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Neuroelectrical Brain Imaging Tools for the Study of the Efficacy of TV Advertising Stimuli and Their Application to Neuromarketing



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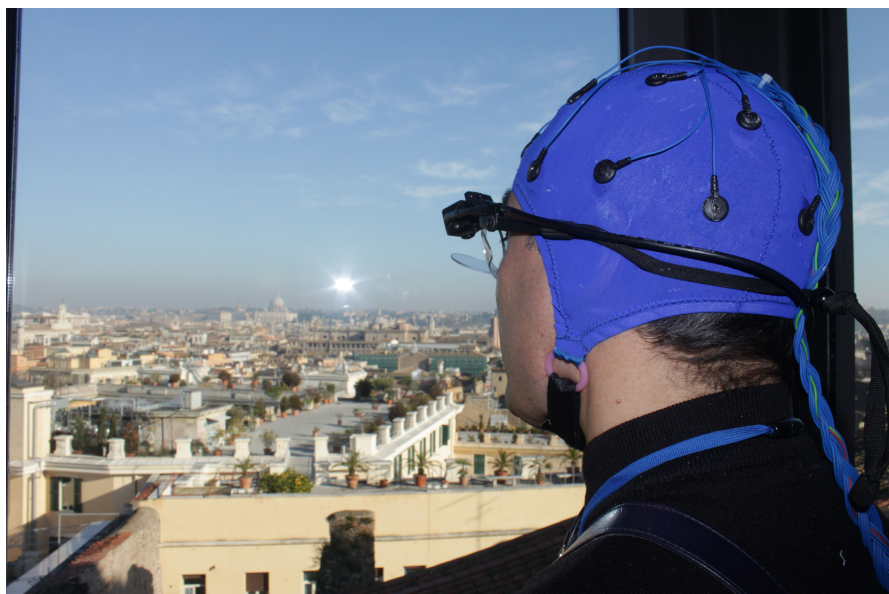
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*He who loves practice without theory is like the sailor who
boards ship without a rudder and compass and never knows
where he may cast*

Leonardo Da Vinci (1452-1519)



Foreword

Neuromarketing: A Gym for Intellectual Humility

The job of a researcher in the social sciences, which economy, in all its declination, including marketing, belongs to, is both simple and difficult

The simplicity lies in the methods. Normally, the methods and techniques that social researchers have to manage to find the answers they are searching for are relatively easy to learn and apply. Someone may object at this point and say that this is not always true, for example quantitative modeling is not easy at all. We could agree on such objection.

However, even in those cases, unless the aim of the modeling strategy is to refuse the reality, which is observed to behave according to the working hypotheses, sooner or later, somehow, an understandable results may appear. You could spin the data, change the axes of the variables, look the data from different perspectives, even torture the data and at the end a result come out.

Now we come to the difficult part of the story. That is, what are the questions to be asked in research?

This is the main challenge of our job as scholars of social issues, as well as its specific cultural depth. The novelist Milan Kundera opened up his own novel with a famous quotation from the German philosopher Heidegger: "The essence of man is shaped like a question." This is a perfect snapshot of humans, the only animal capable of thinking (at least to our knowledge, who knows indeed with absolute certainty if other primates are able to do that?).

Find a reasonable, relevant and significant question is the essence of science and our existence as scholars depends on this.

Find your question. That is the hard part

The trap of "waste of intelligence" in economic research is well-oiled, hidden and always present along our way of scholars. It is a trap that lurks in a dark cavern where methods and research questions are intertwined. When we browse the scientific journals we often perceive one or more of the following feelings:

- The title is too difficult to understand;
- Some scientific papers seems to be nothing more than a statistical exercises. The market is used only as an excuse, because it offers a dataset and a framework of assumptions on which statistical methods can be applied at the

purpose of generating a study and answer questions that appears to be relevant and meaningful;

- The conclusions of the work says nothing more than the following "when it rains, we get wet". You could do that without all that work.

Finding the "right" research questions is definitely a big problem, and not only in marketing studies. In this respect you may have already heard about the organization *Improbable Research* <http://www.improbable.com/> and the IgNobel Prize, which is awarded every year to scientific research conducted seriously and adequately disclosed, although often irrelevant for the choice of the research questions. It should be noted that the initiative is actually very serious: the ceremony takes place at Harvard and the winners are then invited to give a lecture at MIT!

Finding the right question: this is the core of our job as researchers

In marketing the key issue is represented by the word "relevance", which involves a mix consisting of:

1. Culture
2. Common sense
3. A psychological problem that grips the community of the economists

Let's see one by one these three aspects, for which we will propose considerations on neuromarketing arising from the pages of this good book.

1 Culture

The culture to which we refer here is not the "economic" one, but that knowledge, large and branched, of human affairs, which alone allows us to be full owners of our thinking. Culture is not a thing but a way of seeing things.

In our profession the generation of a personal culture is the goal to which we all must address each of our daily effort. It is a job without end. Nor is it assured, on the contrary, it is difficult. "The roots of education are bitter, but its fruit is sweet," Aristotle used to say. Each step forward increases our insecurity since it makes us even more aware of our gaps of knowledge. Already 2500 years ago Socrate was able to describe such uncomfortable feeling with his famous words: "on my own, or Athenians, the more I know the more I realize do not know."

In short, here we face doubts and problems always experienced by humans.

In those respects, the essential requirement, essential because it produces good research, is therefore, first and foremost, a personal culture: a culture that is necessarily divided into several fields (do we mean multidisciplinary?), aware of its "natural" inadequacy and therefore always cautious in his exegesis, and humble.

We have just been faced with the first relevant aspect of neuroeconomic and neuromarketing studies.

Cultural insecurity is probably the prevailing feeling of an economic researcher when he ventures into the territories of the Mind and Brain. Such researcher is constantly faced with the shallowness of his knowledge on the matter and is afraid of saying embarrassing banalities and / or inaccuracies. It is true that studies of consumer behavior have always stimulated marketing scholars to enter into new cultural and scientific areas.

Thanks to this is a fact ascertained and taken over by marketing studies, now that "economic behavior is determined not only by the cultural and social context in which the individual developed, but also by the genetic component due to the evolution of the species (Lugli, 2012). It is also true that the awareness of the fluid nature of the decision-making process of the individual has been abiding city in the patterns of economic theory, as demonstrated by the recognition of the Nobel Prize to Daniel Kahneman and Amos Tversky in 2002. Actually economic researchers have been working for years to solve research questions around the themes of mind and brain, but their knowledge about these themes appeared weak being always marginal to the focus of their epistemological discipline.

On the other hand, researchers that are able to handle the technical tools of neuroscience, which read for example biometric measurements, and that are familiar with spatial and functional brain mapping suffer the same "weakness" in the front of "pure" marketing research questions.

Neuromarketing becomes therefore an useful cultural gym where the scientific skills of both economic researchers and neuroscientists can be trained, thus developing the knowledge of all. We do not know yet whether Neuromarketing will be able to generate lasting fruits. Surely it is and will be an interesting field of knowledge for any open-minded and curious person, and not just for "marketers excited about neuroelectrical brain imaging", as the authors nicely explained in this book (page 7).

2 Common Sense

The vertical knowledge of a topic, no matter how deep this may be, is not culture, but simply specialist learning: you just need a little to find meaningful and relevant research questions, if these are not against the common sense. According to a famous Italian encyclopedia (Enciclopedia Treccani, 2011), common sense regards the "natural ability, instinctively, to judge righteously, especially in view of the practical needs" . The dilemma becomes then clear:

The identification of the research question has to deal (also) with its practical application or research has to be "pure", enjoying the freedom to break free from the shackles of the practice, so that they can dissolve in the prairies of free thought? (Kildulf et al, 2011):

To respond to this question, we consider that in management (and in marketing as well) the practical or operational character of the research can obviously vary, and the relevance of a search has to be read in conjunction with the ability of the proposed research to renew the thought patterns of the discipline (Figure 1). We

can then turn to the logic array represented in Figure 1 and identify in it four types of studies in search-economic management. The vertical axis concerns the epistemology of the research, that is, its ability to approach the truth of things, the horizontal axes relates instead to the ontology, i.e. the ability of a study to represent reality and to give us tools to modify it.

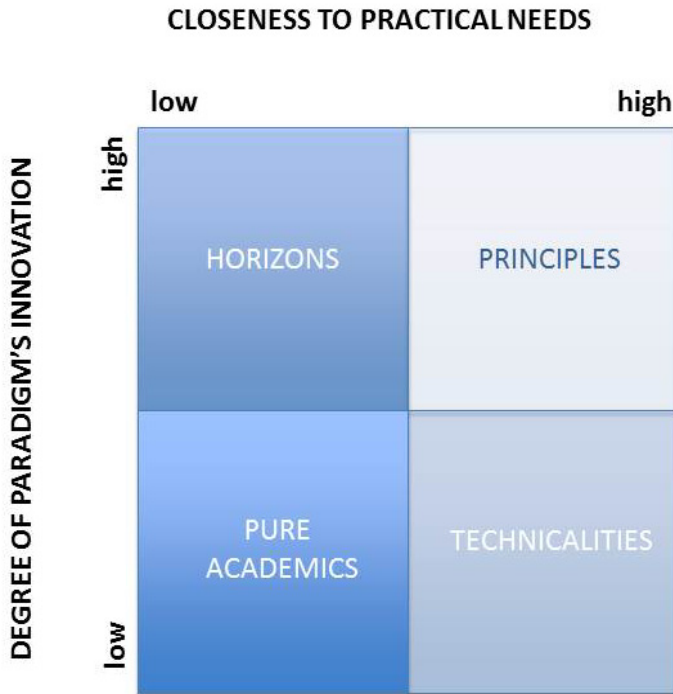


Fig. 1 An array of economic and management studies.

We will see where and how neuromarketing, which has now fully entered the scientific heritage of the discipline (Eser et al., 2011), will be linked with the conditions that arise within the matrix:

- Technicalities: a research that focuses on the practical and concrete significance of its results and their direct applicability, *mutatis mutandis*, to the most different operating environments (markets, firms, sectors). The fundamental paradigms of matter are not altered by this research, but rather up-born for discrete and incremental adjustments. Neuromarketing belongs today to the first of this important line of research. The authors of this book clearly identified the interest of marketing managers in the use of neuroscience to optimize classical instruments, such as advertising, to accelerate the return on investment, and to increase the awareness of consumers towards both brands

and products, which is the ultimate interest of researchers in this field (pp. 7 et seq.) The interest of marketers for neuromarketing is vibrant and feeds also that certain "technological enthusiasm" that characterizes this first part of the twenty-first century. However, this ardor must be accompanied by concern and caution and the following points should be kept in mind: (i) how far it is permissible to push the research on the brain and is there a boundary beyond which the scientific curiosity becomes dangerous for the individual? (ii) what is the limit of heuristic experiments conducted in the laboratory by surrounding the subject with measuring instruments? Such a situation is surely not neutral with respect to the emotional state of the person in the experiment. The promises of neuromarketing are certainly fascinating, however a superior attention is needed in performing those studies, as the authors demonstrate, through all the pages of this book.

- Principles: a research that explores and measures the ravines of new areas of observation, that aims to build an architecture capable of representing knowledge, and of explaining and governing a certain portion of reality. Neuromarketing promises to make a significant advance in knowledge related to consumer behavior. At this point it seems that its contribution lies in the scientific demonstration, through precise biometric measurements, of the nature of awareness (cognitive mind) and unconscious (emotional mind) of the shares of consumers. By using the force of numbers, neuromarketing has permanently dismantled an idea that marked and accompanied economists for decades, that is the idea of a rational and linear *homo economicus*. Future neuromarketing research will probably continue to profoundly change the way in which we view and consider the complex relationships between suppliers and targets, thus modifying even more the theoretical paradigms of the discipline.
- Visions (horizons): a research produces a new thought by staring at different modes of reasoning in relation to disciplinary practices. It is a quest that is launched into an unexplored space in search of new interpretations, following the inadequacy of the old paradigms to interpret the new facts of economic reality (Kuhn et al., 2010).

The secret hope of all scholars in the economy field is that neuroscience may open new horizons in the economic thought and practice, which all fields of human endeavor may benefit from. Scientific fields related to marketing surely shares the same expectation, still the more practical nature of marketing makes marketing managers eager to obtain quick and tangible outcomes from neuroscience.

- Ruminations (Pure academics): a research that is completely self-referential in the assumptions, methods and results, as well as in communication circuits, that has neither a present nor a prospective interest in the practical relevance of its own results, and that has a limited ability of innovation.

To conclude, common sense is an important attitude of mind, which does not discriminate between good and bad research, or between theory and practice. To use a metaphor from seamanship, common sense is like a compass: alone it is not sufficient to trace the route, if not accompanied by nautical charts. In our case the

nautical charts are represented by the desire to renew self- and other people’s knowledge, a desire that must always accompany the researcher.

3 The Psychological Problem

The issue of research questions is enriched by another aspect, which is less superficial but nonetheless substantial and that relates to a sense of inferiority of “applied” economics to the most scientifically accredited economy (Baccarani and Golinelli, 2011), against which some management theorists (and, among them, those involved in the marketing science) warn.

In fact, a sense of inferiority is felt by all economic sciences with respect to so called scientific or “exact” disciplines (Figure 2). The level of scientific accreditation and consequently of social reputation of the latter is indeed very high. The obscure nature of their languages, which becomes evident in sentences like “bacteria do not possess the enzymes of eukaryotic transcription”, of their methods (what is a particle accelerator?) and definitions (“What is a nucleotide?”) put the corresponding scientific community on a sort of superior position that remains, however, inaccessible to most people.



Fig. 2 The Pyramid of the sense of inferiority.

Economists suffer of the lower ranking of their discipline and feel inferior to exact scientists. They feel, so to say, as strangers that are invited to an exclusive party of English noblemen in Oxfordshire and have neither familiarity with the label of the situation nor a fluent English. This may explain why those social scientists started to make their job less and less accessible, more and more scientific, for example by introducing sophisticated quantitative methods and by using a more complicate language. The interest in neurosciences of both “pure”

and "applied" social scientists may be seen as part of a process of giving scientific dignity to their discipline through the use of exact methods, languages and definitions. It is still unclear whether those efforts will pay off.

4 A Conclusion

In only one hundred years of history marketing has been able to accomplish extraordinary achievements resulting in cultural, intellectual and technical cooperation. It is now evolving from his primordial nature of "technique" in a "system of thought and action". Originally intended as "technical and sales policies" when it was born, marketing encountered during its existence many different fields and made of each one of them an original interpretation: firstly it met management, secondly it met strategy and start putting the customer on a central position, then, in recent times, it met digital science giving rise to digital marketing. The centrality of the customer and of the individual have always been a constant element in epistemological and operational disciplines. As a consequence, scholars and practitioner in marketing have come in contact with many non-economic constructs, like attitudes and personalities, lifestyles and social groups of reference.

This book is surely not the first on its subject, but it is certainly one of the most significant contribution to the field so far since it filled in an important piece in the puzzle of neuromarketing knowledge. Vecchiato et al. chose to answer the fundamental question: *how could marketing science and investment choices benefit from the analysis of brain activity in response to advertising stimuli?*

The authors of the volume are serious scholars as it could be understood from the first pages of the book, where they call for caution in the use and interpretation of those techniques and say "brain imaging techniques, applied to human decision-making mechanism, could be adopted to corroborate the results obtained by traditional techniques" (page 1) and "the use of brain imaging can, in a near future, be placed side-by-side to classical tests today largely used in the marketing sciences" (page 3). Moreover, since they properly recognize that the artificial settings of a laboratory may have an influence on the results, they aimed "to recreate, as much as possible, a naturalistic approach to the task in which the observer is viewing the TV screen without any particular goal in mind" (page 4).

It is difficult to convey the answer to the important research questions that the authors have described along the book in just a few words. Nor would it be elegant and gentle to simplify too much the complexity of this work, which involves reflection, technology and culture. With this book, Vecchiato et al. seem, however, to tell consumers the following "Do not worry, guys. Those techniques are still by no means a kind of weapons that industries may use to induce you to buy their products. " On the other side, they seem to say to managers "We are on the right track. We begin to know enough to help you optimize the architecture of advertisements, meant that our work will not help you to sell refrigerators to Eskimos, but rather to make TV advertising shorter of the old thirty seconds, and therefore cheaper."

It is definitely worth reading this book, dealing with a subject that is both fascinating and timely. This work is indeed an excellent and solid contribution from serious researchers, whose scientific commitment and intellectual humility make them great scholars.

Rome, 1.03.2013

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