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# Use of strategic serial position and attention resources to improve radio ad recall

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## Abstract

**Introduction.** The crisis of creativity currently experienced by radio advertising in Spain demands the development of studies on the ways to improve radio ad recall rates in order to make this format more effective and profitable. Based on the previous premise, this article aims to determine whether the implementation of two measures related to the micro and macro structural elements of radio advertising can increase radio ad recall rates and cognitive processing by listeners. **Method.** An experimental technique was used to determine whether the serial position in which ads are placed within an advertising block and the use of attention resources in the ads have an effect on their recall rates. **Results.** The study has proven that radio ad recall rates can be improved with the implementation of attention resources but not with the strategic serial position within the advertising block. **Conclusions.** The analysis has shown that the implementation of attention resources is highly recommended in the production of radio ads in order to improve their recall rates.

## Keywords

Auditory perception; advertising; recall; information density; serial position.

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Translation by **CA Martínez Arcos**, Ph.D. (Universidad Autónoma de Tamaulipas)

## 1. Introduction

The results of several studies (Rodero, 2011, 2008; Muela, 2007; Balsebre *et al.*, 2006; Barbeito and Fajula, 2005; Garcia, 1999) indicate that most citizens consider that the quality of radio ads is very poor. Importantly, these studies have shown that radio advertising is experiencing a crisis of creativity that is resulting in the creation of ineffective messages.

These studies indicate that radio ads have a very similar structure: they are informative texts with high information density (Rodero, 2011, Muela, 2008, Perona, 2007). This is particularly serious when it comes to persuasive texts whose purpose is to convince people to purchase a product or

perform certain actions. If the listener does not pay attention to the message because it is very difficult to understand or unattractive, it will be difficult for the listener to memorise the information needed to decide on whether to purchase or not the advertised product, which is the main goal of advertising investment.

In this regard, a recent study on radio ads has revealed that listeners have a very low recall rate (Rodero, 2011). The amount of data contained in a radio ad, taking into account its duration, turned out to be a very influential factor in listeners' ad recall rate. For this reason, it is relevant to explore the ways in which information density can be reduced in order to improve radio ad effectiveness.

There are also macro-structural factors that can improve ad recall rates and are thus worth investigating. One of the most influential factors is the so-called serial position effect, since radio ads are always presented as part of an advertising block. In addition, in an attempt to improve listeners' cognitive processing of the auditory stimulus, this study also aims to examine the effect on ad recall rates of a micro-structural element of the radio ads: the reduction of information density through the application of attention resources.

First of all, the most common radio advertising text is the ad, which is usually presented within an advertising block. This means that the serial position of the ad within this block can be a significant factor in the ad recall rate. Despite its importance, few studies have analysed the effects of the serial position in the field of advertising (Brunel and Nelson, 2003; Broach, Page and Wilson, 1997).

According to the so-called *Serial Position Effect* (SPE), the recalling of an auditory stimulus is affected by the position in which it is presented to the listener, being the first and last positions always the most beneficial (Oberauer, 2003). One of the few studies on radio advertising has indicated that the ads placed at the start and end of large advertising blocks are better recalled than ads in the centre of such large blocks, and that this effect is comparatively stronger for ads at the start of a block and weaker for ads at the end of a block (Riebe and Dawes, 2006). In any case, since this is a very important factor in the radio advertising, which is usually presented in blocks, it is important to investigate it and to introduce the first hypothesis of this study:

Hypothesis 1: the position of ads in large advertising blocks affects their recall rate in listeners. Ads placed at the start and end of advertising blocks will be better recalled than ads in the centre of such blocks.

Related to these factors, information density seems to be a key element in listeners' correct cognitive processing of radio ads, as demonstrated by the *Limited Capacity Model of Motivated Mediated Message Processing*, or LC4MP (Lang, 2009, 2006, 2000). According to this theory, the resources needed by a person to optimally process a message are determined by the information density and structural complexity of the auditory stimulus. The greater the information density and complexity, the more difficult the encoding of the message is, and when the information density and complexity of the stimulus is too high it may lead to a phase of cognitive overload that prevents its correct processing (Fox, Park and Lang, 2007).

In particular, the study of Potter, Wang and Angelini (2006) has shown that an increase in information density produces a cognitive overload that affects listeners' recalling capacity. If this is the case, the main objective of radio advertising would be to considerably reduce information density by decreasing the amount of important data included in the ad. The second measure would be to apply a series of attention resources that are commonly used on radio to try to increase the attention and involvement of listeners: redundancy, appeals to the listener and the calls for attention towards certain details of the message.

One of the main strategies used in the production of a radio ad is redundancy, i.e., the use of different words to express the same idea. It is a resource that responds to the fugacity of the message in a medium that is conditioned by a limited time of exposure and has no visual references to reinforce the auditory data. In this context, it is necessary to increase the exposure of the information that is essential for the understanding of the message through repetition throughout the duration of the ad. In short, this is a strategy that favours short-term memory retention, as proven by several authors (Hernández, 2006; Aitchinson, 1994; Tannen, 1987).

The second attention strategy employed in this study is the appeal to the listener. If the listener receives the message as if it were destined to him in particular, it is more likely that the involvement, motivation and identification with the content of the message will increase, which enhances the persuasive action of the advertising message (Rodero, 2011, 2008). This strategy also performs an intensification function, which highlights or focuses the attention on the listener (López, 1998, p. 485).

Appeals to the listener can take different forms. The most common and obvious is the use of personal pronouns that address the recipient, in this case, the listener (“hey you!”). But this function can also be performed with the use of possessive pronouns “to convey the idea that what is presented is accessible” (Hernandez, 2006, p. 85). This is a symbolic function that seeks to generate a beneficial relation with the listener (Porto Dapena, 1982). In this case, the product or service is presented to the potential consumer as if it were already his or her property, in such a way that it simulates an ideal ownership.

Another resource that can be used to attract the listener is the use of vocative expressions. This resource seeks to increase listeners’ involvement by demanding their attention through the use of nouns that address the listener by referring to the things they do. In this sense, the vocatives most commonly used for this purpose in radio advertising are the names of the professions (e.g. “student!” or “farmer!”).

The last strategy examined in this study is the calls for attention that seek to produce a specific response. The clearest examples of these strategies would be the interjections used to demand the attention at any given moment or to start the simulation of the interaction at the beginning of the message. These resources with factual-appealing value also serve as mechanisms of emphasis (“eh!”, “ah!”) that can be used to highlight important information (Hernández, 2006). Another strategy is the use of sensorial or perceptual imperatives (e.g., “look”, “listen”) that seek to focus listeners’ attention on a particular part of the message. They invite the listener to be prepared to receive a stimulus in a short time. Finally, within this section, we can highlight the use of interrogations that simulate interactions with the listener. It is a resource that seeks to break with the unidirectional nature of the message by producing a kind of “symbolic conversation” (Lomas, 1996, p. 54) in the form of rhetorical questions that fulfil two objectives: to get the listener involved through the simulated interaction and to place him in the proposed situation to increase his or her level of motivation. In this situation, in an oriented manner, the listener responds, internally, to the issue proposed by the ad.

Based on the previous review, the second hypothesis that guides this study is as follows: Hypothesis 2: the use of textual strategies as attention resources aimed to reduce information density in radio ads will increase listeners’ ad recall rates.

**2. Method**

**2.1. Methodological strategies**

These hypotheses will be tested with a sample of radio ads collected from several radio stations whose target audience is university students. A sample of ads broadcast from 16 to 20 January and from 6 to 10 February 2012 by three radio stations (*40 Principales*, *Europa FM* and *Cadena 100*) were recorded for the study. The advertising blocks recorded were those that accompanied the most popular radio shows among young people: *Anda ya* (*40 Principales*), *Levántate* and *Cárdenas* (*Europa FM*) and *Buenos días Javi Nieves* (*Cadena 100*).

A total of 223 ads were recorded but 74 of them were repeated. Thus, the final sample was composed of 147 ads, which were subsequently classified by advertiser type, structure and formal characteristics. Finally we selected four ads to form a block that included all the possible ad combinations. The selection of the ads sought to prevent a high level of variability in order to avoid the distinctiveness effect (Terry, 2005). The criteria that the ads had to meet were as follows:

To have a similar degree of notoriety to avoid excessive difficulty in the testing.

To offer products or services of interest to university students to ensure listeners’ involvement and motivation.

To have a similar level of information density, structure, duration and formal characteristics: high-density, information structure, a single voice, and around 20 seconds of duration.

The information density was measured by establishing the percentage between the key words included in the ad, i.e. the parts of the commercial message that constituted an argument (essential data, brand and product), in relation to the total number of words included in the ad, including the secondary data (Rodero, 2011).

Subsequently, the text was extracted from the ads and then modified through the introduction of attention resources. This modification aimed to reduce the information density by 25% in all cases. The final four ads had the features listed in table 1:

**Table 1. Characteristics of the sample of radio ads**

Ads	Common elements	Initial density	Modified density
- <i>El Corte Inglés</i> (technology)	- One male speaker.	45.16%	18.65%
- <i>Universia.es</i> (education)	- 20 seconds long.	36.6%	23.48%
- <i>Home English</i> (training)	- Information structure	47%	24%
- <i>Red Cross</i> (humanitarian)	- Original music - No sound effects	32%	17.85%

Source: Author’s own creation.

Although, according to Molina (2001), the average number of ads included in an advertising block on radio is seven, in this study only four ads were included in the experimentation block for two reasons. The first reason is that the average number of ads per block was four in the monitored radio stations.

Secondly, Potter’s study (2009) has demonstrated that the recall rate increases as advertising blocks contain fewer ads. In addition, Potter’s study has reinforced the conclusions reached by Tse *et al.* (2004) who determined that after about 110 seconds (i.e. after approximately four 25-second long

ads) listeners experience a greater cognitive effort which can lead to disconnection. For his part, Webb and Ray (1979) have showed that there is a serial position effect in four-ad blocks.

After the selection of the final sample, a well-known radio advertising announcer recorded the script of the ads. In the recording we made sure not to introduce any new variables that could interfere in the results of the study, such as different voices or music. To remove the music from the original ads and to make sure the voice was the same, the two versions of the four ads were re-recorded in a radio studio with the appropriate script amendments in the case of the second versions.

With the four ads four advertising blocks were formed by combining the position of each of the ads in order to be able to measure the serial position effect. To avoid forming very similar blocks, the versions of the ads were combined in such a way that none of the blocks was formed of only high-density or low-density ads. The first versions were the original ads while the second versions were the modified ads.

Block 1: Red Cross v.1; Corte Inglés v.2; Home English v.1; Universia v.2

Block 2: Home English v.2; Universia v.1; Red Cross v.2; Corte Ingles v.1.

Block 3: Universia v.1; Home English v.2; Corte Inglés v.1; Red Cross v.2.

Block 4: Corte Inglés v.2; Red Cross v. 1; Universia v.2; Home English v.1.

To simulate a real radio broadcast, the four blocks had a brief separation at the beginning and at the end. The total duration of each block was 92 seconds.

## 2.2. Population and sample

The sample of ads was tested on a sample of 160 communication students from the Pompeu Fabra University (74 men and 86 women), aged between 20 and 22 years. The students were randomly divided in four groups of 40, in which we tried to maintain the gender ratio. In this way, each group only listened to one of the advertising blocks.

The sample of listeners firstly answered three questions about their radio consumption habits to determine their degree of familiarity with the selected ads. In this regard, most respondents, 82%, stated they do not normally listen to the radio, while only 14% said they do normally listen to the radio and just 4% said they 'sometimes' listen to the radio. Of the 18% of respondents who listen to the radio at some degree, 51% said they do so for about half an hour a day in average, 24% for about an hour a day, 18% for 15 minutes, and 7% for more than two hours a day. Finally, an overwhelming majority, 96%, said that they do not listen to radio advertising, and only the rest, 4%, stated that they do so 'sometimes'. Overall, it can be concluded that the group is not very accustomed to listening to the radio and much less to listening to radio advertising, which reduced the chances that the majority of the sample had listened to the selected ads before the experiment.

## 2.3. Data collection instruments

The design of the study is experimental and inter-subject (inter-group), since each advertising block is evaluated by a different group of subjects. Therefore the effects of the variables are verified by comparing the average values obtained in the dependent variable by the different experimental groups. In this case, the dependent variable is the recalling, while the independent variables are the serial position of the ad in the advertising block and the textual version of the ads.

Like in other studies (Lang, 2009), this experiment uses the measuring of the ad recall rate as method to assess the cognitive sub-process of information storage in people's memory for subsequent

recalling. Therefore, in this research study recalling is the dependent variable which is measured by means of a free recall questionnaire that had to be answered by the experimental subjects without listening to the sample of ads or the help of cues that indicated what to recall. The free recall questionnaire used in this study was comprised of five open-ended questions about key data of the ad, i.e., content related to the main commercial message of the product. The questionnaire contained questions about the brand since they are the easiest to remember and in this case the ads were about consolidated companies whose main goal is no longer to make themselves known. In the evaluation we considered as right answers those in which the participant provided exactly the information requested, and considered as wrong answers those in which the participants did not provide relevant information or did not answer the question at all.

The variables in this study are the serial position and the textual version. The serial position is comprised of four positions that the ads can occupy within the advertising block, while the textual version refers to the attention resources and consists of two variants: the original version of the ads and the modified versions, which include attention resources to reduce the information density. The script of the modified ads contains redundancies, appeals to the listener and calls for attention. In short, this is an experimental design which examines two textual versions in four different serial positions applied to the recall variable. These variables were subjected to univariate analysis of variance (UNIANOVA).

## 2.4. Procedure

Each of the four advertising blocks was played to one of the four groups of participants that formed the experimental sample. Participants were gathered in a classroom with optimal acoustic conditions. The advertising blocks were reproduced in front of each group in the same classroom and on the same day but at different hours to avoid communication between participants from different groups. In addition, participants were asked not to talk about the experiment with participants from other groups. Once in the classroom, participants were informed, verbally, that they would listen to an advertising block and that they would have to answer a questionnaire afterwards. Participants were not given clues about what they would be asked later. After the instructions, the advertising blocks were reproduced. In order to replicate a traditional radio broadcast, each advertising block was followed by a five-minute radio news bulletin. Therefore, each group of 20 participants listened to one advertising block and a radio news bulletin. This was followed by a task aimed to distract them.

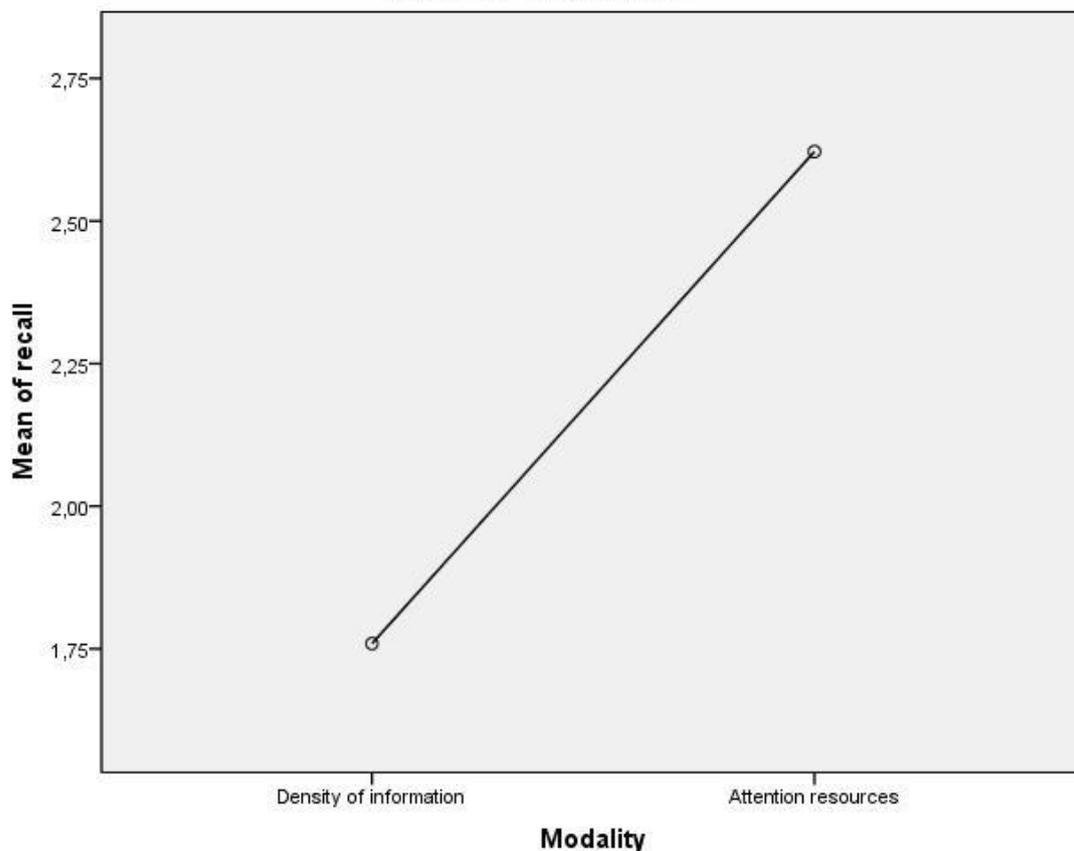
After the first reproduction, the questionnaires were distributed to measure the free recall. Later, the questionnaires were collected and the results of their academic performance were commented in front of the group. The objective of this activity was to know their degree of satisfaction with the task and simultaneously distract them before the reproduction of the second advertising block. The students were very disappointed and stated that their performance had been very poor. The answers to the questions were no commented at all. This initial test lasted 20 minutes. Thus, as a challenge participants were told that they would have a second chance and then were exposed to the second block, which was followed by a different radio news bulletin to avoid familiarisation. Afterwards, the same questionnaire was handed out to the participants and they were given some time to answer it. In this way, the total duration of the experiment was 50 minutes, which left 10 minutes for the departure of this group and the entrance of the next one. Students did not receive any type of compensation for participating in the experiment.

## 3. Results

The hypotheses proposed in this study were tested with the univariate analysis of variance (UNIANOVA) composed of 4 (advertising ads) multiplied by 4 (positions of the advertising ads) and

by 2 (script versions) applied to the dependent variable free recall. Levene’s test of homogeneity of variance was not significant ( $p = .135$ ) which indicates that the principle of homoscedasticity was fulfilled. Of the cases analysed in this study, the differences were statistically significant only for the textual version ( $F = 32.32, p > .001$ ). On the other hand, the differences were not significant for the position of the ads ( $F = 0.85, p = .464$ ), the different ads ( $F = 1.31, p = .269$ ) nor the any of the possible interactions.

Figure 1. Level of recall



Source: Author’s own creation.

The data reveal that the first hypothesis cannot be demonstrated. The position occupied by the ads in the block did not provoke significant differences, so once more, reinforcing the data obtained by Rodero (2011), we cannot reach final conclusions on this aspect.

On the other hand, the second of hypotheses can be considered valid since the ads modified with attention resources to reduce information density achieved a higher recall rate ( $M= 2.62; DT= 1.24$ ) than the original ads ( $M= 1.75; DT= 1.40$ ) with a statistically significant difference. Figure 1 clearly shows the combined data of the two tested versions.

Finally, the different ads did not obtain significant differences in terms of recall rates, which allows us to demonstrate their formal homogeneity since none of them differed clearly from the rest. The final block the first position was occupied by the ad of Universia, followed by Red Cross, El Corte Inglés and Home English. Table 2 shows the average recall rates obtained in the study.

**Table 2. Descriptive statistics**

Ad type	Version	Average	Standard deviation
Universia	Original version	1.50	1.40
	Attention strategies	2.86	1.18
	Total	2.31	1.43
El Corte Inglés	Original version	1.87	1.54
	Attention strategies	2.81	1.25
	Total	2.17	1.51
Home English	Original version	1.56	1.17
	Attention strategies	2.83	1.08
	Total	2.07	1.28
Red Cross	Original version	2.01	1.38
	Attention strategies	2.28	1.29
	Total	2.19	1.32
Total	Original version	1.75	1.40
	Attention strategies	2.62	1.24

Source: Author's own creation.

#### 4. Discussion and conclusions

The objective of this study was to analyse the effect of the serial position at the macro-structural level and of the application of some attention resources on the recall rate of a listener exposed to a four-ad radio advertising block to try to improve their cognitive processing. While there are studies that have confirmed the effect of the serial position when ads are presented in blocks (Riebe and Dawes, 2006; Brunel and Nelson, 2003; Pieters and Bijmolt, 1997; Saiz *et al.*, 1999; Zhao, 1997), this study has failed to show that the first and last ads included in an advertising block obtain a higher recall rate, which is in line with the results previously obtained by Rodero (2011).

A possible explanation for this result can be the small sample of ads used in the study. The smaller the number of elements included a block, the most likely that all of them will be recalled with similar precision. In contrast, when the number increases, it is more likely that the listener will forget more easily the data provided by the intermediate elements. In any case, based on the data obtained about the recall rate of a series of only four radio ads, we would recommend the radio industry to reduce the number of ads included in the advertising blocks, whose average number in Spain is too high.

On the other hand, the application of attention resources to the ad's script aimed at reducing the information density has proven to be a beneficial factor for cognitive processing. As expected, the recall rate of these ads was increased by about one point with the application of such resources as redundancy, appeals to the listener, and calls of attention. Firstly, redundancy is a strategy that has favoured memorisation by facilitating data recalling through repetition, as proven by several authors (Tannen, 1987; Aitchinson, 1994; Hernández, 2006). This resource has been reinforced by the appeals to listeners, which favoured their involvement with the message (López, 1998), and by the calls of attention about the ad's key data which guided listeners' interest.

Altogether, it can be concluded that the application of these attention resources is highly recommended when designing an ad because they have a triple function: they direct attention towards the most important elements of the ad, which helps to involve the listener; they reduce the complexity in the coding of the message; and favour the process of information memorisation to allow the subsequent recalling. But perhaps the most important aspect regarding the content has to do with the reduction of information density. The more data an auditory stimulus has, the more difficult

it will be for the listener to process it and the higher the risk of cognitive overload (Potter *et al.*, 2006). As a direct result, listeners' recall rate will be lower and in this case it is important to remember that "an advertisement that has not been encoded or cannot be recalled is as if it had not existed" (Saiz, Baqués and Saiz, 1999, p. 892). Consequently, due to the limited processing capacity in radio, it is important for radio messages not to contain a high volume of information. The important thing is to make sure that the radio message is supported with key data but to avoid including a very high volume of data (Rodero, 2011).

Only when the purpose of the message is very clear, one can highlight a single idea and thus exclude secondary data. This favours a simpler and more understandable message. In this sense, Perona (2007, p. 14) has conducted interviews with several advertising creative professionals who insist that often the problem is the requests made by advertisers who are "obsessed with providing lots of information in a very short period of time and, above all, transmitting all the data that cannot be fitted in a television ad". For this reason, much of the renewal strategy of radio advertising includes the education of advertisers, which should not only insist on the benefits of radio so that they value it as an advertising channel but should also highlight its characteristics and constraints so that the message can be conveniently adapted to the medium.

Along with the overall volume of information, another recommendation would be to pay attention to the character and distribution of the data within the message. It is important that the ad script takes into account the characteristics of the oral language and the constraints of the radio. This means, in addition to avoid making ads with too much information and numbers (phone numbers and dates are never remembered), including colloquial phrases distributed in an adequate and balanced manner throughout the different parts of the message and using attention resources. An example would be the use of redundancy at the end of the ad as a strategy to strengthen the name of the product and the brand, which should be repeated at least two or three times per insertion.

Despite all this, we must bear in mind that in general terms the results have not been as positive as expected. In both cases, the frequency of emission and the application of attention resources, the recall rate has been increased by about just one point. This clearly warns us of the difficulty of the task faced by listeners. A person is not capable, not even when consciously making a considerable effort, of recalling data contained in an auditory stimulus that contains several very-brief, complex and autonomous elements that are mentioned quickly and without any separation in a limited period of time. An auditory stimulus with these characteristics ends up causing an incorrect cognitive processing in the listener. Ultimately, when faced with a message that lacks sufficient attention resources and is quickly presented, the listener may end up experiencing a cognitive overload (Fox *et al.*, 2007). Therefore, in conclusion, this study has reinforced the results obtained by Rodero (2011) and, thereby, once again highlights the low overall effectiveness of the type of radio advertising that is mostly presented in Spain.

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