



# Science Integration to Build Understanding and Tolerance in Realizing Harmonization of Multi-religious Societies

Servasius Balok<sup>1\*</sup>, Maria Montessori<sup>1</sup>, Susi Fitria Dewi<sup>1</sup>, Erianjoni<sup>1</sup>

<sup>1</sup> Fakultas Ilmu Sosial, Universitas Negeri Padang, Indonesia.

Received: December 24 2024

Revised: February 03, 2025

Accepted: March 25, 2025

Published: March 31, 2025

Corresponding Author:

Servasius Balok

[servasinsantuan@gmail.com](mailto:servasinsantuan@gmail.com)

DOI: [10.29303/jppipa.v11i3.10565](https://doi.org/10.29303/jppipa.v11i3.10565)

© 2025 The Authors. This open access article is distributed under a (CC-BY License)



**Abstract:** This study aims to analyze the role of religious instructors in integrating science to build understanding and tolerance in realizing the harmonization of multi-religious communities in Tarutung District, North Tapanuli Regency. The research method used is a qualitative approach with in-depth interviews and observations. The results showed that religious educators act as communicators, motivators and role models in educating the community about the importance of tolerance and mutual respect. They also apply a science-based approach in the extension program to improve people's understanding of diversity. The main conclusion of this study is that the integration of science in religious counseling can strengthen interfaith relations and create a harmonious environment in the midst of diversity.

**Keywords:** Harmonization; Multi-religious society; Science integration; Tolerance; Understanding.

## Introduction

Religious diversity in Indonesia is a social reality that reflects cultural richness while presenting challenges in maintaining social harmony (Agung et al., 2024; Fatimah, 2024; Jeniva & Tanyid, 2025). In various regions, this diversity can be a factor that strengthens togetherness, but also has the potential to cause friction if not managed properly. Therefore, a strategic approach is needed that can bridge differences and strengthen tolerance, one of which is through the integration of science in understanding religious diversity (Kamil et al., 2023; Liu et al., 2024; Qorib & Afandi, 2024).

Tarutung Sub-district is one of the areas with a high level of religious diversity, so it becomes a real example of how inter-religious interactions can develop in various social dynamics (Masyudi et al., 2023; Nurhidayah et al., 2021; Saputri et al., 2023). Differences in understanding and lack of appreciation of diversity often trigger potential conflicts. Therefore, it is necessary to examine how a science-based approach can be used to build constructive and inclusive dialog (Anas et al., 2025; Kurata et al., 2025; Nurhasnawati et al., 2023).

The scientific perspective, science can be an effective tool in creating mutual understanding among different religious groups (Doyan et al., 2020; Pearman & Cravens, 2022; Spandonidis et al., 2024). With its fact-based approach and scientific method, science can help reduce misunderstandings and build a more objective and rational basis for communication (Fahyudi et al., 2022). Therefore, this study will explore how religious extension workers and educators can integrate the principles of science in efforts to harmonize religious diversity (Kamil et al., 2023; Rahayu & Wulandari, 2024).

This research aims to analyze how science integration can contribute to building inter-religious understanding and tolerance in Tarutung sub-district. Specifically, this research will identify strategies for utilizing science in religious counseling and multicultural education, evaluate challenges in its implementation, and measure its impact on increasing tolerance and social harmony.

Furthermore, this research is expected to provide new insights into the effectiveness of scientific approaches in building tolerance between religious communities. By evaluating various methods that have been applied and proposing science-based innovations,

## How to Cite:

Balok, S., Montessori, M., Dewi, S. F., & Erianjoni. (2025). Science Integration to Build Understanding and Tolerance in Realizing Harmonization of Multi-religious Societies. *Jurnal Penelitian Pendidikan IPA*, 11(3), 732–736. <https://doi.org/10.29303/jppipa.v11i3.10565>

this research can serve as a reference for policy makers, academics, and practitioners in the field of social religion in an effort to improve social harmony.

The results of this study not only contribute to the academic realm, but also offer policy recommendations that can be applied by religious instructors, the government, and religious organizations on a broader scale. Thus, science integration is expected to be a sustainable solution in building social harmony and harmony in the midst of existing religious diversity, especially in Tarutung District and other areas with similar conditions.

## Method

This research uses a qualitative approach with a case study method to deeply understand how science integration can build understanding and tolerance in realizing the harmonization of multi-religious communities in Tarutung District. The qualitative approach was chosen for its ability to explore the meanings, experiences, and social dynamics related to the application of science in the context of religious diversity. Case studies allow specific exploration of science integration strategies, community responses and challenges faced. The focus of this research is in line with Grenier (2023) view of case studies, which focuses on a specific context and understands social phenomena in depth.

Data were collected through in-depth interviews, field observations and documentation studies. Interviews were conducted with various related parties, such as religious instructors, community leaders, educators, and residents, to obtain diverse perspectives on the effectiveness of science integration in building social harmonization. Field observations aim to directly observe interactions and practices that integrate science in the religious life of the community. Documentation studies will explore extension materials, educational curricula, local policies, and other sources of information relevant to science integration and multi-religious harmonization in Tarutung Sub-district.

The collected data were analyzed using a descriptive-qualitative approach to interpret the meaning of social interaction and science integration practices. Data analysis was conducted through the stages of data reduction, data presentation, and conclusion drawing. Data reduction was conducted to filter relevant information from interviews, observations, and documents. Data were presented in the form of descriptive narratives describing social interaction patterns and science integration strategies. Conclusion drawing aims to understand how science integration contributes to creating multi-religious

harmonization and provide recommendations for future program development.

Data validity was guaranteed through source and method triangulation. Source triangulation is done by comparing data from various informants, while method triangulation is done by combining the results of interviews, observations, and documentation studies. This approach is in line with the principles of validity and reliability in qualitative research (Creswell & Creswell, 2018), where the combination of various methods can increase the credibility of research results.

## Result and Discussion

This study found that the integration of science in religious counseling in Tarutung Sub-district contributes significantly to building harmonization in multi-religious communities. Based on interviews with religious extension workers, religious organization leaders, and community members, it is known that science-based approaches, such as social psychology and cross-cultural communication studies, are used to increase the effectiveness of interactive dialogues, religious education programs, and joint social activities.

### *The Role of Religious Counselors in Science Integration*

Religious educators have a very important role in building harmonization in multi-religious societies by utilizing science as an instrument of communication and education. As counselors, they apply the principles of social psychology in guiding families and the younger generation to uphold the values of tolerance. They also utilize empirical data from sociology of religion studies to understand patterns of community interaction and develop more inclusive communication strategies (Giusto et al., 2021).

In many cases, religious educators act as mediators in conflicts based on religious differences. Using a science-based approach to communication, they are able to reduce tensions through evidence-based negotiation and dialogue methods. Extension programs conducted in various places of worship and interfaith communities utilize the principles of evidence-based education to increase public understanding of the importance of respecting diversity (Upenieks et al., 2024).

### *Challenges in Science Integration in Religious Counseling*

While science integration provides benefits in building harmonization, there are challenges in its implementation. One of the main challenges is the resistance to science-based approaches in religious discourse. Some groups of people still think that religious approaches must be dogmatic without the need to consider scientific aspects. Therefore, religious

educators need to develop educational strategies that connect religious values with scientific findings so that

they are more easily accepted by the community (Pohan et al., 2024).



**Figure 1.** Science-integrated religious education program

In addition, the lack of understanding about science among the public is also an obstacle. Many individuals still assume that science and religion are two conflicting entities. To overcome this, an interdisciplinary approach that combines religious studies with social science needs to be introduced in extension programs (Qasim et al., 2024).

#### *Science Integration Strategy in Realizing Harmonization*

One of the main strategies in science integration to build harmonization in multi-religious societies is local wisdom-based counseling combined with scientific studies. For example, the concept of Dalihan Natolu in Batak culture can be studied using a social anthropology perspective to understand how traditional values support tolerance and interfaith harmony (Wang et al., 2025).

Another approach that can be applied is the use of technology in religious counseling, such as social data analysis to map challenges in interfaith interactions and utilizing digital media to spread science-based tolerance messages. With the integration of technology and science, religious messages can be delivered more effectively and reach a wider community (Reddy, 2025). Through science-based counseling, it is hoped that people will be more open to the concept of diversity and better understand the importance of tolerance in everyday life. This strategy not only helps to reinforce religious teachings in a scientific context, but also creates a bridge of communication between different religious communities, thus creating a society that is harmonious, respectful and supportive of one another (Luo et al., 2025).

The results show that the integration of science in religious education and counseling has a strategic role in building understanding and tolerance in multi-religious societies. A science-based approach allows for a more rational and fact-based dialog, so as to strengthen interfaith relations and reduce the potential for conflict

based on differences in belief (Kurata et al., 2025). The significance of this result lies in the ability of science integration to adapt to local contexts and utilize cultural wisdom in building social harmonization.

The utilization of scientific concepts, such as biology in the understanding of human genetic diversity or astronomy in the perspective of determining the time of worship, can be a bridge in connecting different religious understandings and strengthening interfaith dialogue (Ai et al., 2025). However, the challenges in implementing science integration are still considerable, such as resistance to scientific approaches in religious studies and the lack of science literacy among the community. Therefore, wider support is needed from various parties, including academics, religious leaders and the government, to encourage science-based education that is more inclusive and acceptable to all.

The implication of this research is the need for curriculum development and counseling methods that are more innovative and based on a multidisciplinary approach. With a more structured strategy and support from various parties, the integration of science in building understanding and tolerance can be more optimal in realizing a harmonious, peaceful, and respectful society.

## **Conclusion**

This research confirms that the integration of science in education and religious discourse plays a strategic role in building understanding and tolerance in order to realize the harmonization of multi-religious societies. Through science-based interactive dialogues, educational programs that combine scientific knowledge with religious teachings, and interfaith social activities, this approach can strengthen interfaith relations and reduce the potential for conflict. However, challenges such as resistance to scientific concepts,



limited scientific literacy, and socio-political dynamics require support from academics, religious leaders, and the government. The implications of this research include enrichment of theoretical studies, references for educational institutions and social organizations, and increasing collective awareness of diversity.

### Acknowledgments

Thank you to all parties who have helped in this research so that this article can be published.

### Author Contributions

All authors contributed to writing this article

### Funding

No external funding

### Conflicts of Interest

No conflict interest.

## References

- Agung, D. A. G., Nasih, A. M., & Kurniawan, B. (2024). Local wisdom as a model of interfaith communication in creating religious harmony in Indonesia. *Social Sciences & Humanities Open*, 9, 100827. <https://doi.org/10.1016/j.ssaho.2024.100827>
- Ai, D., Qin, S., Nie, Z., Wang, D., Yuan, H., & Liu, Y. (2025). Adaptive local neighborhood search and dual attention convolution network for complex semantic segmentation towards indoor point clouds. *Expert Systems with Applications*, 126376. <https://doi.org/10.1016/j.eswa.2024.126376>
- Anas, M., Saraswati, D., Ikhsan, M. A., & Fiaji, N. A. (2025). Acceptance of "the Others" in religious tolerance: Policies and implementation strategies in the inclusive city of Salatiga Indonesia. *Heliyon*. Retrieved from [https://www.cell.com/heliyon/fulltext/S2405-8440\(25\)00206-3](https://www.cell.com/heliyon/fulltext/S2405-8440(25)00206-3)
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design Qualitative, Quantitative, and Mixed Method Approaches by John W (Creswell (ed.); fifth)*. SAGE Publications, Inc. z-lib.org.
- Doyan, A., Susilawati, S., & Hardiyansyah, H. (2020). Development of natural science learning tools with guided inquiry model assisted by real media to improve students' scientific creativity and science process skills. *Jurnal Penelitian Pendidikan IPA*, 7(1), 15–20. <https://doi.org/10.29303/jppipa.v7i1.485>
- Fahyudi, A., Golo, Z. A., & Garmelia, E. (2022). Development of Learning Media Using the Powtoon Application for Effective Communication Courses in Diploma 3 Medical Record and Health Information Department. *Jurnal Penelitian Pendidikan IPA*, 8(6), 2737–2743. <https://doi.org/10.29303/jppipa.v8i6.2495>
- Fatimah, G. E. R. (2024). Analysis of the Need for Development of Science Learning Tools Based on Religious Moderation in Junior High Schools in Conflict Prone Areas in West Nusa Tenggara. *Jurnal Penelitian Pendidikan IPA*, 10(5), 2220–2229. <https://doi.org/10.29303/jppipa.v10i5.6893>
- Giusto, A., Johnson, S. L., Lovero, K. L., Wainberg, M. L., Rono, W., Ayuku, D., & Puffer, E. S. (2021). Building community-based helping practices by training peer-father counselors: A novel intervention to reduce drinking and depressive symptoms among fathers through an expanded masculinity lens. *International Journal of Drug Policy*, 95, 103291. <https://doi.org/10.1016/j.drugpo.2021.103291>
- Grenier, A. (2023). The qualitative embedded case study method: Exploring and refining gerontological concepts via qualitative research with older people. *Journal of Aging Studies*, 65, 101138. <https://doi.org/10.1016/j.jaging.2023.101138>
- Jeniva, I., & Tanyid, M. (2025). The framework of religious moderation: A socio-theological study on the role of religion and culture from Indonesia's perspective. *Social Sciences & Humanities Open*, 11, 101271. <https://doi.org/10.1016/j.ssaho.2024.101271>
- Kamil, M., Saepudin, A., Saripah, I., & Rahman, A. F. (2023). The Role of the Nurul Hidayah Integrated Taklim Council in Meeting the Religious Learning Needs of the Elderly in Cirebon Regency. *Jurnal Penelitian Pendidikan IPA*, 9(12), 11661–11670. <https://doi.org/10.29303/jppipa.v9i12.6417>
- Kurata, L., Ayanwale, M. A., Molefi, R. R., & Sanni, T. (2025). Teaching religious studies with artificial intelligence: A qualitative analysis of Lesotho secondary schools teachers' perceptions. *International Journal of Educational Research Open*, 8, 100417. <https://doi.org/10.1016/j.ijedro.2024.100417>
- Liu, X., Salim, A. C., Ban, H., & Hu, L. (2024). Behavior of CFRP-strengthened short spiral welded tubes under axial load. *Thin-Walled Structures*, 205, 112408. <https://doi.org/10.1016/j.tws.2024.112408>
- Luo, Q., Yang, C., & Yang, J. (2025). Predicting counseling behavioral propensity based on temporal return visits patterns and current perceived intensity with chronic conditions management. *Information Processing & Management*, 62(3), 104024. <https://doi.org/10.1016/j.ipm.2024.104024>
- Masyudi, M., Usman, S., Nurman, S., Ismail, I., &

- Abubakar, A. (2023). Determinant Factors of Immunization Coverage in Toddlers Under 5 Years Old in Banda Aceh, Indonesia: Cross Sectional Study. *Jurnal Penelitian Pendidikan IPA*, 9(SpecialIssue), 1227–1232. <https://doi.org/10.29303/jppipa.v9iSpecialIssue.5898>
- Nurhasnawati, N., Muzayanati, A., & Ichsan, I. (2023). The effect of the mentimeter application-based PBL model on student learning interests in science learning courses integrated with religious values. *Jurnal Penelitian Pendidikan IPA*, 9(6), 4331–4337. <https://doi.org/10.29303/jppipa.v9i6.3569>
- Nurhidayah, N., Jumaeri, J., & Susilaningih, E. (2021). Development of video based on pop up questions integrated religious character human digestive system materials. *Jurnal Penelitian Pendidikan IPA*, 7(SpecialIssue), 250–255. <https://doi.org/10.29303/jppipa.v7iSpecialIssue.1055>
- Pearman, O., & Cravens, A. E. (2022). Institutional barriers to actionable science: Perspectives from decision support tool creators. *Environmental Science & Policy*, 128, 317–325. <https://doi.org/10.1016/j.envsci.2021.12.004>
- Pohan, R. A., Husni, A., Delima, M., Pohan, P. B. A., Astuti, R. D., & Marhaban, M. (2024). Spiritual integration in counseling for student suicide prevention in higher education in Indonesia. *Asian Journal of Psychiatry*, 102, 104287. <https://doi.org/10.1016/j.ajp.2024.104287>
- Qasim, N. H., Zhumagaliuly, A., Khozhamkul, R., & Rahim, F. (2024). The role of zygotic genome activation in genetic- related reproductive medicine: Technological perspective, religious and bioethical concerns, challenges and benefits. *Journal of Genetic Engineering and Biotechnology*, 22(1), 100340. <https://doi.org/10.1016/j.jgeb.2023.100340>
- Qorib, M., & Afandi, A. (2024). Implementing prophetic values in the islamic life guidelines for Muhammadiyah citizens: A qualitative analysis for transforming science and technology. *MIQOT: Jurnal Ilmu-Ilmu Keislaman*, 48(1), 1–24. <https://doi.org/10.30821/miqot.v48i1.1129>
- Rahayu, H. P., & Wulandari, D. (2024). Development of Augmented Reality Learning Media on IPAS Subject Matter of the Respiratory System. *Jurnal Penelitian Pendidikan IPA*, 10(10), 7562–7571. <https://doi.org/10.29303/jppipa.v10i10.7740>
- Reddy, S. (2025). Global Harmonization of Artificial Intelligence-Enabled Software as a Medical Device Regulation: Addressing Challenges and Unifying Standards. *Mayo Clinic Proceedings: Digital Health*, 3(1). Retrieved from [https://www.mcpdigitalhealth.org/article/S2949-7612\(24\)00124-X/fulltext](https://www.mcpdigitalhealth.org/article/S2949-7612(24)00124-X/fulltext)
- Saputri, M., Oktaria, Q., Junaidi, A., & Ardiansyah, M. A. (2023). The effect of light intensity and sound intensity on the growth of various types of chili in indoor system. *Jurnal Penelitian Pendidikan IPA*, 9(8), 6330–6336. <https://doi.org/10.29303/jppipa.v9i8.3856>
- Spandonidis, C., Belioika, M.-P., & Eriksson, O. (2024). Multi-criteria-based evaluation of digital carbon footprint tools from a household user perspective. *Journal of Cleaner Production*, 481, 144151. <https://doi.org/10.1016/j.jclepro.2024.144151>
- Upenieks, L., Bonhag, R., & McGowan, A. C. (2024). Religious doubt and depression in later life: Gender differences in the buffering role of supportive pastoral relationships. *International Psychogeriatrics*, 36(8), 643–654. Retrieved from <https://shorturl.asia/5Fc7h>
- Wang, X., Feng, Y., Fan, Y., Lian, Z., Cao, J., & Wang, H. (2025). A field implementation of traffic speed harmonisation on the highway with long-tunnel clusters. *Transportmetrica A: Transport Science*, 1–31. <https://doi.org/10.1080/23249935.2025.2454251>