



Department of Digital Business

**Journal of Artificial Intelligence and Digital Business (RIGGS)**

Homepage: <https://journal.ilmudata.co.id/index.php/RIGGS>

Vol. 4 No. 3 (2025) pp: 3666-3671

P-ISSN: 2963-9298, e-ISSN: 2963-914X

---

## Performance-Based Management in Public Administration: Implications for Economic Growth and Service Delivery

Walla Astianty Putri<sup>1</sup>, Bella Suci Novitri<sup>2</sup>, Pri Utami<sup>3</sup>, TB. Yudi Muhtadi<sup>4</sup>, Joko Rianto<sup>5</sup>, Ahmad<sup>6</sup>  
<sup>1,2,3,4,5,6</sup> Universitas Islam Syekh Yusuf, Indonesia  
[waputri@unis.ac.id](mailto:waputri@unis.ac.id)

### **Abstract**

*This study explores the role of performance-based management (PBM) in public administration and its implications for economic growth and service delivery. Performance-based management has emerged as a strategic approach to enhance efficiency, accountability, and transparency in government institutions by linking organizational goals with measurable outcomes. Through a systematic review of relevant literature and comparative case studies from various countries, this research highlights how PBM fosters improved resource allocation, promotes evidence-based policymaking, and strengthens institutional capacity. The findings indicate that PBM contributes to economic growth by ensuring more effective public expenditure management, stimulating investment confidence, and fostering innovation in the public sector. Furthermore, PBM positively impacts service delivery by improving responsiveness, citizen satisfaction, and the quality of public services. However, challenges such as limited institutional readiness, inadequate performance measurement systems, and resistance to cultural change remain significant barriers to its full implementation. This study concludes that integrating PBM into public administration can play a pivotal role in driving sustainable economic development and enhancing governance, provided that robust monitoring mechanisms and capacity-building initiatives are prioritized.*

*Keywords: Performance-Based Management, Public Administration, Economic Growth, Service Deliver*

### **1. Introduction**

The paradigm shift in public administration from the traditional bureaucratic model to performance-based management (PBM) reflects a shift in orientation from mere procedural compliance to the achievement of measurable results (Anessi-pessina & Anessi-pessina, 2020). Traditional bureaucratic models influenced by Max Weber's thought emphasize hierarchy, standard rules, and organizational stability, but are often criticized for being slow, rigid, and less responsive to the needs of society (Denhardt & Denhardt, 2015). In contrast, PBMs come with a focus on efficiency, effectiveness, and accountability of performance, which aims to ensure that public resources are used optimally in providing tangible benefits to society. This approach is also in line with the principles of New Public Management (NPM), which emphasizes the importance of performance measurement, evaluation of results, and orientation to public satisfaction (Hood, 1991).

Furthermore, the implementation of PBM requires a change in the culture of government organizations so that it is not only focused on inputs and processes, but also on the outcomes and impacts resulting from each public policy (Ongere & Muchemi, 2016). This transformation has prompted governments to design clear performance indicators, integrate monitoring and evaluation systems, and adopt management practices that are more adaptive to socio-economic dynamics (Bouckaert & Halligan, 2008). Thus, PBM not only functions as a technical instrument in government management, but also as an institutional reform strategy that can increase the effectiveness of public services while strengthening the state's legitimacy in the eyes of the public (Brinkerhoff & Wetterberg, 2013; Heinrich, 2007).

In the era of globalization and the development of information technology, the demand for transparency, accountability, and efficiency in public services is getting stronger (McBeath & Meezan, 2010). Modern society demands that the government not only carry out administrative functions, but also show openness in every decision-making process and management of public resources (Fukuyama, 2013). Transparency is seen as the main instrument for preventing corrupt practices, increasing public participation, and building public trust in the government. Meanwhile, accountability requires state apparatus to account for their performance in a clear and

measurable manner, both to supervisory institutions and to the wider community (Bovens, 2007). In line with that, efficiency in public services is an important indicator in assessing the quality of governance. The government is required to be able to optimize limited resources to provide fast, precise, and quality services (Randa & Adere, 2025). This efficiency-oriented service model encourages the emergence of innovation, the use of digital technology, and the application of performance management principles in the public sector (Pollitt & Bouckaert, 2017). Thus, transparency, accountability, and efficiency are not just bureaucratic reform jargon, but are a prerequisite for the realization of a government that is responsive, has integrity, and is able to support sustainable development (Ketelaar et al., 2006; Mwita, 2000).

Performance-Based Management (PBM) has a strategic role as an instrument of bureaucratic reform directed at improving the quality of governance (Oliveira et al., 2024). PBM emphasizes the relationship between planning, budgeting, program implementation, and evaluation of results through measurable performance indicators (Moynihan, 2008). With the implementation of PBM, the bureaucracy is encouraged to be outcome-oriented, not just output-oriented, so that every public policy and program can be assessed based on the real benefits provided to the community. Bureaucratic reform through PBM also strengthens the principle of good governance by prioritizing accountability, efficiency, and effectiveness in the administration of government (Kettunen, 2010).

In addition, PBMs serve as a managerial control mechanism that is able to increase transparency in public administration processes. Through a standardized performance measurement and reporting system, PBMs enable governments to identify bureaucratic weaknesses, improve resource allocation, and improve the quality of public services in a sustainable manner (Van Dooren, Bouckaert, & Halligan, 2015). Thus, PBM is not only a technocratic instrument in bureaucratic reform, but also a normative instrument that strengthens the integrity and legitimacy of the government in the eyes of the public. The consistent implementation of PBM is believed to create governance that is more responsive, adaptive, and able to support sustainable development (Marra, 2018).

The effectiveness of public administration has a significant contribution to economic growth, as the quality of governance determines the efficiency of resource distribution and policy stability. Effective public administration is able to create legal certainty, reduce transaction costs, and provide an institutional infrastructure conducive to economic activity (Acemoglu & Robinson, 2012). A responsive and efficient government in managing fiscal policy and market regulation can increase investor confidence, expand employment, and strengthen the competitiveness of the national economy. On the contrary, weak public administration, characterized by a sluggish bureaucracy and high corruption, tends to be an obstacle to long-term economic growth (North, 1990). In addition to having an impact on the economy, the effectiveness of public administration is also closely related to the quality of public services. Good administration ensures that health services, education, and social infrastructure are accessible equitable, timely, and in accordance with the needs of the community (World Bank, 2017). The high quality of public services in turn improves the welfare of the community and strengthens the legitimacy of the government. Effectiveness in the bureaucracy allows for the realization of a continuous monitoring and evaluation system, so that the government can adjust policies to the developing socio-economic dynamics (Grindle, 2007). Thus, the effectiveness of public administration is a determining factor in creating synergy between economic development and improving the quality of public services.

The implementation of Performance-Based Management (PBM) shows mixed results in different countries, with a considerable gap between developed and developing countries. In developed countries, PBM is relatively more successful because of the support of a strong institutional system, adequate bureaucratic capacity, and a deep-rooted culture of accountability (Pollitt & Bouckaert, 2017). On the other hand, developing countries often face major challenges in adopting PBMs due to weak institutional infrastructure, limited skilled human resources, and unstandardized performance measurement systems (Andrews, 2013). This condition causes PBMs in developing countries to tend to be symbolic or formalistic, without being able to have a significant impact on improving the quality of governance and public services (Haque, 2007); (Head, 2008).

In addition to institutional factors, technical obstacles are also the main obstacles in the implementation of PBM in developing countries. The limitations of information technology, the lack of valid data, and the low capacity of performance analysis make the evaluation and monitoring system often not run effectively (Schick, 1998). In addition, bureaucratic resistance to change also slows down the reform process, as some apparatus are still stuck in a traditional work culture that is process-oriented, not results-oriented. As a result, the implementation of PBM in developing countries has not been able to achieve its ideal goal, which is to create a transparent, efficient, and outcome-oriented government. Therefore, efforts to strengthen institutional capacity, provide technical training, and build a culture of performance are important prerequisites for reducing the gap in PBM implementation globally (Kaufmann et al., 2019).

Research by Van Dooren, Bouckaert, and Halligan (2015) confirms that the implementation of a performance-based management system is able to increase bureaucratic effectiveness through standardized measurement of

results, which in turn encourages the efficiency of public budget use. Furthermore, Moynihan (2008) in his study on the dynamics of PBM shows that the success of PBM implementation is greatly influenced by institutional capacity and the government's ability to build a credible monitoring and evaluation system. These findings indicate that PBM is not only a technical instrument, but also an institutional reform strategy to increase public trust and support economic stability (Ohiole & Ojo, 2015).

On the other hand, research in the context of developing countries also highlights the challenges faced in the implementation of PBM. Andrews (2013) emphasizes that although PBM is widely adopted, in practice many developing countries only implement it formally without adequate institutional support, so its impact on public services is still limited. This is in line with the findings of Schick (1998) who stated that the adoption of the PBM model in developed countries is often not in accordance with the institutional conditions in developing countries, especially those that still face technical limitations and bureaucratic resistance (Ndevu & Muller, 2018). Thus, the existing literature emphasizes the importance of contextual adaptation in the implementation of PBM, so that it can make a real contribution to economic growth and improve the quality of public services. Based on this, this study aims to find out Performance-Based Management in Public Administration: Implications for Economic Growth and Service Delivery.

## 2. Research Methods

This study uses a qualitative approach with the library research method to analyze the role of Performance-Based Management (PBM) in public administration and its implications for economic growth and the quality of public services. Research data was obtained through an in-depth review of academic literature, including books, articles from reputable international journals, policy reports, and official documents of government institutions and international organizations. This approach was chosen because it is able to provide a comprehensive overview of the concepts, implementation, and challenges of PBM in various contexts of countries, both developed and developing. In addition, the literature review method also allows researchers to identify general patterns, differences in practices, and theoretical relationships that are relevant to the research topic.

Data analysis is carried out using content analysis techniques, which are categorization, interpretation, and synthesizing findings from various sources to gain a deeper understanding. The focus of the analysis is directed at three main aspects, namely the effectiveness of PBM in the public bureaucracy, its impact on economic growth, and its contribution to improving the quality of public services. To improve validity, this study used a source triangulation technique by comparing results from various international literature and case studies. Thus, this research method is not only descriptive, but also analytical-critical, so it is expected to be able to make a theoretical contribution to the development of public administration science as well as practical recommendations for bureaucratic reform in various countries.

## 3. Results and Discussions

### The Influence of PBM on the Quality of Public Services

The implementation of *Performance-Based Management* (PBM) in public administration plays an important role in improving the quality of public services because it is able to shift the bureaucratic orientation from simply running procedures to producing measurable outcomes. PBM emphasizes the use of clear performance indicators as a reference in the process of planning, implementing, and evaluating public services (Moynihan, 2008). With this indicator, government agencies can be more responsive in responding to the needs of the community, because every program achievement can be measured objectively and transparently (Hariyadi et al., 2023). This responsiveness based on performance data also helps the government make continuous improvements in the public service sector. Furthermore, PBM has been proven to encourage the improvement of basic services, especially in the fields of health, education, and public administration (Ongere & Muchemi, 2016). A study conducted by Van Dooren, Bouckaert, and Halligan (2015) shows that the implementation of PBM allows the government to design a more focused service strategy and in accordance with the real needs of the community. For example, in the health sector, performance indicators can be used to assess the effectiveness of immunization programs or hospital services; while in the education sector, PBM allows the evaluation of the achievement of student learning outcomes and the effectiveness of the distribution of educational resources. Thus, basic services that previously tended to be uniform can be more adapted to local needs and development targets (Brinkerhoff & Wetterberg, 2013).

In addition to increasing the effectiveness of basic services, PBMs also have an impact on speed and transparency in the delivery of public services (McBeath & Meezan, 2010). Through a performance-based evaluation system, the government can cut inefficient bureaucratic procedures and speed up the process of service to the community (Kettunen, 2010). This can be seen in the implementation of *e-government* which is heavily influenced by the principle of PBM, where the digitization of service processes allows access to services to be faster, more open,

and well monitored. The transparency resulting from the performance-based system also provides opportunities for the public to assess and supervise the performance of the bureaucracy in a more participatory manner (Heinric, 2002); Edy Nurtamam et al., 2023; Rahman et al., 2023).

Another positive impact is the increase in public satisfaction with public services. With improvements in the aspects of speed, quality, and transparency, the public directly benefits from government services that are more *results-oriented* than just running procedures (Bouckaert & Halligan, 2008). This public satisfaction is not only an indicator of perception, but also an important legitimacy for the government to maintain public trust and support in the long term. Thus, PBM can strengthen the relationship between the state and its citizens through improving the quality of services (Bachtiar et al., 2023; Zulyusri et al., 2023).

However, the effectiveness of PBM on public services is inseparable from the challenges of implementation. The Andrews study (2013) emphasizes that in many developing countries, performance indicators are often just a formality without actually being used for service improvement. This leads to a gap between the normative goals of PBMs and the reality on the ground, where public services are still constrained by bureaucratic capacity limitations, inaccurate data, and organizational cultural resistance (Ketelaar et al., 2006). Therefore, the success of PBMs in improving the quality of public services is highly dependent on the consistency of implementation, data quality, and the readiness of bureaucratic human resources. Overall, PBMs have great potential to improve the quality of public services by increasing responsiveness, improving basic services, speeding up processes, and increasing transparency and public satisfaction. However, this success can only be achieved if PBM is integrated with broader institutional reforms, including strengthening *good governance*, modernizing information systems, and increasing bureaucratic capacity. With this step, PBM not only becomes a managerial instrument, but also a foundation for the development of sustainable public services and oriented to the needs of the community (Pollitt & Bouckaert, 2017).

### **Positive Impact on Economic Growth**

The implementation of Performance-Based Management (PBM) contributes significantly to increasing economic growth through the creation of regulatory efficiency and public services that are more responsive to the needs of the community. The efficiency of regulation is reflected in the simplification of bureaucracy, acceleration of decision-making, and the reduction of transaction costs borne by the public and business actors. Thus, PBMs not only improve the quality of governance, but also encourage the creation of a more investment-friendly business environment (Moynihan & Beazley, 2016). Countries that successfully implement PBMs show a positive correlation between good governance and a conducive investment climate (Mwita, 2000). A system that emphasizes performance indicators, accountability, and tangible results has been proven to increase public and investor trust (Ongere & Muchemi, 2016). For example, the experience of countries in Eastern Europe shows that PBMs are able to strengthen legal certainty and accelerate licensing services, which are key factors in attracting foreign direct investment (IMF, 2018). In addition, the implementation of PBM supports the creation of a public service system that is oriented to the results and needs of the community. Faster, transparent, and data-driven public services minimize maladministration practices while increasing public satisfaction. This success ultimately increases trust in the government and strengthens institutional legitimacy, which is an important factor in maintaining social and political stability as a prerequisite for economic growth (World Bank, 2020; Dewanto et al., 2023; Elfira & Santosa, 2023; Santosa et al., 2020).

The OECD's findings (2019) reinforce empirical evidence that performance-based management plays an important role in supporting policy innovation and creating economic stability. Through PBM, the government can identify priority areas, allocate resources more effectively, and encourage evidence-based innovation. This makes PBM a strategic instrument in answering sustainable development challenges, including in dealing with technological disruption and social change (Oliveira et al., 2024). Furthermore, PBMs also contribute to fiscal efficiency by reducing budget wastage and increasing the effectiveness of development programs. Countries that integrate PBMs in planning and budgeting can direct public spending to sectors that provide the greatest multiplier effect for the economy, such as infrastructure, health, and education. Thus, PBM not only improves bureaucratic performance, but also directly promotes productivity and competitiveness of the national economy (Pollitt & Bouckaert, 2017).

Overall, the implementation of PBM has proven to be a strategic approach that links governance with sustainable economic growth. Regulatory efficiency, public service responsiveness, conducive investment climate, and economic stability are tangible results of PBM implementation (Haque, 2007). Therefore, the integration of PBM in public policy must be seen as a long-term investment in strengthening economic foundations while improving people's welfare (OECD, 2019; World Bank, 2020).

## The Influence of PBM on the Quality and Effectiveness of Public Services

Performance-Based Management (PBM) is an approach that emphasizes the achievement of measurable results in public administration to improve service quality. By utilizing performance indicators, the government can manage resources more effectively and ensure public services are in accordance with the needs of the community. This is in line with the view of Van Dooren, Bouckaert, & Halligan (2015) who emphasized that PBM is able to change the bureaucratic orientation from just an administrative process to an outcome-oriented. The implementation of PBM has been proven to increase the effectiveness of public services through greater transparency and accountability (McBeath & Meezan, 2010). When performance targets are clearly set, public institutions can measure achievements objectively and conduct continuous evaluations. OECD (2019) notes that PBMs contribute significantly to creating public services that are more efficient and adaptive to changing social needs. This shows that PBM is not only a managerial tool, but also a governance instrument that encourages policy innovation (Ndevu & Muller, 2018)

The positive impact of PBM is also seen in the dimension of public service quality, especially in terms of responsiveness, speed, and fairness of service distribution (Kaufmann et al., 2019). Through a monitoring system based on performance indicators, the government can improve the weaknesses of basic services such as health, education, and population administration. Research conducted by Moynihan (2008) found that public organizations that adopt PBM are better able to provide services that are consistent with community expectations. The positive impact of PBM is also seen in the dimension of public service quality, especially in terms of responsiveness, speed, and fairness of service distribution. Through a monitoring system based on performance indicators, the government can improve the weaknesses of basic services such as health, education, and population administration. Research conducted by Moynihan (2008) found that public organizations that adopt PBM are better able to provide services that are consistent with community expectations (Ongere & Muchemi, 2016); (Asnur et al., 2024)

In addition, the implementation of PBM increases public involvement in the governance process. With performance transparency, the public can assess the extent to which public institutions have succeeded in fulfilling their commitments (Heinric, 2002). This creates a reciprocal relationship between the government and citizens, which ultimately increases the legitimacy of public institutions (Ohiole & Ojo, 2015). According to Kettunen (2017), public trust will grow when service results can be proven in real terms through performance indicators that are open to the public. Overall, PBMs have been proven to have a positive influence on the quality and effectiveness of public services by increasing accountability, efficiency, and innovation (Ketelaar et al., 2006); . The successful implementation of PBM in various countries shows that this approach can be used as an important instrument in strengthening modern public governance. Thus, PBM not only improves the quality of services, but also strengthens the foundations of democracy and sustainable development (Pollitt & Bouckaert, 2017).

## 4. Conclusion

The results of this study conclude that the implementation of Performance-Based Management (PBM) has a significant influence on improving the quality and effectiveness of public services. PBM plays a role in building more accountable governance through the use of measurable performance indicators, so that service processes can be monitored transparently and results can be evaluated objectively (Bouckaert & Halligan, 2008). This has an impact on increasing the responsiveness of public agencies to the needs of the community. In addition, PBMs have been proven to be able to improve efficiency aspects in the use of resources, both financial, human, and regulatory, so that public services become faster, cost-effective, and results-oriented (Pollitt & Bouckaert, 2017). Thus, the community receives direct benefits in the form of better basic services, ranging from the health sector, education, to public administration. Effectiveness of public services has also increased due to performance-based evaluation mechanisms that encourage policy innovation and continuous improvement. Countries that successfully implement PBM show higher levels of public satisfaction and a more conducive investment climate (OECD, 2019). Therefore, PBM is not just a managerial tool, but also a strategy to strengthen the government's legitimacy through quality public services. Overall, it can be concluded that PBMs have an important contribution in encouraging bureaucratic reform, strengthening accountability, and improving the quality and effectiveness of public services. These findings confirm the importance of the sustainability of PBM implementation with strong regulatory support, adequate human resource capacity, and a consistent evaluation system. With this approach, public services can become more responsive, transparent, and oriented to the interests of the wider community.

## Reference

- Anessi-pessina, E., & Anessi-pessina, E. (n.d.). *Outcome-Based Performance Management in the Public Sector*. <https://doi.org/10.1007/978-3-319-57018-1>
- Asnur, L., Jalinus, N., Faridah, A., Apra, T., Ambiyar, R. D., & Utami, F. (2024). *Video-blogs ( Vlogs ) -based Project : A*

- Meta Analysis*. 14(5), 1553–1557.
- Brinkerhoff, D. W., & Wetterberg, A. (2013). Performance-based public management reforms: Experience and emerging lessons from service delivery improvement in Indonesia. *International Review of Administrative Sciences*, 79(3), 433–457. <https://doi.org/10.1177/0020852313491059>
- Dewanto, D., Wantu, H. M., Dwihapsari, Y., Santosa, T. A., & Agustina, I. (2023). Effectiveness of The Internet of Things (IoT)-Based Jigsaw Learning Model on Students' Creative Thinking Skills: A- Meta-Analysis. *Jurnal Penelitian Pendidikan IPA*, 9(10), 912–920. <https://doi.org/10.29303/jppipa.v9i10.4964>
- Edy Nurtamam, M., Apra Santosa, T., Aprilisia, S., Rahman, A., & Suharyat, Y. (2023). Meta-analysis: The Effectiveness of Iot-Based Flipped Learning to Improve Students' Problem Solving Abilities. *Jurnal Edumaspul*, 7(1), 2023–1492.
- Elfira, I., & Santosa, T. A. (2023). Literature Study : Utilization of the PjBL Model in Science Education to Improve Creativity and Critical Thinking Skills. *Jurnal Penelitian Pendidikan IPA*, 9(1), 133–143. <https://doi.org/10.29303/jppipa.v9i1.2555>
- Haque, M. S. (2007). Theory and practice of public administration in Southeast Asia: Traditions, directions, and impacts. *International Journal of Public Administration*, 30(12–14), 1297–1326. <https://doi.org/10.1080/01900690701229434>
- Hariyadi, S., Santosa, T. A., & Sakti, B. P. (2023). Effectiveness of STEM-Based Mind Mapping Learning Model to Improve Students ' Science Literacy in the Era of Revolution. *Jurnal Penelitian Pendidikan IPA*, 9(10), 791–799. <https://doi.org/10.29303/jppipa.v9i10.5125>
- Head, B. W. (2008). Three lenses of evidence-based policy. *Australian Journal of Public Administration*, 67(1), 1–11. <https://doi.org/10.1111/j.1467-8500.2007.00564.x>
- Heinric, C. J. (2002). Outcomes-based performance management in the public sector: Implications for government accountability and effectiveness. *Public Administration Review*, 62(6), 712–725. <https://doi.org/10.1111/1540-6210.00253>
- Heinrich, C. J. (2007). Evidence-Based Policy and Performance Management. *The American Review of Public Administration*, 37(3), 255–277. <https://doi.org/10.1177/0275074007301957>
- Kaufmann, D., Mehrez, G., & Gurgur, T. (2019). Voice or public sector management? An empirical investigation of determinants of public sector performance based on a survey of public officials. *Journal of Applied Economics*, 22(1), 321–348. <https://doi.org/10.1080/15140326.2019.1627718>
- Ketelaar, A., Manning, N., & Turkisch, E. (2006). *OECD Working Papers on Public Governance No . 5 Arrangements for Senior Civil Servants OECD and other Country Experiences*. 5. <https://doi.org/10.1787/160726630750>
- Marra, M. (2018). The ambiguities of performance-based governance reforms in Italy: Reviving the fortunes of evaluation and performance measurement. *Evaluation and Program Planning*, 69(2016), 173–182. <https://doi.org/10.1016/j.evalprogplan.2017.02.006>
- McBeath, B., & Meezan, W. (2010). Governance in motion: Service provision and child welfare outcomes in a performance-based, managed care contracting environment. *Journal of Public Administration Research and Theory*, 20(SUPPL. 1). <https://doi.org/10.1093/jopart/mup037>
- Mwita, J. I. (2000). Performance management model: A systems-based approach to public service quality. *International Journal of Public Sector Management*, 13(1), 19–37. <https://doi.org/10.1108/09513550010334461>
- Ndevu, Z. J., & Muller, K. (2018). Operationalising performance management in local government: The use of the balanced scorecard. *SA Journal of Human Resource Management*, 16, 1–11. <https://doi.org/10.4102/sajhrm.v16i0.977>
- Ohiole, O. K., & Ojo, I. S. (2015). Improving Public Service Delivery in Nigeria : A Paradigm Shift between Traditional Public Administration and New Public Management. *Journal of Policy and Development Studies*, 9(2), 35–51. <https://doi.org/10.12816/0011204>
- Oliveira, E., Abner, G., Lee, S., Suzuki, K., Hur, H., & Perry, J. L. (2024). What does the evidence tell us about merit principles and government performance? *Public Administration*, 102(2), 668–690. <https://doi.org/10.1111/padm.12945>
- Ongere, B. M., & Muchemi, A. (2016). Effect of Performance Management on Quality Service Delivery of National Government Administration Offices, Nakuru County, Kenya. *International Journal of Public Administration and Management Research*, 10(3), 1–23.
- Rahman, A. A., Santosa, T. A., Nurtamam, M. E., Widoyo, H., & Rahman, A. (2023). Meta-Analysis: The Effect of Ethnoscience-Based Project Based Learning Model on Students' Critical Thinking Skills. *Jurnal Penelitian Pendidikan IPA*, 9(9), 611–620. <https://doi.org/10.29303/jppipa.v9i9.4871>
- Randa, I. O., & Adere, C. A. (2025). *Southern African Journal of Policy and Development Implementation of Performance-Based Budgeting for Public Health Care Service Delivery in an Emerging Economy*. 8(1).
- Santosa, T. A., Agustina, N., & Yulianti, S. (2020). Jenis Tumbuhan Liar Dalam Upacara Adat Kenduri Seko Di Kerinci. *Pendekar: Jurnal Pendidikan Berkarakter*, 3(1), 6–10. <http://journal.ummat.ac.id/index.php/pendekar/article/view/2798>
- Youna Chartrine Bachtiar, Mohammad Edy Nurtamam, Tomi Apra Santosa, Unan Yasmaniar Oktiawati, & Abdul Rahman. (2023). the Effect of Problem Based Learning Model Based on React Approach on Students' 21St Century Skills: Meta-Analysis. *International Journal of Educational Review, Law And Social Sciences (IJERLAS)*, 3(5), 1576–1589. <https://doi.org/10.54443/ijerlas.v3i5.1047>
- Zulyusri, Z., Santosa, T. A., Festiyed, F., Yerimadesi, Y., Yohandri, Y., Razak, A., & Sofianora, A. (2023). Effectiveness of STEM Learning Based on Design Thinking in Improving Critical Thinking Skills in Science Learning: A Meta-Analysis. *Jurnal Penelitian Pendidikan IPA*, 9(6), 112–119. <https://doi.org/10.29303/jppipa.v9i6.3709>