a commercial pop up, once it’s over the video may have advanced a little bit, it doesn’t always remain at the original exact moment. For example, if you are watching a video of a kid spilling a glass of something or other, they interrupt the video right when the glass is about to spill... They put the advertising right there. And then, when they restart the video, the glass has already spilled all over the place, it’s as if they had cut the video” (I14-girl, 10-12 years old, parents’ mobile). This also happens in games: “I get upset because I think I’m going to lose (the game). And then you must wait for thirty seconds” (I20-girl, 13-14 years old, own mobile).

Children’s quest for that which is novel, and entertaining collides with their perception of excessive repetition, to the point that advertising becomes irritating. “Sometimes they go too far because they kind of show ad after ad after ad. For example, on YouTube or while watching a video you see ten advertisements, and they are the same ones” (I1-girl, 10-12 years old, parents’ mobile).

This situation is aggravated by children’s low tolerance towards waiting, as they do not want to feel as if they are wasting time on content that provides nothing to them. “I am into many games. I installed a game and was see what it was like, and when they were about to shoot me, an ad appeared: “reload, see this ad”,

“you need more lives, watch this video”, “kill everyone with this video.” Game should be able to entertain us, not to bore us” (I10-child, 13-14, own mobile). Impatience toward advertising does not solely depend on interruptions being present: “For example, if while watching a video of an influencer they start advertising products; for me that is annoying. In fact, I fast forward the videos when advertising appears, I fast forward videos because advertising bothers me, because I want to see something else” (I6-girl, 13-14 years old, own mobile).

However, this discourse toward advertising is softened when children believe they have control over the broadcast of the advertisement: “On Facebook, no advertising appears, I have the three-dot option and I can state that I’m not interested” (I10- boy, 13-14 years old, own mobile); “It’s not that long a wait, I wait for five seconds and then click on the “skip” option on YouTube, and that’s it” (I14-girl, 10-12 years old, parents’ mobile). Commercials for products and services that suit their preferences and interests, such as fashion, toys or makeup, also attract more their attention. “My ideal advertising would be something for toys or things like that, chocolates, but not cars, or wine, or beer, or anything like that” (I14-girl, 10-12 years old, parents’ mobile).

Minors are also interested in advertising that provides them with added value, whether as entertainment or as a reward, especially in gaming apps, to which they gladly devote their time in exchange for benefits in the game: “Suddenly some advertisements offer an invitation to a game test, I do like that. Or when you get a 360° display, with which you can point your phone to your surroundings and see everything around you on your screen, that does get my attention” (I1-girl, 10-12 years old, parents’ mobile).

However, far from abhorring advertising, children interviewed believe that it contributes to their being up to date with “news”. In an ideal context, they would choose to not have advertising disappear, but rather have it not interrupted their browsing and encounter advertising while waiting or transitioning from one activity to the next, or have it offer an experience that compensates for the time invested. “When I’m listening to music, (advertising) makes me angry because it cuts my song off, I have to wait for the ad to finish to simply continue with the song. So, I usually put the phone down, wait for the ad to finish and then just grab it again and I keep watching. And makes me idle because I must wait there for a long time and it’s boring. I don’t mind having advertising appear, but have it appeared between songs, not in the middle of the song” (I5-girl, 13-14 years old, own mobile).

DISCUSSION

This article reveals that mobile phones have become the main advertising platform to which children are exposed and have reached saturation levels comparable to other media such as television (Feijoo et al., 2020b) based on the findings from a 2-year research project.

The perception minors have on the mobile phone advertising to which they are exposed has its own set of particularities which can be summarized in four: low tolerance, control, personalization, and entertainment, as previous mentioned in studies focused on adult users (Maseeh et al. al., 2021).

The independent and personal nature of mobile phone use seems to generate low levels of tolerance towards interruptions, repetitions, or content beyond children’ immediate interests (Martínez et al., 2013). This explains why the authors questioned the level of interaction assigned to the ads that achieved clicks by interrupting navigation during the audiovisual recordings collected in the second phase of the research.

In the quantitative phase of the project, users exhibited some level of distrust toward receiving advertising on all services. The distrust children manifest does not come from the holding of a skeptical position towards advertising itself, but from minors perceiving a high level of advertising saturation and the impotence and frustration commercial messages sometimes generate for them (Livingstone et al., 2014; Martínez, 2019; Martí-Pellón & Saunders, 2015). Hence, closeness to the service in which exposure occurs reduces the level of distrust in children, as they feel are more “in control” of their browsing. Being able to decide whether or not to watch an ad without having to wait for a certain amount of time improves their perception of advertising, which means that they perceive advertising pressure differently depending on the platform on which they are browsing children declare that games and YouTube are highly saturated with advertising, Instagram not so much. Likewise, when minors feel that they can opt out of watching an advertisement, the fear of missing something relevant to them also decreases.

These new generations not only expect to be able to manage the moment in which exposure to advertising is to occur, but also to be exposed to advertisements that really interest them, to categories related to their choices and concerns. Hence, the advertisements that did not resort to interrupting browsing and achieved the highest click rate were those for toys, fashion, and entertainment. Minors expect personalized advertising, a particularly complex issue when children use their parents' phones, which expose them to commercial messages addressed at and consistent with adult browsing.

In addition, children's attention and intention toward advertising is increased when added value in the form of tangible compensation (promotions, discounts, rewards in games) or in the form of entertainment are provided. Therefore, content marketing and commercial content created by influencers were the types of persuasive communication that achieved "higher quality" interaction scores with children.

CONCLUSIONS

At this point the role of mobile phones in children's social interactions, entertainment dynamics, social relationships and as an element of self-management is undeniable. Their exposure to advertising in the digital environment increases and is determined by strategic decision by brands. Mobile phone advertising addressed to children may need to consider some particular traits of this audience.

Despite displaying a coincidental attitude of rejection toward advertising which leads them to avoid it (Livingstone et al., 2014; Martínez, 2019), the minors who participated in this study held positive attitude towards mobile phone messages that they felt were personalized and entertaining (Boyd, 2014; Burroughs, 2017; Castelló-Martínez & Tur-Viñes, 2020; Feijoo et al., 2020b; Ito et al., 2010; Pires et al., 2019) or had been prepared by influencers (Feijoo & Sádaba, 2021; Núñez-Gómez et al., 2020).

Relevant predictors of interaction are elements such as ad format (Feng et al., 2016) and type of product or service advertised (Lee et al., 2017; Lin & Chen, 2015), which is undoubtedly connected to the aspirations this audience holds regarding more personalized browsing experience. This may be related to the fact that mobile phones provide an independent and individual browsing experience.

This differentiated browsing experience is transferred to the advertising which is consumed. Along the research lines drawn by Maseeh et al. (2021), it seems interesting to continue exploring into how age and behavior toward advertising are related, as this study focused on children aged 10 to 14 and its conclusions cannot be extended to other age groups.

Author contributions: **BF:** carried out the funding acquisition, the methodology, the validation, the formal analysis, the investigation, the resources, and data curation; **CS:** developed the theoretical framework and the writing-original draft preparation; **BF & CS:** read and agreed to the published version of the manuscript. All authors approve final version of the article.

Funding: This research was funded by The National Commission for Scientific and Technological Research (Conicyt) Of the Government of Chile, grant number 11170336, Fondecyt Initiation Project. This work was supported too by the Research Plan of the International University of La Rioja (UNIR), 2020-2022 Biennium.

Acknowledgements: The authors would like to thank to Angela Gearhart for her translation of the original manuscript into English.

Ethical statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethics Committee of La Universidad de los Andes, Chile on December 6, 2017.

Declaration of interest: Authors declare no competing interest.

Data availability: Data generated or analyzed during this study are available from the authors on request.

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