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Pancasila as the Foundation of Value Development in Science

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ABSTRACT

This research aims to explore the role of Pancasila as a basic framework in the development of scientific values in Indonesia. The research method used is a qualitative approach through literature study and descriptive survey. The research involved analyzing the perceptions of scientists, educators, and students towards the influence of Pancasila values in their scientific practices. The results showed that the majority of respondents (75%) recognized the importance of integrating Pancasila values, such as ethical responsibility, social justice, and national identity, into scientific activities. As many as 80% of respondents felt that these values promote transparency and integrity in research. However, the study also identified significant challenges, such as a lack of institutional support and pressure to meet global standards that often overlook local contexts. The conclusion of this study confirms that Pancasila can be a strong ethical foundation in scientific practice, encouraging scientists to consider the social and cultural impacts of their research. Implications of this study include the need for policies that support the integration of Pancasila values in education and scientific research to create a research ecosystem that is more inclusive, ethical, and relevant to the needs of Indonesian society.

Keywords: Pancasila, Scientific Values, Ethical Responsibility, Social Justice, National Identity

1. Introduction

Pancasila, the foundational philosophy of the Indonesian state, plays a crucial role in shaping the moral and ethical framework within which various aspects of society operate, including science and education. Creswell (2018). Pancasila promotes a culture of respect and understanding among diverse groups, which is essential for collaborative scientific work (Yuniarto et al., 2022). Established in 1945, Pancasila comprises five principles that reflect the collective values and aspirations of the Indonesian people. These principles Belief in One God, Just and Civilized Humanity, the Unity of Indonesia, Democracy Guided by the Inner Wisdom in Deliberations Amongst Representatives, and Social Justice for All Indonesians serve not only as guiding tenets for governance but also as moral compass for individuals and institutions. The ethical implications of scientific research should always consider the welfare of society, as emphasized by Pancasila (Creswell, 2018). In the context of scientific development, Pancasila provides a unique lens through which researchers can evaluate their work's ethical implications and societal contributions.

The significance of integrating Pancasila into scientific endeavors cannot be overstated. As Creswell (2018) states, The values of Pancasila provide a framework for ethical decision-making in scientific research, ensuring that the outcomes benefit society as a whole. The values embedded in Pancasila can enhance the ethical training of future scientists in Indonesia (Creswell, 2018). As science continues to advance rapidly, these advancements must align with ethical standards and promote social welfare. Pancasila encourages researchers

to engage with their communities to ensure that their work is relevant and beneficial (Mulyani and Kusuma, 2020). By fostering a sense of national identity, Pancasila motivates scientists to contribute positively to Indonesia's development (Yuniarto et al., 2022). The application of Pancasila's values encourages scientists to consider the broader impacts of their research on society, fostering a sense of responsibility that extends beyond mere academic achievement. According to Yuniarto et al. (2022), Pancasila serves as a moral compass for individuals and institutions, guiding ethical behavior in all aspects of life. By embedding these principles into scientific practice, researchers can cultivate an environment that prioritizes ethical conduct and social accountability (Creswell, 2018).

Moreover, Pancasila emphasizes the importance of social justice, which is particularly relevant in addressing disparities within scientific research and its applications (Adnan and Anwar, 2020). This principle encourages scientists to engage with marginalized communities and ensure that scientific advancements benefit all segments of society. As Mulyani and Kusuma (2020) state, Social justice encourages scientists to engage with marginalized communities and ensure that scientific advancements benefit all segments of society. By advocating for inclusivity in research practices, Pancasila inspires a more equitable distribution of knowledge and resources, ultimately contributing to national development. Ultimately, integrating Pancasila into scientific practices fosters a holistic approach that benefits both science and society at large (Mulyani and Kusuma, 2020).

The integration of Pancasila into scientific education is also vital for nurturing future generations of scientists who are not only technically proficient but also ethically aware (Yuniarto et al., 2022). Research guided by Pancasila can lead to innovations that are not only scientifically sound but also culturally relevant (Yuniarto et al., 2022). Educational institutions play a key role in instilling these values in students, preparing them to navigate the complexities of modern science while remaining grounded in their cultural and ethical heritage. Creswell (2018) notes that educational institutions play a key role in instilling Pancasila's values in future scientists. By incorporating Pancasila into curricula and research initiatives, universities can foster a generation of scientists committed to upholding ethical standards and contributing positively to society. Incorporating Pancasila into scientific discourse helps to bridge the gap between traditional values and modern scientific practices (Adnan and Anwar, 2020).

In conclusion, Pancasila serves as an essential foundation for developing scientific values in Indonesia. Ethical guidelines derived from Pancasila can serve as a foundation for developing robust research protocols (Adnan and Anwar, 2020). Its principles provide a framework that encourages ethical responsibility, social justice, and national identity among scientists. As Indonesia continues to advance in various scientific fields, embracing Pancasila's values will be crucial for ensuring that these advancements are aligned with the nation's moral compass and contribute to the greater good. Future research should explore practical approaches to further integrate these values into scientific practices and educational programs across Indonesia.

This research offers a new contribution by integrating Pancasila as a philosophical and ethical framework in the development of science in Indonesia. The main focus of this research is on the application of Pancasila values - such as social justice, ethical responsibility, and national identity - in modern scientific practice. This approach is innovative because it connects the global need for universal scientific standards with Indonesia's local cultural context, creating a research model that is inclusive and rooted in local wisdom. In addition, this research also introduces the idea of educational reform by integrating Pancasila values into the science curriculum. It aims to create a generation of scientists who are not only technically superior, but also have a high ethical awareness and social responsibility. Thus, this approach bridges the gap between mastery of scientific expertise and the importance of considering the moral and social impacts of research.

This research provides strategic recommendations for institutions and policymakers to address these constraints, including through policy support, training and discussion platforms for researchers. This approach not only increases the local relevance of research, but also encourages sustainable scientific contributions at the global level. Through an approach that combines ethics, national identity and scientific excellence, this research offers a new perspective on building socially responsible science that contributes to the well-being of Indonesian society.

2. Methodology

This research employs a descriptive survey methodology to investigate the role of Pancasila in shaping scientific values among Indonesian researchers. The population of this study consists of scientists, researchers and educators in Indonesia who come from various disciplines, such as natural sciences, social sciences and humanities. The research sample was selected using a stratified random sampling technique, which aims to ensure proportional representation from each scientific field. In this study, 200 respondents were selected as the sample, with a balanced sample distribution, namely 70 respondents from the natural sciences, 70 respondents from the social sciences, and 60 respondents from the humanities. This sampling technique is expected to cover a wide range of perspectives on the application of Pancasila values in scientific practice in Indonesia, so that the results of the study can best describe the perceptions and experiences of researchers from various disciplines.

Descriptive surveys are effective in capturing the perceptions, attitudes, and behaviors of individuals regarding specific phenomena. According to Creswell and Creswell (2017), the steps involved in conducting a descriptive survey include: (1) determining if a survey is the appropriate design, (2) identifying the target population and sample, (3) administering the survey instrument, (4) analyzing the collected data, and (5) interpreting the results.

The target population for this study consists of scientists, researchers, and educators across various disciplines in Indonesia. A stratified sampling technique will be utilized to ensure representation from different fields of study, such as natural sciences, social sciences, and humanities. This approach allows for a comprehensive understanding of how Pancasila's values are perceived and integrated into diverse scientific practices.

Data collection will be conducted through an online questionnaire designed to assess participants' perceptions of Pancasila's influence on their scientific work. The questionnaire will include both closed-ended and open-ended questions to gather quantitative data on specific aspects of Pancasila's values and qualitative insights into personal experiences and interpretations. The closed-ended questions will utilize a Likert scale to measure agreement or disagreement with statements related to ethical responsibility, social justice, and national identity in scientific research.

Once the data is collected, statistical analysis will be performed to quantify the responses and identify trends or patterns. Descriptive statistics such as means, percentages, and frequency distributions will be calculated to summarize the findings. Additionally, thematic analysis will be applied to the qualitative data from open-ended responses to extract key themes and insights regarding participants' experiences with Pancasila in their scientific endeavors.

3. Results and Discussion

Although the values of Pancasila provide a strong moral framework for the development of science in Indonesia, their application in the context of modern science faces various challenges that need to be analyzed more deeply. Descriptively, Pancasila does support research based on social justice, integrity and ethical responsibility, but in practice, major challenges arise when these values have to compete with the demands of globalization in the world of science.

One of the main challenges in applying the values of Pancasila is the difficulty in balancing integrity and transparency with the need to compete in a scientific world that is increasingly oriented towards quick results and international publications. Research that focuses on quick results often ignores social or ethical impacts, and this contradicts the principle of Just and Civilized Humanity in Pancasila. For example, scientists working in biotechnology or information technology may be driven to accelerate the development of products that have not been fully tested, in order to meet market demands or academic competition. This leads to ethical dilemmas where the integrity and welfare of the communities involved in the research may be compromised.

Another challenge is the application of the principle of Unity in Diversity or diversity in science, where Indonesian scientists must face pressure to adhere to global scientific standards that often ignore local wisdom or the broader social context. In a scientific world centered on evidence-based research and international

standards, Pancasila principles that focus on social justice and community empowerment may be perceived as less relevant or even as barriers to technological progress. Therefore, it is important to analyze how these local values can be championed in the face of more technical and uniform global scientific standards. A more inclusive and context-based approach can help align scientific goals with the needs of Indonesia's diverse society.

The application of Pancasila values in scientific education in Indonesia also needs to be strengthened. Many higher education institutions have not systematically integrated Pancasila values in their curricula. Education based on technical skills alone, without considering the ethical and social dimensions embodied in Pancasila, risks producing scientists who only prioritize results without considering their impact on society. Therefore, efforts should be made to develop curricula that combine technical knowledge with Pancasila-based ethical training, in order to create scientists who are not only scientifically proficient, but also socially responsible.

To ensure that Pancasila values can be effectively applied in the scientific world, policy support from the government and research institutions is needed. Greater institutional support, such as funding for research that takes into account social justice, as well as the creation of platforms for discussion and collaboration between scientists and society, will strengthen the application of Pancasila in research. Without this support, it is difficult for scientists to prioritize ethical and social values in the face of pressure to compete internationally.

Table 1. Survey Results

Aspect	Key Findings	Details and Implications
Integration of Pancasila Values	The majority of respondents (75%) recognized the importance of integrating Pancasila values in scientific work.	Illustrates that Pancasila is considered as a moral and ethical framework in research, ensuring research outcomes are aligned with the well-being of society and national identity.
Ethical Responsibility	80% of respondents felt that Pancasila encouraged them to maintain integrity and transparency in their research.	The principle of Fair and Civilized Humanity guides ethical behavior such as honesty in data reporting and respect for the rights of all parties involved in the research.
Social Justice	70% of respondents were inspired by Pancasila to consider the social implications of their research.	The research is expected to provide tangible benefits to society, especially marginalized groups, and reduce social inequality through the application of research results.
National Identity	65% of respondents linked their research to promoting Indonesian cultural values.	The principle of Unity in Diversity encourages scientists to incorporate local cultural elements into research, while contributing to the advancement of national science.
Ethical Awareness in Education	78% of students felt more responsible for the social impact of research after participating in the Pancasila integration program.	The case study demonstrates the effectiveness of integrating Pancasila values in the science curriculum to increase ethical awareness among university students.
Institutional Support Constraints	55% of respondents identified a lack of institutional support for Pancasila-based ethical practices.	Respondents highlighted the lack of resources, training and policies that support the application of Pancasila values in daily scientific practice.

The majority of respondents (75%) recognized the importance of integrating Pancasila values into scientific practice. This shows that Pancasila is not only understood as a state ideology, but also as a moral guide that is relevant in a scientific context. Values such as Belief in One God and Fair and Civilized Humanity encourage a holistic approach to research, where ethics, social responsibility and impact on society are key considerations. However, it is important to note that the application of these values can be challenging, especially in the fields of profit-oriented science or technological exploration that often neglect social and cultural aspects. Hence, there is a need for policies that regulate the formal integration of Pancasila in scientific research, both through educational curricula and research guidelines.

The findings of this research underscore the significant role of Pancasila as a foundational framework for the development of scientific values in Indonesia. The data collected from the survey indicates that a substantial majority of Indonesian scientists recognize the importance of integrating Pancasila's principles into their research practices. Integrating cultural values with scientific inquiry enriches the research process and outcomes (Mulyani and Kusuma, 2020). Approximately 75% of respondents affirmed that Pancasila influences their ethical responsibilities, social justice considerations, and national identity in their scientific endeavors. This strong acknowledgment highlights the relevance of Pancasila in guiding researchers toward ethical conduct and social accountability.

Moreover, the emphasis on ethical responsibility among scientists is particularly noteworthy. Pancasila's emphasis on social justice requires scientists to actively address inequalities in their research practices (Adnan and Anwar, 2020). The findings from this study highlight the importance of ethical responsibility among researchers, especially in relation to Pancasila, as Indonesia's philosophical foundation. Mulyani and Kusuma (2020) emphasized that Pancasila encourages an interdisciplinary approach in research that values multiple perspectives and knowledge systems. This inclusive approach not only enriches the research process, but is also in line with the values of ethical integrity and transparency. About 80% of participants acknowledged that Pancasila encourages them to maintain high ethical standards in their work, reflecting the principle of Just and Civilized Humanity. This principle calls for upholding justice, respecting human rights, and showing respect in every interaction. Respondents stated that adhering to this ethical principle not only enhances their credibility as researchers, but also plays an important role in building trust within the academic community and society at large. By prioritizing ethical responsibility, researchers help maintain the integrity of the scientific process and promote a culture of mutual respect and accountability. This emphasizes the important role of ethical frameworks, such as those outlined by Pancasila, in building a sustainable and trustworthy research environment.

The Pancasila ethical framework plays an important role in creating a sustainable and trustworthy research environment by providing a set of values that guide behavior and decision-making. Pancasila, as an ethical system, emphasizes principles such as justice, unity and humanity that are critical to maintaining integrity in research practice. Pancasila serves as a moral compass for researchers, directing them to carry out their duties with integrity and respect for human dignity (Widisuseno, 2022). The five precepts of Pancasila-belief in God Almighty, just and civilized humanity, Indonesian unity, democracy led by wisdom in deliberation/representation, and social justice for all Indonesian people-encourage ethical behavior in scientific endeavors (Khairani et al., 2024).

The principle of social justice also emerged as a crucial aspect influencing scientific practices. The principle of democracy within Pancasila supports collaborative approaches in scientific research (Mulyani and Kusuma, 2020). Approximately 70% of respondents expressed that Pancasila inspires them to consider the societal implications of their research. This perspective is vital for addressing inequalities and ensuring that scientific advancements benefit all segments of society, particularly marginalized communities. By prioritizing social justice, scientists can contribute to a more equitable distribution of knowledge and resources, ultimately advancing national development.

By adhering to the values of Pancasila, researchers can foster trust among stakeholders, including research participants, institutions and the public. This ethical framework promotes transparency and accountability, which are essential in collaborative research, and maintains public trust in scientific findings (Atmanegara et al., 2024; Nugraheni et al., 2023). Moreover, the ethical principles of Pancasila are aligned with

local cultural values as well as universal ethical standards, making it a versatile framework for various research contexts (Atmanegara et al., 2024). The integration of Pancasila in research ethics can strengthen the moral formation of researchers, ensuring that research results provide positive benefits to society as a whole (Widisuseno, 2022).

In a global context, many cases of scientific ethics violations occur due to pressure to produce quick or profit-oriented results. However, the integration of Pancasila values can mitigate this by providing a moral foundation for scientists. This includes ensuring that every research is conducted with strict ethical standards, from transparency in reporting results to ensuring there is no exploitation of research participants.

Pancasila as the foundation of Indonesia serves not only as an ideological foundation, but also as a practical guideline in various aspects of life, including scientific research. One important principle of Pancasila accepted by respondents in this study is Social Justice for All Indonesian People, which is reflected in 70% of respondents stating that Pancasila encourages them to consider the social impact of their research. This principle emphasizes the importance of equality in the distribution of benefits from innovations or research findings, not only for elite groups, but also for marginalized communities. For example, in health technology research, the focus is often on markets with high purchasing power, while poor communities tend to be overlooked. With the Pancasila-based approach, it is expected that researchers will not only develop products or technologies, but also ensure that the benefits of the research can be enjoyed by all levels of society, including those who are less well-off (Putra et al., 2024).

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Pancasila encourages research to create social justice by ensuring fair access to research results. This is not only a moral principle, but also a legal basis that must be adhered to by the state and researchers. Inclusivity-oriented research will not only result in innovation, but will also create more just and equitable social change (Sari, 2024). In this context, Pancasila serves as a guideline to ensure that the research process and its application always take into account equality and social welfare, both in the approach and the results achieved.

However, while Pancasila offers a clear framework for prioritizing social justice, challenges remain in its application. Especially in modern times, where social and economic disparities are still considerable (Pratama et al., 2024). Researchers must be able to address these complexities and adapt to evolving social dynamics. While the ideals of Pancasila to create a more just and inclusive society are clear, the application of these principles in practical research still requires ongoing efforts, including constructive dialog between researchers, policymakers, and society (Setiawan et al., 2024). The principles of Pancasila not only lead to innovation, but also to the achievement of more equitable welfare for all Indonesian people.

The integration of Pancasila values in Indonesian research practices provides a significant perspective in promoting cultural values and national heritage. As many as 65% of respondents in one study felt that Pancasila inspired them to introduce Indonesian cultural values through their research. The principle of Bhinneka Tunggal Ika, meaning Unity in Diversity, reflects the importance of recognizing the diversity of local cultures and traditions, which provide a rich source of knowledge for Indonesian scientists. This approach provides a foundation for research to combine local wisdom with broader scientific developments (Wardhono et al., 2024).

However, major challenges arise when Indonesian scientists have to navigate between the promotion of local values and the demand to follow international scientific standards. In many cases, there is pressure to align research with global criteria that prioritize objectivity and uniformity. This sometimes leads to research that ignores the local cultural context and reduces the relevance of research to Indonesian society (Nuranisa et al., 2024). This tension can lead to the loss of rich local wisdom in the mainstream of global scientific discourse (Aglia et al., 2024).

Pancasila as the ideological basis of the Indonesian state serves as a bridge that connects local cultural values with global demands. Pancasila education, which starts at an early age, instills a sense of pride in cultural heritage and encourages the preservation of local traditions (Ruwaidah et al., 2024). In this context, a Pancasila-based approach to research can enrich global scientific discussions with a more holistic perspective, offering a unique contribution to global knowledge. In this way, research conducted by Indonesian scientists not only gives voice to local perspectives, but also provides viewpoints that can enrich and deepen understanding of global issues.

However, it is important to maintain a careful balance between respecting international standards and maintaining local cultural identity in research. An overemphasis on international standards could risk neglecting local perspectives, which in turn could create a gap between the science produced in Indonesia and its contextualization in the global society. Therefore, it is important to integrate Pancasila values in every stage of research, in order to create scientific contributions that are sustainable and relevant to Indonesia's culture and national needs.

The integration of Pancasila values in the scientific education curriculum has great potential to increase the ethical awareness of students and young scientists towards the social impact of their research. Survey results showing that 78% of students felt more aware of the social impact of research when Pancasila was integrated into the curriculum illustrate the important role of education in shaping the character of future scientists. The values of Pancasila, which emphasize unity, justice, and democracy, serve as an ideological foundation that strengthens moral and ethical integrity among students (Arfiyansyah et al., 2024). The implementation of educational programs that incorporate Pancasila can prepare them to become scientists who are not only skilled in scientific theory and practice, but also have a high social awareness of the impact of the results of their research (Pradipta et al., 2024).

However, despite its clear benefits, many educational institutions in Indonesia are still not integrating Pancasila values deeply into their curriculum. One of the main challenges is the focus of most students and young scientists who prioritize research outcomes, often neglecting the process and its social impact. This points to the need for curriculum reform that not only prioritizes scientific achievement, but also ensures that ethical considerations become an integral part of the educational process. Pancasila as the nation's ideological foundation can serve as a very important tool for developing such ethical awareness, but this requires the implementation of effective teaching strategies.

Active learning strategies, such as group discussions and case studies, have proven to be effective methods for instilling Pancasila values in students. With this approach, students can be invited to understand more deeply the relevance of Pancasila values in the context of responsible and ethical scientific research. The Merdeka Curriculum, which emphasizes play-based learning, also offers opportunities to instill Pancasila values from an early age, with an emphasis on character building based on virtue and moral integrity (Mulaydi and Malihah, 2024).

However, the implementation of the integration of Pancasila values in education is still faced with various challenges. One of the biggest challenges is the resistance to change that exists among educators and the inconsistent understanding of Pancasila values themselves. This slows down effective integration efforts (Anggreni et al., 2024). In addition, the tension between a focus on research results and ethical considerations is still a debate that needs to be addressed to create a healthy balance between scientific progress and its impact on society. Therefore, a more holistic approach is needed in designing curricula that not only teach scientific skills, but also equip students with a deep ethical understanding to face social and moral challenges in the scientific world.

The application of Pancasila values in research has a very important role in shaping ethical and beneficial research practices for society (Hutabarat et al., 2022). As the basic ideology of Indonesia, Pancasila not only serves as a moral guideline, but can also serve as a strong foundation in ensuring that research conducted not only prioritizes scientific aspects, but also has a positive impact on social life and social justice in society. The values of Pancasila, such as unity, social justice, and respect for diversity, are highly relevant in guiding researchers to conduct research that focuses not only on results but also on ethical processes and impacts on the welfare of society (Arfiyansyah et al., 2024; Malik et al., 2024).

However, while many respondents recognized the importance of implementing Pancasila values, there are significant obstacles to implementation, particularly in terms of institutional support. As many as 55% of respondents noted that the lack of institutional support, such as a lack of resources, training and supporting policies, is a major obstacle in realizing ethical practices in line with Pancasila values. In many cases, institutions prioritize research productivity, often measured through the number of publications, over considering the ethical dimensions of the research itself. This suggests a gap between the scientific goals achieved and the social values that should be upheld in every research process (Malik et al., 2024).

The lack of clear policies and adequate resources makes the application of Pancasila values in research difficult. In the absence of supportive policies, the application of research ethics in accordance with the values of Pancasila is hampered, and this has the potential to undermine the integrity and benefits of research itself (Karyono, 2020). Therefore, stronger and more comprehensive policy reforms are needed from the government and educational institutions to ensure that Pancasila values can be effectively applied in every stage of research. In addition, leadership in the education and research sectors should actively integrate Pancasila in policies and training programs, to create an environment that encourages ethical and responsible research practices (Riswanti and Sowiyah, 2021; Ulfa et al., 2021).

While there is an argument that a focus on research productivity is necessary to drive scientific progress and innovation, it is important to balance such goals with deep ethical principles. Therefore, integrating the values of Pancasila in research policy is not only a moral imperative, but also a strategy to create higher quality and sustainable research, which can provide tangible benefits to society at large.

Based on these findings, several recommendations emerged for policymakers and educational leaders. First, there is a need to develop training programs focused on ethical research practices aligned with Pancasila's principles. Additionally, institutions should create platforms for dialogue among researchers to share experiences and best practices related to ethical conduct in science. Such initiatives could enhance collaboration and strengthen the commitment to ethical standards across disciplines.

Future research should explore longitudinal studies examining how integrating Pancasila into scientific practices influences researchers' behaviors over time. Additionally, comparative studies involving different cultural contexts could provide insights into how various philosophical frameworks shape scientific ethics globally. Understanding these dynamics will be crucial for developing comprehensive strategies that promote ethical responsibility in science.

In conclusion, this study highlights the significant role of Pancasila as a foundational framework for developing scientific values in Indonesia. Its principles provide a guiding framework that encourages ethical responsibility, social justice, and national identity among researchers. As Indonesia continues to advance scientifically, embracing these values will be essential for ensuring that research contributes positively to society while upholding moral standards rooted in its cultural heritage. The commitment to ethical standards rooted in Pancasila fosters a culture of accountability among researchers (Yuniarto et al., 2022). The integration of Pancasila into scientific practices not only enriches the quality of research but also reinforces the commitment of Indonesian scientists to serve their communities responsibly and ethically.

4. Conclusion

This research confirms the importance of Pancasila as the basis for developing scientific values in Indonesia. The integration of Pancasila values, such as ethical responsibility, social justice, and national identity, in scientific research encourages the creation of research practices that not only produce innovations but also have a positive impact on society at large. However, its implementation faces challenges, such as the gap with the demands of globalization, the dominance of international scientific standards, and the lack of adequate institutional support.

The implications of this research include the need to strengthen Pancasila-based scientific education to increase students' ethical awareness and produce socially responsible scientists. Policy support from the government and institutions is essential to ensure the integration of Pancasila values in research practices, including through inclusive and collaborative research funding. In addition, Pancasila-based research can

contribute to the reduction of social inequality through a more equitable distribution of benefits from research outcomes.

Based on the findings, some recommendations are to systematically integrate Pancasila values in the higher education curriculum to build a generation of ethical and socially responsible scientists. Research ethics training programs based on Pancasila also need to be developed for students and scientists. In addition, a collaboration platform is needed for researchers to share experiences in applying Pancasila values in their research. Governments and institutions also need to create policies and provide resources that support Pancasila-based research practices. Further research is recommended to evaluate the impact of integrating Pancasila values in scientific practice longitudinally and compare it with scientific ethical frameworks in various global contexts. This approach is expected to strengthen the role of Pancasila in research, making it locally relevant and contributing significantly to global scientific discourse.

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