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THE RELATIONSHIP BETWEEN SCIENCE AND DEMOCRACY ON PHILIP KITCHER'S PERSPECTIVES

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Abstract: *The relationship between science and democracy has been an interesting and important issue in the study of philosophy as well as political science. Democracy does not only apply in the political realm but can also be seen in the context of science. This paper uses a political-philosophical approach to explore the relationship between science and democracy from the perspective of Philip Kitcher. As far as the philosophical research model used in this research is the concept of figure thinking by using primary sources in the form of Philip Kitcher's two main works among other works, namely: Kitcher's Science, Truth, and Democracy (2001) and Science in a Democratic Society (2011), as well as secondary sources such as books, journal articles and sources relevant to the concepts of the relationship between science and democracy. This paper concludes that the relationship between science and democracy according to Kitcher is based on the concept of a partnership model. This model emphasizes that scientists should consider how knowledge can be applied in a social and practical context, as well as enabling the active participation of the public democratically in the process of scientific research. The relationship between science and democracy, according to Kitcher, relates to the epistemological and socio-practical significance to be taken into account in scientific decision-making, as well as taking into account the public perspective in decision-making. In Kitcher's perspective too, integration between science and democracy became essential to forming a normative framework for more transparent, democratic scientific research, and producing high-quality knowledge*.

Keywords: *Democracy, Philosophy of Science, Politics of Science*.

Abstrak: Relasi antara ilmu dan demokrasi telah menjadi persoalan menarik dan penting dalam kajian filsafat serta politik ilmu. Demokrasi tidak hanya berlaku dalam ranah politik, melainkan dapat pula dilihat dalam konteks ilmu pengetahuan. Tulisan ini menggunakan pendekatan politik-filosofis untuk mengeksplorasi relasi ilmu

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dan demokrasi dalam perspektif Philip Kitcher. Adapun model penelitian filsafat yang digunakan dalam penelitian ini adalah konsep pemikiran tokoh dengan cara menggunakan sumber primer berupa dua karya utama Philip Kitcher di antara karya-karya lainnya, yaitu: *Science, Truth, and Democracy* (2001) dan *Science in a Democratic Society* (2011), serta sumber sekunder berupa buku, artikel jurnal dan sumber yang relevan dengan konsep relasi ilmu dan demokrasi. Tulisan ini menyimpulkan bahwa relasi ilmu dan demokrasi menurut Kitcher berdasar pada konsep model kemitraan. Model ini menyoroti bahwa ilmuwan harus mempertimbangkan bagaimana pengetahuan dapat diterapkan dalam konteks sosial dan praktis, serta memungkinkan partisipasi aktif masyarakat secara demokrasi dalam proses penyelidikan ilmiah. Relasi ilmu dan demokrasi menurut Kitcher terkait dengan signifikansi epistemik dan sosio-praktis yang harus dipertimbangkan dalam pengambilan keputusan ilmiah, serta mempertimbangkan perspektif masyarakat dalam pembuatan keputusan. Dalam perspektif Kitcher juga, integrasi antara ilmu dan demokrasi menjadi penting untuk membentuk kerangka normatif untuk penyelidikan ilmiah yang lebih transparan, demokratis, dan menghasilkan pengetahuan yang berkualitas tinggi.

Kata-kata Kunci: *Demokrasi, Filsafat Ilmu, Politik Ilmu.*

Introduction

Since the onset of the COVID-19 pandemic, scientists and health specialists have assumed a pivotal role in disseminating precise and empirically supported information to governmental bodies and communities regarding the most effective strategies for mitigating the epidemic's impact. Nevertheless, concurrently, the global health crisis has also incited discussions surrounding the appropriate methodologies for determining pandemic management strategies. There is divergence across nations regarding the allocation of decision-making authority in pandemic response, with certain countries favoring the delegation of greater power to health specialists and scientists. In contrast, others have chosen to bestow increased authority upon politicians and elected government officials (Lewkowicz, Woźniak, and Wrzesiński 2022, 1).

Another illustrative instance is the discourse surrounding climate change and energy policies. Researchers have presented compelling data regarding the ramifications of climate change and the imperative of implementing substantial measures to mitigate carbon dioxide emissions and other greenhouse gases. Nevertheless, determining which actions to undertake frequently includes engaging in political discourse and navigating competing economic interests (Burnell 2014, 1216).

The above section examines the intricate interplay between science and democracy, specifically focusing on the contentious nature that arises when scientific understanding intersects with socio-political circumstances. Furthermore, it underscores the contention that science is inherently incapable of being devoid of values. The association between science and democracy, as mediated by the notion of expertise, is characterized by inherent instability and ambivalence, giving rise to political quandaries.

Science represents and advocates for liberal democratic principles, including but not limited to transparency, skepticism, and collaborative approaches to addressing societal challenges. In contrast, it has been argued that science can exhibit characteristics of exclusivity and elitism (Brown 2004, 77).

The significance of scientific advancement in human civilization is readily apparent. The development of civilizations has been made possible by applying scientific knowledge and principles by people. The impact of science on human culture has been significant since the Enlightenment era. The comprehension of the world's people has been delineated through scientific discoveries and scholarly endeavors. The proliferation of diverse scientific disciplines and specialties has led to a widespread occurrence of skill in delineating the epistemic frameworks within specific knowledge domains. Nevertheless, integrating research into society can present challenges regarding autonomy and control within a democratic framework (Marcos 2018, 656).

The significance of the correlation between science and democracy is in their mutual dedication to veracity and impartiality. Pursuing scientific knowledge is exploring objective truths about the natural world, achieved via systematic observation and practical experimentation (da Silva 2022, 621).

In contrast, democracy reveals societal truths using communal decision-making (Cunningham 2002, 106). Both science and democracy share the same objective of seeking truth and utilizing it for the betterment of society (Daston 2016, 216).

The correlation between science and democracy holds substantial ramifications for present-day society. The incorporation of scientific information in the process of policy formulation is crucial to establishing policies that are grounded in empirical data. Nevertheless, it is essential to acknowledge that scientific knowledge has the potential to be exploited for personal or political gains, resulting in the dissemination of false or misleading information and eroding public confidence in the scientific community (Rogers 2008, 20–22). Hence, it is imperative to guarantee the ethical and responsible utilization of scientific information in democratic decision-making.

The correlation between science and democracy is intricately linked to the ethical considerations of scientific endeavors and the consequential effects of scientific study, both beneficial and detrimental. Scientific research has the potential to yield practical advantages, such as the advancement of cost-efficient pharmaceuticals and technology. However, it is essential to acknowledge that it can also give rise to instances of inequity, prejudice, and aggression (Kitcher 2001, 93–108). The interaction between science and society is intricate, mutually influential, and collaborative, resulting in substantial redistribution of money and

power, which can potentially impact democracy in both positive and negative ways (Pamuk 2021, 19).

The quandary on the interplay between science and democracy is undeniably substantial. Democracy offers the potential for individuals to actively participate in forming collective decisions through direct involvement or employing selecting representatives. Nevertheless, scientific knowledge and the notion of expertise can potentially modify or restrict the scope of democratic decision-making. This phenomenon gives rise to conflicting sources of influence within the public domain, as political determinations are progressively founded on the "truth" acquired from scientific inquiries rather than consensus, a fundamental principle of democratic ideals. This phenomenon presents a potential risk wherein the influence of experts and their assertions of impartial knowledge may supersede the opportunity for democratic deliberation about forming collective societal frameworks. Simultaneously, scientists lack direct access to political authority.

Philip Kitcher emerges as a prominent scholar in expounding upon the interplay between science and democracy, given his distinctive viewpoint that underscores the importance of public engagement in shaping scientific endeavors. Kitcher argues that incorporating ethical standards and considering broader societal interests should be integral to the scientific enterprise rather than relying exclusively on the authority of science or scientists. The individual's critical perspective about the role of science within society also considers the potential adverse consequences associated with scientific research, which may have detrimental effects on both communities and the natural environment.

Moreover, Kitcher has made noteworthy contributions to the advancement of a collaborative framework between scientists and society through his publications, including *"Science, Truth, and Democracy"* (2001) and *"Science in a Democratic Society"* (2011). The author's methodology presents concepts of great significance and essential in guaranteeing that the progress of science and technology is not solely focused on benefiting privileged individuals but also considers the needs and concerns of the wider society. Hence, including Kitcher as a prominent figure in elucidating the notion of the interplay between science and democracy is imperative in fostering a discerning and problem-solving outlook on the function of science within a heightened democratic framework.

The present study aims to investigate the correlation between science and democracy, employing the philosophical framework developed by Philip Kitcher. The subject matter under investigation in this study pertains to the convergence of the domains of science and democracy. The subject of analysis is the intellectual contributions of Philip Kitcher, with a particular focus on his ideas concerning the societal and ethical dimensions of scientific investigation. This study aims to delineate Philip

Kitcher's conceptual framework pertaining to the interplay between science and democracy. The research technique employed in this study is qualitative, utilizing data collecting through an extensive review of relevant literature.

Additionally, the research model adopted in this study is based on the philosophical thought leader approach. The primary materials utilized in this study include Kitcher's influential publications that delve into the intersection of science and democracy, notably *"Science, Truth, and Democracy"* (2001) and *"Science in a Democratic Society"* (2011). The supplementary materials for this study encompass literary works, scholarly papers, and other references that delve into Kitcher's concepts, as well as the broader domain of science and democracy.

This study adopts a politico-philosophical approach, which entails employing a perspective or analytical framework that aims to comprehend political matters by drawing upon the principles and theories of political philosophy. This approach aims to critically analyze the theoretical underpinnings of political events, acquire a comprehensive comprehension of political frameworks and principles, and deliberate upon the ethical and moral ramifications of political choices. Within the correlation framework between science and democracy, the political-philosophical perspective entails contemplating and examining how science can engage with the democratic system and the potential impact of political and ethical principles on the interplay between science and society (Dupré 2016, 182).

The Intellectual Framework of Philip Kitcher's

Philip Stuart Kitcher, an individual of British origin, entered this world on the 20th of February 1947, in London, England. His parents, Lewis Kitcher and Millicent Irene Barrow Kitcher, were responsible for his being. Kitcher's early years were characterized by financial hardship, as his father held several occupations, such as a milk deliveryman, postman, and night porter at a coastal hotel, while his mother pursued work as a seamstress. Kitcher was the sole offspring. Kitcher's parents were cautioned against having more than one child due to his mother's pre-existing diabetic condition, which had been diagnosed two years before the introduction of insulin in England.

Kitcher and his family resided in Eastbourne, Sussex, England, until 1958. During that period, Kitcher enrolled at Christ's Hospital boarding school in Horsham, Sussex, an institution established to cater to underprivileged youngsters from London. Subsequently, Kitcher enrolled as a student at Christ's College, University of Cambridge, in 1966. Kitcher's academic pursuits initially encompassed the fields of mathematics, history, and philosophy of science, with a particular focus on the historical aspects. However, his scholarly inclinations later gravitated

towards philosophy, a shift influenced by philosopher Gerd Buchdahl's teachings. During his academic tenure at the University of Cambridge, Kitcher actively participated in many theatre companies, assuming roles as an actor, director, and writer. The individual obtained a bachelor's degree in 1969 and pursued further academic endeavors at Princeton University's Philosophy Department in New Jersey, United States. Their area of specialization was the History and Philosophy of Science. Kitcher completed his doctoral studies in 1974, culminating in the conferral of his Ph.D. degree, following the rigorous defense of his dissertation entitled *"Mathematics and Certainty"*. The individuals who served as his PhD advisors were Paul Benacerraf and Michael Mahoney. Furthermore, Kitcher frequently engaged in academic pursuits under the tutelage of prominent scholars such as Carl Gustav Hempel, Thomas Samuel Kuhn, Richard Grandy, and Clark N. Glymour.

Kitcher's initial appointment in academia was as an Assistant Professor of Philosophy at Vassar College in Poughkeepsie, New York, from 1973 to 1974. Subsequently, he assumed the position of Assistant Professor of Philosophy at the University of Vermont in Burlington, Vermont, from 1974 to 1978. Following this, he advanced to Associate Professor at the same institution, serving from 1979 to 1983. From 1983 to 1986, Kitcher held the position of Professor of Philosophy at the University of Minnesota.

In addition, he assumed the role of Director of the Minnesota Center for the Philosophy of Science from 1984 to 1986. Kitcher's subsequent professional trajectory encompassed an appointment as a professor of philosophy at the University of California, San Diego, from 1993 to 1999. In addition, he assumed the role of Coordinator of Faculty for Science Studies between 1989 and 1991. Kitcher held the job of a philosophy professor at Columbia University in New York, serving as his ultimate academic appointment. During his tenure at Columbia University, Kitcher assumed the role of Coordinator of the Curriculum and Chair of Contemporary Civilization from 2004 to 2007. Currently, Kitcher is the incumbent John Dewey Professor Emeritus at Columbia University.

In addition, it is worth noting that Philip Kitcher had a notable presence in academia, serving as an educator, actively participating in campus groups, and holding memberships in prominent national and international professional organizations within philosophy. The individual in question actively participated in a multitude of organizations, including but not limited to the Council for Philosophical Studies, the Philosophy of Science Association, the International Union of Logic, Methodology, and Philosophy, the International Council for Science, and the American Philosophical Association, among others.

In 2013, he was bestowed with an honorary doctorate by Erasmus University Rotterdam in recognition of his exceptional commitment to

the discipline of philosophy. Kitcher has published a substantial body of work consisting of more than fourteen books 160 papers, and other publications across academic disciplines, including philosophy of science, biology, philosophy of religion, ethics, philosophy of mathematics, and epistemology. In 2002, Kitcher was chosen as a member of the American Academy of Arts and Sciences. In 2006, he was honored with the inaugural Prometheus Award by the American Philosophical Association. Additionally, he has authored essays for esteemed magazines, including New Science, Republic, and the New York Times.

Philip Kitcher's intellectual development was significantly shaped by the scholarly contributions of Thomas Kuhn, particularly Kuhn's conceptualizations on scientific revolutions and the pivotal function of paradigms within the realm of scientific investigation. Kitcher expanded upon the concepts proposed by Kuhn to formulate his theoretical framework about the essence of scientific investigation. In doing so, he emphasized the influence of social and cultural elements on scientific methodology and advocated for a more comprehensive and participatory scientific approach that encompasses a broader range of perspectives and promotes democratic principles. Kitcher's scholarly contributions can be seen as an expansion and enhancement of Kuhn's concepts as he endeavors to offer a more intricate and profound comprehension of the intricate mechanisms that propel scientific advancement.

Kuhn maintained a significant scholarly association with Philip Kitcher, who was actively pursuing his PhD during that period. Kuhn's ideas significantly influenced Kitcher's perspectives regarding the philosophy of science. According to Trisakti (2008, 237), Kuhn posited that scientific truth is characterized by relativity and dialectics since it is intricately linked to paradigm shifts within science. The practice of normal science is highly proficient in generating scientific discoveries and can yield unforeseen revelations for researchers in uncovering empirical truths. The dialectical nature of the character can be comprehended by examining the capacity of established theories to be validated, thereby offering a relative truth subject to continuous falsification to generate new theories or strengthen the confirmation of existing ones (Thomas S. Kuhn 2005, 52).

Like Kuhn, Kitcher also posited that pursuing excellent research yields novel scientific discoveries that foster innovation within the discipline. Kitcher (1982, 46–48) proposed three critical criteria for evaluating the quality of scientific endeavors. These criteria include the autonomous testability of supplementary hypotheses, the concept of unification, and the principle of autonomy. The concept of autonomous testability posits that scientific knowledge must adhere to principles of verifiability, requiring proof for the existence of scientific phenomena to be independent of abnormalities observed in other phenomena. The concept of unification

posits that scientific knowledge ought to be integrated and capable of addressing diverse situations. The concept of autonomy suggests that scientific information should catalyze additional inquiry, given that the nature of science is inherently imperfect and generates more inquiries than can now be addressed.

Furthermore, Kitcher's philosophy of science is sometimes described as a pragmatic stance, which places significant emphasis on considering scientific investigation's practical, social, and ethical dimensions. According to Kitcher (2001, 87), the realm of science extends beyond the mere pursuit of objective truths about the world. It encompasses the process of decision-making, encompassing the selection of research inquiries, the utilization of specific methodologies, and the interpretation and dissemination of research outcomes.

Kitcher's scientific approach is informed by the ideas of John Dewey, an American pragmatism philosopher, who posited that scientific investigation is a problem-solving endeavor intricately linked to social and cultural settings. Kitcher's work was influenced by the concepts of Thomas Kuhn, with a particular focus on the significance of social and historical elements in forming scientific paradigms and the criteria employed to assess scientific hypotheses (Miedema 2022, 121).

Philip Kitcher (2001, 117) posits that scientific research is a collective endeavor encompassing various social and ethical factors. Philip Kitcher (2011a, 60) posited that scientists ought to demonstrate responsiveness toward the demands and interests of the broader society while also considering the ethical ramifications of their study. Kitcher's work also underscored the significance of interdisciplinary collaboration in tackling intricate scientific issues while advocating for participatory scientific methods incorporating diverse groups in the decision-making process.

Philip Kitcher's General Ideas in the Philosophy of Science

1. Explanatory Unification

One of the critical concepts developed by Kitcher is "Explanatory Unification". This concept relates to how scientists integrate various theories and concepts to form a more comprehensive understanding of the world. According to Kitcher, "explanatory unification" occurs when scientists can unify different theories into a more coherent framework of understanding. In this sense, explanatory unification is not just about merging two different theories but also about seeking ways to understand the world (Kitcher 1989, 81).

Kitcher (1989, 81–87) argues that explanatory unification should possess several key characteristics. First, unification should be causal. It means that unification should be able to explain cause-and-effect relationships that occur in the universe. Second, unification should

be coherent. It implies that all parts of the unification should be interconnected and reinforce each other, creating a more cohesive framework of understanding. Third, unification should have predictive capability. In this regard, unification should be able to make accurate predictions about phenomena that are not yet understood or observed. Fourth, unification should provide better explanations than previous explanations. It means that unification should offer better answers to unanswered or ambiguous questions in previous theories. Kitcher also suggests that explanatory unification is crucial in achieving the primary goal of science, which is a better understanding of the universe. In his view, explanatory unification is essential in developing improved and more comprehensive scientific theories. Therefore, he considers the pursuit of explanatory unification a priority in scientific development. Explanatory unification is an important concept that seeks to comprehend the world more coherently and holistically. Explanatory unification must be causal, coherent, and predictive and provide better explanations than previous ones. Kitcher believes that pursuing explanatory unification should be a priority in scientific development because it effectively enhances our understanding of the world (Karaca 2011, 289).

Kitcher's view of explanatory unification essentially represents a method of integration that scientific theories should demonstrate to provide a unified and systematic description of natural phenomena. Examples of Kitcher's paradigm include Newton's theory of motion and Darwin's theory of evolution. According to Kitcher's perspective, lessons from cases like Newtonian and Darwinian theories show that unification is achieved by using similar arguments in deriving accepted sentences. Kitcher also provides other historical, scientific examples, such as classical genetics and the theory of chemical bonding. Thus, Kitcher strongly believes that scientific practice validates his claim that their unifying power determines the strength of explanation in scientific theories. It also implies that Kitcher's concept of unification offers a relatively stricter and smaller pattern of argument from which a relatively more significant number of conclusions can be drawn about natural phenomena (Karaca 2011, 290).

2. Scientific Naturalism

The notion of "Naturalism in the Philosophy of Science" is founded on the proposition that the means to tackle philosophical matters ought to be derived from the methodologies and discoveries of firmly established scientific disciplines, including physics, biology, and even psychology (Stanford 2016, 91). This implies that inquiries focused on addressing methodological inquiries in philosophy ought to be firmly based on scientific discoveries. Consequently, naturalism emphasizes establishing a foundation for epistemology by employing a scientific

methodology. Advocates of naturalism argue that epistemology should draw insights from psychology, emphasizing the significance of cognitive factors over conventional epistemological principles. Nevertheless, it is essential to note that naturalism does not outright reject conventional epistemological ideas. Instead, it seeks to integrate them with empirical disciplines, particularly psychology. This statement pertains to the naturalistic perspective, which posits that science offers insights into the universe constrained by human cognitive capacities. Consequently, epistemological inquiries transform into inquiries inside science, focusing on how humans may effectively acquire knowledge from the constraints of restricted information (Stanford 2016, 94).

Philip Kitcher is a renowned philosopher of science who has gained recognition for his significant advocacy of scientific naturalism. Zamora Bonilla (2000, 170) commonly characterizes Kitcher's philosophy of science as the "naturalistic turn". Kitcher's approach to science is characterized by an empirical base instead of relying on fixed and commonly accepted epistemological notions. Kitcher utilizes findings from many empirical disciplines to construct a pragmatic epistemic framework for the field of science (Diéguez 2010, 142). Kitcher posits that scientific naturalism is a philosophical standpoint that regards the natural world as the exclusive and dependable reservoir of information, with science serving as the exclusive means of attaining a genuine understanding of the world.

More elaborately, Kitcher posits that scientific naturalism encompasses many fundamental attributes, as outlined by Kitcher (1993, 187). Scientific naturalism posits that the natural world is amenable to objective and empirical investigation. Kitcher perceives science as a collective endeavor of humanity to attain an objective comprehension of the natural world, employing methods subject to empirical testing and repeated verification. Furthermore, scientific naturalism refutes the proposition that an undisclosed realm exists outside the realm of observation. Kitcher argues that perspectives such as metaphysical realism can be deemed irrational due to their deficiency in empirical evidence that can be tested. Scientific naturalism also dismisses the notion of concealed verities underlying scientific assertions. According to Kitcher, science is not solely responsible for producing objective information but also generates critical knowledge that undergoes constant revision. Scientific naturalism posits that acquiring genuine knowledge about the world can only be achieved using scientific methods. Kitcher posits that science is the dependable approach to attaining objective and experimentally validated knowledge.

However, Kitcher also acknowledges that scientific naturalism possesses inherent limitations. Kitcher agrees that science is limited in providing conclusive solutions to philosophical inquiries and recognizes that science has limitations when comprehending social and human

phenomena. Hence, Kitcher posits a comprehensive perspective on naturalism that recognizes the incorporation of scientific knowledge while simultaneously appreciating the insights offered by other academic fields in comprehending the nature of our reality.

3. Scientific Realism

According to Kitcher (1993, 127), scientists possess a fundamental aspiration to uncover a reality that exists autonomously from the subjective effect of human cognition. The viewpoint above holds significant relevance within the domain of realism in the philosophy of science. To comprehend this subject matter, it is crucial to acquire a comprehensive understanding of the fundamental principles underlying scientific realism, encompassing its ontological and epistemological dimensions. Ontologically, realism postulates the independent existence of the universe, irrespective of any cognitive processes, whilst epistemologically, it contends that science can furnish sufficient knowledge regarding the attributes of a reality that exists independently.

According to the study conducted by Diéguez (2010, 151–52), Kitcher's book *"The Advancement of Science"* (1993) espouses a robust version of realism. Kitcher's realism encompasses an epistemological proposition asserting that humans can acquire a satisfactory understanding of reality through adherence to truth correspondence while maintaining that science is a means to access truths about reality. Furthermore, Kitcher acknowledges that the natural world possesses its inherent causal framework, constructed autonomously from human cognition (Diéguez 2010, 151–52). Hence, the sole means of attaining veracity regarding an autonomous existence lies in the engagement between scientists and natural phenomena.

Kitcher acknowledges that nature does exert a substantial causal influence on the results of scientific investigations. Nevertheless, it is imperative to acknowledge that social forces exert a significant influence on the conduct of scientific practice. Social forces encompass a variety of factors that contribute to the formation of consensus within the scientific community. These factors include establishing rules and guidelines, peer discussions among scientists, the training methods employed, and the broader socialization within the larger scientific community (Kitcher 1993, 162).

According to Kitcher, scientific discoveries offer a sufficient comprehension of an independently existing world when analyzed from a realist perspective. According to Kitcher, the scientific community is vital in attaining epistemic objectives within scientific inquiries. From an epistemological standpoint, scientists acquire substantial knowledge regarding the nature of reality in the world. Additionally, they diligently try to eliminate erroneous information to ascertain significant truths

(Diéguez, 2010, 144).

In his publication *"Science, Truth, and Democracy"* (2001), Kitcher's initially staunch realism shifted towards a more tempered perspective over several years. The position of moderate realism posits that scientific hypotheses bear a resemblance to the truth, albeit not in its whole (Patrick 2022, 170). It suggests a connection between moderate realism and Kitcher's notion of the significance of truth, highlighting the idea that science strives for meaningful truths relevant within specific contexts (Kitcher 2001, 110).

According to Psillos (1999, 6), the philosophical perspective of moderate realism in science admits the presence of objectivity in knowledge. However, it also recognizes the inherent limitations that preclude complete objectivity, acknowledging that various circumstances constrain our perception of the object. Moderate realism posits the significance of values, social dimensions, and communal factors in examining science, proposing that research should engage in interdisciplinary collaboration to attain a more all-encompassing comprehension of the universe and reality.

The consequences of the transition towards moderate realism, as outlined by Diéguez (2010, 153–54) about pluralism, involve a range of significant notions put forth by Kitcher. Several vital aspects characterize the academic discourse on scientific research. Firstly, there is a strong emphasis on diversity and the recognition of contextual dependence in the goals of scientific inquiry. Secondly, 'significance' has been developed as a contextual notion, acknowledging that its interpretation may vary depending on the context. Thirdly, there is an increased recognition of the importance of practical interests within the scientific community. Fourthly, it is acknowledged that truth and knowledge are not absolute values but rather should be integrated with other non-epistemic values. Lastly, there is a pursuit of "well-ordered science", which aligns with democratic ideals.

According to Gonzalez (2012, 45–46), Kitcher's perspective undergoes a significant transformation as he transitions from a position of strong realism to one of moderate realism. A newfound recognition of the relevance of notions such as values and society inside the realm of scientific studies characterizes this shift. Kitcher's current perspective on scientific realism diverges from his earlier iteration in certain aspects. Kitcher espouses a variant of scientific realism that can be characterized as a more restrained form. This rendition acknowledges the explicit heterogeneity inherent in science, emphasizing the notion that science strives for substantial truth by discovering natural facts and developing comprehensive general principles. Kitcher's novel perspective delineates scientific effort as a communal undertaking, culminating in the notion of "well-ordered science" within the framework

of a democratic society. It implies that the scientific decision-making process is not only determined by science's intrinsic principles and criteria, such as semantic, epistemological, and methodological factors. Scientific decision-making encompasses a range of external factors, including ethical considerations, societal values, cultural influences, political dynamics, and more relevant variables.

The focal point of Kitcher's transition towards "moderate realism" is prioritizing external values inside science. Kitcher acknowledges that incorporating external factors inside the realm of science deviates from the conventional focal points of the philosophy of science. Paradoxically, the aforementioned external factors are frequently disregarded in scholarly discourse around science. Consequently, conversations about science may obfuscate extraneous factors by constraining them within epistemological and methodological frameworks. Kitcher's novel methodology aims to have a more expansive viewpoint on scientific endeavors, considering them social undertakings. The enduring significance of internal scientific ideals, including epistemological and methodological considerations, and the commitment to the search for truth and objectivity within the scientific realm should not be overlooked. The transition made by Kitcher towards a stance of moderate realism highlights the significance of external values inside the realm of scientific inquiry. The author posits that conversations about science frequently neglect the inclusion of social and ethical dimensions, both of which are fundamental components of scientific inquiry. According to Kitcher, the central concern within the axiology of science revolves around the advancement of democratic principles to benefit the collective welfare. Kitcher critiques the concept known as the "myth of purity" within science. This concept entails the perception of science as an independent and objective pursuit of truth, detached from any influence or impact of social settings (Yuliantoro 2021, 83–84).

Kitcher utilizes instances such as the Tuskegee syphilis experiment and the activities of Nazi doctors as illustrative cases to highlight the perilous consequences of neglecting social and ethical considerations within scientific inquiry. Kitcher advocates for scientists to recognize and accept their ethical obligations, urging them to actively contribute to the betterment of society (Kitcher 2001, 145).

Political-Philosophical Perspective on the Problem of the Relationship between Science and Democracy

The relationship between science and politics raises concerns about democratic principles. While science embodies fundamental principles of liberal democracy, such as transparency, skepticism, and collaborative problem-solving, contemporary science is frequently perceived as too

aristocratic and exclusive. Including specialists as "representatives" of scientific knowledge in subsequent analysis engenders disputes and power dynamics among diverse actors within social institutions.

According to Brown (2009, 188), the categorization of scientific and political representation as non-political is contingent upon the presence of power interdependence, conflict, and collective action inside a singular occurrence. The existence of experts who are viewed as embodying scientific ideals raises inquiries regarding the legitimacy and the authority of knowledge held by experts about the general public. It also raises concerns about ideological considerations and power dynamics within the domain of experts or specialists. This paper provides a comprehensive examination of the complexities inherent in the interplay between science and democracy, as viewed through the lens of political science.

1. Legitimacy of Knowledge by Experts

The undeniable significance of experts in shaping public discourse is frequently subject to controversy when scrutinized within the framework of political discussions. One prominent viewpoint in this discourse is on the notion of "public ignorance". The matter above pertains to the state where the general populace exhibits a dearth of understanding regarding the framework, functioning, personnel, regulations, and impact of scientific inquiry. On the one hand, it has been argued that individuals who possess specialized knowledge in politics and governance are considered experts. However, most individuals lack such competence (Weinberg & Elliott 2012, 84). This phenomenon gives rise to a notable disparity in knowledge between individuals who possess expertise in a particular field and the broader populace.

Turner (2001, 123–24) contends that an evident matter of competence revolves around the principles of democracy and equality. The matter above presents a challenge within democratic principles since it is characterized by an asymmetry of information, resulting in a situation where the general populace lacks comprehension of complex subjects such as genetic engineering. This circumstance gives rise to a predicament involving accepting "expert rule".

Including scientific specialists in decision-making processes within the framework of democratic norms presents challenges that are principally rooted in the theoretical foundations of liberal democracy. Based on these principles, it can be argued that all individuals possess an equitable standing and stake in political deliberations. Knowledge disparities lead to unequal involvement between specialists and non-experts, resulting in the neglect of community rights and rendering public engagement ineffectual and disregarded.

The influence wielded by experts inside the political sphere poses

inherent challenges to the functioning of democratic systems. Although experts lack democratic accountability, they possess considerable authority in determining the validity of opinions. Expert authority is typically robust within technocratic systems, such as those in policy-making processes characterized by technocratic principles. The decision-making processes inside these systems emphasize utilizing specialist information about technical matters. Decision-makers frequently prioritize experiential knowledge as a basis for policy formulation rather than utilizing it to facilitate decision-making. Rather than formulating policies or making choices, the government delegates decision-making authority to technical specialists (Foltz 1999, 203).

Public policies that are grounded in scientific or technological research are associated with the concept of technocracy. Technocracy can be conceptualized as a system of governance in which individuals possessing specialized expertise or technological proficiency assume authority in determining the distribution of societal values. These decisions are guided by independent knowledge and are aimed at promoting the long-term welfare of the entire society (Caramani 2020, 2). The issue of democratic principles is further complicated within a technocratic framework due to the legitimacy of expert knowledge.

Bertson (2020, 249) posits that the intimate association between experts and the political setting, particularly about authority and power, can be characterized by four key elements, elitism, non-partisanship, anti-pluralism, and positivism. In politics, the exercise of technocratic authority is justified by the knowledge, abilities, and specialized proficiencies a select group of individuals possesses. The achievement of technocratic representation of citizens is realized through the utilization of the "trustee" model, which stands in contrast to the "delegation" model within the framework of democracy. The technocratic governance approach promotes the impartial, logical, and evidence-based study of problems. In essence, governance models of this nature encompass the identification of society objectives and decision-making mechanisms, with the formulation and execution of public policy solutions.

Bertson (2020, 266) argues that including specialists in policymaking, particularly in a technocratic government model, challenges democratic processes when technocratic decisions exhibit a lack of awareness and disregard for community interests. Experts in the technocratic approach appear to utilize the guise of scientific objectivity to conceal their true intentions. Consequently, the implementation of technocratic politics may give rise to governing practices that are illiberal and undemocratic. The compatibility between technocratic politics and democracy can be compromised when the political outcomes do not align with the expectations and needs of the community.

Salomon (1973, 229) posits that the intersection of science and policy presents two noteworthy challenges to democratic governance. Firstly, the escalating intricacy of issues necessitates political resolutions shaped by scientific discoveries and their practical implementation. Secondly, the unequal distribution of knowledge between scientists and the general populace.

2. Expert Ideological Problems

The inextricable connection between competence and ideological challenges within science is undeniable. The phenomenon of expert knowledge might be vulnerable to the potential for disguising itself as objective and unbiased information. Jurgen Habermas tacitly posited this allegation when he expounded upon the concept of the "expertise culture". Numerous scholars, who have been affected by the works of Foucault, have extensively substantiated this assertion. The prevailing viewpoint posits that professionals, serving as representatives of scientific truth, construct discursive frameworks, sometimes referred to as ideologies, which are unwittingly embraced by the general populace and policymakers as objective realities. However, these ideologies are purported manifestations of patriarchal, racist, and comparable belief systems. If one argues that expert knowledge may be regarded as an unquestionable ideology, then the notion of liberal parliamentary debate, at least in an intellectual sense, is invalidated. The ideological nature of factual claims that serve as the basis for parliamentary deliberations is exposed. The concealed nature of the ideological underpinnings of liberalism lies in its reliance on commonly accepted truths, which may occasionally be determined not through free deliberation but rather through the influence of authoritative experts. The deliberations in parliamentary settings and the presence of constituents are typically constrained by the boundaries set by expert consensus regarding factual matters. This situation presents a perplexing dilemma. Acknowledging the legitimacy of scientific knowledge or expert opinions entails embracing authoritative ideological assertions, suggesting that the liberal regime is no less ideological than other doctrinal regimes (Turner 2001, 127).

In addition to including specialists who may possess distinct ideological reasons, it is essential to recognize that science can be regarded as an ideology, sometimes referred to as scientism. Mikael Stenmark posits that scientism can be comprehended as the conviction that knowledge acquisition knows no definitive limits since no domain exists beyond the purview of scientific inquiry. Furthermore, this perspective maintains that science can effectively be employed to address all facets of human existence (Stenmark 2020, 15). The primary concern of scientism is intricately linked to the pervasive influence of scientific discoveries throughout diverse domains of human existence, shaping the attainment

of human accomplishments and the establishment of objective truths about the nature of reality.

Duncan Macrae (1973, 229) identifies two distinct dimensions that highlight the challenges arising from the integration of science into the process of policy formulation, particularly about democratic governance. There are two primary aspects to consider. Firstly, the matter pertains to the intricate nature of issues necessitating political resolutions, which are progressively impacted by scientific advancements and their practical implementations. Secondly, there exists a disparity in knowledge between scientists and the broader populace.

Brown (2009, 10–12) posits that the intersection of science and politics gives rise to a phenomenon known as politicized science and scientist politics. The term "politicized science" pertains to the deliberate manipulation of scientific knowledge to align it with political agendas, transforming the understanding of truth from a continuum into a manifestation of power dynamics. Politicized science can manifest in diverse spheres: class, racism, gender, business, religion, universities, laboratories, and even familial contexts. The concept of scientific politics pertains to the endeavor of presenting politics scientifically. The phenomenon of politicized science is not solely attributable to internal factors within the scientific community but can also be attributed to the effect of politicized policies and practices. According to Brown, the growing occurrence of scientific politics furthers the politicization of science. A paradox frequently arises when politicians aspire to be recognized as authorities in a particular domain yet encounter a deficit in public trust. It implies that political players understand the significance of public trust, established on scientific foundations.

The Relationship between Science and Democracy

1. Epistemic and Socio-Practical Significance in Science

Kitcher's framework delineates the relevance of science into two distinct categories: epistemic significance and social-practical significance. Philip Kitcher's 2001 publication, "*Science, Truth, and Democracy",* delves into a comprehensive examination of two interrelated themes: the quest for truth and the implications of democratic principles. Kitcher posits that the epistemic standing of scientific knowledge plays a pivotal role in shaping one's perspectives regarding the advantages and disadvantages of democratic frameworks to scientific research and its practical applications.

In his scholarly contribution, Kitcher emphasizes two significant facets. Initially, the author posits that scientific importance pertains to scientific discoveries' epistemic and social worth. Furthermore, the author asserts that epistemic relevance is intricately linked to the

trustworthiness and veracity of scientific information. Kitcher posits that a scientific theory possesses epistemic importance when it can furnish coherent explanations and effectively accommodate various phenomena within a specific domain. Within this framework, the measurement of epistemic relevance pertains to the degree to which a theory can make predictions regarding phenomena that have not yet been observed or tested.

Research conducted at the community level in the scientific field highlights significance's essential role in generating knowledge. According to Fleck (1981, 99), the scientific community relies on a collective framework of cultural habits and knowledge acquisition known as a *denkkollektiv* (thought collective) to produce and advance knowledge. Fleck posits that the generation of scientific knowledge is inherently social, as it is intricately intertwined with prior discoveries and established practices, imposing constraints, and shaping the development of novel ideas and conceptions. Fleck utilizes the term "*denkstil*" to denote the previously established corpus of knowledge. The socio-historical context holds significance in scientific community research as it pertains to the epistemology of science, influencing the methods by which knowledge is documented and preserved within the historical framework of scientific knowledge.

Kitcher posits that scientific knowledge is derived from dynamic interests, implying that the inquiries and anticipated outcomes in scientific inquiry undergo continuous evolution in tandem with diverse practical endeavors. Kitcher illustrates this progression in the realm of imagination through a significance graph. The importance of the significance graph is paramount in Kitcher's work as it demonstrates how constituent research initiatives acquire significance (Kitcher 2001, 65). The relevance graph in the field of Developmental Biology illustrates the scientific importance of individual genes, as they play a crucial role in fundamental mechanisms of cell division. These mechanisms, in turn, are significant due to their substantial contribution to the overall development of organisms.

In his analysis of scientific knowledge, Kitcher underscores the ongoing obligation of scientists to actively seek out "meaningful truths" while acknowledging that the determination of significance is contingent upon the specific context (Kitcher 2001, 110). The concept of the relevance of scientific truth, as proposed by Kitcher, is inherently intertwined with the philosophical framework of moderate realism. This notion recognizes the fundamental objective of science, which is to seek out meaningful truths. Significance in this context is closely tied to identifying natural phenomena and developing overarching principles that bring them together. Furthermore, a crucial facet of Kitcher's moderate realism is his formulation of a perspective on scientific reality

intricately interconnected with societal dynamics. Kitcher's pragmatic perspective on the orientation of science is not limited to specific contexts but holds significant relevance to democratic concerns.

Kitcher (2001, 63–76) asserts that including social-practical importance is a crucial component of scientific significance concerning the practical ramifications of research findings. It illustrates that scientific information possesses both epistemic worth and the potential to provide both advantageous and detrimental consequences for society and the environment.

Kitcher argues that scientists bear a moral obligation to deliberate upon the societal and practical ramifications of their research discoveries and actively contribute to the advancement of resolutions for intricate social and environmental challenges. Kitcher's critique extends to the perspective that advocates prioritizing science and technology as principal objectives while neglecting to account for their advancement's social and practical ramifications. In his work, Kitcher presents the notion of "boundary-crossing communication", which pertains to endeavors to broaden scientific dialogue and engage other disciplines and societal factions in conversations on scientific research discoveries' social and practical ramifications (Kitcher 2011a, 115).

Kitcher's analysis delineates the multifaceted nature of scientific importance, encompassing epistemic and social-practical dimensions. This perspective underscores the notion that science extends beyond the pursuit of truth and correctness, emphasizing the imperative of social and environmental accountability. The individual's comprehensive perspective on science and its ramifications for society and the environment constitutes a noteworthy addition to the field of philosophy of science and scientific methodology.

2. Well-Ordered Science as a Partnership Model

According to Philip Kitcher, an interwoven and mutually influential relationship exists between science and democracy. The individual believes that the field of research has the potential to make a substantial impact in bolstering democratic systems. Kitcher (2001, 81) underscores the significance of accessible and inclusive discourse and discussion within the framework of democracy. The individual believes that a society characterized by diversity and inclusivity has the potential to provide a multitude of perspectives on matters about social challenges, hence enhancing the overall quality of decision-making processes. Therefore, Kitcher posits that establishing democracy should be based on fundamental tenets of inclusiveness, equality, and active engagement. Kitcher posits that the harmonious interaction between science and democracy can be achieved through effective management. Using scientific knowledge can contribute to improving

social decision-making processes, enabling more informed and logical choices. Concurrently, democracy serves as a framework that facilitates the involvement of a broad range of individuals in the decision-making process, promoting inclusivity in societal participation. Kitcher further underscores the importance of effectively managing societal engagement to mitigate the potential for noise or disagreement in the decision-making process. Within this framework, Kitcher presents the notion of "stakeholder democracy", which entails granting all entities impacted by a given decision the chance to engage in the decision-making process (Strandenaes 2019, 7).

Kitcher (2011a, 50) explores the significance of transparency and accountability in the interplay between science and democracy. Kitcher asserts that scientists and politicians must engage in transparent and effective communication of their research findings or policies to the general public while also assuming responsibility for their actions if their decisions fail to meet public expectations. Kitcher posits that the optimal approach to decision-making is a seamless integration of science and democracy, enabling society to reap the advantages offered by both realms. Science can offer pertinent and precise information, but democracy may be a robust framework for society's engagement in crucial decision-making processes.

Kitcher (2001, 122–23) introduces the notion of "Well-Ordered Science (WOS)" as a normative paradigm aimed at fostering scientific inquiry and facilitating the growth of scientific knowledge. Kitcher posits that pursuing scientific knowledge must adhere to a set of criteria. These criteria encompass the significance and importance of the problems investigated by scientists, the formulation of well-defined problems that effectively guide scientific research, the provision of accessible data and evidence necessary for investigating said problems, the availability of reliable and effective methods and techniques for conducting investigations, and the presence of social organizations that facilitate communication and collaboration among scientists, thereby enabling the sharing of knowledge, resources, and expertise. Finally, it is imperative to establish a framework of norms and values that regulate the process of scientific investigation. These encompass principles such as integrity, impartiality, and a steadfast dedication to pursuing knowledge.

Kitcher's conceptual framework encompasses the concept of an "ideal deliberation" to advance collective welfare. Individuals engaged in such a deliberative process initially possess their own distinct set of epistemic and non-epistemic interests and a personal agenda of research priorities. However, as they acquire fresh insights into the existing body of scientific knowledge and gain a deeper understanding of their society's diverse problems, values, and interests, they adapt and

revise their priorities accordingly. The deliberation above would yield a classification of study topics conducted by a panel of decision-makers who have thoroughly considered all societal perspectives. The ranking results are derived from a fair and impartial assessment of the diverse issues, values, and interests prevalent in society, thereby potentially reflecting the collective welfare of the entire society. According to Kitcher (2004, 333), "*Science is well-ordered when the inquiries it pursues are those that accord with the agenda that would have been set by a group of discussants fully informed of the scientific opportunities, fully informed of one another's needs, and dedicated to doing the best they can to accommodate the needs of all*."

The notion of the WOS posits that a democratic nature characterizes the development of cognitive value schemes in science. According to Kitcher (2001, 118), information must be accessible from all viewpoints, foster interactivity, and be adaptable to societal ambitions and reflective requirements. Kitcher thinks that the advancement of science ought to encompass inclusivity of diverse perspectives, active involvement with stakeholders, and responsiveness to societal objectives (Philippi 2020, 366). The WOS proposed by Kitcher draws inspiration from the notion of deliberative democracy defined by James Fishkin (Irzik and Kurtulmus 2021, S4739S4740).

Kitcher's adaptation of this concept involves a three-stage process. During the initial phase, individuals representing various societal groups evaluate their respective interests in scientific research. These delegates will encounter diverse perspectives from different groups, facilitating the formation of a consensus. This consensus will involve agreeing on how to address existing divisions or provide a platform for discussing issues that require scientific investigation. The resultant consensus is subsequently transferred to the scientific community, whereby they deliberate on the methodologies to investigate the identified issues and assess the probability of obtaining substantial outcomes. During the subsequent phase, it is vital to inquire with diverse cohorts of researchers to ascertain the potential efficacy of distinct scientific pursuits. It offers decision-makers and lawmakers a more equitable viewpoint concerning scientific potential.

According to Dijstelbloem (2013,7), the initial phase of determining the objectives of scientific research is followed by a subsequent step wherein representatives make decisions regarding the allocation of funding for specific projects. Supplementary material provided by the researchers informs these decisions. During the concluding phase, the scientific community must present counterarguments in response to objections while promoting an environment that encourages citizens to address any uncertainties in the research plan.

The concept of WOS is a theoretical framework that suggests a

collaborative relationship between scientific inquiry and democratic governance. This notion pertains to the symbiotic relationship between science and democracy, wherein they can synergistically contribute to attaining shared objectives. The realization of WOS can be achieved by adhering to three key principles (1) Academic freedom is a fundamental principle that safeguards the autonomy of scientists, enabling them to pursue inquiries and engage in research without undue influence from political or economic entities (Kitcher 2011b, 121–23). It related to the problem of scientists' ideological problem in the relationship between science and democracy. The preservation and acknowledgment of this freedom ought to be safeguarded and esteemed by both societal and governmental entities. (2) Social responsibility is a crucial aspect of scientific practice, wherein scientists are expected to fulfill their obligation to society by effectively communicating their research findings to the general public (Kitcher 2011b, 226).

Additionally, scientists must carefully contemplate the social and ethical ramifications that may arise from their research endeavors. It is imperative for scientists to actively cultivate robust connections with society and facilitate the dissemination of scientific knowledge to a broader audience. (3) The importance of tolerance and inclusion in the scientific community (Kitcher 2001, 81). Scientists must demonstrate tolerance and inclusivity towards diverse perspectives and opinions that exist within society. Individuals must acknowledge the existence of multiple perspectives on social and ethical matters and exhibit readiness to attentively consider many viewpoints. (4) Science and democracy are interdependent and engage in reciprocal reinforcement (Kitcher 2011a, 60). It is imperative for scientists to demonstrate awareness of society's demands and possess the ability to effectively communicate their research findings in accessible terms. However, democracy has the potential to facilitate the resolution of intricate societal problems and foster the cultivation of fundamental principles and acceptance within a given community.

The notion of the WOS incorporates democratic principles within the framework of the scientific institution, thereby fostering transparency, accountability, and increased engagement. The paradigm comprises three primary components, namely the epistemic, social, and political aspects, to enhance the connection between scientific knowledge and democratic decision-making. In the proposed framework, active participation and discourse between citizens and scientists are essential for addressing scientific research and its broader societal ramifications. According to Kitcher (2011a, 60), this particular kind of democratic engagement posits that scientists will gain a more comprehensive comprehension of societal demands and concerns while simultaneously equipping people with an enhanced grasp of scientific inquiry.

Kitcher (2011a, 60) proposed a partnership model, the WOS model, founded on fundamental principles. First and foremost, it is imperative to see information as a public good, implying that knowledge should be accessible to the public to enhance democratic decision-making processes (Kitcher 2011a, 177). It suggests that it is essential for scientific findings to be made accessible and understandable to the general people and for scientists to actively participate in dialogues and public education. It is also imperative that societal demands guide scientific research. Scientific investigations should be motivated by the broader society's requirements and apprehensions rather than solely by academic or commercial pursuits (Kitcher 2011a, 117).

It suggests that it is imperative for the scientific community to actively participate in discussions with the general public and policymakers to establish and prioritize research agendas. Thirdly, it is imperative for the scientific community to exhibit diversity and inclusivity, since this would guarantee the representation of a wide range of perspectives and experiences (Kitcher 2011a, 212).

Efforts are necessary to enhance the involvement of underrepresented groups in scientific endeavors. Furthermore, the scientific community must operate autonomously, signifying its ability to self-regulate and uphold norms and standards collectively (Kitcher 2011b, 121–23). This suggests that the onus of assuring the trustworthiness and soundness of scientific research resides with scientists, who should also be held responsible for their conduct.

Philip Kitcher's concept of WOS as an attempt to achieve the common good in the relationship between science and democracy is seen as an ideal response. However, several challenges arise in implementing well-ordered science. The first problem is inadequate representation, where particular groups' interests are systematically neglected in research agendas and applications, leading to self-perpetuating disparities (Kitcher 2001, 129).

The second problem is the tyranny of the ignorant, where epistemically significant questions in some sciences are undervalued due to the majority's lack of appreciation for their significance (Kitcher 2001, 130). The third problem is false consciousness, where research agendas conform to untutored preferences, misrepresenting the actual reasons behind them (Kitcher 2001, 131).

The fourth problem is a parochial application, where research and application practices may not align with the principles supporting well-ordered science (Kitcher 2001, 131). Additionally, a gap exists between the ideals of well-ordered science and the current practices in society, including issues with science education, the influence of private research funding, cognitive value schemes, and the relative urgency of scientific orientations.

Nevertheless, the notion of the WOS has faced critique. Certain detractors claim that implementing the notion may be more challenging in reality than it appears in theory. There exists a potential for political forces or the vested interests of particular groups to exert influence over the deliberation and decision-making process during the early phases of the WOS concept. There are concerns among specific individuals over the potential impact of the concept on creativity and innovation within the field of science. This apprehension stems from the layered decision-making process associated with the concept, which tends to exhibit a conservative approach.

According to Reydon (2020, 52), the ideal proposed by Kitcher, albeit unachievable in practice, possesses inherent worth as a guiding paradigm. The decision-making processes observed in real-world scenarios frequently fail to meet the ideal above due to inherent human limitations and opposing interests. The ideal concept can still be a valuable reference point for various persons, including scientists, policymakers, and interest groups. This reference point aids them in aligning their activities with the desired results of an ideal discourse. This methodology enables the equitable distribution of resources and the incorporation of a wide range of interests and viewpoints in scientific study, surpassing geographical and sociological limitations.

Conclusion

Philip Kitcher puts up a proposition for a collaborative framework between science and democracy, which highlights the interdependence of both epistemic and socio-practical importance. According to Kitcher, research must examine how knowledge can be practically and socially applied. This approach facilitates the active involvement of society in the scientific process. While incorporating social perspectives, scientific decision-making should consider the interaction between epistemic and socio-practical relevance.

The notion of partnership entails the idea that scientists ought to collaborate with society to facilitate the development and application of scientific knowledge within public decision-making. In this theoretical framework, researchers are anticipated to not solely obtain knowledge by scientific methodologies but also contemplate ethical and societal principles linked to implementing that knowledge. It is imperative for scientists to actively participate in debates and dialogues with the public to ensure the prudent and equitable application of knowledge and technology. In addition, it is anticipated that society will actively advance and implement scientific knowledge. This approach posits that society plays a pivotal role in public decision-making and underscores the importance of active societal engagement.

The partnership model put forth by Kitcher possesses the capacity

to enhance the connection between science and society within the framework of democratic systems. This approach posits that society plays a crucial role in public decision-making and proposes that scientists consider ethical and social values when applying knowledge. It entails proficient communication, a comprehensive comprehension of the pertinent matters, and the formulation of remedies that may be implemented within broader social and political frameworks. The amalgamation of scientific knowledge and societal factors plays a crucial role in establishing a normative structure that promotes transparent and democratic scientific investigation, producing superior-quality information.

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