Chapter 5
Ethical and Legal Considerations in Research Subject and Data Protection

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5.1 Introduction

The world is changing and marketing is not an exception. In recent years, companies increased their interest in the application of new techniques to better understand their consumers and how they are reacting to different stimuli (Pop and Iorga 2012). Although some of these techniques are used in other disciplines such as neurology, the application to market research is growing rapidly and providing a new perspective in this sense and contributing to better understand and predict consumer behavior.

The classical paradigm of the pure rational humans is being questioned by several well-recognized authors such as Daniel Kahneman (2011) or Antonio Damasio (2008). Our decisions are emotional and we are not even aware of them. Furthermore, and instead of the traditional theory of decision making that states that we try to maximize value, we are taking decision based on our own interest (Pop and Iorga 2012).

Among these new disciplines, neuroeconomy is bursting in with force. This interdisciplinary field at the border of neurosciences and economy aims to build neuronal models for decision-making process in the economic context. With the help of neuroimaging—the use of neurobiological methods such as the electroencephalography (EEG) or the direct observation of brain processes through methods such as functional magnetic resonance imaging (fMRI)—researchers can study brain activity "in vivo," as a reaction to certain stimuli (Pop and Iorga 2012). The cost of using the equipment is going down, and this aimed researchers to use them in large scale to have the possibility to correlate processes such as decision making among others (Pop and Iorga 2012). Such techniques finally allow marketers to probe the consumers' brains in order to gain valuable insights into the subconscious

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processes (Morin 2011a, b). But it has the risk of using them without the adequate knowledge. In this sense, we can find practical problems in relation with ethics and the interpretation of the results.

As Kenning states (Kenning et al. 2007) the integration and application of neuroscientific theories, concepts, and methods to do research in consumer behavior are increasing in recent years. And more recently, modern techniques and methods used in neuroscience offer a methodological advantage to a better understanding of human behavior. The scientific proceeding of this approach is subsumed under the term "consumer neuroscience" (Kenning et al. 2007); whereas "neuromarketing" points to the application within the scope of managerial practice (Kenning et al. 2007; Hubert and Kenning 2008; Ariely and Berns 2010). "Neuromarketing" is a new field of science that implies the combination of two other fields, neuroscience and marketing, to approach consumer behavior from a brain perspective (Morin 2011a, b). Controversial since the beginning in 2002, when few US companies like Brighthouse and SalesBrain became the first to offer neuromarketing research and consulting services advocating the use of technology and knowledge coming from the field of cognitive neuroscience. Morin, using an analogy, also states "that Neuromarketing is to marketing what neuropsychology is to psychology" (Morin 2011a, b).

Traditional market research methods have demonstrated some inconvenience to gather reliable data. These methods depend on consumers' self-report while it is not easy for them to describe how they feel when they are exposed to stimuli (Morin 2011a, b). Consumers sometimes are not able to say what "they want" and "what they need." They find difficulties to describe what they are experiencing although in a confidential way, or even they can feel certain pressure of other participants or because of the specific topic. Other situations that can be found are the different roles developed in a focus group. This bias studied in social psychology appears when one person is stating an opinion influenced by the leader of the group.

Morin (2011a, b) clearly states that neuromarketing offers cutting-edge methods for directly probing minds without requiring demanding cognitive or conscious participation.

According to the American Research Foundation (ARF), neuromarketing is expanding rapidly. This process can be faster if marketing researchers understand the real advantages of all neuromarketing techniques. But they also stated something very important, which is long feared the public outcry against potential ethical and privacy issues introduced by the use of neuroimaging technology for commercial purposes. According to the ARF, "It appears that this rapid increase in interest and use of biometrics and neurological methods is fueled by five developments" (Barwise et al. 2011):

- *Advances in neurological science*: Neuroscientists are conducting more studies on issues of interest to marketers, such as the regulation of emotions, understanding of reward systems, and decision-making processes. Although there are still debates and lack of agreement among neuroscientists about many aspects of this discipline and its research methods, the advances in the field have made it possible to achieve more conclusive insights.

- *Technological advances in neuroscience methods and tools* are another important factor promoting the growth of neuromarketing research; allowing less intrusive studies with more detailed information about the brain's response to stimuli. Portable devices and the cost of using such technologies going down are other factors that contribute to encourage marketers to try new techniques.
- Marketers' growing interest in consumers' unconscious and emotional reactions to marketing messages and better measures of emotion, arousal, and implicit memory: As Morin states (Morin 2011a, b) since emotions are strong mediators of how consumers process messages, understanding and modeling cognitive to responses to selling messages has always been a methodological challenge.
- *A competitive marketplace* in which more effective advertising and more accountability of marketing performance are demanded: There is pressure to optimize advertising effectiveness and accountability. Again, neuromarketing research provides new ways to contribute to those goals.
- *Growing evidence for successful applications of neuroscience methods to marketing* and successful case is encouraging companies to apply neuromarketing techniques. The ARF informed that in a number of conferences research companies and their clients shared cases that used neuromarketing research methods to gain learning on topics such as "identifying superior creative executions, documenting impact on attention or evaluation of commercials" (Barwise et al. 2011).

As a result, the use of neuroscience in marketing has both advocates and critics. There are several opinions against neuromarketing and the inherent risks of using innovative techniques for commercial purposes.[1] Advocates of neuromarketing propose that the combination will allow consumers and marketers to better understand consumers (Wilson et al. 2008). On the other hand, critics warn that consumers' ability to make logical, informed decisions about purchases will be compromised (Wilson et al. 2008). In any case, there is no doubt that neuroimaging methods will bring significant changes to marketing persuasion.

Recent research on addictive shopping or buying compulsion is making awareness among consumers and companies[2] and contributing to generate a more effective relation between them (Kenning and Linzmajer 2011). Neuromarketing discoveries may help to protect themselves, not to generate a new issue.

Neuromarketing itself includes more than the use of neuroimaging for commercial purposes. Neuroethics should be applied to all actions done in research involving those techniques, too, and be circumscribed not only to the ethical concerns but also to the legal and social policy implications of neuroscience (Illes and Bird 2006).

Neuromarketing is here to stay; it's not a summer fashion. And as professionals or academics in this field, we need to contribute to improve this discipline.

[1] Commercial Alert retrieved from http://www.commercialalert.org/issues/culture/neuromarketing.

[2] As examples stated by Kenning and Linzmajer (2011) state some research done by Hubert et al. (2011) of addictive shopping behaviors or Samanez-Larkin et al. (2007) of how perceptions change with aging.

5.2 Ethical Considerations on Neuromarketing Research

At the same time neuromarketing companies are increasing their business, ethical issues arise. The concern is growing among government regulators and consumer advocates. They argue that these techniques can open the door to new forms of consumer deception and further erosion of privacy rights (Voorhees et al. 2011).

Anticipating ethical challenges is crucial in developing methods for effective research, as it also represents the aim of neuroethics (Olteanu 2014). In a simplistic manner, neuroethics is dedicated to protecting human subjects that participate in marketing experiments which use neuroimaging technologies. It is not the same to scan brains, which has more profound implications—in some cases clinical implications can arise—than scanning any other part of the body (Olteanu 2014).

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One of the first articles proposing a Code of Ethics for Neuromarketing was that of Emily Murphy, Judy Illes, and Peter Reiner in 2008. The main guidelines were built on three basic pillars: (Murphy et al. 2008).

– *Protection of research subjects*: Policies for responsibly managing clinical findings including provisions of sufficient subject protection, procedures for informed consent, and explicit protocols for dealing with incidental findings.
– *Protection of vulnerable niche populations from marketing exploitation*: Policies for research subjects' protection. All the information should be complete and presented in a friendly way with a simple language.
– *Full disclosure of goals, risks, and benefits*, taking into account any potential harm or nuisance however small or oddly enough to appear.

In this sense, and specifically, one of the most important milestones of the Neuromarketing Science and Business Association was to publish in 2013 the Code of Ethics (http://www.nmsba.com/ethics), mandatory for all members around the world. The Code of Ethics of NMSBA is a "live code." It will incorporate improvements from the international community. This Code of Ethics "represents a first step towards adopting international standards applied to using neuroscientific methods to study the effectiveness of advertising campaigns, packaging and product design, as well as communication campaigns from non-profit organizations and government institutions."

> The purpose of the Code of Ethics for the Neuromarketing industry is to address three important issues:
>
> - Restore the *confidence* of the public in the legitimacy and integrity of neuromarketers;
> - Ensure neuromarketers protect the *privacy* of research participants;
> - *Protect* the buyers of neuromarketing services

NMSBA members will respect these principles as a condition of membership.

Ethics, privacy, and confidentiality should be assessed in every research to make sure that researchers are respecting participants' rights. Neuromarketing research should take into account three main responsibilities: towards subjects, data, and consumers:

1. *Responsibilities towards subjects*

> "Neuromarketing researchers should have a clear idea about the criteria of inclusion and exclusion of potential subjects to accomplish a relevant study. Subjects should be notified the proposed of the research at least up to a certain extend taking into account that in some cases, explaining so much about the purpose can damage the results" (Olteanu 2014).

Subjects should know which techniques will be used, the steps to be done, and any associated risk. Language should be clear, nontechnical, friendly, and close to the subjects.

At the end of the study, subjects should be informed on the results and findings should be published if they are appropriate and do not present risk to the community of population or a defined group of people (Olteanu 2014).

Going further in the kind of policies involved in brain research, procedures for informed consent or explicit protocols for dealing with incidental findings (Illes and Bird 2006) are extremely important.

Although most technologies used in neuromarketing may have a minimal risk, it is advisable to remind participants that they have a right to quit the research being carried out at any moment and for any reason (Murphy et al. 2008).

As researchers we really need to make the research subjects feel comfortable and avoid any discomfort they can experience during the research.

In this sense, the NMSBA Code of Ethics in Chap. 8 clearly determines participant rights. These principles are very important to protect participant's rights and promote confidence to them. Participants are not obliged to participate in any project and they can decide not to continue at any time or even request deletion or modifications. In relation to their guarantees, they shall be guaranteed that their personal data is not available to others or their rights are protected when data is transferred.

2. *Responsibility towards consumers*

In traditional market research approach, respondent's sincerity sometimes is questioned when using surveys. Using neuroimaging tools eliminates those disadvantages and offers information regarding consumer's unconscious reactions to the stimuli. And after completing the study, researchers are responsible for dealing with the results to the benefit of consumer (Olteanu 2014).

As researchers, we need to not only be honest with the results if we can publish them but also try to improve our discipline.

Any neuromarketing private research company can freely choose their clients and what to research on, but there are some controversial industries that can take advantage of these cutting-edge techniques.

Consumer free will comes from moral responsibility and people are responsible for their actions only when free will is involved. Regarding the use of neuromarketing

in order to develop advertisements, products, or packaging, consumers have the final word in choosing a product or service (Olteanu 2014). Nowadays, consumers have at a glance a lot of information available to choose and take decisions. In this sense, consumer's mind is not altered so as to prefer a product just by having done neuroimaging techniques.

3. *Responsibility towards data*

As researchers we should be careful with the data gathered during our research. In our daily work, we have a growing dependence on computers, Internet, and cloud databases. Individual privacy is a great challenge in research. When data are collected and stored, privacy and confidentiality issues may come across. And both have become crucial in the research subject relationship. According to the UE directive from 2016 "it gives citizens back control over of their personal data, and to simplify the regulatory environment for business. The data protection reform is a key enabler of the Digital Single Market which the Commission has prioritized. The reform will allow European citizens and businesses to fully benefit from the digital economy." Companies are obliged to give to individuals the option to manage the personal data, especially in the digital world.

4. *Responsibility towards the company*

Companies rely on the companies they contract to do research. As researchers, we need to give our customers full security on our own work and we need to generate a mutual confidence that we are fulfilling research protocols.

5. *Connection between responsibilities*

According to Nello (2000) we have to be careful with these four elements, because they are not separated; these are connected. Nello (2000) states that this is the circumscribed square of professional ethics. The researcher is the connection between these four elements and he or she has to coordinate them to apply neuroethics correctly.

5.3 Privacy, Confidentiality, and Legal Issues

According to the White Paper "Neuromarketing: legal and policy issues" (Voorhees et al. 2011), neuromarketing, as currently employed, can raise some issues about collection, storage, and use of data gathered with volunteers in laboratory. The privacy issues associated with neuromarketing are thus more likely to implicate the notion of privacy as limited access to the self. As discussed above, they can be considered ethical implications. To summarize it somehow, we can say that observing the brain can void some privacy rules (Nogués 2014).

According to the European Commission in "Data protection and privacy ethical guidelines" (2009) and the Report on Current Issues in Research Ethics from

Columbia University (2015), the way data protection and privacy issues are taken into account and formally treated fundamentally depends on the legal environment of each country where the research will take place. And depending on that, applicants need to provide the appropriate authority with a detailed description of the proposed data collection and the methodology used for collecting, using, and storing of personal data. Data protection is key for reducing risk and can include activities such as:

1. Identifying who has access to the data
2. Identifying who is maintaining the confidentiality of the data
3. Describing the measures for protecting the physical security and software security of the data
4. Ensuring that authentication and authorization are required for those who have access to medical data by providing firewalls, data encryption, and password protection
5. A contingency plan for dealing with any breach of confidentiality
6. And of course, accomplishing the Data Protection law from each country

Data protection levels will vary depending on the type of research carried out.

5.3.1 What Is Privacy?

According to Report on Current Issues in Research Ethics from Columbia University (2015), privacy can be defined in terms of a person having control over the extent, timing, and circumstances of sharing oneself (physically, behaviorally, or intellectually) with others. Privacy refers to the right of individuals to limit access by others to aspects of their person that can include thoughts, identifying information, or any other information that can identify a person. According to the European Commission in their report on "Data protection and privacy ethical guidelines" (2009), privacy concerns any data which, either alone or when linked to other, relate to an identifiable individual or individuals. Consider privacy as a basic human right and maintaining confidentiality as a professional obligation.

Data privacy involves the right of any individual to expect that personal information collected about them will be processed securely and will not be disseminated in any form without their written consent.

In this sense, the NMSBA Code of Ethics in Chap. 7 determines that researchers shall have a privacy policy accessible to participants. In relation to their guarantees, they shall be guaranteed that their personal data is not available to others or their rights are protected when data is transferred and it is ensured that participants are aware of the purpose of collecting insights. The identity of participants will not be revealed without explicit consents and the information collected shall be for specified neuromarketing research purposes and not others.

5.3.1.1 Privacy and Informed Consent

According to the European Commission in their report on "Data protection and privacy ethical guidelines" (2009), by signing the informed consent, volunteers control their privacy for a specific purpose and specific period of time. Individuals need to be aware of the:

1. "Methods used for handling personal data"
2. "Justification for requesting/obtaining their data"
3. "Duration of data storage"
4. "Guarantees concerning the rightful use of data"

All study participants present in a research project need to be informed about the planned research, use of the collected data independently of the type of data collected. Participants need to be informed how personal data is planned to be handled and to provide the appropriate authorization.

Critical aspects of informed consent are the following:

1. The potential participant must be given sufficient information in order to be able to make a choice of whether or not to participate, taking into account the risks, alternatives, and being free of any coercion.
2. The decision of the potential participant on the consent issue must be evidenced. Participants must agree that data will be used for a specific research, scope of research, and warnings.
3. The potential participant must know if the researchers are using some invasive or noninvasive technique.
4. Participants should know any possible sequels and if they can be reverted.
5. If the researches are using a "blind technique" in the experiment, subjects should be given enough information of it.

Protocols should be done in a way that creates confidence in the volunteer making him/her to feel comfortable. Using technical words in the informed consent might be an obstacle to give an understandable message. If our volunteer doesn't understand, he will be uncomfortable and unconfident with the research.

If applicants wish to include either children or adults who are judged not to have legal competence to consent for themselves in order to participate in research projects, they must prove that the inclusion of such participants is necessary and the people who are legally responsible from them have sufficient information that allows them to make the informed consent choice.

In the specific case of children and young people, NMSBA states in article 8 that participants under 18 years old need the consent of their parents.

To maintain data privacy, researchers should create a framework of security measures to guarantee that data is kept safe from unforeseen, unintended, unwanted, or malevolent use or trying to transfer illegally. And it concerns mainly three main things: access to data—how they are accessed and if they are properly protected; conservation of data—where and how long are the data stored and archived; and accuracy—how to maintain and update data. Duration of data protection and means

of irreversible data removal should be clearly defined in the research protocol. References to the data protection law of the country should be included in the informed consent.

5.3.2 What Is Confidentiality?

As privacy relates to the research participant's direct disclosure to the researcher, the European Commission (2009) describes confidentiality as related to the extent to which the researcher protects the participant's private information. This is a process that involves a relationship of trust, and of course, the expectation is that this information will not be divulged to others without the participant's permission.

There are many specific topics that fall under the section of privacy and confidentiality that are essential to be considered by today's researchers. To increase awareness of protecting privacy and maintaining confidentiality in the research setting has become critical, complex, and challenging nowadays.

According to the European Commission, some benefits of maintaining confidentiality are the following:

- It helps establish trust between the research participant and the researcher.
- It reduces worry on the part of the individual.
- It maintains the participant's dignity.
- The participant feels respected.
- It gives the participant control and promotes autonomy.

As stated before, if researchers cannot ensure that data collected is safe, volunteers may not want to accept to participate in research. It is researcher's obligation to protect such confidentiality. Trust encourages research participants to communicate honestly and openly with researchers.

5.4 Potential Legal Issues

According to the White Paper "Neuromarketing: legal and policy issues" (Voorhees et al. 2011) neuromarketing methods and goals potentially raise legal issues for those engaged in this practice. Advertisers face various forms of potential legal challenges to their use of neuromarketing.

As neuromarketing techniques become more sophisticated and more powerful, the industry will likely face increasing resistance from regulators concerned that consumers are being misled into believing that they want or need a product they have no use for, or deceived into thinking that a purchase arises from their rational choice whereas in fact they are being induced to act based on stimulated subconscious impulse.

As stated before, privacy issues concern among regulators and the general public may arise as aggressive claims by neuromarketers and the power of their techniques to understand brain function and impact behavior. But as Morin states (Morin 2011a, b) in relation to Fisher and other colleagues of Harvard University "the current state of imaging technology does not allow for accurate, deterministic predictions of human decision making" (Morin 2011a, b; Fisher et al. 2010). In the case of neuromarketing research, as long as a participant provides consent, privacy is protected, and confidentiality is guaranteed, we could not say that we are not complying with the laws.

Indeed, we consider very helpful for this discipline initiatives like the Advertising Research Foundation with a NeuroStandards Collaboration Project[3] to test the scientific validity of neuromarketing methods currently in use. In this sense, also, NMSBA decided to create an "Accredited Corporate Member," a new membership category. The accreditation process includes evaluation of methods used and regulation procedures. The aim is clear: expand the understanding of neuroscience's role in marketing field and get a wider acceptance of this discipline worldwide. Overregulation can be self-defeating but standards for the industry are really necessary to contribute to alleviate government, private, and public concerns about neuromarketing.

5.5 Neuromarketing and Consumer's Free Will

Adding techniques of neuroimaging to the advertising industry can improve their capabilities. This is good or bad for consumers … as it has always been debatable (Madan 2010). Advertisers have developed more and more creative ways to influence consumers. However, there is a fine line between being influenced and being manipulated (Morin 2011a, b).

Although it is not the topic of this chapter, we would like to make a brief comment on neuromarketing and consumer's free will as it is related to the outcome of the research done.

Issues about freedom of will, privacy rights, and development and dissemination of advertisements by business operations are broadened significantly by the inclusion of neuroscience methods and findings (Wilson et al. 2008). While the concerns about privacy violation appear legitimate, published studies demonstrate as of yet a very limited ability for neuroimaging studies to decode our private thoughts (Morin 2011a, b).

But the improvement in ethics in this field as in any other scientific research discipline is not less important in commercial research; only good can come from the pairing of the commercial principles of economics with the learning principles of psychology and neuroscience (Madan 2010).

[3]The AFR Neurostandards can be accessed at http://mobdev.thearf.com/neurostandards-collaboration.

The customer mind is uncontrollable and neuroscience can help understand customer's needs (Vashishta and Balaji 2012). But this cannot be done at the expense of consumer's privacy neither consumer's free will.

On the other hand, the word "subliminal" conveys the notion that a stimulus is having an effect below our level of conscious awareness. There is research evidence confirming that subliminal effect does exist. There are messages that achieve virtually undetectable impact and can be considered subliminal because they do act below the level of consciousness (Morin 2011a, b).

Morin states in his paper "Neuromarketing" (Morin 2011a, b) that Kathleen Taylor, a research scientist in the Department of Physiology, Anatomy, and Genetics at the University of Oxford, recognizes that the use of excessive emotions by advertisers is an effective way to trigger buying responses below the level of consciousness. Likewise, excessive repetition of a simple message creates patterns of activity in the brain.

There is still a lot to do. There is still a lot of academic research to be produced to improve future policies and increase protection of consumers from highly manipulative strategies (Morin 2011a, b).

5.6 Final Reflections and Future Perspectives

Altering traditional practices, some of them established for years, can be controversial. Neuromarketing arose as an innovative technology and it is in its infancy. Clear regulations, practical protocols, tests to evaluate the ethical suitability for each case, or "neurostandards" may improve the credibility to this discipline.

We have a lot more to understand about human behavior, emotions, decision making, cognitive process, and, definitely, how we react as human beings.

Ethical, privacy, and legal issues appear and will probably remain. So we need to address them as professionals in this field and work them out. Despite the brief story of neuromarketing, we have come a long way but we still have a lot to do.

And just to finalize, we would like to tell our readers a story. And let's think in the development of the bicycle. This analysis was made by Trevor J. Pinch and Wiebe E. Bijker according to the social construction of technology theory (Pinch and Bijker 1984). In a simplistic way, some groups were against this new technology. They thought—for example—it was harmful. Some others were defending it as it was useful. The perception of the same "artifact" was totally different from one group to the other. Improvements in technology came from the friction of those relevant groups. Problems were solved as time went by and today we think no one doubts of bicycles. Changes appear to be hard in the beginning. But it is very probable that the same can happen with neuromarketing and traditional marketing techniques. Not only traditional research and neuromarketing techniques can improve marketing but also, if we are able to use them well, we can shape a better humankind and get a better understanding of human behavior. Last but not least, it is not only our goal as researchers, professors, and neuromarketing consultants but also one of many other practitioners around the world who are working in this direction.

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