

Research Article

Experimental Bioethics: Integrating Experimental Philosophy, Moral Intuitions, and Cognitive Psychology within Ethical Inquiry

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This manuscript examines the theoretical and historical foundations of experimental philosophy (“Xphi”) and experimental bioethics (“bioXphi”). Building on Francis Bacon’s assertion that experimental philosophy is the “great mother of sciences,” the study advocates for applying empirical methodologies to ethical inquiry. Experimental bioethics bridges experimental philosophy and empirical bioethics, focusing on the role of emotions and beliefs in forming moral intuitions and judgments. By integrating insights from cognitive psychology, experimental psychology, and moral psychology, the manuscript explores how intuitions and emotions influence ethical decision-making. It also discusses the significance of thought experiments in enhancing understanding and stimulating scholarly discourse. The study underscores the importance of experimental bioethics in addressing contemporary bioethical challenges, highlighting its practical relevance and potential to enrich ethical studies in Brazil and beyond.

Introduction

The knowledge of nature through systematic observation and experimentation has remained a focal point of inquiry throughout the history of both philosophy and science. Figures such as Democritus, Aristotle, F. Bacon, G. Galilei, I. Newton, A. Einstein, S. Hawking, N. Bostrom, N. Cartwright, S. Russell, L. Smolin, among others, are relevant representatives of natural and experimental philosophy. Their contributions, in conjunction with advancements in various scientific domains – most notably neurology, information technology (IT), and artificial intelligence (AI) – constitute the vibrant and progressive intellectual nucleus shaping contemporary thought, scientific inquiry, and societal progression.

Francis Bacon notably characterized natural and experimental philosophy, or “Xphi”¹, as the “**great mother of the sciences**”². This assertion was further expounded upon and elaborated by J. Banks in his seminal work, “Course of Lectures on a Natural and Experimental Philosophy”³, confirming the centrality of this approach to understand the natural world. Moreover, the intersection between experimental philosophy and ethics is

underscored by the application of empirical methodologies to moral deliberations, an attempt to introduce the experimental method of reasoning into moral subjects⁴.

Contemporary experimental philosophy represents a new approach⁵, characterized by its reliance on empirical data and methodologies to inform philosophical discourse⁶. In contrast to traditional armchair^{7,8} philosophizing, this approach actively engages with real-world phenomena, thereby broadening its accessibility across various social strata⁹. Such inclusivity fosters a diverse and enriched philosophical dialogue, facilitated by the incorporation of novel disciplines and methodologies. Consequently, this interdisciplinary endeavor not only advances philosophical inquiry but also influences the evolution of moral philosophy, as well as the development of ethical and bioethical frameworks.

Bioethics itself has never been considered to have a single meaning and content, but it is unified by a series of challenges that are progressively transforming it into a plural, dynamic¹⁰ or “ethics in action”¹¹. “Something is lacking”¹² in an approach that appeals solely to abstract theoretical principles and rationality. There is a heightened interest in understanding the workings of the mind, its perception of the world, and specifically, the psychological process associated with ethics and bioethics. This understanding is enriched through cognitive psychology exercises, hypothetical scenarios, surveys and questionnaires as supplementary materials. The lack of data can hinder and prevent the formulation of an adequate judgment or decision. It is therefore important to recognize the relevance of the material conditions of morality¹³, that is, human life linked to the contextual conditions in which it takes place. It is considered necessary to question and reconsider ethics from *hic et nunc*. This is empirical ethics, which will predominantly deal with epistemological issues, highlighting the importance of empirical data and its relationship with normative ethics. An approach to moral, cognitive and experimental psychology and to neuroscience becomes a new phase of bioethics, experimental philosophical bioethics, or experimental bioethical philosophy or simply experimental bioethics, **bioXphi**¹⁴.

A significant convergence with the domains of moral, cognitive and experimental psychology, alongside neuroscience, is heralding a new chapter in bioethics. Over the last 20 years advances in technology including functional magnetic resonance imaging (fMRI) have enable to see what is inside heads and impact offering mind expanding gateways to whole health¹⁵. Neuroscientists have found that moral dilemmas can trigger emotional responses that influence moral decision-making. This emerging paradigm delineates itself from the established sphere of empirical bioethics. This distinction underscores the incorporation and application of experimental methodologies and philosophical inquiry within the context of bioethical studies, thereby broadening the scope and depth of bioethical discourse and analysis.

Intuitions

Experimental bioethics is evolving particularly through its intersections with cognitive psychology, moral psychology, experimental psychology, neuroscience and neurotechnology. Research in this field often uses

techniques Positron Emission Tomography (PET) and Electroencephalography (EEG) to understand the mechanisms underlying cognitive processes and how they relate to behavior and brain function¹⁶. However, these topics remain areas of active investigation, and there is no definitive, widely accepted model of how the brain produces moral intuitions or guides moral decision-making. This discipline raises fundamental questions about the transformation of an emotion, which is inherently tied to neural activity and physicochemical processes, into a mental judgment or decision. The question is “how matter becomes imagination?”¹⁷ The origins and constituents of intuitions are questioned, even their cognitive nature and their possible use as foundational premises for decisions or rational behavior. It is important to consider that quantitative and empirical data are relevant as a starting point that generates intuitions. Nowadays inquiries underscore the examination and discourse surrounding intuitions, a focal aspect within “experimental philosophy” that continues to be a pertinent area of study and dialogue due to its intricate¹⁸ connections with cognitive experimental psychology and ethical fundamentals. A. R. Damásio examines “the mysterious mechanisms by which we find a solution to a problem without using reason”¹⁹, and concludes that reason is not needed to make a choice among a variety of options²⁰. Similarly, J. Haidt contends that “intuition comes first, strategic reasoning second,”²¹ suggesting that moral judgment is predominantly driven by emotion and affective intuition rather than deliberate reasoning²². In a broader context, intuitions are characterized as subjective, instantaneous experiences or perceptions that occur independently of deliberate reasoning and analytical processes, accompanied by emotions and beliefs that culminate in moral intuitions. From the standpoint of experimental psychology, moral judgments are predominantly intuitive, arising not from the conscious application of rules or directives but from judgments intertwined with various cognitive domains and thematic concerns, predicated of indeterminate mental activities²³. This complexity hinders the categorization of such judgments as strictly moral, due to skeptical and relativist traits. Despite the extensive and comprehensive discourse surrounding innatism and intuitionism within the annals of philosophical thought, which make complex the establishment of norms and principles, it is imperative to acknowledge the significance attributed in this domain to the moral intuitions of the lay public²⁴. The endeavor to comprehend how people think²⁵, as well as their understanding and interpretation of concepts, attitudes and stances concerning morality in specific instances, is of paramount importance. This focus on the epistemic contributions of the general populace underscores the value that this philosophical movement places on the insights of individuals outside the intellectual elite concerning morality or applied ethics. It also illustrates the contextual sensitivity of bioethics and its potential impact on actions taken or foregone.

This particular approach may lead to divergent assessments of identical scenarios, a phenomenon recognized as indexical moral relativism, or the alteration and adaptability of moral judgments when applied to complex or varying contexts²⁶ or situations²⁷. It is crucial to consider that “experimental philosophical bioethics”, with its emphasis on specificities and contingencies²⁸, does not preclude the consideration of exceptions or the attainment of a “reflective equilibrium”, including rational deliberation. This perspective, as articulated by John

Rawls, does not require the exclusion of intuitive judgments²⁹. Thus, experimental philosophical bioethics acknowledges the intricate interplay between intuitive and rational components in the assertion of ethical judgments, highlighting the necessity of a nuanced approach to moral reasoning that accommodates both general principles and context-specific considerations.

Acknowledging the distinctiveness of intuitions and emotions as separate psychological constructs or phenomena, it becomes pertinent to explore the hierarchy or precedence between them. Despite both being categorized as non-rational or pre-rational in nature, intuitions are characterized by their immediate cognitive aspect and are notably sensitive and fragile. Conversely, emotions are less likely to be recognized as a legitimate or just basis for action. Emotional processing and variations in emotional engagement influence moral judgment. The results may shed light on some puzzling patterns in moral judgment observed by contemporary philosophers³⁰. Steven Pinker explicitly advocates for rationality as the guiding principle for all cognitive and behavioral processes³¹. Roger Crisp echoes this sentiment, albeit a preliminary clarification, distinguishing “morality” from “ethics”, would be appreciated in this text. He posits that “morality functions through emotions”³². The author continues “the emotions, though they may have some cognitive content, are passions, and in most areas of philosophy, it is rightly thought that arguments should be assessed in the light not of emotion but of calm rational reflection”³³. Consequently, there is no difficulty in recognizing that emotions are often evidently overshadowed, but there is an acceptance for them, nevertheless reason is taking precedence. Last but not least, in accordance with R. Crisp, it is necessary to consider the practical question: “What does one have reason to do?”³⁴

Thought Experiments

Due to their inherent versatility, intuitions are amenable to a diverse range of experimental investigations, notably through the utilization of thought experiments. These represent an amalgamation of intuitions and emotions, crafted with the intent of serving a particular objective. Thought experiments are essentially hypothetical scenarios employed to deduce conclusions that shed light on theoretical or practical dilemmas. More often are communicated in narrative form and with diagrams. Some of them are imagined scenarios and narratives. They facilitate a deeper understanding of human behavior and cognition, as opposed to mere explanation. Such experiments are instrumental in analyzing and distinguishing between various concepts, illustrating and clarifying theories, and cases across a broad spectrum of knowledge domains. Their application is widespread and not devoid of controversy³⁵.

Thought experiments spans both the realms of science and philosophy³⁶. K. Popper, in his contributions to quantum theory³⁷, refers to thought experiments as “imaginary experiments”, highlighting their significance in scientific discourse. Similarly, R. Nozick utilizes the Experience Machine³⁸ as a case study to underscore the interdisciplinary nature of thought experiments. This particular example elucidates the distinction between

experiential “feeling” and active “doing”, whilst probing the depths of human values that transcend basic sensory experiences. W. Heisenberg's Microscope, thought experiment, further exemplifies this approach within the field of quantum mechanics³⁹, designed specifically to illustrate the foundations of the uncertainty principle.

The exploration of thought experiments within the realm of ethics serves as a critical avenue for investigating ethical dilemmas, alongside examining underlying intuitions, beliefs, and ethical principles⁴⁰. These experiments are intrinsically linked to various disciplines, including the philosophy of mind, cognitive and experimental psychology, and, most pertinently, ethics itself. Through presenting scenarios that encapsulate challenging situations, thought experiments compel an evaluation of the ramifications inherent in moral decision-making processes. A principal methodological aim of such experiments is the development and critical assessment of moral theories⁴¹.

Furthermore, thought experiments play a vital role in enriching the ethical discourse. They do so by facilitating the expansion, diversification, and enhancement of ethical content, thereby fostering an environment conducive to the scrutiny and debate of principles and norms. This, in turn, highlights the fragility of established norms and the necessity for acknowledging and validating exceptions. Operating within the framework of experimental philosophy, thought experiments underscore the significance of empirical data and specific individual cases in crafting appropriate moral judgments.

While universal rules, norms and principles may offer guidance on conduct, the essence of ethical application lies in the ability to tailor these general guidelines to particular cases or situations not expressly covered by existing norms. Such adaptability is crucial for ensuring that actions deemed just or appropriate are recognized, thereby underscoring the complex interplay between universal ethical frameworks and the nuances of individual circumstances.

In the context of moral intuitions, the analytical exploration and discourse surrounding hypothetical dilemmas are instrumental in advancing the development of normative ethics⁴². Thought experiments serve as crucial pedagogical tools, elucidating the intricate dynamics between ethical theories and real-world applications.

One notable instance in the historical landscape of ethical thought experiments is the dilemma articulated by W. Godwin, involving Fénelon, a Chambermaid, and a fire⁴³ scenario. This particular example has garnered significant attention within both ethical and psychological discussions, due to its illustrative exploration of the conflicts between utilitarian and deontological ethical frameworks. Bernard Williams introduces two distinct and recognizable thought experiments within his critique of utilitarianism, as delineated in the seminal work “Utilitarianism: For and Against”⁴⁴. Ph. Foot introduces a series of thought experiments which have ascended to the status of classic illustrations, with a conscientious effort to avoid causing offense⁴⁵. The light-hearted nature of the examples is deliberately chosen to ensure they do not provoke displeasure. Among these, she elucidates and engages in a depth discussion on the Doctrine of Double Effect⁴⁶ and provides commentary on some cases. Of paramount significance, owing to its profound impact and extensive dissemination, is the trolley problem. This

particular ethical dilemma, because of its broad propagation and the voluminous commentary, has been colloquially termed “Trolleylogy”⁴⁷. In analyzing the hypothetical scenarios posited, it becomes evident that intuitions should not be esteemed as dependable standards to be followed or accepted, nor should they serve as the foundation for moral reasoning. This conclusion stems from the acknowledgment that intuitions, as previously mentioned, lack stability and permanence. Foot’s methodical presentation of thought experiments, significantly contributes to ethics. The trolley problem, especially, underscores the complexities of ethical decision-making, highlighting the challenges in relying on intuitive judgments as trustworthy guides in moral deliberation.

Drawing from the hypothetical scenarios delineated previously, it is logically inferred that intuitions ought not to be acknowledged as usual norms for acceptance, nor as foundational premises for moral reasoning. This assertion is predicated on the understanding that intuitions are characterized by a lack of stability and durability. Such instances illustrate situations where emotional responses cannot be accorded precedence, thereby suggesting that thought experiments do not invariably serve as equitable, valid, or commendable exemplars for justification. This critique underscores the imperative for a more rigorous and methodical approach in the application of thought experiments within ethical discourse, ensuring that they contribute constructively to the elucidation and resolution of moral quandaries. Nevertheless, thought experiments may enrich the ethical discourse and offer insights into the development and evaluation of normative ethical theory.

Final Considerations

Philosophy and bioethics, arguably to a greater extent than the empirical sciences, would be significantly diminished in the absence of experimental bioethics. This assertion highlights the indispensable role of experimental approaches in enriching these fields.

Experimental bioethics, despite its ostensible distance from the urgent challenges facing humanity, emerges as an indispensable tool within the knowledge and discourse arsenal. This perspective underscores the method's critical importance in addressing complex ethical dilemmas.

Intuitions play a relevant role in experimental bioethics, yet they do not hold exclusivity. Rational analysis is imperative for the formulation of adequate or correct bioethical judgments. This delineation emphasizes the balanced integration of intuition and reason in ethical deliberation.

Experimental bioethics is centered on the mental self, including consciousness, its functionality and its environment, while relegating the moral self, or conscience. This focus reflects a specific emphasis on cognitive aspects over moral intuition or perception. Additionally, experimental bioethics highlights the significance of the folk class, a demographic often not singularly mentioned in general studies and discourses. This approach brings attention to the diverse societal contexts within which bioethical issues manifest.

Experimental bioethics is meritorious in recognizing the importance of data and everyday experience, as well as cases directly inspired by real-world dilemmas and decisions. This acknowledgment points to the practical applicability and relevance of the field.

Experimental bioethics offers a promising avenue for enriching ethical studies in Brazil and beyond. By integrating empirical methods into the analysis of moral intuitions and emotions, experimental bioethics fosters a deeper understanding of the complexities inherent in ethical decision-making. As experimental bioethics continues to evolve, it holds the potential to provide nuanced insights into the nature of morality, consciousness and the moral self.

Footnotes

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