

Adriana Vallejo¹
Stefos Efstathios
Mercy Guamán
María Banegas
Adrián Narvaez

THE EFFECTIVENESS OF APPLYING STORYTELLING IN ADVERTISING SPOTS

Abstract: The present paper aims to determine the effectiveness of applying storytelling in advertising. The target audience was made up by young people in the city of Cuenca from 18 to 35 years of age. The research was divided into two stages which combined quantitative, qualitative and experimental research. In the first stage we analyzed variables such as brand awareness and people's attitude towards the message by means of surveys; participant observation was used in the second stage in order to learn about people's reactions to a spot. Finally, through experimentation and the use of the Emotiv EPOC tool, we measured the neuronal activity of different parts of the brain.

The results showed that advertising is effective when it includes a story, it awakens consumer interest and causes their attention, intensity of their memory and brand recognition to increase compared to spots that do not use this technique.

1. Introduction

Nowadays, technology has encouraged the creation of a number of means of communication which have enabled people to increasingly be more connected and overcome distance barriers. However, television is still considered the main source of information, entertainment and credibility with long term effects. Accordingly, as a result of this evolution, companies have also developed new techniques for their advertising so as to capture people's attention as well as increase brand awareness and brand positioning.

The aim of constantly innovating techniques to develop advertising is to have greater effectiveness, therefore companies have found mechanisms to evaluate them beforehand. Currently, one of the techniques

that is used the most is storytelling, better known as "the art of telling stories".

At present, one of the new tendencies that has strongly emerged in the world of marketing and advertising is storytelling. This new way of understanding the evolution of content marketing refers to how we can use stories to generate emotions in the target audience. It does not matter if the stories are fiction or real, as long as they are capable of emotionally connecting with the audience. A television story is made up by a history of events or actions which have created new guidelines for marketing communication.

In this regard, research has been carried out on consumer behavior and the cognitive processes that individuals have when watching a television message, for this purpose neuroscience has provided multiple

¹ Corresponding author: Adriana Vallejo
Email: avallejo@ups.edu.ec

research tools that enable us to know consumers' reactions to the stimuli applied in the field of marketing. A mixed methodology which consisted of two stages was applied; structured surveys based on the Alternative Evaluation Model in Advertising suggested by (Phillips 2004) were applied in the first part. In the second part, both a structured observation and experimentation with the Emotiv EPOC device were carried out, the device records electroencephalographic (EEG) waves generated as a result of some external stimulation.

The results demonstrate the influence of the storytelling technique in advertising spots when presented to audiences.

2. Theoretical background

2.1. Advertising in national means of communication

Nowadays, advertising is a strategic element to communicate goods, services and ideas, where the message being transmitted carries a continuous process of influence that arouses interest in the receiver, since the advertisement is a mediating activity between the material world (product, brand) and the universe of consumption (consumer). Advertising is the essential agent of public space, it is part of the customs and furnishing of society, it provides patterns of knowledge of each era, it is a mirror of society that shows how people lived and aspired to live; advertising is considered an instrument of communication of the economic and cultural system. The messages used in advertising are persuasive and constitute the vision, reality and representations of daily life (López 2014).

The advertising industry has grown rapidly, at present its vivacity allows it to be the support of means of communication. Television is one of them, its reach encourages companies and brands to invest

large amounts of money in advertising. In Ecuador, the use of advertising began in 1968, when the Ecuadorian Association of Advertising Agencies (AEAP for its acronym in Spanish) was created in order to professionalize and create norms that regulate advertising activities in the most basic aspects, as well as to generate solid relationships with the media that benefit consumers. However, in spite of the regulations created by the AEAP, in 1998 the Ecuadorian Constitution established the prohibition of misleading and abusive advertising; and in 2000, the most stringent Consumer Protection Organic Law was issued (Muñoz 2015).

Advertising in the national context has had a strong impact mainly due to the application of the Organic Law of Communication (LOC for its acronym in Spanish) in 2013, whose main objective has been to guarantee access to the exercise of communication in the country. The Law seeks to improve and promote the advertising activity, therefore, the articles of major importance for the purpose of this research refer to the fact that 80% of the advertising must be done nationally and 20% abroad; it must not exceed 15 minutes per hour of programming with advertising spots of maximum 30 seconds each on television.

According to (Sánchez, Yáñez and Martínez 2017) advertising agencies, creative areas and television channels have stated that this facilitates their work and encourages the development of national production, it also provides information on the permanent monitoring of means of communication in order to control advertising overload. In response to this issue, companies and their products believe one of its strategic points is to develop a media plan in order to increase communication (Paladines, Valarezo and Yaguache 2013).

Means of communication present spots or commercial advertisements developed by advertising, which according to (Kim, et al., 2017) aim to connect the viewer with the

product through experiential transfer and face-to-face duration. The study carried out by (Sayedi, Jerath and Srinivasan 2014) indicates that companies budget for the use of traditional channels such as television, with the aim of creating product awareness and captivating customers. It is also necessary to consider the approach given by (Danaher and Rossiter 2011) for whom traditional channels such as television retain historical attributes such as reliability which is preferred by recipients in terms of marketing communications. Within the same line (Teixeira, Wedel and Pieters 2010) state that, the activity of each brand has a certain degree of importance in the level of retention of the spots presented to viewers. If a brand is presented during sustained periods, there is a high probability that this particular commercial will be avoided by viewers.

These actions of TV channel migration, also known as zapping, can be minimized by changing the pattern in which a brand is exposed on television.

2.2. Storytelling as an adversating strategy

Companies have used discourse as a tool in order to increase the levels of audiences, this strategy uses a sequence of inter related scenes that manages to create an emotional link with the public. This sequence of scenes, better known as “stories”, has meant success for brands, products and even presidential elections, according to (Gupta-Carlson 2016) countries like the USA and France have used this advertising approach since the beginning of the 19th century when they told stories of the lives of presidential candidates.

As of the twentieth century, (Richard 2013) says that for the transmission of presidential campaigns in mass media, they began to use multimedia narratives and later on social networks combined several elements of sensory stimulation to generate remembrance. In this case, it is necessary to

highlight that according to (Sibierska 2017) stories are not necessarily told verbally, narration is not limited to the use of language, it is possible to tell testimonies without the use of words; these stories are usually accompanied by facial expressions, images and movements.

Storytelling appeared as an evolution of narratives, for (Ravena and Elahi 2015) it is the fusion of the plot (scheme or plan of the story) which acts as a route map and the narration, which is considered the trajectory, where a story follows a sequence of events in time and space. In this regard, (Shen, Lieberman and Davenport 2009) believe that in the world of storytelling the human capacity to narrate stands out, this has a parallel relationship with language by associating descriptions of stories and human scenes, where they describe characters, emotions and different sequential topics of an event. According to the abovementioned information, storytelling refers to the most common way of communication, in other words (Woodside, Sood and Miller 2008) say it is narrating stories, which is present in all stages of life, since for years people accumulate, use and transmit information in the form of events, this pattern of dissemination, according to (Gilliam and Flaherty 2015), (Bowman et al., 2013) and (Marshall and Adamic 2010) seeks to persuade, link or transmit messages, in order to create simple connections in a creative context that is essential to establish a meaning and emotional connection, since it is a fundamental part of human cognition.

(Denning 2006) and (Kumar and Gupta 2016) state that at the moment of incorporating narration and advertising in the businesses, it is necessary to keep in mind that this is a tool with commercial ends, which seeks to accomplish a business’ purpose, with strategies based on current trends, selection of media and market. However, consumers opt for smart shopping, they are updated and trained on products and brands.

Additionally, authors such as (O'Connor 2002), (Delgado-Ballester and Fernández-Sabiote 2016) and (Herskovitz and Crystal 2010) state that narrative has grown in several sectors to build corporate brands by combining and developing stories associated with elements as authenticity, conciseness, investment and humor, and when merging with advertising it should consider the aesthetic value and transport the consumer to an alternative environment through emotions with creative memories. Narratives have developed alongside advertising to become a way to reach consumers, this new way of telling stories has spread across multiple communication platforms that promote the connection between the narrator and the audience (Stackelberg and Jones 2014).

Nowadays consumer behavior has been influenced by the technique of storytelling when creating emotional bonds, in this context, (Peracchio and Escalas 2008) and (Escalas 2004) say that an advertisement with the use of narrative generates connections and positive relationships towards the brand and influences the attitudes of the user. From the point of view of (Lien and Chen 2013) and (Chang 2008), narrative advertising conveys the central message through a story, which influences the ability to process information and show experiential immersions, causing sympathy and attraction to the observer.

Once these concepts have been presented, the authors coincidence with (Peracchio and Scales 2008) on the fact that narratives generate connections and directly affect the habits of consumers without neglecting the interpretative critical reflection, because this involves hooking a client and then by means of the storytelling technique make them reflect on the information and advertising insights implicit in an advertising spot.

2.3. Neuromarketing as tool to measure the effectiveness of advertising

Considering that neuroscience represents quite a recent fusion between different disciplines such as neurology, cognitive neuropsychology and cognitive sciences (Braidot 2006); marketing's field of research has benefited from the advancement of the aforementioned areas, therefore in recent years advertising agencies have been forced to further deepen their work with the use of new alternatives such as Neuromarketing, an area of applied neuroscience, capable of analyzing brain responses to certain stimuli with the use of tools to track the main neurophysiological signals and consumer behavior in relation to markets and commercialization exchanges (Babiloni 2015).

There are several tools used in neuromarketing to investigate the reactions of consumers by studying the response of their brain rather than what is verbally expressed: functional magnetic resonance imaging (fMRI), PET tomography (positron emission tomography); encephalography (EEG) and magnetoencephalography (MEG) that measure electrical changes in the brain. At the same time, other research systems have been developed using different technologies, for instance Eye Tracking and Mynd, where electroencephalographic sensors of the same quality as a medical device are available, which can be connected to mobile devices by means of bluetooth to enable communication and interpretation of data in real time (Misiego 2013, p 143-144).

Neuromarketing has provided several mechanisms to study consumers; they point to the physical and chemical properties of neurons individually. However, at the same time there has been research in cognitive neuroscience; this branch seeks to perceive the neural processes underlying complex thoughts, such as reasoning, decision making, objective representation, emotion or memory, which is completed with marketing concepts, such as positioning, hierarchy of effects, brand loyalty or consumer responses (Salazar 2011).

Consumer behavior reflects all the dispositions about the consumption of an offer by making decisions at a certain time; the main areas of study are: the culture, the psychological core, the decision-making process and the results inherent to the behavior of the individual, these four factors affect the motivation, capacity and opportunity of the consumer to process information, make decisions or initiate action (Hoyer, MacInnis and Pieters 2015, p 2-14). These components according to the decision-making model of (Schiffman and Wisenblit 2015, p 55) have an external input or influence, such as the marketing efforts of the company and the socio-cultural environment; followed by the decision-making process, influenced by the psychological field that affects the recognition of the need, search before the purchase and evaluation of alternatives; as output there is the behavior subsequent to the purchase decision and evaluation.

2.4. Emotiv Epoc, as a Neuromarketing tool

Neuroscientific studies in the field of marketing seek to understand consumer behavior, thus (Fugate 2007) states that with the help of brain imaging techniques it is possible to evidence and document risk taking, consumer satisfaction, brand loyalty, personality traits, basic hypotheses of the role of trust from different standards of marketing literature. As technology advances, it provides more tools to search for information about the neuronal activity of consumers, who when exposed to product advertisements, the use of neuroscience tools such as EEG or Emotiv Epoc make it possible to know the behavior of areas of the brain, allowing the interpretation of emotions, which are the basis for the creation of new forms of advertising (Gaubaa et al., 2017).

Through EEG, Emotiv Epoc interprets in

graphic registers the electrical activity of the neurons inside the brain; caused by stimuli from receiving organs. The contact of neurons is known as synapses, this process produces a chemical-electrical discharge that secretes a substance located in the space between the transmitting neuron and the receptive one, so that the impulse can reach the axon (long end of a neuron) (Guevara 2012).

Within the process described above, (Ron Angevin 2005) and (Silva-Pereyra 2011) highlight that neurons are polarized by having negative energy charges inside the cell membrane with respect to the outside, this happens due to the circulation of ions of potassium when at the same time inside the cell there are negative charge molecules with external presence of sodium ions with a value of 70mV (mini volt). In summary, according to (Tong and Thakor 2009), (Ron Angevin 2005), (Silva-Pereyra 2011) and (Christa et al., 2006) to provoke the "action potential," a stimulating current generated by ions of potassium that enter the cell is needed, depolarizing it with a positive electric charge. Once this potential is reached by the axon, an ion exchange occurs. To counteract this action, a sodium concentration inside generates an expulsion of potassium and sodium ions to restore the negative charge, briefly making it more negative. This electrical activity is measured by the EEG by placing electrodes on the surface of the scalp, by doing this you can measure the oscillations or changes of powers related to the presentation of an event, since there is a variety of rhythms either by its band of frequency, location in the brain, the amplitude of the signal and other aspects inherent to the ones that were previously mentioned. The measurement parameters are variants according to the mental state of the measured subject, that is why four important rhythms within the EEG can be highlighted: Delta rhythm (0.5 to 3.5 Hz), Theta (4 to 7 Hz), Alpha (8 to 13 Hz), Beta (14 to 30 Hz) and Mu (8 to 13 Hz) (Ron

Angevin 2005).

Authors such as (Khushaba et al., 2013) indicate that the analysis of invasive and non-invasive brain electrical signals, are recorded through a brain-computer interface, for the analysis of non-linear signals in frequency and time, in conjunction with Parseval's theorem, which is used to obtain the percentage of distribution of the energetic typologies of the EEG signal in different resolution levels. In the present study, the electroencephalographic signals that were measured with the Emotiv Epoc starting from the presentation of the advertising spots, were the alpha and beta signals; the first is present in any subject in a state of relaxation or little neuronal activity and is attenuated when the

so, studies conducted by (Omerhodzic et al, 2013) and (Lema et al., 2017) were elaborated from the registration and processing of data through the Wavelet Transform (WT), used person has his / her eyes open. While the second is found in states of mental concentration and is closely linked with the movement of the extremities (Kamel and Malik 2015).

3. Methodology

A mixed methodology was applied to this study, it combines quantitative, qualitative and experimentation techniques.

Table 1. Stages of the research; Note. Adapted from (Salazar 2011)

	Stage 1	Stage 2	
	Survey	Participant observation	Neuromarketing
Target audience	People between 18 and 35 years old in the city of Cuenca – Ecuador.		
Sample size	(n = 76) People who are completely informed about the goals of the research	Criterion sample = 21 people, 6 were discarded due to environmental pollution (noise).	
Sampling types	Probability sampling: simple random, with the formula suggested by: (Hernandez Sampieri 2014, p 175)	No probability sampling or criterion. (Hernandez Sampieri 2014, p 189)	
Scope	Person's awareness	A Person's awareness over unawareness	Person's unawareness
Substantiation	Mathematics	Psychology	Neuroscience
Type of Analysis	Descriptive and analytical	Explanatory	Comparative: brain activation zone vs verbal response
Technique	Quantitative	Qualitative	Experimental
Characteristic	Confirm the link of the Brand with the story, Brand awareness	Interpret the behavior and gesticulation of the person	Use of the Emotiv Epoc tool to analyze the neuronal waves of a group of people
Model adapted based on what is suggested by:	(Brechman y Purvis 2015) and (Martín, Reinares and Reinares 2012)	(Belk 2017) (Polkinghorne 2005) and (Boyland and Halford 2013)	(Gneezy 2017)
Type of Analysis	Descriptive and analytical	Explanatory	Comparative: brain activation zone vs brain response

Given the limitations that could take place when applying just a single technique, this research was conducted in two stages that together managed to cover a much broader picture and consequently its objectives. In the first stage, the people under study

observed 4 spots or commercials and were then asked to answer a questionnaire in order to evaluate their perceptions. The spots were previously selected according to the items shown in the following table.

Table 2. Evaluation model of spots for the research (Denning 2006) and (Peracchio and Escalas 2008)

Spot		Spot 1	Spot 2	Spot 3	Spot 4
General parameters					
Length	30 seconds	X	X	X	X
Presented on television channels	At a national level, in private channels	X	X	X	X
Brand	Brand presence	X	X	X	X
Language	Uses language according to the target	X	X	X	X
Evaluation parameters according to (Denning 2006)					
Transmission of values	Feels familiar with the audience and will provoke a discussion about the problems presented because of the value being promoted		X	X	
Encourage cooperation	An emotional memory of a situation that listeners have also experienced and that leads them to sharing their own stories on the subject.		X	X	
Evaluation parameters according to (Peracchio and Escalas 2008)					
Growth of action	Introduction of the plot of the story		X	X	
Reason that is presented	Circumstances or problems related to the main issue		X	X	
Climax	Complication or increase of action		X	X	
Decrease of the action	Tension that delays the end of the story		X	X	
Outcome	Solution to the conflict		X	X	

Table 3. Evaluation model of advertising spots for the research questionnaire

Authors	Evaluation proposal	Deficiencies
(Brechman and Purvis 2015)	Information on brands and products. Reliability, liking, quality and persuasion. Narration of the ad.	
(Joo, C. Wilbur and Zhuc 2016)	Keyword mining, such as Brand and category	Influence of television advertising on online searches
(Martín, Reinares and Reinares 2012)	Intensity of spontaneous memory. Attitude towards the message. Recognition and influence of the spot. Affectivity and attention. Category of the product and the brand.	
(McAlister, and otros 2016)	Ability of advertising to influence sales. Ability of advertising to influence the company.	Highlights the importance of advertising as a cost-based performance factor.
(Heath and Nairn 2005)	Recognition of brands based on affectivity. Recognition of current and previous advertising transmitted on television and other means.	It is based on emotions and feelings rather than knowledge and beliefs.

The second stage combined participant observation with neuromarketing. The first, based on the approaches of (Belk 2017) (Polkinghorne 2005) and (Boyland and Halford 2013) who suggest that consumer behavior must be studied using the technique of observation of gesticulation, interest, reactions, motivation and emotions that the person presents in response to the advertisement.

The experimental method was based on the proposal by (Gneezy 2017) who uses the Neuromarketing tool known as Emotiv EPOC in order to analyze the EEG waves of a

group of people. In the application of this technique a non-probabilistic sample is used (used in direct observation). 2 commercials were presented to the people under study, the first did not have the storytelling technique while the second easily demonstrated its application.

The same spots of the first stage were used for experimentation, all the rules and protocols of experimental ethics were complied in order to achieve compliance with the following diagram which determines the optimal use of the storytelling technique

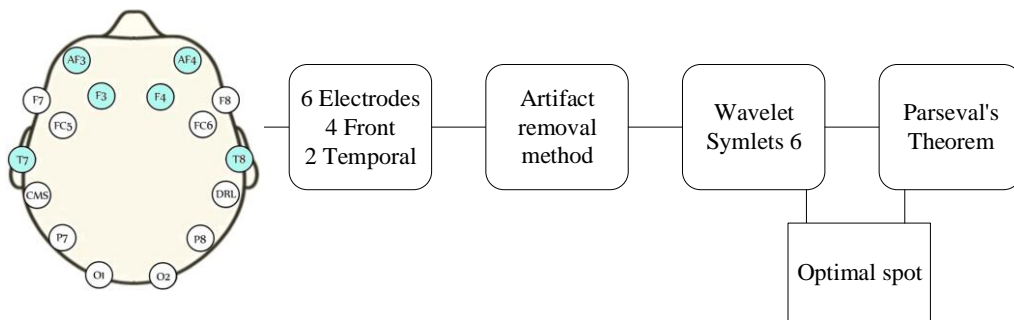


Figure 1. Diagram of the study of EEG signals. Adapted from (Lema et al., 2016)

The study suggested the use of a 6-channel EEG wireless device (AF3, AF4, F3, F4, T7 and T8) to collect EEG signals from the frontal and temporal brain areas that can provide data to estimate consumer choice regarding an advertising spot (Aprilianty, Purwanegara and Suprijanto 2)

4. Results and discussion

The frequency table presented the results of the analysis of the surveys and shows the attitude towards the advertisement, which is of a multidimensional nature; this analysis clearly shows that there are important differences in all the cognitive measures of effectiveness used in this research, it demonstrated that the storytelling technique registers the highest rates of recall and brand recognition.

When taking the EEG signals the participants mostly presented facial expressions that showed interest and emotion, such as faint movements of the mouth and eyes. It is necessary to point out that before the stimulation, patients were in a state of alert, nevertheless, when the first stimulation was presented (spot 1) their notorious facial expression was in the eyes, which showed impact and surprise followed by a warning position; and in the second stimulation most participants showed a relaxed posture, their facial expressions reflected concentration, combined with joy and discomfort in several intervals of time while spot 2 lasted, these reactions occurred because of the story that was presented. Additionally, it should be taken into account that stimulations do not provoke the same emotion in people, since there are individuals who present expressions that are

illegible to the naked eye.

The recording of the signals (EEG) enabled the creation of a database with a total of three thousand eight hundred and forty samples per person during each stimulation

and for each electrode of analysis. Subsequently, the energy of the signal was calculated by using Parseval's Theorem, for which, each signal was fragmented into blocks of forty samples.

Table 4. Results of the questionnaires and evaluation of advertising spots

Description	Spot 1		Spot 2		Spot 3		Spot 4	
	F	%	F	%	F	%	F	%
Liking of the spot	65	86%	73	96%	72	95%	70	92%
Narrative sequence	1	1%	37	49%	76	100%	0	0%
Affectivity and attention of the spot:	--	--	--	--	--	--	--	--
Outcome of the story	44	58%	65	86%	71	93%	0	0%
Colors	63	83%	60	79%	60	79%	6	8%
Eye catching character	67	88%	59	78%	61	80%	62	82%
Reliability	26	34%	21	28%	41	54%	8	11%
Attractive	0	0%	33	43%	26	34%	41	54%
Recognition and influence of the spot:	--	--	--	--	--	--	--	--
Credible	22	29%	20	26%	31	41%	9	12%
Original	12	16%	38	50%	37	49%	9	12%
Easy to understand	38	50%	29	38%	31	41%	24	32%
Easy to remember	17	22%	31	41%	29	38%	29	38%
Did not like it	6	8%	3	4%	4	5%	11	14%
Intensity to remember the brand:	--	--	--	--	--	--	--	--
Spontaneous memory of the Brand	7	9%	25	33%	41	54%	3	4%

In the data processing stage, six electrodes were considered, in the first group the frontal lobes AF3, AF4, F3 and F4 were analyzed, where it is possible to see variations in the alpha brain waves. The greatest variation in this frequency band was obtained during the stimulation of spot 2, which has the storytelling technique. In this scenario, it is deduced that the signal is intensified due to the existence of emotions associated with a problem and its resolution. The increase in intensity in the alpha waves is given by the insight that the brand applies to its spot combined with the storytelling technique, making the neuronal activity of the individuals under study vary and increase.

In the second group, we studied the T7 and T8 temporal lobes that are related to hearing.

A greater point of concurrence is not observed in these lobes as was in the previous electrodes since the EEG waves are not periodic and do not concentrate on a single point in a certain time.

The stimulus caused by the second spot can modulate the activity of the neurons in the frontal area of the brain in the 12th to the 15th second. However, there are data that contradict this fact in relation to the first spot since the signals are intensified by the high decibels of the sound with respect to spot 2.

The value of the beta brain wave amplitude in the 2nd spot is the highest. Based on the results, participants gave a lower response to the stimulus of spot 1 and tend to give the highest and most favorable response to spot 2 in terms of hearing.

Table 5. Results of energy and correlacion of the electrodes analyzed in spots 1 and 2 (Written by the authors)

Student Test Energy						
'SP'	'af3'	'af4'	'f3'	'f4'	't7'	't8'
'SP1 alfa'	0,740949	0,639495	0,571861	0,101998	0,155034	0,383117
'SP2 alfa'	0,062245	0,057178	0,005854	0,000203	0,685852	0,007772
'SP1 beta'	0,013301	0,725847	0,574945	0,017409	0,012053	0,591490
'SP2 beta'	0,694084	0,817291	0,062919	0,001011	0,552171	0,004104
Correlación						
'SP'	'af3'	'af4'	'f3'	'f4'	't7'	't8'
'alfaCorr Ant-SP1'	0,146712	0,091744	-0,062266	-0,080876	0,083739	0,217715
'alfaCorr Ant-SP2'	-0,042316	-0,045968	0,102383	-0,101971	-0,134925	0,018810
'betaCorr Ant-SP1'	0,081508	0,008889	-0,031899	0,216175	-0,068300	-0,012491
'betaCorr Ant-SP2'	-0,129828	-0,136238	0,144671	-0,190292	0,176749	0,043764

The results of the t distribution in the table shows that in the alpha waves with the stimulation of spot 2 there is a variation in the attention and hearing in all the volunteers of the study. This alteration occurs in both the left and right hemispheres of the brain, F3, F4 and T8, where $p < 0.05$. These results show that there is a significant alteration in these electrodes; the first two are related to emotions and the last one is associated with the hearing area. These values are significant since sounds attract attention and changes the state of attention in an individual.

In the correlation, there is not a significant

positive or negative relationship; that is, the stimulus caused by spot 2 alters the frequency band alpha and beta. However, this characteristic is not clearly defined as positive or negative.

When analyzing the volunteers, the highest correlation generated before the stimulation and after presenting spot 1 in both the alpha and beta waves is discarded since it is the result of a very considerable variation of the data, due to the intermittence of noise during the stimulation.

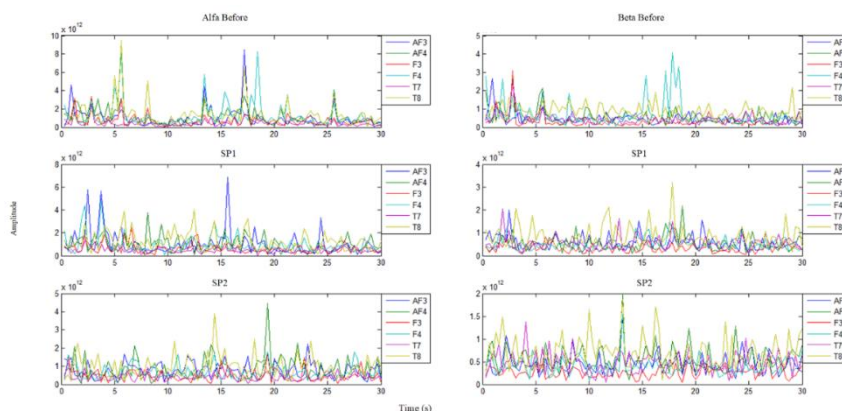


Figure 2: Result of Energy filtered in the alpha and beta band of EGG signaling before and after the stimulation of a person

5. Conclusion

The study confirms the effectiveness of storytelling in advertising spots. Based on the results, it can be seen that in general, spot 2 can influence the emotion of consumers, which in turn contributes to brand recognition.

From the 6 electrodes analyzed, AF3, AF4, F3, F4, T7 and T8, variations in Alpha brain waves can be observed. The greatest variation in this frequency band was obtained during the stimulation of spot 2, which contains the storytelling technique. In this scenario, it is deduced that the signal is intensified by the existence of emotions associated with a problem and its resolution. The increase in intensity in alpha waves is given by the insight that the brand applies to its spot combined with the storytelling technique, making the neuronal activity of the individuals analyzed vary and increase.

With the analysis of the t distribution, we observed that in the alpha frequency band, with the stimulation of spot 2, a variation in attention and hearing was presented in all the volunteers under study. This alteration occurs in both the left and right hemispheres of the brain, F3, F4 and T8, where $p < 0.05$. These results show that there is a significant

alteration in these electrodes; the first two are related to emotions and the last one is associated with the hearing area. These values are significant since a sound attracts attention and changes the state of attention of an individual.

In the correlation, there is not a significant positive or a negative relationship. However, there is a variation only when considering the spot that is using the technique. To summarize, the application of the questionnaire, observation and experimentation coincide that the application of storytelling in advertising spots increases effectiveness regarding the interest and brand recall in the audience whenever they are directed to the segmented target audience.

6. Limitations

- The use of the Emotiv Epoc helmet must have the necessary conditions so that the noise does not affect the results of the taken signals.
- The use of Emotiv Epoc needs the registration of significant times for a better attraction and recording of the neuronal behavior of the individual's brain

References:

- Aprilianty, Fitri, Mustika Sufiati Purwanegara, and Suprijanto. (2016), "Effects of colour towards underwear choice based on electroencephalography (EEG)," *Australasian Marketing Journal*, 1-6.
- Babiloni, Fabio, (2015). "Neuromarketing," *International Encyclopedia of the Social & Behavioral Sciences*, 16 (2): 698-702.
- Belk, Russell W. (2017), "Qualitative Research in Advertising," *Journal of Advertising*, 46 (1): 36-47.
- Bowman, Gary, R. Bradley MacKay, Swapnesh Masrani, and Peter McKiernan. (2013), "Storytelling and the scenario process: Understanding success and failure," *Technological Forecasting & Social Change*, (80): 735-748.
- Boyland, Emma J., and Jason C.G. Halford. (2013), "Television advertising and branding. Effects on eating behaviour and food preferences in children," *Appetite*, (62): 236-241.

- Braidot, Néstor. (2006), *Neuromarketing: Neuroeconomía y Negocios*. Barcelona: Puerto Norte Sur.
- Brechman, Jean Marie, and Scott C. Purvis. (2015), "Narrative, transportation and advertising," *International Journal of Advertising*, 34 (2): 366-381.
- Chang, Chingching. (2008), "Increasing Mental Health Literacy via Narrative Advertising," *Journal of Health Communication*, (55): 13-37.
- Christa, Neuper, Müller-Putz Gernot R., Scherer Reinhold, and Pfurtscheller Gert. 2006. "Motor imagery and EEG-based control of spelling devices and neuroprostheses," *Progress in Brain Research*, 159: 393-409.
- Danaher, Peter J., and John R. Rossiter. (2011), "Comparing perceptions of marketing communication channels,," *European Journal of Marketing*, 45 (1/2): 6-42.
- Delgado-Ballester, E., and E. Fernández-Sabiote. (2016), "Once upon a brand: Storytelling practices by Spanish brands," *Spanish Journal of Marketing ESIC*, (20): 115- 131.
- Denning, Stephen. (2006), "Effective storytelling: strategic business narrative techniques," *STRATEGY & LEADERSHIP*, 34 (1): 42-48.
- Escalas, Jennifer E. (2004), "Narrative Processing: Building Consumer Connections to Brands," *Journal of Consumer Psychology*, 14 (1&2): 168-180.
- Fugate, Douglas L. (2007), "Neuromarketing: a layman's look at neuroscience and its potential application to marketing practice," *Journal of Consumer Marketing*, 385-394.
- Gaubaa, Himaanshu, Pradeep Kumar, Partha Pratim Roy, Priyanka Singh, Debi Prosad Dogra, and Balasubramanian Raman. (2017), "Prediction of advertisement preference by fusing EEG response and sentiment analysis," *Neural Networks*, 1-12.
- Gilliam, David A., and Karen E. Flaherty. (2015), "Storytelling by the sales force and its effect on buyer-seller exchange," *Industrial Marketing Management* (46): 132-142.
- Gneezy, Ayelet. (2017), "Field Experimentation in Marketing Research," *Journal of Marketing Research*, 140-143.
- Guevara, Sergio. (2012), "Adquisición de señales Electroencefalográficas para el movimiento de un prototipo de silla de ruedas en un sistema BCI," *Adquisición de señales Electroencefalográficas para el movimiento de un prototipo de silla de ruedas en un sistema BCI*. Cuenca, Azuay: Universidad Politécnica Salesiana, 29 de octubre.
- Gupta-Carlson, Himanee. (2016), "Re-Imagining the Nation: Storytelling and Social Media in the Obama Campaigns," *American Political Science Association*, 49 (1): 71-75.
- Heath, Robert, and Agnes Nairn. (2005), "Measuring Affective Advertising: Implications of Low Attention Processing on Recall," *Journal of Advertising Research*, 45 (2): 269-281.
- Hernandez Sampieri, Roberto. (2014), "Metodología de la Investigación," México: Mc Graw Hill Education.
- Herskovitz, Stephen, and Malcolm Crystal. (2010), "The essential brand persona: storytelling and branding," *JOURNAL OF BUSINESS STRATEGY*, 31 (3): 21-28.
- Hoyer, Wayne D., Deborah J MacInnis, and Rik Pieters. (2015), *Comportamiento del Consumidor*. 6. Querétaro: Cengage Learning.
- Joo, Mingyu, Kenneth C. Wilbur, and Yi Zhuc. (2016), "Effects of TV advertising on keyword search," *International Journal of Research in Marketing*, (33): 508-523.
- Kamel, Nidal, and Aamir S. Malik. (2015), *EEG ERP Analysis Methods and Applications*. Boca Raton: CRC Press.
- Khushaba, Rami N., Chelsea Wise, Sarath Kodagoda, Jordan Louviere, Barbara E. Kahn, and Claudia Townsend. (2013), "Consumer neuroscience: Assessing the brain response to marketing stimuli using electroencephalogram (EEG) and eye tracking," *Expert Systems with Applications*, 40: 3803-3812.

- Kim, Jooyoung, Sun J. Ahn, Eun S. Kwon, and Leonard N. Reid. 2017. "TV advertising engagement as a state of immersion and presence," *Journal of Business Research*, (76): 67–76.
- Kumar, V., and Shaphali Gupta. 2016. "Conceptualizing the Evolution and Future of Advertising," *Journal of Advertising*, 45 (3): 302-317.
- Lema, Efrén L., Freddy L. Bueno, Susana E. Castro, and Esteban F. Ordóñez. (2017) "Comparison of Wavelet Transform Symlets (2-10) and Daubechies (2-10) for an Electroencephalographic Signal Analysis," *IEEE XXIV International Conference on Electronics, Electrical Engineering and Computing (INTERCON)*, 1-4.
- Lien, Nai-Hwa, and Yi-Ling Chen. (2013), "Narrative ads: The effect of argument strength and story format," *Journal of Business Research*, (66): 516–522.
- López, Javier. (2014), *Publicidad Teoría y práctica*, Centro de Estudios Financieros, Madrid: CEF.
- Marshall, John, and Matthew Adamic. (2010), "The story is the message: shaping corporate culture," *JOURNAL OF BUSINESS STRATEGY*, 31 (2): 18-23.
- Martín, Josefa D., Eva M. Reinares, and Pedro J. Reinares. (2012), "ANÁLISIS COMPARATIVO DE LA EFICACIA PUBLICITARIA EN TELEVISIÓN: TELEPROMOCIÓN VERSUS SPOT," *Revista Española de Investigación de Marketing ESIC*, 16: 49-84.
- McAlister, Leigh, Srinivasan Raji, Niket Jindal, and Albert A. Cannella. (2016), "Advertising Effectiveness: The Moderating Effect of Firm Strategy," *Journal of Marketing Research*, LIII: 207-224.
- Misiego, Francisco. (2013), *Comprame y ¡vende!* Bogotá: Editorial Rasche.
- Muñoz, Andrea. (2015), "Publicidad "made in Ecuador," y otras restricciones a la expresión publicitaria a partir de la entrada en vigencia de la Ley Orgánica de Comunicación," *USFQ Law Review*, 128-143.
- O'Connor, Ellen. (2002), "Storied Business: lypoioy, ititertextuaity, and TVaffic in Entrepreneuriai Narrative," *The Journal of Business Communication*, 39 (1): 36-54.
- Omerhodzic, I., S. Avdakovic, A. Nuhanovic, and K. Dizdarevic. (2013), "Energy Distribution of EEG Signals: EEG Signal Wavelet-Neural Network Classifier," *arXiv preprint arXiv*, 1307-7897.
- Paladines, Fanny Y., Karina P. Valarezo, and Jenny J. Yaguache. (2013), "La comunicación integral, un factor determinante en la gestión de la empresa ecuatoriana," *Signo y Pensamiento*, 32: 110-128.
- Peracchio, Laura A., and Jennifer E. Escalas. (2008), "Tell me a story: Crafting and publishing research in consumer psychology," *Journal of Consumer Psychology*, 18: 197-204.
- Phillips, Diane M., and John L Stanton. (2004), "Age-related differences in advertising: Recall and persuasion," *Journal of Targeting, Measurement and Analysis for Marketing*, 13 (1): 7-20.
- Polkinghorne, Donald E. (2005), "Language and Meaning: Data Collection in Qualitative Research," *Journal of Counseling Psychology*, 52 (2): 137- 145.
- Ravena, Paul G, and Shirin Elahi. (2015), "The New Narrative: Applying narratology to the shaping of futures outputs," *Futures*, (74): 49-61.
- Richard, Eugénie. (2013), "La Revolución francesa en marcha: storytelling en la campaña de Mélenchon para las elecciones presidenciales," *Opera* (13): 59-80.
- Ron Angevin, Ricardo. (2005), "Retroatimentación en el entrenamiento de una interfaz cerebro computadora usando técnicas basadas en realidad virtual ," Málaga: Universidad de Málaga, Servicio de Publicaciones.

- Salazar, César. (2011), "La neurociencia del consumidor como horizonte de investigación, conceptos y aplicaciones. Un Efoque pragmático," *Revista Universidad & Empresa* 143-166.
- Sánchez, Hugo, Samuel Yáñez, and Mayra Martínez. (2017), "Impactos de la Ley Orgánica de Comunicación en la Publicidad Ecuatoriana," *Revista de Investigación Social*, 464-473.
- Sayed, Amin, Kinshuk Jerath, and Kannan Srinivasan. (2014), "Competitive Poaching in Sponsored Search Advertising and Its Strategic Impact on Traditional Advertising," *Marketing Science*, 33 (4): 586-608.
- Schiffman, Leon G., and Joseph Wisenblit. (2015), *Comportamiento del Consumidor*. 11. México: Pearson.
- Shen, Edward, Yu-Te, Henry Lieberman, and Glorianna Davenport. (2009), "What's Next?: Emergent Storytelling from Video Collections," *ACM (ACM Press)*, 1-10.
- Siberska, Marta. (2017), "Storytelling without telling: The non-linguistic nature of narratives from evolutionary and narratological perspectives," *Language & Communication* (54): 47-55.
- Silva-Pereyra, Juan. (2011). *Métodos en Neurociencias Cognoscitivas*. México: Manual Moderno.
- Stackelberg, Peter von, and Ruth Eira Jones. (2014), "Tales of Our Tomorrows: Transmedia Storytelling and Communicating About the Future," *Journal of Futures Studies*, 18 (3): 57-76.
- Teixeira, Thales S., Michel Wedel, and Rik Pieters. (2010), "Moment-to-Moment Optimal Branding in TV Commercials: Preventing Avoidance by Pulsing," *Marketing Science*, 29 (5): 783-804.
- Tong, Shanbao, and Nitish Vyomesh Thakor. (2009), *Quantitative EEG analysis methods and clinical applications*, Norwood: Artech House.
- Woodside, Arch G., Suresh Sood, and Kenneth E. Miller. 2008. "When Consumers and Brands Talk: Storytelling Theory and Research in Psychology and Marketing," *Psychology & Marketing*, 25 (2): 97-145.

Adriana Priscila Vallejo Bojorque
 Universidad Politécnica Salesiana,
 Ecuador
avallejo@ups.edu.ec

Efstathios Stefos
 Universidad Nacional de Educación UNAE,
 Ecuador
stefos.efstathios@unae.edu.ec

Adrián Esteban Narváez Pacheco
 Universidad Politécnica Salesiana,
 Ecuador
anarvaezp@ups.edu.ec

Mercy Magali Guamán
 Universidad Politécnica Salesiana,
 Ecuador
mguamanc3@est.ups.edu.ec

María Cristina Banegas
 Universidad Politécnica Salesiana,
 Ecuador,
mbanegasp@est.ups.edu.ec
