

How to cite this article in bibliographies / References

G Gutiérrez Cárdenas (2019): “Neuromarketing as an effective tool for education in sales and advertising”. *Revista Latina de Comunicación Social*, 74, pp. 1173 to 1189.

<http://www.revistalatinacs.org/074paper/1377/60en.html>

DOI: [10.4185/RLCS-2019-1377en](https://doi.org/10.4185/RLCS-2019-1377en)

Neuromarketing as an effective tool for education in sales and advertising

Guillermo Gutiérrez Cárdenas [\[CV\]](#) School of Economics and Business. San Sebastián University (USS), Chile – ggutierrezc@docente.uss.cl

Abstract

The techniques companies use to communicate with their customers, for both sales and advertising purposes, were developed by marketing, a field that has evolved and been perfected over the years. In this context, neuromarketing has irrupted as an ideal tool for communication in the business world and many large companies already use it. However, many degree programmes in business, commercial engineering and engineering administration do not teach their students about the features and use of neuromarketing. This is the reality in Latin America, especially in Chile, and Spain, where undergraduate students are not taught about the future implications of neuromarketing and are forced to learn about it later under the pressure, and from the peculiar perspective, of companies. Currently, Latin America universities’ undergraduate and postgraduate degree programmes do not teach about neuromarketing and its benefits from a scientific and ethical approach, so that students can fully understand the subject and its study as a social phenom. Therefore, the objective of this text is to present the results of the process of designing an ethical and dynamic course on neuromarketing programme that could act as a learning model that integrates this technique in undergraduate and postgraduate business programmes in Latin America.

[Keywords]

Neuromarketing, Communication, Education, Sales, Advertising.

Contents

Introduction. Methodology. 2.1. Methods. 2.1.2. Population and sample. 2.1.3. Data collection instruments. 2.1.4. Procedure. 3. Results. 4. Discussion and conclusions. 5. Notes. 6. References.

Translation by **CA Martínez-Arcos**
PhD, University of London

1. Introduction

Today, communication is the basis of all businesses, whose development is impossible without it. In the last 30 years, business graduates and professionals have understood that the best way to communicate with customers is through marketing, whether for promotion, advertising or branding purposes. Differentiating from the competition, improving management, reputation, public image and brand identity are activities related to corporate social responsibility. This also explains why so much attention is paid to the question of corporate identity and especially to the question of corporate communication, which is one of its attributes (Nagyová, Kosicioarová & Sedlakiová, 2017).

Thus, the teaching of new subjects, especially those based on new scientific models, will always be complex to carry out and it requires teachers to be strongly committed to students, so that the latter can understand the new knowledge and apply it later in the complexity of work areas. Scholarly work, the combination of teaching and research, must always be linked with educational processes aimed at creating an effective infrastructure for: the production of knowledge, high technologies, and scientific and technical development, within venture capital; the reconsideration of old concepts in fundamental sciences; the development of infrastructure and the transfer of innovative ideas and offers; in a transformation of higher education (Zmiyak, Ugnich & Krasnokutsiy, 2019).

Therefore, when thinking of neuromarketing, as a new scientific method, and as the best way to communicate with clients, we understand that it has developed and shown its progress in recent decades, although through very few speakers at the international level, which complicates it. Its main scientific foundation is neuroscience and marketing, although its development has been nurtured by other sciences and techniques, including social communication, psychology, experimental and behavioral economics, ethnography and anthropology, to achieve a communicative approach with customers and persuade them, from the perspective of advertising, sales and business development. And even though the development of these disciplines is important, it is more important to create in Chile the first Neuromarketing course for undergraduate programmes in Commercial Engineering and Engineering Administration, with international standards and with the potential to be replicated in other national universities and in the rest of Latin America and Spain. Describing this process, from conception and development to final application, is the objective of this work.

2. Methodology

Considering the low production of articles on this subject in the region, the research started, earlier this year, with the review of the curricula of Commercial Engineering and Engineering Administration degree programmes offered in Chile, which are available on their respective websites, and are updated every year (at the end of the year, for the promotion to the following academic year). It should be noted that in the area of business, and taking into account Chile's top 10 universities, these are the main and only degrees offered in the country, although in the past some degrees in Business administration and Business were on offer. This review was repeated in Peru, Argentina, Ecuador, Colombia, Mexico and Spain, expanding the search to such degrees as Business Administration, International Business, Marketing and Economy. The results were the same: none of the degrees in question has a course on neuromarketing in its curricula. Almost all degrees include marketing in their curricula (such as Marketing 1 and 2, which are the corresponding lines of continuity in Strategic Marketing, Advertising

Marketing, among others. A similar situation occurs with postgraduate degree programmes, which offer no specialisations, with one exception in Spain [1].

Therefore, it was necessary to create a course in neuromarketing in Advertising and Sales (its name), based on the state of the art, to give students a broader approach to the discipline, given the high complexity of advertising and sales today, and help them use neuromarketing as the best tool for developing these disciplines in the business world, to prepare for postgraduate degrees, or help them get their career started. The design of the course also aims to be as close to the scientific method and not only based on the way companies understand and use it today. The sources of information used for this research include the work of Russian and foreign authors, specialists in the field of neuroeconomics and neuromarketing. Based on the need for complex research, we decided to use analysis, synthesis, generalisation and systematisation. It is necessary to study the historical establishment of neuromarketing as the edge of all science, in view of its practical application, based on examples of labs, agencies and companies. Finally, it is necessary to determine the perspectives of neuromarketing as a scientific system of knowledge to draw conclusions about the systemic nature of the knowledge related to neuromarketing. The research requires us to determine the features of the systemic approach: emergency, hierarchy, limitation and determination of purpose (Zaytsev, Vlasova, Semenova, Yushkova & Zvereva, 2019).

Given the previous, the existing scientific evidence, and its literature, would be the priority for the development of the six-month (and three-month long) course on neuromarketing: Advertising and Sales, in Commercial Engineering and Engineering Administration, mainly from a historical approach and with the inclusion of the disciplines that have allowed its development in recent years, and with the use of international standards and a purpose-created model that will allow this study to be replicated in Chile and abroad.

2.1. Methods

The study is based on a state-of-the-art review, which is no easy task since there are few studies on neuromarketing, unlike on other disciplines that complement this scientific method. A quasi-experimental design was also employed to improve students' understanding, such as the collaborative and especially communicative process, using videos and controlled experiments in the classroom, in order to shape the mental model. The same method was used for the final survey used to determine the results of the three courses: the six-month long course on Commercial Engineering (optional) for the Marketing degree; and Industrial Civil Engineering, especially for the Marketing Labs that complement the Marketing courses in this degree, for one semester; and for the Advance modality (evening study) of the Engineering Administration programme, which lasts 2.5 years, and requires a vocational training degree, and involves internships and constant evaluation. The survey was designed with the collaboration of a specialist in the area [2].

Students can be trained to create and develop models, explain phenomena (effect-cause) or predict their effects (cause-effect). The role of the teacher is to provide problems and information that allow students to imagine. The more information is provided to students, the easier it is for them to build mental model. Learning to form the mental model should use problems close to students' everyday life, that they can imagine the problem in their mind. The use of everyday problems also aims to make students able to understand the application of the concepts. The relationship between the problem and

the research aims to create a cognitive mismatch that encourages learning. Students' knowledge can be fostered through a collaborative process of social negotiation and evaluation of a point of view (Dinata & Suparwoto, 2018).

Therefore, the idea was to first create a course with a special method (ad hoc), which is developed and described below:

Course: Neuromarketing, Advertising and Sales.

The course is divided into 6 learning units, which are detailed below:

- I. Concept and applications of neuroscience
- II. Emergence and evolution of neuromarketing
- III. Manipulation and influence techniques for final consumer
- IV. Advertising and its influence in recent years
- V. Management and advertising agencies
- VI. Ethics of neuromarketing

Below we summarise the course, highlighting the most important area of each of the main units, since due to extension constraints it was impossible to include all the contents per unit.

1. Concept and applications of neuroscience

To start, it was of the utmost importance to be able to create and give students a new, clear and easy to understand definition, with a direct orientation to neuromarketing.

Definition: Neuroscience is the study that encompasses how the nervous system and its structure develop in all aspects. Focusing on the brain and its impact on behaviour and cognitive functions (thought and subconscious), like what happens with the nervous system, when people have neurological, psychiatric or neurodevelopmental disorders.

The main orientation of neuroscience for neuromarketing lies in communication to clients, mainly in two terms of the above definition, behaviour and cognitive functions, especially as they delve into the human mind, where the subconscious lies, for a greater understanding of students, who will also begin to understand the existing implications and risks, thus giving the first ethical outlines of the course.

Communication, capable of transforming the field of information and the meanings of messages, creates the risk of destroying the basic mental structures of understanding at the collective, practical and discursive unconscious mind level. In the analysis of the mechanisms of modern communicative practice that activate people's unconscious impulsive actions, in the correlation of neurophysiological processes (Mureyko, Shupinova, Pasholikov, Romanenko & Romanenko, 2018).

Based on the previous, it was important to specify to students that neuroscience from our study can have multiple applications, including meditation and virtual reality in computer science, observed from the individual's subconscious and ability to shape his thinking.

Applications could also contribute to the subjective and objective results of meditation activity by making practitioners more aware of their advances and level of commitment. Consistently and recently, we proposed that the accessibility of information to conscious processing, in line with Cleeremans's theorisation of human consciousness and models access awareness is a crucial trigger for learning (Balconi & Crivelli, 2018).

2. Emergence and evolution of neuromarketing

For this part of the course, as in the previous point, it was fundamental, the sense of developing a new definition from the perspective of education and its evolution as a learning model.

Definition of neuromarketing: It is the application of techniques of neuroscience in the field of marketing and the analysis of the levels of emotion, attention and memory evoked by stimuli in the context of marketing, advertising and sales, such as advertisements, products, services and experiences, based on the imminent understanding of the subconscious.

The above aims to provide more accurate data about the reaction of customers and improve the management of resources intended for the marketing and sales of companies. In its study, it is also likely to highlight the sciences and disciplines that nurture it, to understand the cognitive and behavioural processes of clients through communication delivered to them.

Likewise, it was important to highlight the history and origins of neuromarketing, taking into account its birth and evolution.

Suggested in 2002 by Ales Smidts, the term “neuromarketing” refers to a field practice that falls within the general limits of neuroeconomics, the latter of which represents a convergence of psychology, economics and neuroscience. Consumer neuroscience aims to use the methods of both neural biology and consumer psychology to develop a neuropsychological approach to understanding consumer behaviour. Researchers and professionals are rapidly embracing this new technique, as shown by the growing number of marketing publications reporting on the use of neuroscientific methods, special editions of journals dedicated to the subject and growing investment in the business schools around the world, as an extension of the scientific. In the mastery of neuroscience, the essential purpose of neuromarketing is to provide a better understanding of consumer responses to marketing stimuli through brain measurement (Bakardjieva & Kimmel, 2016).

It is not easy to find scientific texts that clearly describe the history of neuromarketing and the few articles that exist were published between 2010 and 2014, which does not allow us to provide a more up-to-date reference. For example, based on the observation of neuroeconomics, it is impossible to set aside experimental economy, a method developed by Nobel Prize in Economics (2002) Vernon Smith: since it is understood that the subject can be studied in labs, measuring his or her responses to various stimuli (especially money) in controlled spaces. Or from consumer psychology and the applications of behavioural economics, going through anthropology, where ambivalence can be considered as an external sign or manifestation of a complex structure of the human personality based on multiple beings and their analysis can help us better understand how it works. Of course, this is a temporary, tentative, but necessary attempt to build social and anthropological structures (Romero, 2018).

Likewise, the inclusion of ethnography [3] as a recent study content. Without neglecting one of the main sources: communication and, to a lesser extent, artificial intelligence: A facial expression analysis system (I.A.), should also be available to provide information to understand the general mood of the conversation, interpreting messages and intentions, and the interaction between individuals to understand their relationship (Shim, Cho, Ko, Jang & Sim, 2018). Based on the previous, we can include any science or discipline that helps us better understand the cognitive and behavioural processes of the human being, which can be useful for neuromarketing, and together with medical tools of analysis, allow a greater understanding and use of this discipline on the way to becoming an autonomous science. The marketing toolbox now includes a range of physiological research practices that have expanded, beyond the reaction time, conventional psychophysical detection measures, eye tracking and electroencephalograms (EEGs). Recent advances in brain scanning techniques, such as the use of functional magnetic resonance imaging (MRI) and magnetoencephalography (MEG) technologies, which have given a boost to the new field of neuromarketing (Bakardjieva & Kimmel, 2016).

So, this is the most extensive part of the training course.

3. Manipulation and influence techniques for final consumer

The day-to-day contingency of the internal management of large companies makes us wonder whether neuromarketing today has a character of manipulation or mere influence for consumers. One of the problems of this work was that students in internships develop these techniques in the way they are used by companies, often without knowledge, nor consent of the scientific world. In other words, there is no ethical endorsement for these studies and internships. Hence, our duty to teach, and our last decade began with that conception.

Neuromarketing has attracted increasing attention, but critical aspects of it remain unexplored, including its exactly scope and practical use. In the field it has already generated controversy. For example, the press has reported on the perceived dangers of neuromarketing, including concerns over the possibility that advertisers may find a “buy button” or “magic point” in the brain. Editorials in the scientific literature have argued that these concerns are probably premature, since the current state of images and technology do not allow a deterministic precision, like predictions of human decision-making. Still, others have expressed concern that one day neuromarketing could be a threat to individual autonomy if this technology were able to effectively manipulate consumer behaviour (Fisher, Chin & Klitzman, 2010).

Trying to unravel this controversy, from the beginning of our decade, we had to look at neuromarketing through a current lens, in which it can influence and communicate positively to the consumer, either through advertising (mainly), which translates into sales, and business development, creating products and services that are attractive to the consumer. When this discipline becomes the best communication tool in marketing, teachers must develop in students a need for constant scientific understanding and analysis, as the only way for the development of this nascent method and to best develop their professional activity.

The tools they offer to advertisers today, such as the potential to better analyse and understand consumer behaviour, have contributed to the new renaissance in neuromarketing research. This

renewed approach is often attributed to a growing appreciation of objective measurement, instead of traditional methods (i.e. focus groups, surveys, etc.). The considerable promise of neuromarketing has been received with increasing recognition by academics and the marketing industry, but challenges remain (Daugherty, Hoffman, Kennedy & Nolan, 2018).

4. Advertising and its influence in recent years

For a greater understanding of students, it was necessary to highlight the evolution of advertising from its beginnings, from Krugman's conception (1971) and experiments to determine the effects of advertising on the brain, including the decay of traditional media, such as newspaper, radio and television. To get closer to the current importance and implication of the web, search engines and social networks as a form of advertising communication, to delve into the importance of Big Data for the collection of consumer data and Artificial Intelligence. All this to be able to guide the consumer, from cognitive, emotional and behavioural effects, to our brand, product or service, using the best form of communication with the customer and learning to mitigate the negative effects of advertising.

Consumers today have ubiquitous access to technology and information, and with vendors focused on providing hassle-free experiences to customers and all the marketing available on the platforms, they can almost make a purchase anytime. The days when we watched a TV ad and there was a delay until the purchase are in the past. Moreover, the process of people who buys products and services is evolving due to online tools. For many, the shopping process begins with the ad's information or the digital search results (Stewart, Kammer-Kerwick, Koh & Cunningham, 2018).

Equally important is transmitting brand value, such as corporate identity and how negative advertising can negatively affect a brand. Hence the importance of giving examples that could be understood as negative advertising, so that graduates can create quality ethical campaigns that build consumers' loyalty.

Negative brand advertising can be defined as non-compensated and potentially harmful dissemination of information, in the form of derogatory news about a brand in the media or word-of-mouth. Examples of negative advertising related with values, include Volkswagen's manipulate of cars to meet environmental tests for diesel emissions and McDonald's use of expired meat in China (Liu, Lischka & Kenning, 2018).

5. Management and advertising agencies

This presentation would be complex without delving into the subject of management and the way executives and senior executives, who wish to form universities for business, make crucial decisions in the commercial field, and in terms of budgets, to achieve greater profitability for the brand, products and services that are delivered to a customer, and to deal with the competition from an ethical framework and with social responsibility. Addressing management is need also to highlight the correct work that must be done with advertising or marketing agencies to achieve the results desired by the company.

Senior management must be committed to sustainability, with immediate environmental leadership, and with constant motivation towards employees. Assessing a broad set of leadership behaviours and

considering the impact of the alignment or consistency among managers of a company. Senior management's commitment to sustainability, demonstrates a commitment to the protection of nature, to boost the company's environmental strategy, always supporting these initiatives (Graves, Sarkis & Gold, 2019). At present, this is of high importance to the customer, who values social responsibility and the protection of nature as values of brand identity, and is not a minor matter for the competition, especially for the way a company presents itself, especially considering corporate communication.

Regarding the teaching of work with advertising agencies, this must be managed from a corporate vision, as a proposal and not only based on what corporations suggest, so it is essential to be clear about the desired brand identity and corporate values in the design of a campaign in constant cooperation with the agency, especially when dealing with neuromarketing.

Teaching must then consider marketing agencies and their customers, working together to create a solution, like a campaign or design. From a managerial perspective it is a very important process, which is central to produce effective marketing communications (Hughes, Vafeas & Hilton, 2018).

6. Ethics of neuromarketing

During the course, the ethical context was treated several times, but it was key to dedicate the final unit exclusively for such an important subject in the formation of any discipline and especially in this scientific method. Thus, this unit addressed neuro-ethics and its relationship with neuroscience and neuromarketing. The idea is to provide an overview of the key contributions that ethical neurology has made to research in neuroscience (Cipolla & Gupta, 2018).

It is a fact that the seller should try to understand the behaviour of the consumer. Thus, the course involves controlled exercises and experiments to address this disjunction and improve students' abilities and techniques in this regard. However, in recent years, most debates about neuromarketing and ethics have focused on the commercial use of neuromarketing. The main problems were consumer manipulation and lack of transparency in this field. While academics should be well informed about codes of conduct or ethics, this is often not the case, and do not explain the commercial uses of neuroscience, so the course sought to change this situation. For example, in 2011 a consortium of consumer protection groups filed a complaint in the Federal Trade Commission against Frito-Lay for allegedly using neuromarketing to determine emotional and subconscious reactions that would help it "promoting high-fat snacks for teens". This shows that conducting neuromarketing research poses several ethical problems that marketing professionals should consider (Hensel, Llorga, Wolter & Znanewitz, 2017). Therefore, this unit, through examples and study of real cases, provides a purpose-created ethical guide for neuromarketing, as a fundamental part of this marketing training course. It is also understood that for academic purposes, teachers' commitment with this subject must exist for the course to be successful.

General considerations for teaching

Chile's National Accreditation Council (CNA) oversees the excellence and continuous improvement of university degrees offered in the country, through 1-7-year-long accreditations [4]. Universities are independently accredited, just like degrees and postgraduate programmes. Therefore, to integrate a new course/module into an accredited degree, one has to wait for the next accreditation, or add it as an

elective course, as a lab, or integrate while the degree has not been accredited or you are in (regardless of whether the university is accredited as an institution). With the reform, which came into force in 2019, the accreditation will be international and then validated by the National Accreditation Council, so Chile's universities are already working on it.

In the case of the San Sebastian University (USS), this course was integrated because the degree was not accredited, even though the university has a 5-year accreditation (one of the highest in the country), since the Business Engineering degree is new in the Advance system [5]. The course could be taken after the approval of the marketing course. In the case of the UFT and its Commercial Engineering degree, both were accredited for 4 years, which expired in 2018 [6]. Therefore, the course was included as elective after the approval of the basic marketing courses. In the case of Industrial Civil Engineering, [7] which is in the process of accreditation, the course was included as part of the labs accompanying the core marketing course.

Having explained the previous, the neuromarketing course tried to comply with the national standards of the National Accreditation Council and the respective international accreditation standards, focusing on the Key Competencies for European Learning – A European Framework of Reference [8]. Therefore, the course classes had to be didactic and innovative, using examples and controlled experiments in which all students participated [9], to achieve greater understanding and students' attention.

2.1.2. Population and sample

The first course was tested as a 3-month course in: 1) the Advance Programme (evening study modality) of the engineering degree in business administration of the School of Economics and Business of San Sebastian University (USS), which had 36 students and ran from June 2010 to September 2018; 2) the Commercial Engineering programme (daytime) of Finis Terrae University (UFT), which ran from early August to mid-November 2018, in a postgraduate classroom, with 50 students (22 did not make it); and 3) the Laboratory of Industrial Civil Engineering of the previous university, which had 44 students enrolled. Therefore, the course was tested on a sample of 132 students.

2.1.3. Data collection instruments

The first data collected for this work were students' average grades achieved in the course taught and graded by the author (grading in undergraduate education ranges from 1 to 7, where 3.95 and up in pass) and a final survey carried out in the first weeks of November 2018. The survey was adapted by a Psychologist from Finis Terrae University and implemented with Google Forms, a survey tool widely used in universities for polling students about taught courses (Benito, Luaces-Cubells, Mintegi, Manrique, De la Torre, Miguez, Vazquez, Campos, Ferres, Alonso & González del Rey, 2018).

2.1.4. Procedure

In the first stage of the project, carried out during the first semester of 2018 (March to June 2018), we designed the course according to the guidelines of the European Framework. In the second stage, the 6 units were taught, except for Engineering in Business Administration, in which some topics had to

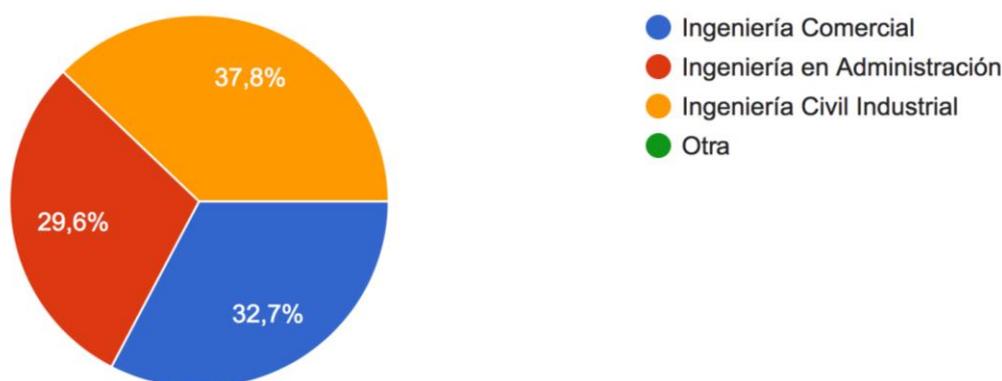
be summarised. Finally, in a third stage, students' grades were collected, and the anonymous survey was conducted to investigate students' perception of the course.

3. Results

In the course in the Advance Commercial Engineering programme, the average grade of the neuromarketing was 5.6 on a 1 to 7 scale, and all students passed, which reflects an exemplary learning result. 2 written exams were taken and 7 oral exams for 3 hours a week. The results are encouraging, especially considering students go to school in the evening and work in the day. In the Commercial Engineering (daytime) programme, the elective course obtained an average of 6.1, which is the best of the courses. Considering that these students had 2 hours a week for 4 full months, no students failed, using the same scale. Two oral exams and 2 exams were conducted, and students with grades lower than 5.5 had to take a final exam, according to current regulations (only 2 students took this exam on 16 November 2018 and their averages grades were included in the results). In Industrial Civil Engineering the average grade was 5.8, which is acceptable considering that students took the course for 1 hour and 15 minutes a week and took 3 oral checks over the 4-month duration of the lab, which reinforce the marketing core course. There is no second chance to pass the practical-theoretical course in addition to the aforementioned evaluations.

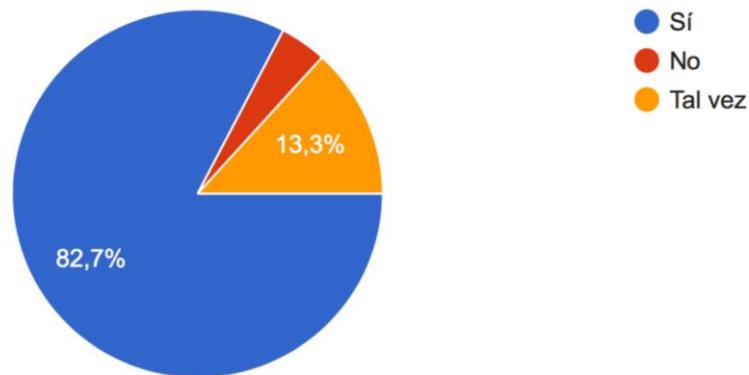
The survey was applied to a universe of 132 students, of whom 98 answered the anonymous and voluntary 6-item questionnaire, which was the same for all the programmes and was sent to students via their institutional email account. The questionnaire measured the following aspects.

Figure 1. Question 1: What degree programme are you enrolled in?



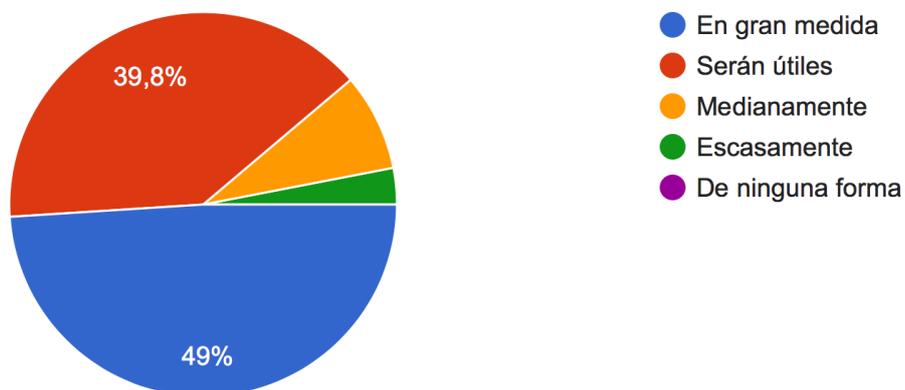
Of the universe of study, 98 respondents (74.24%) answered this question, of which 37 were enrolled in Commercial Engineering, 29 in Engineering in Business Administration and 37 in Industrial Civil Engineering.

Figure 2. Question 2: After having completed this neuromarketing course, do you believe it represents a real innovation in your study programme?



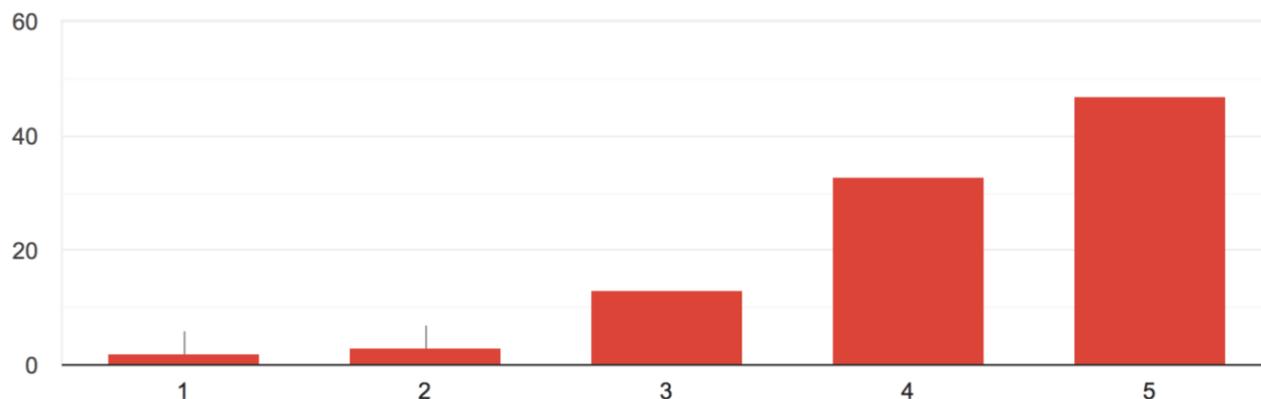
Of all respondents, the majority, 87.7%, answered positively; while 13.3% said perhaps, and the rest, only 4%, replied negatively.

Figure 3. Question 3: How useful do you think the course's contents will be in the rest of your study programme, in case it specialises in Marketing, Advertising, Sales or Business?



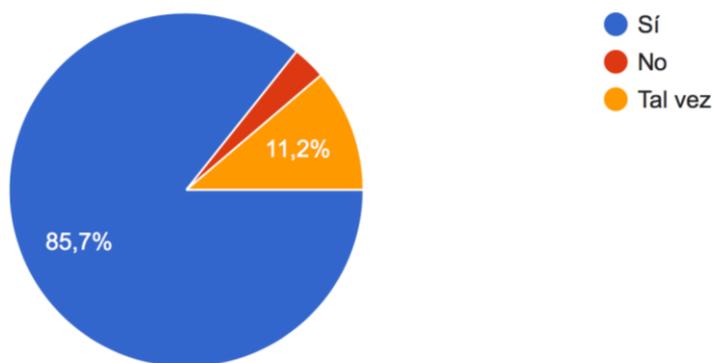
The vast majority of respondents (88.8%) said the contents would be useful to a large extent while the rest (11.2%) consider the contents will be useful moderately.

Figure 4. Question 4: To what extent do you believe that the contents are based on current scientific research?



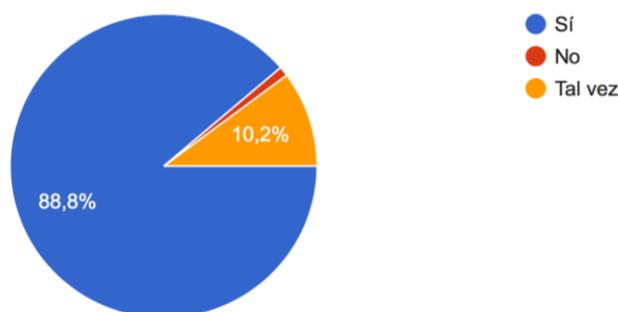
According to the previous table, with a five-point evaluation scale, where 1 is barely and 5 totally. Just under half of respondents (48.97% of all surveyed) evaluated the contents with 5, while 32.65% evaluated them with 4. In other words, 81.62% of respondents evaluated the course's contents with 4 or 5. Only 12.40% of respondents evaluated the contents with a 3; 3.06% with a 2; and only 2.92 with a 1.

Figure 5. Question 5: Did you find the course entertaining, didactic and easy in its methods?



For this question, 85.7% of respondents replied yes, 11.2% replied “perhaps” and only 3.1% answered no.

Figure 6. Question 6: Would you like these contents to be part of a postgraduate degree, or in a postgraduate degree especially oriented to neuromarketing.



For this question, 88.8% of respondents answered yes; 10.2% said “perhaps”, and only 1% said no.

The survey conducted [10] through Google Forms achieved particularly good results, exceeding all measures positively, over 80%, with the exception of participation, which reached 74.4%. Undoubtedly, the results are encouraging and show that this course may be and be understood in the core stage, with an entertaining and didactic method, in business degrees, including in other related degree programmes. The course also proved to be of interest in new disciplines and that clear scientific understanding is possible, in the formative stage. It was also demonstrated that students consider this method to be highly useful for their professional future and that they consider this course should be included in postgraduate degree programmes focused on or related to neuromarketing. The negative results, although minimal, can be significant since there are students who want to continue in fields like administration, human resources or finance, other than commercial areas.

01		02		03		04	
SEMESTRE 1	SEMESTRE 2	SEMESTRE 3	SEMESTRE 4	SEMESTRE 5	SEMESTRE 6	SEMESTRE 7	SEMESTRE 8
Fundamentos de economía		Microeconomía I	Macroeconomía	Microeconomía II	Política Macroeconómica	Impacto social de las políticas económicas	Gerencia Estratégica y Control de Gestión
Métodos Cuantitativos	Álgebra	Cálculo aplicado a los negocios	Estadística y Probabilidades	Estadística para la toma de decisiones	Econometría para la gestión	Impuesto a la renta e IVA	Desarrollo Organizacional
Fundamentos de gestión de empresas	Gestión estratégica de empresas	Legislación laboral	Legislación para apertura y cierre de empresas	Herramientas informáticas avanzadas para los negocios		Sostenibilidad empresarial	Comercio exterior
Lógica para los negocios I	Lógica para los negocios II	Comunicación para los negocios	Marketing	Inteligencia de Mercado	Neuromarketing	Gestión de las personas y de los talentos	Gestión logística y de la producción
Herramientas informáticas para los negocios	Fundamentos de Contabilidad	Contabilidad gerencial	Finanzas	Finanzas gerenciales	Evaluación de Proyectos	Tópicos de Gestión I	Tópicos de Gestión II
Inglés Comunicativo I	Inglés Comunicativo II	Inglés Comunicativo III	Inglés Comunicativo IV	English for Marketing	English for Finance		Liderazgo y trabajo de equipos
	Formación Integral I		Formación Integral II		Formación Integral III	Negociación y resolución de conflictos	Coaching laboral
LICENCIADO EN CIENCIAS DE LA ADMINISTRACIÓN							

After these results, Dean Francisco Labbe, of the School of Economics and Business, chose to integrate from 2019 the neuromarketing course for the 5-year-long programme in Commercial Engineering in

the sixth semester, in its daytime modality [11], for international accreditation, which starts in January 2019, and is already promoted.



The same formula is intended for the Advance (evening study modality) degree programmes of San Sebastian University. Its integration is being currently considered for the degree programme in Commercial Engineering at Finis Terrae University, for its international accreditation that starts in 2019.

4. Discussion and conclusions

The training experience developed during this year reinforces the idea that neuromarketing can be the most effective communication tool for advertising and sales, within the business field. The relevance that can be acquired in students' core stage and how it can contribute to creating better professionals and with a more ethical future development, is of vital importance. Without a doubt, neuromarketing could be the best way to attract customers, to enchant them with products, but this must be accompanied by social responsibility and care for the environment, because this matters to consumers and their evaluation of brands, products and services. Creating a new course was not easy. We had to convince the respective authorities of each university with an innovative model that was strongly based on scientific literature. The results indicate that course achieved its objectives and that it could be replicated, for students who have taken the marketing and consecutive courses, in other higher education institutions. In my opinion, as experimental management, the course, obtained the best possible results, always above averages, but can still be improved, especially for postgraduate programmes, by expanding the sciences and disciplines that are addressed in it. Likewise, it is necessary to review degrees offered by other universities, broadening the search, to see whether neuromarketing has been integrated into them. Because, finally, all this can lead us to better understand, the reasons why customers make one or another decision in the face of the stimuli of sales and advertising, improving such processes.

- **Note:** This project was supported and funded, mainly by the San Sebastian University, and had the collaboration of Finis Terrae University, both through their Schools of Economics and Business. Special thanks to Psychologist (MSc) Claudio Peñafiel Poblete, from Finis Terrae University, who contributed to the design of the survey questionnaire for students.

5. Notes

- 1) In Spain, the University of Barcelona offers Master's degree in Neuromarketing and Market Research, while the Complutense University of Madrid offer the Master's Degree in Neuromarketing and Consumer Behavior (Web Official), among others.
- 2) Psychologist (MSc) Claudio Peñafiel Poblete, of Finis Terrae University, collaborated in the design of the survey.
- 3) University of Barcelona: Master's degree in Neuromarketing and Market Research, Curriculum: Module 4 (Web).
- 4) CNA: How long does the accreditation last? (Official website).
- 5) USS: Engineering in Business Administration - Advance (Official website).
- 6) UFT: Commercial Engineering – Daytime (Official Website).
- 7) UFT: Industrial Civil Engineering – Daytime (Official Website).
- 8) Official Document of the European Union, PDF (Website)
- 9) The class was recorded by a student. The video is available on YouTube:
<https://youtu.be/0W4oYdvvY4A>
- 10) Survey on Google Drive (Neuromarketing):
https://docs.google.com/forms/d/1WI3DhWYnkDhwkuY8XPAb4Iy8LWKRdt3sJgTBmfXqaTY/viewform?edit_requested=true#responses
- 11) Universidad San Sebastián: Nueva Malla Curriculumr 2019 – Commercial Engineering (official website).

6. References

- Ludmila Nagyová, Ingrida Košičiarová & Martina Sedliaková. (2017). “Corporate communication as one of the basic attributes of corporate identity – Case study of Chocolate Milka”. *Communication Today*, 8, (1), 86 - 103.
- Sergey S. Zmiyak, Ekaterina A. Ugnich & Pavel A. Krasnokutskiy. (2019). “Generation and Commercialization of Knowledge in the Innovational Ecosystem of Regional University in the Conditions of Information Economy Establishment in Russia”. *Advances in Intelligent Systems and Computing*, 726(0), 11-22.
- Alexey G. Zaytsev, Maria A. Vlasova, Elena M. Semenova, Orzu O. Yushkova & Tatyana V. Zvereva. (2019). “Peculiarities of Using Neuromarketing as a System of Knowledge in the Modern Economy”. *Advances in Intelligent Systems and Computing*, 726(0), 166-172.

Pac Dinata & Suparwoto. (2018). Problem-based learning with jukung and balogo to improve students' mental model in south borneo. *Journal of Physics: Conference Series*, 1097(1).

Larisa V. Mureyko, Olga D. Shupinova, Maksim A. Pasholikov, Inna B. Romanenko & Yuri M. Romanenko. (2018). "The correlation of neurophysiologic and social mechanisms of the subconscious manipulation in media technology". *International Journal of Civil Engineering and Technology (IJCIET)*, 9(0), 1-9.

Michaela Balconi & Davide Crivelli. (2019). "Wearable Devices for Self-enhancement and Improvement of Plasticity": *Effects on Neurocognitive Efficiency*. *Smart Innovation, Systems and Technologies*, 103(0), 11-22.

Elitza Bakardjieva & Allan J. Kimmel. (2016). "Neuromarketing Research Practices: Attitudes, Ethics, and Behavioral Intentions". *Ethics & Behavior*, 27(3), 179-200.

Jesús Romero Moñivas. (2018). "Is the Ambivalence a Sign of the Multiple-Self Nature of the Human Being? Interdisciplinary Remarks". *Integrative Psychological and Behavioral Science*, 52(4), 523-545.

J Rúas-Araújo, M I Punín Larrea, H Gómez Alvarado, P Cuesta-Morales, S Ratté (2015): "Neurociencias aplicadas al análisis de la percepción: Corazón y emoción ante el Himno de Ecuador". *Revista Latina de Comunicación Social*, 70, pp. 401 a 422.

Heereen Shim, Kyung-Hwan Cho, Kwang-Eun Ko, In-Hoon Jang & Kwee-Bo Sim. (2018). "Multi-tasking deep convolutional network architecture design for extracting nonverbal communicative information from a face". *Cognitive Systems Research*, 52(0), 658-667.

Carl Erik Fisher, Lisa Chin & Robert Klitzman. (2010). "Defining Neuromarketing: Practices and Professional Challenges". *Harvard Review of Psychiatry*, 18(0), 230–237.

Terry Daugherty, Ernest Hoffman, Kathleen Kennedy & Megan Nolan. (2018). "Measuring consumer neural activation to differentiate cognitive processing of advertising: Revisiting Krugman", *European Journal of Marketing*, 52(1/2), 182-198.

Kristin Stewart, Matt Kammer-Kerwick, Hyeseung Elizabeth Koh & Isabella Cunningham. (2018) "Examining digital advertising using an affect transfer hypothesis", *Journal of Research in Interactive Marketing*, 12 (2), 231-254.

Xian Liu, Helena Maria Lischka & Peter Kenning. (2018) "Asymmetric cognitive, emotional and behavioural effects of values related and performance-related negative brand publicity", *Journal of Product & Brand Management*, 27(2), 128-145.

Laura M. Graves, Joseph Sarkis & Natalia Gold. (2019). “Employee proenvironmental behavior in Russia: The roles of top management commitment, managerial leadership, and employee motives”. *Resources, Conservation & Recycling*, 140(0), 54-64.

Tim Hughes, Mario Vafeas & Toni Hilton. (2018). “Resource integration for co-creation between marketing agencies and clients”. *European Journal of Marketing*, 52(5/6), 1329-1354.

Cyd Cipolla & Kristina Gupta (2018). “Neurogenderings and neuroethics”. In L. S. M. Johnson & K. S. Rommelfanger (Eds.), *Routledge handbooks in applied ethics. The Routledge handbook of neuroethics* (pp. 381-393). New York, NY, US: Routledge/Taylor & Francis Group.

David Hensel, Ana Iorga, Lisa Wolter & Judith Znanewitz. (2017). “Conducting neuromarketing studies ethically-practitioner perspectives”. *Cogent Psychology*, 4(1).

Javier Benito, Carlos Luaces-Cubells, Santiago Mintegi, Ignacio Manrique Martínez, Mercedes De la Torre, Concepción Miguez, Paula Vazquez, Carmen Campos, Francesc Ferres, María Teresa Alonso & Javier González del Rey. (2018). Evaluation and Impact of the “Advanced Pediatric Life Support Course in the Care of Pediatric Emergencies in Spain”. *Pediatric Emergency Care*, 34(9), 628-632.

How to cite this article in bibliographies / References

G Gutiérrez Cárdenas (2019): “Neuromarketing as an effective tool for education in sales and advertising”. *Revista Latina de Comunicación Social*, 74, pp. 1173 to 1189.

<http://www.revistalatinacs.org/074paper/1377/60en.html>

[DOI: 10.4185/RLCS-2019-1377en](https://doi.org/10.4185/RLCS-2019-1377en)

Paper received on 29 November. Accepted on 19 June.
Published on 26 July.