



# Teenagers, smartphones and digital audio consumption in the age of Spotify

Adolescentes, smartphones y consumo de audio digital en la era de Spotify

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## ABSTRACT

The consolidation of smartphones as dominant devices for access to digital information and entertainment has redefined the processes of production and commercialization of cultural communication industries. The nature of these screens, which prioritize the visual content over the sound, decisively influences distribution strategies in the audio market: radio operators, streaming music platforms and podcast creators need to adapt their value chains to the habits derived from this mediation, especially in the younger audience. This research identifies the practices of mobile use as an audio receiver among adolescents in Colombia, Spain and Mexico –the most representative countries of Spanish-speaking digital sound consumption– based on a descriptive study on a thousand subjects from 13 to 19 years of age. The results confirm the overwhelming dominance in this music menu in the face of low penetration of radio and podcast word content. The selection is based on personal criteria, with little margin for the prescription of family or friends. There is evidence of the roots of individual listening, linked to the brand and the visibility of audio providers, who are obliged to develop diffusion logics based not only on thematic or genre preferences, but also on the user experience.

## RESUMEN

La consolidación de los smartphones como dispositivos dominantes de acceso a la información y el ocio digital ha redefinido los procesos de producción y comercialización de las industrias culturales de la comunicación. La naturaleza de estas pantallas, que priorizan el contenido visual sobre el sonoro, determina hoy las estrategias de distribución y comercialización en el mercado del audio: operadores de radio, servicios de música en streaming y creadores de podcasts necesitan adecuar sus cadenas de valor a los hábitos derivados de esta mediatización, sobre todo en la audiencia más joven. Esta investigación identifica las prácticas de uso del móvil como receptor de audio entre los adolescentes de Colombia, España y México –los países más representativos del consumo digital sonoro hispanohablante– a partir de un estudio descriptivo sobre 1.004 sujetos de 13 a 19 años. Los resultados revelan el abrumador dominio de la música en este menú frente a la baja aceptación de los contenidos de palabra de radio y podcast. Su selección se asienta sobre criterios personales, con poco margen para la prescripción de familiares o amigos. Se constata el arraigo de una escucha individual, ligada a la marca y la visibilidad de los oferentes de audio, obligados a desarrollar lógicas de difusión basadas no sólo en preferencias de temas o géneros, sino también en las asociadas a la experiencia de usuario en estos terminales.

## KEYWORDS | PALABRAS CLAVE

Audio, smartphone, radio, music, podcast, digital consumption, user experience, streaming.  
Audio, smartphone, radio, música, podcast, consumo digital, experiencia de usuario, streaming.



## 1. Introduction

The standardization of the internet has made global access to information and audiovisual entertainment more versatile, interactive and personalized. However, the polarity of stakeholders and consumption choices in the context of digital convergence has blurred the concept of the audience and its relation with traditional mass media (Jarvis, 2015). Listeners and viewers have become users who take part in intense exchanges with traditional and emerging media using devices and channels that are ever more a part of their personal spaces which, just as easily, transfer this intimacy to increasingly mainstream interaction settings. The words media, mediations and mediators tend to become redefined and their areas of activity become merged, making it vital to investigate the effects of these new relations.

The widespread and irreversible strengthening of the Network Society (Castells, 2006) and its exponential availability through mobile devices (Google, 2018) have turned the audience into a fragmented group of individuals immersed in visual and multimedia culture, who base their consumption actions on display devices (Díaz-Nosty, 2017). This framework promotes the hybridization of local and international formulas, which is described by media ecology as a new way of sharing a world view (Scolari, 2015) and which, through the influence of the four tech giants –Apple, Amazon, Facebook and Google– leads to the adoption of habits which are increasingly directed and homogenized (Galloway, 2017).

As a result of this process, communication industries have been driven to redefine their creation and production logics, distribution strategies and even their language and narratives. The scope of this change has been more significant in the areas of cinema and television (Neira, 2015). However, for analogue and digital radio operators –of which the latter is referred to by various sources as cyber radio (Cebrian-Herreros, 2009), post-radio (Ortiz-Sobrino, 2012), web-r@dio (Barrios-Rubio & Gutiérrez García, 2017) or digital sonosphere (Perona-Páez, Barbeito-Veloso, & Fajula-Payet, 2014)– it is essential to recognize and address the patterns of interaction, mediatization and appropriation established in the context of contemporary consumption (Starkey, 2013).

Soon to celebrate its first centenary, thanks to the online world, the Hertzian media has lost its monopoly over the distribution and marketing of audio. This is the business objective of music streaming platforms –a market which, in the first half year of 2018, had 229.5 million subscribers worldwide raising 3,500 million dollars (IFPI, 2018)– and of podcast creators and aggregators– an industry that, in 2017, earned 314 million dollars in the US, 86% more than the previous year (IAB & PwC, 2018)– and audiobooks, whose sales grew 22.7% globally in 2017, reaching 2.5 billion dollars (Canal Éxito, 2018).

The coexistence of these stakeholders in the current audio ecosystem has given way to a myriad of content that seeks to capture the attention of the listener-user through hybrid communication products (with text, audio, videos, infographics, etc.), which support synchronous or asynchronous personalization of the sound offer (Canavilhas, 2009; Bull, 2010) regardless of time, space or the connection method (Siemens, 2008). The design of consumption methods is therefore in line with the action, visualization and interpretation dynamics of the access sequences to interactive screens which include links to interconnected and hierarchized text, graphics, video sequences, sound, animations and even music (Martínez-Costa & Prata, 2017).

Despite having centered its actions on the antenna and the unidirectionality of the message (Ramos-del-Cano, 2014; Pinsler, 2015; Ribes, Monclús, & Gutiérrez, 2015; Barrios-Rubio & Gutiérrez-García, 2016), the radio industry is now attempting to boost mechanisms and tactics to bring together the expectations of the broadcaster and the audience (Gutiérrez & al., 2014) to address the new specificities of the market (Batista-Bacallado, 2004) and reinvent behavior, generating competitive and quality content. The explosion of digital followers (Salaverría, 2010) enjoyed by radio –web-radio, app-radio and radio accounts on social media– (Barrios-Rubio & Gutiérrez-García, 2017) requires structuring content by using the technical and cultural knowledge of the user to ensure maximum connection and effective communication at a time when the media industry continues to act as a pillar of social construction (Banegas-Michay & Rivera-Rogel, 2012).

Radio operators assume that, among the younger members of their audience, traditional habits and consumption interests have been reconfigured (Herrera-Damas & Ferreras-Rodríguez, 2015; Barrios-Rubio, 2016), and that the convergence of media and platforms has led to new languages (Pavlik, 2004; Salaverría & García, 2008; Ramos-del-Cano, 2014; Pedrero-Esteban & Herrera-Damas, 2017), experimentation with new business models (Martí & al., 2015) and the reconfiguration of productive routines (Bonet & Fernandez, 2006; Gutierrez & Pacheco, 2011; Martínez-Costa, 2015). Nowadays, sound communication products are no longer listened to using analogue receivers but using mobile devices with screens: smartphones, smart watches, tablets, iPods, MP3, MP4, etc. (Ribes

& al., 2017), and, for this reason, general interest and specialized channels outline strategies to consolidate a digital community (García-Avilés, Martínez-Costa, & Sádaba, 2016; Pérez-Alaejos, Pedrero-Esteban, & Leoz-Aizpuru, 2018). This is a tactical interaction scenario (Bonini & Monclús, 2015) where the industry attempts to capture the attention of a young audience that is very detached from sound media. The action basis of this relationship is cross-media dissemination and trans-radio narratives (Martínez-Costa, 2015), in which users acquire a leading role in content construction (Franquet, Villa-Montoya, & Bergillos-García, 2013) and product expansion.

Smartphones therefore become vital devices in the consumption of sound products, whether independently or combined with other narratives, or through direct streaming or on demand through podcasts, and this mediatization leads to a functional, and even operative, redesign of radio (Barrios-Rubio & Gutiérrez-García, 2016). Immersed in their display devices, audiences

conform to new consumption patterns and reshape listening on the go. Smart mobile terminals therefore represent an essential way to connect with audio consumers prior to the emergence of specific audio-based technology –devices with voice interfaces such as speakers and connected devices– which will force creators and distributors to redesign their strategies, determining the solvency of the sound industry and the visibility and acceptance of its brands.

This communication seeks to identify and systematize the uses and trends in terms of audio content consumption by young and teenage populations by observing the process from the perspective of the recipient since, as highlighted, the behavior of the audience –and each of the individuals included in it– plays a more important role than ever in this challenging transition process.

The use of the smartphone as an audio consumption device among teenagers has relegated radio to a second place in favor of music. Consumers access music contents through streaming services and video platforms, which catches their attention through their eyes and not their ears due to the visual features of the screens.

## 2. Material and methodology

### 2.1. Objectives of the study

The objectives of this research into the use of smartphones as receivers of audio consumption among teenagers aged 13 to 19 years in Colombia, Spain and Mexico focus on two areas of work: They seek to provide empirical evidence in a new and emerging field of study where few studies have been carried out –the perception and acceptance by young people of an increasingly broad and diverse digital sound offer, which is of enormous economic importance to the communication industries associated with it: radio, music, podcasts and audiobooks. Firstly, a descriptive assessment was carried out on the habits profiled among the subjects of the study, which were considered collectively, and, secondly, the paper assessed whether there is any significant difference between the samples taken from different international contexts.

With regards to the representativeness of the selected countries, Colombia, Spain and Mexico are three of the most indicative Spanish-speaking countries in terms of digital audio consumption due to the significant presence of the internet in their media ecosystems. Internet penetration in Colombia is 85% (Ibope, 2017), in Spain it is 82% (AIMC, 2017), and in Mexico it is 86% (INEGI, 2017), which equates to approximately 30.3, 46.3 and 71.3 million internet users respectively. The three countries also exceed the global average in mobile and fixed broadband speed (16.9 Mbps): 18.42 Mbps in Colombia, 29.75 Mbps in Spain and 23.35 Mbps in Mexico (OpenSignal, 2018). Using the 'Global Mobile Market Report 2018' as a basis, these three countries are among those that demonstrate the highest use of smartphone devices: the penetration rate in Spain was 72.5% with 33,631,000 users, in Mexico it was 45.6% with 59,597,000 users, and in Colombia it was 39.8% with 19,669,000 users (Newzoo, 2018). Lastly, it must be mentioned that, in 2017, Spain was ranked as the country with most devices per individual (88%) according to the 'Digital In 2017 Global Overview' report (We Are Social, 2018) and, in the same year, Mexico was the world leader in online music consumption: 75% of the population accessed audio streaming services (IFPI, 2018).

## 2.2. Instrument

The evaluation instrument was built «ad hoc» and its final design was the result of two processes: a) a previous explorative study with 600 students -the study served as groundwork to define the final study variables- and b) a validation of the instrument in the three countries with a 100-student sample for each case -Mexico (Cronbach's  $\alpha$  .78), Spain (Cronbach's  $\alpha$  .81), Colombia (Cronbach's  $\alpha$  .79)-, allowing to confirm the reliability of the instrument in different contexts. This psychometric validation proved both, the consistency of the tool, and the studied indicators, which were specified in four independent predictive variables (age, gender, grade, educational institution/city) and a total of 38 variables grouped in four constructs of study: social networks, radio, music and podcast (Table 1).

CATEGORY	WHAT IS BEING ASKED	WHAT IS BEING DETERMINED
Research Subjects	Age, gender, grade and educational institution	Characterization of the study subjects
Social networks	SN (Social networking) usage and tenure	Relation of the subjects with SN (social networking)
Radio usage	Time spent listening, device, providers, contents, prescribers and consumption pattern	Listening to the radio habits
Music/podcast usage		Music/podcast listening habits

## 2.3. Sample

The manuscript presents a descriptive study for which a quantitative methodology has been used. It allows inferring qualitative elements susceptible to analysis in future research. The sample comprised a total of 1.004 participants between the ages of 13 and 19 ( $M=15.46$ ;  $DT=1.43$ ) from Colombia (34.7%), Spain (35.1%) and Mexico (35.1%) from different educational establishments, all of them attending high school, secondary school or equivalent studies. The distribution by gender and age is shown in Table 2, where Spain shows  $n=354$ ;  $M=15.60$ ,  $DT=0.98$ ; Mexico  $n=300$ ;  $M=16.25$  and  $DT=1.56$ ; the sample in Colombia was  $n=350$ ;  $M=15.86$  and  $DT=1.22$ . The instrument was applied in paper during the month of May 2018 in the presence of the researchers.

## 3. Analysis and Results

In accordance with the objectives defined for this research, the analysis of the results is presented in two sections: 1) the basic descriptive statistical data for the diagnose of habits and practices profiled among the teenagers and youngsters subject of study (analysis of frequency, dominant contents and listening mode); and 2) verification of coincidences and divergences among the selected samples in each of the three countries.

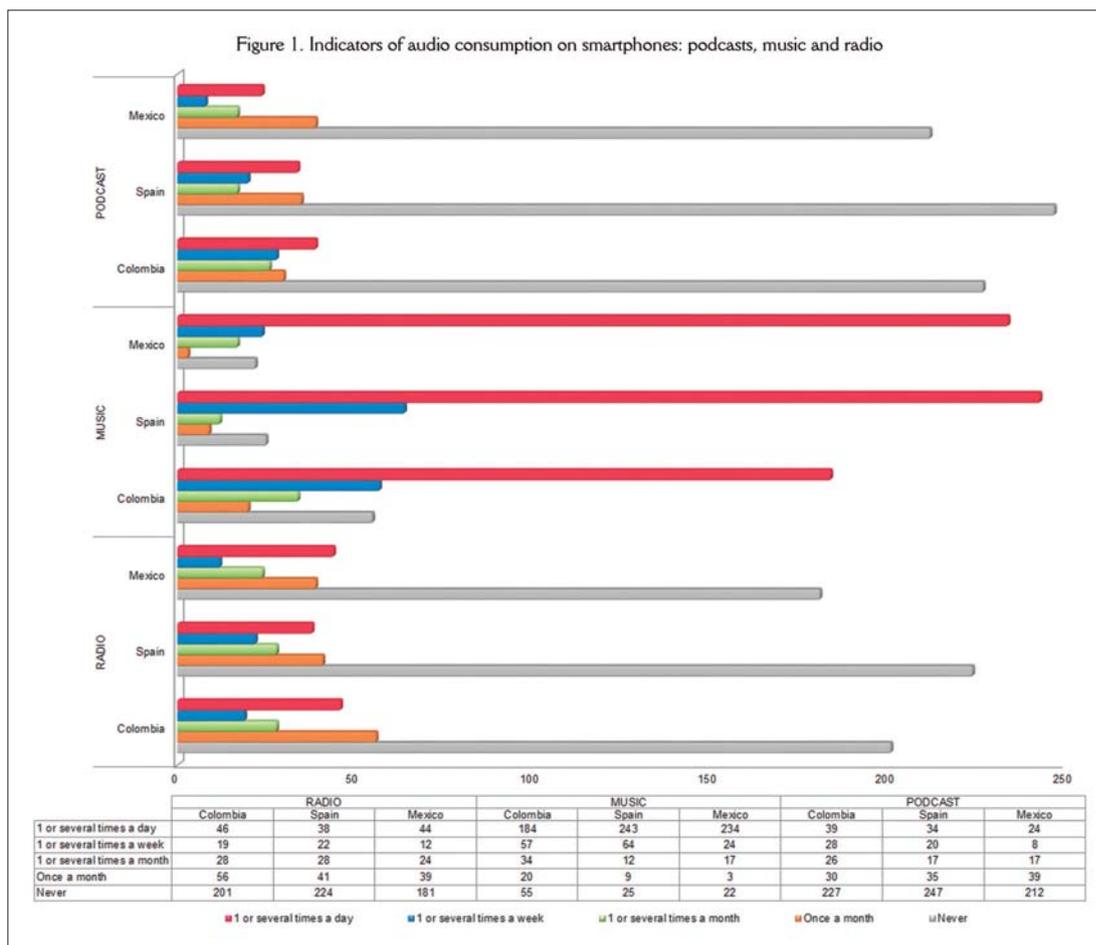
### 3.1. Main indicators on audio consumption in smartphones

As shown in Graphic 1, music is the sound content of greatest demand from mobiles, listened by more than two thirds of the surveyed teenagers; in total 661 youngsters (65.8%) chose this option, which reaches the highest penetration in an age group between 15 and 17 (44.8 % of the sample). In second place, there are those who enjoy songs once or several times a week (14%), while the least extended frequency is that of sporadic consumption, being only once in a month (3.1%). Lastly, one of every ten students (10.1%) between 13 and 19 affirms not listening to music at all.

As discussed above, it is essential for the majority of market players to know the source of music younger audiences listen to on their mobile devices: nearly half (44.6%) of the sample group select their media on streaming platforms; amongst them the most widely used is Spotify, followed closely by YouTube, Apple Music, and, at a

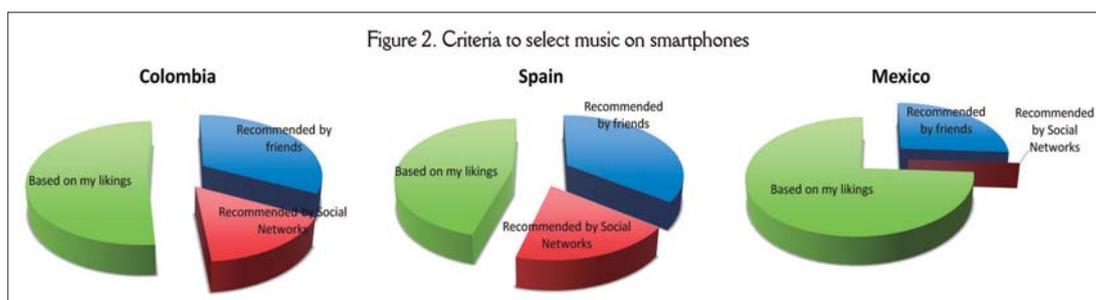
AGE	COLOMBIA			MEXICO			SPAIN			TOTAL
	H	M	N	H	M	N	H	M	N	
13-14	98	54	152	32	30	62	8	11	19	233
15-16	124	45	169	49	37	86	142	135	287	528
17-18	23	6	29	75	77	152	45	13	58	253
N	245	105	350	156	144	300	195	159	354	1.004
% Total	34.7			30.2			35.1			100

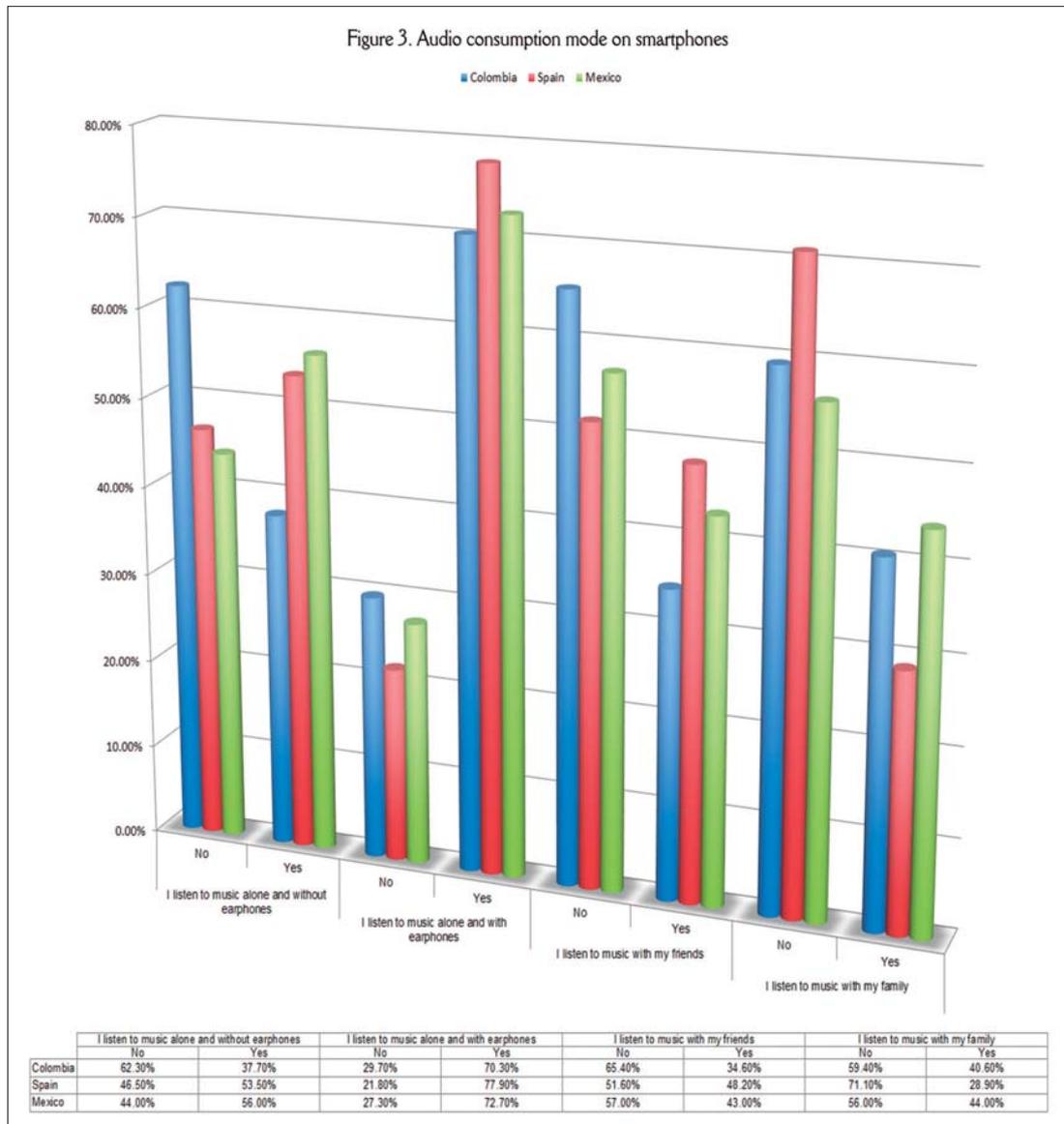
lower percentage, SoundCloud and Deezer. It was noted the way Google Videos has expanded its services to smartphones as a provider of songs for younger



audiences, a service it already offered on computers and Smart TVs: 64% of North American teens' first choice in 2012 was YouTube over the other 56%, whose first choice was radio (Music 360°, Nielsen). Another finding of the research shows that music listening habits are related to selection criteria: what are the main influencers of teenagers' choices? According to the survey, almost half (45%) of respondents choose the soundtracks they listen to on their mobile devices by themselves, a fourth part (27.6%) of this demographic responded that their friends' opinions determine their choice, and only 12% say they are influenced by what they see and read on social networks (despite the fact that virtually all of the respondents said they have had active profiles on these social networks for more than two years).

For its part, radio and –above all–podcasts are shown to be less demanded by young listeners: 60% do not listen to radio on their phones (although they do listen to the radio through other analog receivers, particularly, in the car) against 12.7% who tune in on a daily basis or 5.2% who tune in once or several times a week. In contrast to music, interest in radio shows to be occasional, as observed through the participants responses regarding usage frequency





being «once a month» (13.5%) the second response given right below «never». This is a common consumption habit among teen demographics in Colombia, Mexico and Spain.

Low podcast consumption can be explained by the fact that it is relatively new as a digital audio format and that a large teenage population are not familiar with it. Unlike radio, podcasts can only be accessed through devices with an internet connection. Nearly seven out of ten teenagers (686; 68.3%) said they have never listened to a podcast. This is another common behavior in the three countries of the study. Only 9% consume this media daily, especially those aged 14 and 15, which accounts for 75% of teenagers who typically listen to this audio format. In this sense, market penetration of podcasts proves to be lower among youngsters aged 18 and 19 than among those aged 13 and 16.

In addition to a low quantitative penetration of podcast, there is a relative uniformity on the type of content listened to by those who do select this media format on their mobile phones. In other words, respondents who listen to podcasts every day opt equally for content related to fiction (2%), sports (2.8%) and other themes –a category that statistically speaking encompasses the diverse and increasingly more segmented variables of this product– (3.7%).

As with radio, the percentage of teenagers who access this media through their mobile devices increases as

consumption frequency decreases: 4 % of adolescents consume fiction podcasts on a weekly basis and 8% on a monthly basis; percentages are very similar (4.5 and 8.7) corresponding to sports themes and slightly change in regards to mixed themes (4.9% and 6.4%).

In terms of the type of content listened to in the radio, music is at the top of teenage preference: 37.6% of those who daily access a radio station on their mobile devices do it to listen to songs, less than 10% get information and 9% enjoy sport programs and broadcasts. Although both genre –news and sports– are the daily repertoire of radio content listened to on their smartphones, the frequency of use is clearly lower. Thus, sports on the radio are listened to by 13% of adolescents on a weekly basis and 15% on a monthly basis, while news programs are listened to once a week with 14% and 17.7% once a month.

Regarding music, 45.5% of teenagers never tune in to news radio programs on their mobile phones and for approximately half (49.8%) of respondents sports broadcasting is not an option. Lastly, concerning how participants listen to music, the survey queried whether they listened to music on their mobile devices alone –specifying if headphones were used– or with someone else, making it clear whether they listened to music with family members or with friends. As shown in figure 3, the highest percentage is for listening to music while alone and using headphones, accounting for 73.7% of adolescents (in Spain, this figure is 77.9%); on the contrary, listening to audio content with someone else is not as usual: only 37.5% said they listened to music with their families and 41.9% with their friends.

### 3.2. Similarities and differences in mobile audio consumption by country and content

The second objective of this research is to verify whether smartphone user habits are coincidental among the three countries subject of the study or, otherwise, a certain particularity is observed in the variables analyzed. It is worth nothing that, in general, audio consumption habits among Colombian teenagers aged 13 to 19 are very similar in Colombia, Spain and Mexico, both in terms of higher music consumption compared to radio and podcast and a higher rate of headphones usage to listen to music in all age segments.

Nevertheless, there are significant differences worth mentioning. For instance, consumption in Colombian younger audiences is not as high as that of their contemporaries in Spain and Mexico; 52% percent listen to music daily (an average of 65.8%), far from reaching the 68% of Spanish listeners and 78% of Mexican listeners (as mentioned above, Mexico is the country with the highest penetration rate on music streaming worldwide). In contrast, 15% of Colombian

youngsters report that music is not part of the audio selection on their mobile phones, a figure which contrasts with 7% of Spanish respondents and 78% of Mexican respondents.

Conversely, by segmenting the contents chosen on the radio through

mobile phones, consumption of news information and sport programs among Colombian population shows to be much higher, especially, in comparison to Spanish statistics both in listening and frequency consumption practices: 12.9% of Colombians prefer daily news whereas only 6.2% of Spanish do so.

Finally, it is worth mentioning the role influencers play when teenagers choose music on their smartphones: as seen in Figure 2, the influence of friends and social networks is greater among Spanish and Colombian teenagers; whereas in Mexico only 14% admit to take into account their friends' recommendation and none of them take into account social networks. Data analysis reveals a new scenario of competition between social media and music

**Table 3. Analysis of audio content listened to on the radio through smartphones per country**

Audio content by country		Media	Desv. Tip.	Never (%)	Once a month (%)	Once or several times a month (%)	Once or several times a week (%)	Once or several times a day (%)	N
 Colombia	News	1.51	1.44	36.3	19.1	14.6	17.1	12.9	350
	Sports	1.53	1.47	38.3	16	13.4	19.4	12.9	350
	Music	2.57	1.45	15.4	10	13.7	24.3	36.6	350
	Other	0.57	1.14	74.6	9.4	5.4	5.4	5.1	350
 Spain	News	0.88	1.30	62.3	10.8	9.9	10.8	6.2	353
	Sports	1.06	1.42	56.9	11.3	10.5	11	10.2	353
	Music	2.49	1.56	21	7.9	11.3	20.7	39.1	353
	Others	0.29	0.86	86.7	6.2	1.7	2.3	3.1	353
 Mexico	News	1.4	1.39	36.4	24.2	13.9	14.2	11.3	300
	Sports	0.87	1.17	55	20.5	11.9	7.9	4.6	300
	Music	2.53	1.47	15.2	13.2	12.6	21.5	37.4	300
	Other	0.26	0.78	87.4	5	4.3	1	2.3	300

platforms. This scenario isolates radio programs: radio is no longer the center of music consumption; instead, Spotify has become the place where youngsters find and discover most of the audio content they consume.

#### 4. Discussion and conclusions

Research evince that the use of the smartphone as an audio consumption device has overshadowed the presence of the radio in the menu of digital sound of teenagers and youngsters by favoring music, which benefits the visual nature of screens, and where attention is fixed through the eyes and not the inner ear.

The music diet of this audience shows a low approximation to spoken content (news and sports), and even listening to music through automated services is preferred over other services, making disc jockeys less indispensable.

As other works have revealed (Barrios-Rubio & Gutiérrez-García, 2016; Bonini, & Monclus, 2015; Pérez-Maíllo, Sánchez-Serrano, & Pedrero Esteban, 2018), radio media faces a growing disaffection among the youngest, due to its slowness in addressing the digital transformation processes and the habits derived from communicative convergence, in which asynchronous, personalized demands supported by interaction and visualization impose.

The usage and adoption of sound content indicate being linked to users' everyday activities (action flow in the educational institution, displacement time periods, time spent with family and friends...). Such demands are currently being properly addressed by automated platforms, which demonstrate higher digital competence and articulate over codes and strategies (menus, alerts, algorithms...) closer to the language of youngsters, as evince the works of Banegas-Michay & Rivera-Rogel (2012), Canavilhas (2009) y López-Vidales and others (2014).

Content consumption of audio through applications for smartphones converges the sound perception with visual and iconographic elements that contribute to a stronger link with the product. A relevant conclusion of this study, which is in line with other research papers in this field (Barrios-Rubio & Gutiérrez-García, 2017; Pérez-Maíllo & al., 2018), is that in order to capture young audiences, it is necessary to design short and agile communicative products that could explore new structures, as well as formats linked to virtual communities in interaction platforms (Fernández-de-Arroyabe & al., 2018). Teenagers have not yet incorporated podcast to their consumption agenda, in spite of the growing relevance of this format in the sound industry, perhaps because they associate the spoken component of the radio with a synchronic consumption and the timeless characteristic of podcasts, makes it senseless.

The need of applying a broader outreach of this new format and of a higher bet for visualization in the mobile is perceived. In this regard, the strategy of some operators such as BBC is to integrate audio to their menu through music streaming platforms such as Spotify, which turned into new distribution networks thanks to their popularity among the public object of this study: cooperation versus competition.

The analysis allows us to state that the selection of sound content among youngsters responds to personal criteria (whatever each person wants) more than to suggestions from friends or relatives, even when it comes to music services.

An individualistic attitude is revealed in such a way that, on one hand, it collides with the public interaction that these teenagers have in social networks (Silva-Rodríguez, López-García, & Toural-Bran, 2017), but on the other hand, equates the video consumption habits normalized in platforms such as Netflix or HBO (Storytel, 2018). This autonomous consumption is endorsed by confirming that most teenagers use headphones, meaning, they withdraw from their surroundings, with a conscious and active attitude, evincing that an actual listening habit has been consolidated.

In any case, and given the fact that audio is a stable part of the world of digital leisure that smartphones provide to teenagers, the challenge for content developers (radio and podcast) focuses on designing proposals related to their individual and social interests and identifying their interactions with the display: even if users only listen passively, they have to touch the device to open an app and move their finger to adjust the volume or to skip certain parts of a song or podcast. The tactile dimension of digital listening offers new and relevant opportunities to adapt the sound product to listeners, in particular, to an audience profile with greater propensity towards tactile gestures (Gazi & Bonini, 2018).

In the contemporary digital sound supply, the antenna radio is a companion; web-radio is where images accompany the audio to meet listener-user demand; social media is the interaction platform between operators and followers; and the smartphone is the connection that guides the audience to using media and platforms. The sound industry should occupy a unique space in this ecosystem and identify the most suitable product for each public and device: its profitability and present and future viability depend on its ability to adapt to the habits of teenagers and young people.

## References

- AIMC (Ed.) (2017). *EGM, 3ª ola 2017. Asociación para la Investigación de Medios de Comunicación*. <https://bit.ly/2MXVrDD>
- Banegas-Michay, D., & Rivera-Rogel, D. (2012). Análisis de la empresa informativa impresa y digital de Ecuador. *Razón y Palabra*, 79, 1-21. <https://bit.ly/2Mlezzp>
- Barrios-Rubio, A., & Gutierrez-García, M. (2016). Migración de la estrategia radiofónica colombiana: del sonido a las pantallas sociales. *Revista Latina de Comunicación Social*, 71, 1243-1260. <https://doi.org/10.4185/rlds-2016-1144>
- Barrios, A. (2016). *La radio generalista colombiana ante el desafío digital: Un modelo en transición* (Tesis de doctorado inédita). Universitat Autònoma de Barcelona. <https://bit.ly/2U6j7JI>
- Barrios-Rubio, A., & Gutiérrez-García, M. (2017). Reconfiguración de las dinámicas de la industria radiofónica colombiana en el ecosistema digital. *Cuadernos.info*, 41, 227-243. <https://doi.org/10.7764/cdi.41.1146>
- Batista-Bacallado, J.M. (2004). La empresa informativa, una asignatura pendiente: ¿Cómo definir las estrategias de gestión de personal? *Revista Latina de Comunicación Social*, 7(58), 1-6. <https://bit.ly/2T1H9Jd>
- Bonet, M., & Fernández, D. (2006). El reto de la digitalización del archivo sonoro en los servicios públicos de radiodifusión. El caso de Catalunya Ràdio. *El Profesional de la Información*, 15(5), 390-396. <https://doi.org/10.3145/epi.2006.sep.08>
- Bonini, T. & Monclus, B. (2015). *Radio audiences and participation in the age of network society*. New York: Editorial Routledge. <https://doi.org/10.4324/9781315815190>
- Bull, M. (2010). iPod: Un mundo sonoro personalizado para sus consumidores. [iPod: a personalized sound world for its consumers]. *Comunicar*, 34, 55-63. <https://doi.org/10.3916/c34-2010-02-05>
- Canal Éxito (2018). *El audiolibro se consolida como nuevo formato de lectura*. <https://bit.ly/2E7tXZ8>
- Canavilhas, J. (2009). Contenidos informativos para móviles: estudio de aplicaciones para iPhone. *Textual & Visual media*, 2, 61-80. <https://bit.ly/2nPsYVI>
- Castells, M. (2006). *La sociedad Red*. Barcelona: Alianza. <https://doi.org/10.4272/84-9745-045-0.ch1>
- Cebrián-Herreros, M. (2009). *La radio en la convergencia multimedia*. Barcelona: Gedisa.
- Díaz-Nosty, B. (2017). Coexistencia generacional de diferentes prácticas de comunicación. In B. Díaz-Nosty, (Coord.), *Diez años que cambiaron los medios: 2007-2017* (pp. 7-26). Barcelona: Ariel.
- Fernández-de-Arroyabe, A., Lazkano-Arrillaga, I., & Eguskiza-Sesumaga, L. (2018). Digital natives: Online audiovisual content consumption, creation and dissemination. [Nativos digitales: Consumo, creación y difusión de contenidos audiovisuales online]. *Comunicar*, 57, 61-69. <https://doi.org/10.3916/c57-2018-06>
- Franquet-i-Calvet, R., Villa-Montoya, M.I., & Bergillos-García, I. (2013). Public service broadcasting's participation in the reconfiguration of online news content. *Journal of Computer-Mediated Communication*, 18, 378-397. <https://doi.org/10.1111/jcc4.12014>
- Galloway, S. (2017). *El ADN secreto de Amazon, Apple, Facebook y Google*. Madrid: Penguin Random House.
- García-Avilés, J.A., Martínez-Costa, M.P., & Sádaba, C. (2016). Luces y sombras sobre la innovación en los medios españoles. In C. Sádaba, J.A. García-Avilés, & M. P. Martínez-Costa (Coords.), *Innovación y desarrollo de los cybermedios en España* (pp. 265-270). Pamplona: Eunsa. <http://bit.ly/2YIkNMg>
- Gazi, A., & Bonini, T. (2018). 'Haptically Mediated'. Radio Listening and its commodification: The remediation of radio through digital mobile devices. *Journal of Radio & Audio Media*, 25(1), 109-125. <https://doi.org/10.1080/19376529.2017.1377203>
- Google (2018). *Consumer barometer study 2018. The year of the mobile majority*. <https://bit.ly/2tBEk2w>
- Gutiérrez, F., & Pacheco, C. (2011). Las 'audiencias activas' y su impacto en las rutinas profesionales del periodismo chileno: El caso de radio Bío tras el megaterremoto de febrero del 2010. *Contexto*, 19, 195-212. <https://doi.org/10.26439/contratexto2011.n019.192>
- Gutiérrez, M., Martí, J.M., Ferrer, I., Monclús, B. & Ribes, X. (2014). Los programas radiofónicos españoles de prime time en Facebook y Twitter: Sinergias entre la radio convencional y las redes sociales. *Revista Latina de Comunicación Social*, 69(4), 418-434. <https://doi.org/10.4185/rlds-2014-1018>
- Herrera-Damas, S., & Ferreras-Rodríguez, E. M. (2015). Mobile apps of Spanish talk radio stations. Analysis of SER, Radio Nacional, COPE and Onda Cero's proposals. *El Profesional de la Información*, 24(3), 274-281. <https://doi.org/10.3145/epi.2015.may.07>
- IAB & PwC (Eds.) (2018). Full year 2017 podcast ad revenue study: An analysis of the us podcast advertising industry. *Interactive Advertising Bureau and PricewaterhouseCoopers*. <https://bit.ly/2HNC0Kq>
- IBOPE (2017). *Consumo de medios en Colombia*. <https://bit.ly/2MvwnMnA>
- IFPI (Ed.) (2018). *Global Music Report 2018. Annual State of the Industry*. International Federation of the Phonographic Industry. <https://bit.ly/2qhzuVI>
- INEGI (Eds.) (2017). *Encuesta nacional sobre disponibilidad y uso de tecnologías de la información en los hogares, 2017 – ENDUTIH*. Madrid: Instituto Nacional de Estadística y Geografía. <https://bit.ly/2PVM2gv>
- Jarvis, J. (2015). *El fin de los medios de comunicación de masas. ¿Cómo serán las noticias del futuro?* Barcelona: Gestión 2000.
- López-Vidales, N., Gómez-Rubio, L., & Redondo-García, M. (2014). La radio de las nuevas generaciones de jóvenes españoles: hacia un consumo online de música y entretenimiento. *Zer*, 19(37), 45-64. <https://bit.ly/2E3zjV2>
- Martí, J.M., Monclús, B., Gutiérrez, M., & Ribes, X. (2015). La radio, modelo de negocio en transición: estrategias de oferta y de comercialización en el contexto digital. *Quaderns del CAC*, (41), 13-22. <https://bit.ly/2OMEf4B>
- Martínez-Costa, M.P. (2015). Radio y nuevas narrativas: de la crossradio a la transradio. In M. Oliveira, & F.F. Ribeiro, (Eds.), *Radio, sound and Internet Proceedings of Net Station International Conference* (pp. 168-187). Brasil: Centro de Estudos de Comunicação e Sociedade (CECS), Universidade do Minho. <https://bit.ly/2tBCkaE>
- Martínez-Costa, M.P., & Prata, N. (2017). La radio en busca de su audiencia: hacia una escucha diversificada y multiplataforma. *Intercom: Revista Brasileira de Ciências da Comunicação*, 40(3), 109-128. <https://doi.org/10.1590/1809-5844201737>
- Neira, E. (2015). *La otra pantalla. Redes sociales, móviles y la nueva televisión*. Barcelona: UOC.

- Newzoo (2018). *Global Mobile Market Report, 2018*. <https://bit.ly/2ugzNBH>
- Nielsen (2012). *Music 360° Report*. <https://bit.ly/2XvcqTE>
- OpenSignal (Ed.) (2018). *State of mobile networks: USA*. <https://bit.ly/2NptCoU>
- Ortiz-Sobrino, M.A. (2012). Radio y post-radio en España: Una cohabitación necesaria y posible. *Área Abierta*, 12(2). [https://doi.org/10.5209/rev\\_arab.2012.n32.39637](https://doi.org/10.5209/rev_arab.2012.n32.39637)
- Pavlik, J.V. (2004). A sea-change in journalism: Convergence, journalists, their audiences and sources. *Convergence*, 10(4), 21-29. <https://doi.org/10.1177/135485650401000404>
- Pedrero-Esteban, L.M. & Herrera-Damas, S. (2017). La notificación push como estrategia informativa de la radio en el entorno digital. *El Profesional de la Información*, 26(6), 1100-1107. <https://doi.org/10.3145/epi.2017.nov.09>
- Pérez-Alaejos, M., Pedrero-Esteban, L.M. & Leoz-Aizpuru, A. (2018). La oferta nativa de podcast en la radio comercial española: contenidos, géneros y tendencias. *Fonseca*, 17, 91-106. <https://doi.org/10.14201/fjc20181791106>
- Pérez-Maíllo, A., Sánchez-Serrano, C. & Pedrero-Esteban, L.M. (2018). Viaje al centro de la radio. Diseño de una experiencia de alfabetización transmedia para promover la cultura radiofónica entre los jóvenes. *Comunicación y Sociedad*, 22, 171-201. <https://doi.org/10.32870/cys.v0i33.7031>
- Perona-Páez, J.J., Barbeito-Veloso, M. & Fajula-Payet, A. (2014). Young people in the digital sonosphere: Media digital, media devices and audio consumption habits. *Communication & Society*, 27(1), 205-224. <https://bit.ly/2L3R0FI>
- Pinsler, J. (2015). Domesticated voices. Listener 'participation' in everyday radio shows. In T. Bonini, & B. Monclús (Eds.), *Radio audiences and participation in the age of network society* (pp. 56-71). New York: Routledge. <https://doi.org/10.4324/9781315815190>
- Ramos-del-Cano, F. (2014). Redes sociales y participación radiofónica: análisis de caso de Twitter y Facebook en la Cadena SER. *Ámbitos*, 25, 66-76. <https://bit.ly/2BOV0rl>
- Ribes, X., Monclús, B., Gutiérrez-García, M., & Martí, J.M. (2017). Aplicaciones móviles radiofónicas: adaptando las especificidades de los dispositivos avanzados a la distribución de los contenidos sonoros. *Revista de la Asociación Española de Investigación de la Comunicación*, 4(7), 29-39. <https://bit.ly/2MnWnVM>
- Ribes, X., Monclús, B. & Gutiérrez, M. (2015). Del oyente al radioprosumer: Gestión de la participación de la audiencia en la radio del siglo XXI. *Trípodos*, 36, 55-74. <https://bit.ly/2L6J3zp>
- Salaverría, R., & García, J. A. (2008). La convergencia tecnológica en los medios de comunicación: Retos para el periodismo. *Trípodos*, 23, 31-47. <https://bit.ly/2nQFCDH>
- Salaverría, R. (2010). Estructura de la convergencia. In X. López, & X. Pereira (Eds.), *Convergencia digital. Reconfiguración de los medios de comunicación en España* (pp. 27-40). Santiago de Compostela: Servicio Editorial de la Universidad de Santiago de Compostela. <http://bit.ly/2UvAgA4>
- Scolari, C.A. (2015). *Ecología de los medios: Entornos, evoluciones e interpretaciones*. Madrid: Gedisa.
- Siemens, G. (2008). *Learning and knowing in networks: Changing roles for educators and designers. ITFORUM for Discussion*. <https://bit.ly/2VhLEvX>
- Silva-Rodríguez, A., López-García, X., & Toural-Bran, C. (2017). Los iWatch: El intenso flujo de microformatos de 'periodismo de un vistazo' alimentan seis de los principales medios online. *Revista Latina de Comunicación Social*, 72, 186-196. <https://doi.org/10.4185/rlds-2017-1160>
- Starkey, G. (2014). *Radio in context*. New York: Palgrave MacMillan. <https://doi.org/10.1007/978-1-137-30224-3>
- Storytel (2018). *Historias originales seriadas. Apuesta estratégica de las plataformas de la economía de la suscripción*. <https://bit.ly/2T3IQqY>
- We Are Social (Ed.) (2018). *Digital In 2017: Global overview*. <https://bit.ly/2rvcmGk>