International Journal of Customer Relationship Marketing and Management
Volume 9 • Issue 2 • April-June 2018

Ethics, Neuromarketing and Marketing Research With Children

Cynthia A. Bulley, Central University, Accra, Ghana
Mahama Braimah, University of Ghana, Accra, Ghana
Florence E. Blankson, Ghana Revenue Authority, Accra, Ghana

ABSTRACT

This article describes how a new budding method opens up the avenue for debate to generate ideas and thoughts around its ethical grounding, especially with its application on children. This purpose should be addressed to ensure a pluralistic ethical approach to dealing with children as respondents in research. Relevant literature and theoretical findings on ethics, marketing research, neuromarketing and neuroethics as well as the most common and applied ethical policies are reviewed systematically and presented. Interspersed with this method is a comprehensive evaluation of current debates and cases on ethics and children. The use of research ethics regulatory and policy mechanisms and its harmonisation at different levels with other neuroethics codes could reduce unethical practices. Accordingly, the emphasis on children's protection (in terms of cognitive manipulations) with neuromarketing research should be paramount. The knowledge gained through this research should ideally facilitate the process of advancing ethical concerns to promote statutory policy in the light of neuromarketing techniques.

KEYWORDS

Children, Consent, Ethics, Intrusion, Neuroethics, Neuromarketing, Privacy, Research

INTRODUCTION

Ethics can be described variously as a system, theory or principles of behaviour, an area or branch of philosophy of study concerned with morality. Morality refers to the judgement of wrong or right in doing things in general. Ethics are more self – regulatory guidelines that must be adhered to in research, some professions or any discipline. It defines the expected norms of conduct while maintaining integrity of a group or body. Ethics provide a standard of integrity in conducting research involving human subjects, animals, biological and hazardous materials, and techniques. Policies for the conduct of research offer guidelines to ensure the safety, welfare, respect and dignity of human subjects. Research ethics bodies and committees specifically have reviewed ethical issues that may arise when other participants are involved in studies. Studies that contravene ethical norms are queried, rejected outright and sometimes, legal actions are taken to deter others from such actions.

Ethics are a "sine qua non" when conducting research involving human participants. Research ethics puts an obligation on anyone conducting research to be trustworthy and responsible. The

DOI: 10.4018/IJCRMM.2018040105

adherence to a standard or ethical norm in research promotes rigour, accountability and responsible moral values. Lapses in research ethics could lead to harm and death of human subjects/, animals or may jeopardize health and safety.

The ethical concerns of research in general, especially with children and the vulnerable, has resulted in a countless number of initiatives, institutions and associations whose main objectives are to protect, formulate standards and regulations, and ensure that strict principles are adhered to in any inquiry. Different disciplines have come up with varying perspectives on ethics of research with children. Bioethics, the ethics of social science, business research ethics, and ethics in scientific research are a few of the disciplines with on-going debate in the academic literature.

The ethical grounding of researchers especially with the emergence of neuromarketing and targeted consumer research, call for more concern and revisiting of the subject (Bargh, 2002). A considerable number of studies are done on and among children or the youth in society. Considering the fact that such groups of respondents in research by their age are at risk of exploitation and manipulation (however unintended this might be), there is a need to readdress ethical considerations in the light of the emerging neuromarketing techniques and research. Ethical issues arise when children are the subject of the research or sample of interest. Hence, there are strict ethical rules, guidelines and policies outlined for researchers to follow and apply in research projects. But the potential and current use of neuroscience to measure brain activities in neuromarketing could be a formidable technique that can be used for manipulation. Neuromarketing methods and tools have the potential to peer into the minds of consumers to predict behaviour.

The scientific methods of measuring consumer behaviour using technology to determine brain activity has gained popularity in academia and business research. Neuromarketing research represents a more effective method of determining consumer thoughts with the purpose of influencing the subconscious mind. In effect neuromarketing methodology removes subjectivity and ambiguities in arriving at tentative consumer behaviour and research. It is the next 'big thing' in marketing and consumer research (Ariely & Berns, 2010). Its use of methods of quantitative and qualitative measures to test the subconscious mind of consumers for its reactions and information processing activities is providing pertinent data to unlock the mystery of consumer decisions. Recent critiques of neuromarketing research have identified key concerns regarding ethics, tools and techniques that may put children and the youth at risk of being manipulated to the advantage of researchers and manufacturers. The assumption that, the existence of ethical principles and rules of conduct that researchers must follow, make it safe for children participants is questionable (Alderson & Morrow, 2011; Gallagher, 2009). The important role of these principles and rules are acknowledged but aspects of their function and procedure raises a lot of concern. As with other contributions to ethics in research especially with children and the youthful population, this study seeks to review ethical rules and guidelines relating to research and particularly neuromarketing research. How ethical sensitivity and consent could be combined to add value and recognition to children and the young in research. Further, a reflection on ethical principles and a suggested addition by neuromarketing researchers is outlined. The introduction of the study is followed by issues and a brief historical review of research ethics. The literature and methodology sets the tone for presenting the review. The following sections tackle the key ethical principles, ethics, research and neuromarketing with a focus on children and concerns associated with their protection. The chapter ends with the discussion of ethical standards that could be added when using children as human subjects in neuromarketing and consumer research to avoid the issue of intrusion of privacy and obtain active formal consent.

THE ISSUE OF ETHICS AND RESEARCH

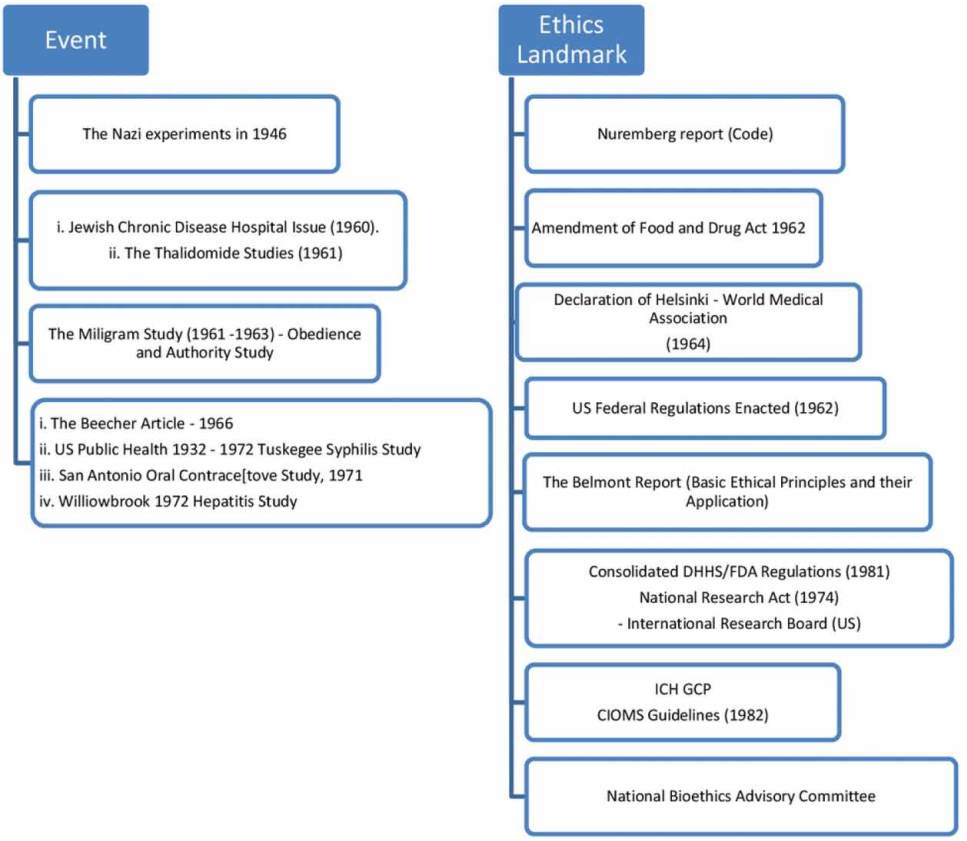
International concerns that arose in the 1940s over experiments with human subjects during the World War II, sparked major concerns with ethics and research. The breach of the participants' rights and dignity were incongruent with ethics and human value. The lack of clarity and how far research can

go during experimentation makes it necessary to have effective standards or laid down procedures, acceptable and used by researchers and institutions. Currently, ethical standards are backed by law and implemented by research institutions and agencies, yet, issues of conflicts of interest, rights, consent, breach of privacy and sometimes outright exploitation still persists. Ethics and integrity are major concerns of research. Hence, a number of scientific disciplines including biomedical and human life sciences, and social sciences have engaged in debates about research practices and ethical challenges to bring sanity in seeking for more knowledge. Research develops information, knowledge and understanding through a systematic inquiry and must be designed to investigate, collect, analyse and evaluate using minimal risk to subjects. The nature and value of research to society suggests that it ought to continue, so far as it does not infringe on rights.

Review of the History of Research Ethics

Research ethics abound, but it is dispersed across a range of academic and professional disciplines. The main elements and issues of debate in research ethics have not changed much over the past thirty years. The first internationally recognised research ethics known as the Nuremberg Code in 1947 were the standards that initiated the development of regulations for participants in research. Although Walter Reed (1851 – 1902), Louis Pasteur (1822 - 1895), Edward Jenner (1749 – 1823) and others were pioneer scientists who had used human subjects to test vaccines when there were no ethical rules that existed (Mehra, 2009; Pommerville, 2013); the Nuremberg Code developed by the International Military Tribunal tried 23 German physicians for conducting inhuman experiments on war camp subjects (ACA for Germany 1946). The tribunal from its verdict enumerated some 'permissible' rules for 'medical experiments' (Nuremberg Code, 1947). The rules covered the main areas or required elements for conducting research with human participants. The rules included the voluntary consent of human participants and the benefits to them should outweigh the risks. Experiments should be based first on prior tests on animals by qualified scientists, eliminating physical or any mental suffering or subsequent death with human participants. Further, participants should have the ability to terminate their participation at any point in time. The Nuremberg code came out of the war verdict and therefore had no legal backing to support its wide usage beyond its country of origin. Later studies resulted in more controversies in other countries but the Nuremberg code implicitly affected their conduct. In the United States, research at the Jewish Chronic Disease Hospital (New York) and others, violated human participants' ethical rights in terms of informed consent and other deceptive representation (Lerner, 2004). In Europe, research studies had advanced leading to the introduction of medications which were later found to be harmful to humans (for example Thalidomide). Various countries came out with Food, Drug and Cosmetics laws (especially the United States of America, Food, Drug and Cosmetics Acts in the 1960s) that seek to spell out standards for research test using human participants. The World Medical Association (WMA) assembled in 1947, sought to streamline and set medical ethics for use by its members worldwide. The aim of the WMA was to safeguard human research participants' health and safety. The WMA is a confederation of medical associations (constituent members) and other commercial entities and bodies, representing the interest of physicians and humanity worldwide. It was established to develop policies and promote the highest ethical standards and behaviour by physicians. The 'International Code of Medical Ethics' was adopted in 1949 and this document made use of the interpretation of the Nuremberg report. The document was further amended per the controversies that arose during the period. This document was amended further in 1964 in Helsinki, Finland and became known as the Declaration of Helsinki (Fischer IV, 2006). This set the stage for worldwide ethical clearance and other Institutional Review Board process. The National Commission on Biomedical and Behaviour Research (NCBBR, 1979), identified and developed the main ethical principles and guidelines that must govern research with human subjects. In the US, the Institutional Review Board is required by law (federal regulations) to approve proposals for research requiring human subjects. Major controversies and events that triggered developments of ethical standards in research are chronicled in Figure 1.

Figure 1. The array of historical events and ethical landmarks. Tabulated by researchers from Dunn and Chadwick (2004) and Resnik (2017).



Ethical Throes

The Nuremberg report enumerated some rules that were permissible in medical research aforementioned. At the time of the ruling, there were no laws, regulations or recognized documents that provided ethical grounding for research participants and the conduct of research in particular. The Nuremberg ruling became the initial code of research standard and ethics recognised by many countries and institutions (Mahidol, 2009). After the World War II, Nazi physicians subjected war prisoners to appalling inhumane clinical procedures in the name of advancing research. The disagreement stemmed from the physicians subjecting the prisoners to injection of typhus and other toxic substances (ophthalmic injection) in a direct human medical experimentation (Nuremberg code, 1947). In the 1960s, the controversy over the Jewish Chronic Disease Hospital's study which had no consent approval for the human participants in the research added fuel to the ethical throes (Lerner, 2004). The thalidomide study issues in the US resulted in various amendments in the Food, Drug and Cosmetics Act in 1962. The drug – thalidomide – was used to treat pregnancy related discomfort (insomnia and morning sickness) resulting in birth deformities in babies. No formal consent was sought from the participants before administering the drug (Kim and Scialli, 2011). The Milgram Obedience and Response study was also deemed to have used deception of its human participants in the research. The "electric shock" experiments sought to prove that many people are willing to act in situations where they consider morally wrong when following the orders of an authority (Russell, 2014). The timely adoption of the WMA Declaration of Helsinki set the stage for widely held ethical

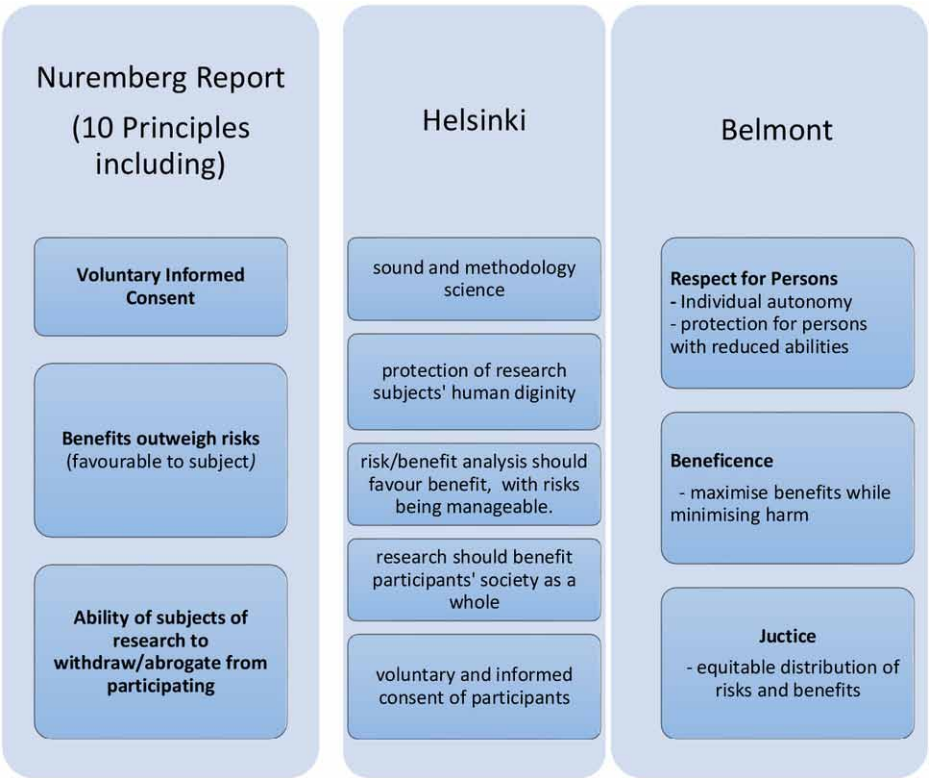
guidelines. The document was revised, strengthened and became the standard for monitoring the conduct of research.

Several unethical practices in research followed, with the infamous Willowbrook Hepatitis Study which span between 1956 and 1972 (Munson, 1971; Rice, 2008). The researchers conducted hepatitis experiments on children who were mentally disabled in a state institution. The children were intentionally infected with the virus to monitor its effects and progression. The study breached the revelation of risk of the inoculation to participants/subjects of the study. The National Research Act was passed in the United State (US) in 1974 after this incident leading to the drafting of the Belmont report. The US National Institute of Health passed a policy that required a committee to review all research funded by the Public Health Service (Rice, 2008; Thomas, 1991). The Ethics Committee's duty is to ensure that state funded researches are reviewed before project initiation. The criteria the established IRB used, followed the 'Common Rule', which is the regulations adopted by the 16 federal agencies that regulate their functions (http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm). All these activities set the stage for ethical conduct in research involving human subjects.

KEY ETHICAL PRINCIPLES

The Nuremberg code of ethics for research using human subjects provided a list that must be followed in medical research. The code involved several tenets some of which included the following and summarised into three main categories shown in Figure 2:

Figure 2. Key summary of instrumental documents on research ethics using human participants



- Voluntary Informed Consent;
- Benefits outweigh risks (favourable to subject);
- Research should be for the good of society;
- Animal experimentation should be the first option;
- Ability of subjects of the research to withdraw/abrogate from participating;
- Avoid human injury as much as possible;
- Researchers must have the propensity and necessary qualification to conduct study;
- Human rights of subjects of research must be upheld.

In order to satisfy ethical, moral and legal principles, in the Nuremberg code, voluntary informed consent was an essential condition. Hence, it calls for subjects to have full knowledge and understanding of the study to make informed decisions as to their participation. This means the purpose, duration, effects and expected or unexpected health hazards should be conveyed to participants. Further, the subjects should have the ability to give their consent freely without any influence whatsoever. The onus lies on the researcher to ensure that consent is absolute. The cost/benefit analysis should favour the participant and humanity as a whole. Termination of participation could come from the scientists or subject at any stage of the study in the best interest of humanity. The Nuremberg code made up of ten (10) principles for research involving human participants, spelt out ethical concerns that researchers must conform to in their studies and it formed the basis for other ethical regulations (Fischer, 2006). The tenets in the code are accepted worldwide and also formed the basic framework for the Helsinki Declaration in 1964.

The wave of controversies involving human subjects raged on in the late 1950s through 1960s to 1970s in the US, leading to Federal regulations and Acts to protect human rights (Figure 1). The need for a review of all scientific research by ethics committees were ruled with the establishment of a National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research, taking up the mandate to define, regulate and promulgate laws to protect human subjects in research (Rice, 2007). In 1964, the World Medical Association (WMA) was established as a platform to develop ethical principles for medical ontology. The WMA was made up of 102 countries' national medical associations. A committee for medical ethics was established and led by Doctors Hugh Clegg and Antonio Spinalli, who drafted the Declaration of Helsinki. Essentially the declaration stipulate regulations to protect research participants' rights to information, privacy, confidentiality, informed consent and all risks, benefits and burdens of participating in the conduct of research. The World Medical Associations' Helsinki Declaration was also concerned with human participants' interest and had the following incorporated:

- Medical research shall protect the life, health, privacy and dignity of human participants/subjects in research above the interest of society – Respect for the human subject;
- Necessary measures and caution must be ensured to protect the interest of human subjects from harm – Beneficence;
- The importance of the objectives must outweigh the inherent risks and burdens to the participants – no malfeasance, no harm to human subject;
- Research must be clearly formulated and submitted for clearance with clear statement of ethical consideration;
- Subjects must volunteer and be informed about the consequences of the research;
- Researchers, research participants and publishers do have ethical obligations that must be spelt out clearly. This is to ensure accuracy of published results of research, source of funding, institutional affiliations and any possible conflicts of interest which should have been stated clearly;
- Compensation for injury from participating and justice for all (Rid and Schmidt, 2010; Human, 2001).

The declaration was revised in 1975 – added safety of subjects a priority, 1983, 1989, 1996 – added consent of minors; 2000, 2001, 2008, 2013 and 2015 revision added portions relevant to interventions, testing on animals, no prior approval of methods and compensation for injury (Fischer, 2006). The Declaration of Helsinki became the ethical foundation that facilitated medical research and protect the rights of subjects of research. It required medical research to be registered in a public registry accessible to all so as to prevent repetition and protection of human participants.

The Belmont report summarises the ethical principles and guidelines for the protection of human participants in research. The 1979 report provided the basic principles that must be adhered to in any biomedical and behavioural research. The three main rules are:

- Respect for persons
- Beneficence
- Justice

The first basic principle assisted in defining how subjects or participants in research should be treated. The first principle is respect for persons, which calls for individual research participants to be given the necessary respect, opportunity and rights to make their own choices. This requires that anyone with diminishing autonomy should be protected against any manipulation. In the case of beneficence, subjects must participate voluntarily and any form of harm should be minimised while maintaining maximum benefits of the purpose of participation. This means a humane and beneficent policy must be followed. The last principle – Justice, calls for fairness in selection of subjects and outcome. The Belmont report was the basis for DHHS and the Food and Drug Administration principles and guidelines in the code of Federal Regulations Title 45 (public welfare), Part 46 (protection of human subjects) and other regulations in 1981 and 1991.

The Federal Regulations and Policies were adopted in 1974 by DHHS and it was subsequently revised in 1981 and 1991 adding further protection for the vulnerable populace. The basic components of the protection are constituted in three (3) issues:

- Institution and agencies assurance
- International Review Board (IRB) reviews
- Informed consent

Institutions and agencies are to bear all responsibilities of research involving human subjects and participants. All these guidelines make no specific mention of children.

These regulations formed the core ethical principles that were adopted by a number of institutions and agencies involving human subjects in research and must strictly adhere to US (DHHS) rules. The IRB review follows the Belmont's three (3) basic regulations in its decisions. In the case of informed consent, education and information provision to subjects indicating their rights of participation by the research is spelt out. Table 1 depicts ethical codes, guides, and institutional affiliation.

ISSUES OF BUSINESS RESEARCH ETHICS

The business world went through its fair share of under dealings and unethical transactions over the years. In 1937, Frank C. Sharp and Philip D. Fox documented evidence of unethical practices in their book titled: *Business Ethics.* Most of the issues in the twenty chapters of the book, focus on court decisions of unfair and wrong transactions, deliberate misrepresentation and decisions on ethical conduct in the business world. The book covers most of the salient business ethics issues especially on the breach of contract and fairness with products and services, deceptions and macro/micro impact of unfair dealings and decisions. The historical perspective of business ethics is captured aptly by the Business Resource Centre (www.ethics.org/resources/business-ethics-timeline.asp) in Table 2.

Table 1. Ethical codes and guides and institutional affiliation

Ethical Codes and Guides	Institution/Association
The Nuremberg Code	Nazi Trials/Regulations
The World Medical Association's Declaration of Helsinki	WMA
International Ethical Guidelines for Biomedical Research Involving Human Subjects	WHO, CIOM, UNESCO
The European Convention on Human Rights	European Union
The Charter of Fundamental Rights of the European Union	European Union
The European Union Good Clinical Practice Directive.	European Union
The European Union Clinical Trials Directive	European Union
Convention on Human Rights and Biomedicine (The Oviedo Convention)	The Convention for the protection of Human Rights and dignity of the human being with regard to the application of biology and medicine

Table 2. Business ethics timeline (Ferrell and Ferrell, 2008 – Historical Development of Business Ethics: Then and Now (https://danielsethics.mgt.unm.edu))

1960s	1970s	1980s	1990s	2000+
Environmental issues	Employee militancy (us vs. them)	Bribery and illegal contracting practices	Unsafe work practices in third world countries	Emerging technology issues: cyber-crime, privacy
Employer/employee tensions	Human rights issues (forced labour, low wages, work environment)	Deceptive advertising	Increased corporate liability for personal damage	Intellectual property theft
Civil rights & race relation issues	Firms start the practice of covering up not confronting issues	Financial fraud (savings & loan scandals)	Financial mismanagement & fraud	International corruption
Changing work ethics	US Federal Corrupt Practices Act passes (1977)	Transparency issues arise	Federal Sentencing Guidelines for Organisations (1991)	Sarbannes Oxley Act (2002)
Drug use escalated	Compliance & legal to values orientation	Defence Industry Initiatives (1986)	Global Sullivan Principles (1999)	UN Convention Against Corruption (2003)

Business ethical issues are diverse with a broad span of influences on managerial and organisational culture. The timeline above provides the historical developments leading to the transformation of ethical standards that guide behaviour in the business world. The 1960s issues led to the Consumer Bill of Rights in the US that had major influence on business and ethics. The 1970s was the period of propagation of transparency and anti-corrupt business practices. Initiatives due to illegal financial practices and deceptions were adopted in the 1980s that are currently being used in organisations. During the 1900s and 2000+ period, misconduct, scandals and fraud emerged (Enron (US), Parmalat (Italy), Royal Ahold (Netherlands) Hollinger International (Canada) and WorldCom (US) leading to the institution of the US Federal Guidelines for Organisation's, European Union legislation on Data Protection (1995) to avert competitive price fixing and other important shifts in business ethics. The case of Wells Fargo's forged bank accounts, Mylan's price hikes on EpiPen device in 2016 and

other business scandals and misconduct, call for more stringent regulations. Currently, the world of business and science are at an intersection with the use of emerging techniques and technology, and there is the need for responsible ethical standards and constant monitoring.

RESEARCH ETHICS AND THE COMPLEX REALITIES OF EMERGING TECHNIQUES

Emerging techniques and technologies used in research require the strengthening of ethical practices. The concerns about the use of human subjects and technologies in research projects increasingly have become the current discourse. Information Communication Technologies (ICT) and its emerging innovation in science are open to limitless use and benefits. This brings up ethical concerns especially if the vulnerable population are considered. Strand and Kaiser's (2015) report on ethical challenges emerging from innovations in science and technologies divided the milieu into three labels – neuro, nano and ICT. Neuro from neuroscience identify brain neurons and processes and its functioning. It is the scientific study of the nervous system and neural circuits. These neural circuits produce human behavioural functions such as learning, memory, motor coordination, emotional response and others. Neuroscience has moved to a stage where technological capabilities can lead to the altering of human identity as in genetic permutations. Moreover, devices that influence the brain functions are being used in various fields. Nano or Nanotechnology is the scientific manipulation of molecules and other atoms in the process of building microscopic devices and processes that enable scientific reconstitution. Hunt and Mehta (2006), referred to nanotechnology as engineered micro materials, structures and systems that minutely reconstitute molecules and atoms. Ethical issues with trust and integrity of research cannot be ruled out. Nanotechnology has the power to alter, generate, and manipulate human genomics (genetically modify organisms). Research ethics associations must identify and clarify ethical concerns that are likely to occur. The uncertainty surrounding nanotechnology is due to the expected effects and capabilities of the processes and techniques. ICT has made it possible for large data generation and processing of information. Its effect will dwell more on invasion of privacy and intrusion in personal life. The ethical challenges with emerging technology call for protection of human subjects' rights. Stahl et al. (2016) and Strand et al. (2015) all agree to the complex nature and realities of emerging technology and the need for constant monitoring.

Strand and Kaiser's (2015) report further examined the vanishing demarcation between what is medical and what is not, emphasizing the ethical challenges inherent in using such tools and techniques. The implication of the report is that these innovative science and technology come with enormous risk and benefits that must be addressed through dialogue and debates. Based on the history of ethics with human subjects, these developments must be intertwined with ethical debates and rational assessment of the nuances and its management (Strand and Kaiser, 2015; Stahl, Timmermans and Flick, 2016). The convention of Human Rights and Biomedicine (CETS, 1997) upholds the rights, dignity and integrity of human subjects in research but emerging technology and techniques threatens these ethical regulations. The threats stem from the nature, use and interpretation of research in science and ICT. A permanent ethics and bioethics association to oversee new innovations and development in neuro, nano and ICT is the way forward.

Neuromarketing and Neuroethics

At the crossroads of marketing and neuroscience, emerged neuromarketing. Neuromarketing applies neuroscience technologies and tools to understand the brain's reactions in consumers. The potential of the new research method is enormous. Researchers are able to closely monitor brain functions to determine the reaction of consumers to stimulus (Fugate, 2007; Fisher, Chin and Klitzman, 2010). Specific cases have been examined by researchers detailing information on subconscious image effect that can be harnessed to influence decision making (Burgos – Campero and Vargas - Hernandez, 2013; Da Rocha, 2013; Lindstom, 2010). Hence, neuromarketing research is a progressively integrated

method of influencing consumer thinking and reasoning. The concept of influencing consumers' mental functioning raises ethical questions and requires codes of conduct to protect consumers. Ethical regulations exist but can the pronouncement in these codes take cognisance of the nuisances of neuromarketing research? The Neuromarketing Science and Business Association (NMSBA) have developed an ethical code of conduct stemmed from several exploratory researches conducted on 67 neuromarketing firms' experiences with their clients. The use of the NMSBA ethical code of conduct is a 'condition of membership' to the group (NMSBA, 2016). Hence the ethical dimensions of neuromarketing must be generalised and accepted by scientist, businesses, institutions and agencies especially its application as a marketing research method.

Neuroethics refer to the ethics of neuroscience that is, the legally and socially correct practices and impact of neuro and nano research involving human subjects. Roskies (2002) define it as the 'ethics of neuroscience' and the 'neuroscience of ethics'. Other neuroscientists and neuroethicists have defined neuroethics as the integration of ethics into neuroscience activities (Illes, Kirschen and Gabrieli, 2003; Moreno, 2003). Roskies' (2002) and others' definition of neuroethics encompasses the moral, practical and application of ethics to neuroscience. It extends to ethical issues arising from using neurotechnology and other scientific techniques. Neuroethics covers all known consequences and not-too-obvious potential abuse or influence of scientific research. Its scope and limits seems vague but it covers ethical issues in advance use of neurotechnologies like neuroimaging, psychopharmacology, brain implants, brain-machine interfaces and others. Ethical issues arising from ever growing influences of neural specific aspect of behaviour, consciousness and personality are part of neuroethics. The emerging ethical challenges in the use of neuroscience cannot be ruled out.

Although neuroethics has largely been accepted as a discipline focusing on the consequential of neuroscience (specifically understanding, monitoring and influencing of the brain), ardent critiques have queried it as a branch of inquiry (Conrad and Vries, 2011). Neuroethics existence cannot be denied in view of the number of research, interest and associations in that field. Neuroethics associations include the American Association for the Advancement of Science (its journal is the Neuron), the Dana Foundation; Society for Neuroscience, Centre for Neurotechnology Studies (the Potomac Institute for Policy Studies), the Royal Society and others set up from 2002. In all, these associations' goal is to ensure that advances and development in sciences and its activities in business, promote responsible applications and engagements for the benefit of societies.

ETHICS, NEUROMARKETING AND MARKETING RESEARCH

Academic studies and literature have outlined key concerns with regard to research ethics. Some of these concerns are complex and the subject of constant debate (Rice, 2008; Dover, 2012). Consumer research in marketing regularly encounters complex ethical challenges. The focus on ethical concerns and the need for harmonising practices in the field has risen due to the growing interest and application of neuroscience methods in consumer research. Further, the unprecedented fascination with neuroethics is partly due to predictive value of the results, the difficulty in ensuring informed consent and the issue of intrusion and protection of privacy (Illes et al., 2003). Ethics assessment of research and innovation using neuroscience methods clearly identifies issues relating to respect for autonomy, trust, privacy, scientific integrity, protection and informed consent among others. Ethical transgressions in these cases sometimes are pervasive and difficult to pinpoint. Global ethics assessment and principles are already in place to a large extent and it is worthwhile to study and review these new research methods. International debates on ethics, neuroscience methods – neuroimaging, neurotechnologies, neuroenhancements - are also on-going. The question that needs to be answered is the ethical grounding of these methods when children are the subject of the research.

The propensity of such innovative neuroscience methods to be applied on children, would warrant harmonisation of all ethical protocols especially with that of the United Nations Convention on the Rights of the Child (UNCRC) and its affiliates.

THE ISSUE OF CHILDREN AS SUBJECT OF RESEARCH

Research ethics concerning children, promotes the rational procedures for determining the best options and principles to safeguard the wellbeing of the child. A child is any person who has not attained the legal age of 18 years. Eighteen (18) years is the legal age for consent/assent in most countries (UNCRC, 2010). Ethical considerations concerning children differ due to their age and the need for parental consent. Ethical care of children gained credence in the 1960's with the Willowbrook hepatitis experiments on institutionalised children, followed by the 1970's issue of assent and the need for parents and guidance approval for child subjects of research. The widely publicised treatment of handicapped babies in the 1980's led to the Baby Doe issues and regulations (Mercurio, 2008). As a result of several widely criticised cases of outright abuse and maltreatment of children, specific criteria and guidelines were formulated into law. When dealing with children as subjects of research, there is the need to adhere to all general regulatory requirements (per international standards) in addition to all justifiable protocols. The justifiable protocols involve examining the rationale for using children, the potential risk and benefits, provision for getting consent, and final parental permission as set forth in ethical standards of the research jurisdiction.

The interest and rights of children needs to be protected in all studies due to their vulnerability. However, many factors in such research (with child research participants) bring to the fore lapses in procedural, methodological and issues of consent and assent. Although the general aim of research involving children is to arrive at useful scientific information to advance knowledge about them, their rights must be protected in the research process. The issue of informed consent that is providing age-appropriate information leading to voluntary participation and withdrawal is necessary. The authority of parents to give the rights and permission to participate in research often times lead to intrusion of the child's privacy. Further, the key controversial consequences of research are that often, children are unintentionally ignored or extra care is not taken during the research process.

Children as Subject of Research

United Nations International Children's Emergency Fund (UNICEF) over the years have provided support for children and have collaborated and facilitated with the establishment of ethical codes and guidelines for research with minors. The UNICEF Innocenti Research Centre as an advocate for children's rights, has strengthened worldwide ethical rights of children. The centre in collaboration with institutions and researchers has documented copious guidelines to improve the understanding of the rights of children especially in the conduct of research. The Ethical Research Involving Children (ERIC) is a project of the centre that provides assistance and directions to researchers and institutions through its compendium. The ERIC project's overall purpose is to provide an on-going supervisory support to researchers to uphold the rights and dignity of children. The legal backing for the ERIC project stems from the UNCRC. The project's website provides specific guidelines, information and resources for consideration.

INTRUSION OF PRIVACY OR INFORMED CONSENT

The issue of ethical and legal norms on informed consent with research subject especially with children has generated a lot of debate. The consent of participants is a legal requirement which is 'ethically' necessary in research. Seeking consent is appropriate to protect the subjects' privacy and rights. The feasibility of obtaining informed consent lies with the investigator or researcher. Hence, informed consent is not just about securing agreements for participation but rather, providing detailed information that goes beyond the observation to or after the conclusion of the study. The argument for seeking and obtaining consent from participants is that, the process may breach privacy, intrude on social life or other consequences of the research and it is a legitimate proof of agreement to participate. The potential participants' consent must be evidenced as proof of authorisation for a specific research.

The human subject circle of privacy is sacrosanct and theirs to control. It is on this basis that, voluntary consent should be freely given with a right to redraw at any time during participation.

Consent is needed to protect privacy and avoid intrusion in people's life. Individuals have the right to determine and control information about them and how it should be disseminated to the public. Generally, two basic components or processes are followed to operationalize informed consent:

1. The disclosure of information on the nature of the research to the level of understanding of the participant;
2. A complete understanding and voluntarily provided consent/agreement to participate.

Children, that is any person below the age of eighteen (18) years (as in most jurisdiction) would need parental or guardian's explicit consent and an affirmative agreement from the child to participate. Unless the child is not cognitively developed to speak for themselves, assent from the child is necessary. Assent recognises and respects the role of children to agree to the process with or without their explicit understanding of the research. The infamous Willowbrook hepatitis research on children from 1963 to 1966 and the subsequent backlash; the 'Monster' stuttering study by University of Iowa in 1939 on orphaned children, breached all ethical protocol. Intrusion of privacy, rights, consent and assent were not considered, leaving the children with illness and mental disillusionment (Associated Press, 2007). Hence, some ethics boards require parental consent in conjunction with assent (Miller and Nelson, 2006).

The key is to get active consent from children subjects. Passive consent is likely to erode the merits of participation. Thus, it is in the interest of any investigator to protect the child hence, the rule is to achieve consent and assent. Parents and guardian consents and children's active approval should be sought unless that cannot be achieved in special cases. The right to consent or dissent lies with the child. Even though children may not make explicit verbal request to redraw their participation, body language and behavioural signs should be an indication to investigators/researchers. These body language and behaviour range from non-conformation, silence, blank look, boredom to refusing eye contact. The key is to create awareness, build trust and follow ethics protocols for using children as research subjects.

The challenge with informed consent, increases with technological devices used in conducting research that are able to extract, capture and collate information in ubiquitous and surreptitious circumstances. Digitization has eroded the legal protection gained from informed consent clause and stripped research participants of their privacy. Arguably, intrusion of privacy with technology goes beyond children and the vulnerable, to consented and informed adults. In the medical field, the integrated patients care management computerised system provide detailed documentation of information on delivery of clinical treatments for records keeping and financial purposes but such digital information could be used for other purposes. Records are routinely available on request and this is eroding ethical standards for the release of patients' records. Although professional code of ethics from the medical associations restricts disclosure without consent unless deemed justifiable, it commonly occurs (especially for the interest of public health). Medical records misuse in the United Kingdom, have been recorded by Tranberg and Rashbass (2004) in a compilation of cases in their book – *Medical Records*. Issues of intrusion of privacy, abuse of consent and assent by providing patients information for secondary use or third parties in the interest of public health is at risk of escalating.

CHILDREN, ETHICS AND THE LAW

Legally, children are vulnerable and they could be discriminated upon, due to the fact that they are considered as minors who are incapable of managing on their own. The legal rights of children are vested with parents and guardians. Thus, this dependency and lack of experience due to their age

means, consenting adults can easily influence their choices. It is on this premise that the UNCRC guarantees the human rights of the child. The rights of children are vested in four core principles of the organisation. They are:

- Non–discrimination against a child;
- Devotion to the highest interest of the child;
- The rights to life, survival and development of the child;
- Respect of the views of the child.

In addition to the activities of the UNCRC, UNICEF promotes the long-term care, development and survival assistance to children and their mothers in developing countries. These functions help to propagate ethical standards and regulation with regard to children. In addition to all protocols, ethical responsibilities to children necessarily must ensure the following:

1. Promote the welfare of the child;
2. Reduce harmful research effects (non – maleficence);
3. Consent and assent should be upheld (autonomy);
4. Trust, respect of privacy and assurance of confidentiality is essential for children;
5. Eliminate compromised position – The welfare of the child should not be compromised by the influence of any adult, be it a parent or guardian;
6. Research priority and procedures should protect the interest of the child while benefiting society;
7. The burden of risk of participation in research should not disproportionately fall on children;
8. Rewards for participating in studies should not be used to influence or entice response from children.

CONCLUSION

Researchers have the obligation to adhere to professional standards. Insofar as the trust placed in them are honoured and they act accordingly, minimal issues would arise. Based on the review in this paper, there is an overarching principle of protecting the interest of children subjects in research. The importance of revisiting and improving ethical principles for digital and neuroscience based research is paramount. These techniques subtlety impacts autonomy, intrusion of privacy and informed consent and directly opens up the window for manipulation. The precise threat is not fully articulated for supporting ethical regulations to be considered. Neuroethics, Bioethics and Research ethics typically deal with controversial, out-of-the-norm studies and advances in medicine, biology and other research. Synchronising research ethics with neuroethics, paying particular attention to ERIC and UNCRC compendiums and regulations on children in the face of mounting innovation is the way forward. Basically, it is the moral discernment with regard to accepted policies and regulations in the field that should prevail. Further studies could focus specifically on ethics and neuro techniques with children. Irrespective of the stringent regulations on ethical standards, using children requires the monitoring and protection of the research subject.

REFERENCES

Academy of Management (AOM). (n.d.). Code of Ethics. Retrieved from http://www.login.aomonline.org/Membership/Governance/AOMRevisedCodeOfEthics.pdf

Alderson, P., & Morrow, V. (2011). *The ethics of research with children and young people*. London: Sage Publications.

Ariely, D., & Berns, G. S. (2010). Neuromarketing: The hope, the hype of Neuroimaging in business. *Nature Reviews. Neuroscience*, *11*(4), 284–292. doi:10.1038/nrn2795 PMID:20197790

Associated Press. (2007). Iowa to pay subjects $925K for stuttering study. Retrieved from https://wwwww.msnbc.msn.com/id/20327467/ns/health-health_care/

Beauchamp, T. J., & Childress, J. F. (2001). *Principles of biomedical ethics*. New York: Oxford University Press.

Beecher, H. (1966). Ethics and clinical research. *The New England Journal of Medicine*, *274*(24), 1354–1360. doi:10.1056/NEJM196606162742405 PMID:5327352

British Sociological Association (BSA). (n.d.). Ethics. Retrieved from www.britsoc.co.uk/new_site/index.php?area=equality&id=63

Burgos-Campero, A. A., & Vargas-Hernandez, J. G. (2013). Analytical approach to neuromarketing as a business strategy. *Procedia: Social and Behavioral Sciences*, *99*, 517–525. doi:10.1016/j.sbspro.2013.10.521

Conrad, E. C., & de Vries, R. (2011). Field of Dreams: A social history of Neuroethics. Advances in Medical Sociology, 13, 299-324. doi:10.1108/S1057-6290(2011)0000013017

da Rocha, A. F., Rocha, F. T., & Arruda, L. H. (2013). A neuromarketing study of consumer satisfaction. Retrieved from https://ssrn.com/abstract=2321787

Drover, W., Franczak, J., & Beltramini, R. F. (2008). A 30-year historical examination of ethical concerns regarding business ethics: Who's concerned? *Journal of Business Ethics*, *111*(4), 431–438. doi:10.1007/s10551-012-1214-9

Dunn, C. M., & Chadwick, G. (2004). *Protecting study volunteers in research. Thompson Place*. Boston: CenterWatch.

Farah, M. J. (2002). Emerging ethical issues in neuroscience. *Nature Neuroscience*, *5*(11), 1123–1129. doi:10.1038/nn1102-1123 PMID:12404006

Ferrell, O. C., & Ferrell, L. (2008). Historical development of business ethics: Then and now.

Fischer, B. A. IV. (2006). A Summary of important documents in the field of ethics. *Schizophrenia Bulletin*, *32*(1), 69–80. doi:10.1093/schbul/sbj005 PMID:16192409

Fisher, C. E., Chin, L., & Klitzman, R. (2010). Defining neuromarketing: Practices and professional challenges. *Harvard Review of Psychiatry*, *18*(4), 230–237. doi:10.3109/10673229.2010.496623 PMID:20597593

Fugate, D. L. (2007). Neuromarketing: A layman's Look at neuroscience and its potential application to marketing practice. *Journal of Consumer Marketing*, *24*(7), 385–394. doi:10.1108/07363760710834807

Gallagher, M. (2009). Ethics. In E. K. Tisdall, J. Davis, & M. Gallagher (Eds.), *Researching with children and young people: Design, Method and Analysis*. London: Sage Publications. doi:10.4135/9781446268315.n2

Human, D., & Fluss, S. S. (2001). *The WMA Declaration of Helsinki: Historical and Contemporary Perspectives (5th draft).* World Medical Association. Retrieved from www.wma.net/e/ethicsunit/helsinki.htm

Hunt, G., & Mehta, M. (2006). Introduction: The challenge of nanotechnologies. In G. Hunt & M. Mehta (Eds.), *Nanotechnology risk, ethics and law*. London: Earthscan.

Illes, J., Kirschen, M. P., & Gabrieli, J. D. E. (2003). From neuroimaging to neuroethics. *Nature Neuroscience*, *6*(3), 205. doi:10.1038/nn0303-205 PMID:12601375

Kim, J. H., & Scialli, A. R. (2011). Thalidomide: The tragedy of birth defect and the effective treatment of disease. *Toxicological Sciences*, *122*(1). doi:10.1093/toxsci/kfr088 PMID:21507989

Lerner, B. H. (2004). Sins of Omission: – Cancer research without informed consent. *The New England Journal of Medicine*, *351*(7), 628–630. doi:10.1056/NEJMp048108 PMID:15306661

Mahidol, T. M. (2009). History of research ethics: origin of international guidelines. Retrieved from www.tm.mahidol.ac.th/itmn-2009/download/JITMM-3-12-2009-C41-Ketup

Market Research Society (MRS) – Standards: Code of Conduct. Retrieved from www.mrs.org.uk/standards/codeconduct.htm

Mehra, A. (2009). Politics of participation: Walter reed's yellow-fever experiment. *The Journal of Ethics*, *11*(4), 326–330. PMID:23195067

Mercurio, M. R. (2008). The aftermath of baby doe and the evolution of newborn intensive care. *Georgia State University Law Review*, *25*(4), 835–863.

Miller, V. A., & Nelson, R. M. (2006). A Developmental Approach to Child Assent for Non -therapeutic research. *The Journal of Pediatrics*, *149*(1 Suppl.), S25–S30. doi:10.1016/j.jpeds.2006.04.047 PMID:16829238

Moreno, J. D. (2003). Neuroethics: An agenda for neuroscience and society. *Nature Reviews. Neuroscience*, *4*(2), 149–153. doi:10.1038/nrn1031 PMID:12563286

Munson, R. (1971). The Willowbrook hepatitis experience: Thomson/Wadsworth: United Kingdom.

Nuremberg Code. (1947). In A. Mitscherlich, & F. Mielke (Eds.), *Doctors of Infamy: The Story of the Nazi Medical Crimes.* New York: Schuman. Retrieved from http://www.hhs.gov/ohrp/references/nurcode.htm

Pommerville, J. C. (2013). *Fundamentals of microbiology*. Burlington, MA: Jones & Bartlett Learning.

Resnik, D. B. (2017). Research ethics timeline (1932 – Present). National institute of environmental health sciences. Retrieved from https://www.nih.gov/research/resources/bioethics/timeline/

Roskies, A. (2002). Neuroethics for the new millennium. *Neurons*, *35*(1), 21–23. doi:10.1016/S0896-6273(02)00763-8 PMID:12123605

Russell, N. (2014). Stanley Milgram's obedience to authority "relationship" condition: Some methodological and theoretical implications. *Social Sciences*, *3*(2), 194–214. doi:10.3390/socsci3020194

Stahl, B. C., Timmermans, J., & Flick, C. (2016). Ethics of emerging information and communication technologies: On the implementation of responsible research and innovation. *Science & Public Policy*, *44*(3), 369–381.

Strand, R., & Kaiser, J. (2015). *Report on Ethical Issues Raised by Emerging Sciences and Technologies*. Norway: Centre for the Study of the Sciences and the Humanities, University of Bergen.

Tranberg, H., & Rashbass, J. (2004). *Medical records: use and abuse*. PB: Radcliffe Medical Press.

UNCRC. (2010). *The convention on the rights of the child. The Policy Press*.

APPENDIX A

Further Readings

Shuster, E. (1997). Fifty years later: The significance of the NUREMBURG Code. *The New England Journal of Medicine.* doi:10.1056/NEJM199711133372006

The National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research. (n.d.). *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research*. DHEW publications. Retrieved from https://videocast.nih.gov/pdf/ohrp_appendix_belmont_report_vol_2.pdf

Centers for Disease Control and Prevention. (n.d.). Timeline - The Tuskegee Syphilis Study: A Hard Lesson Learned. Retrieved from http://www.cdc.gov/tuskegee/timeline.htm

APPENDIX B

Key Terms and Definitions

Baby Doe: A pseudo name given to a child born in 1982 in Indiana, USA with both Down syndrome and fistula issues whose parents declined to agree to a corrective surgery. The name was subsequently given to regulations implemented in 1984 to protect the rights of babies and children.

Bioethics: Bioethics focus on rules of behaviour in the biology field and cases/issues arising from the medical field.

Declaration of Helsinki: The ethics declaration/statement developed at a meeting of the World Medical Association members in Helsinki that promulgated ethical principles to guide researchers and professionals in the medical field.

Informed Consent: Informed consent is seeking a valid consent of research participants. It basically requires researchers to respect the rights and autonomy of any human research subject, especially children.

Neuromarketing: Neuromarketing basically uses neuroscience methods and tools to measure consumer brain activities to determine decision processes for marketing purposes.

The World Medical Association: A body established after the Second World War to monitor and uphold the ethical issues in the medical field.

The Willowbrook Hepatitis Study. A study initiated in a state school in Staten Island in New York for mentally challenged children. The study infected children with the hepatitis virus for scientific purposes with consent from parents. This research took place over a period, invaded the privacy and consent of children and it led to various ethical laws.

Cynthia A. Bulley is a senior lecturer and Head of the Department of Marketing, Central Business School, Central University, Ghana. She was educated at the University of Ghana Business School. A passionate advocate for research and experiential marketing. Cynthia has published and presented conference and academic papers in Africa, Europe and North America. Her current research interest is in the area of consumer behaviour, experiential marketing and international business. she is a regular reviewer for academic journals.

Mahama Braimah (PhD) is a senior lecturer at the University of Ghana Business School. He has considerable research, teaching and consulting experience in the marketing field. His research interest include consumer research, marketing strategy and the application of marketing principles to organisational and national development agenda.

Florence E. Blankson holds a master's degree in Business Administration specialising in Finance. She is an accountant and a Chartered Secretary/Administrator. She was the chief revenue officer of the finance department at the Ghana Revenue Authority. Florence is interested in ethics and management research.