

Artificial Intelligence (AI) Integration Training and Mentoring in Productive Curriculum Development at Ilhami Kemiri Vocational School, Tangerang Regency

Muhammad Syukri¹, Bambang Suhartono², Murinto³, Herman⁴

¹STMIK Mardira Indonesia, Bandung

²Universitas Insan Pembangunan, Tangerang

¹²³⁴Universitas Ahmad Dahlan, Yogyakarta

Email: syukrie@stmik-mi.ac.id¹, bambangsuhartono46@mail.com²,

murintokusno@tif.uad.ac.id³, hermankaha@mti.uad.ac.id⁴

Abstract

The swift advancement of Artificial Intelligence (AI) technology requires vocational education institutions to revise their curricula to meet the demands of the digital industry. This study examines the implementation of training and mentorship for AI integration in the development of productive curricula at SMK Ilhami Kemiri, Tangerang Regency, while assessing teachers' understanding and preparedness to incorporate AI into the educational process.

The researcher utilized a mixed-methods approach consisting of a systematic sequence of stages: identifying training needs, developing materials and instruments, conducting training sessions, facilitating AI integration, gathering questionnaire data, and executing both quantitative and qualitative analyses. Data were collected from effective subject teachers, who served as the principal participants.

The findings indicate that the training significantly improves teachers' foundational understanding of AI ideas and applications in education. At the same time, mentorship is crucial for helping instructors implement AI in instructional tools and classroom practices. Data analysis reveals a rise in perceived teacher preparedness, especially in the application of AI for material creation, learning assessment, and effective curriculum improvement. This research advocates for the implementation of sustainable training programs, enhanced digital infrastructure support, and the creation of an integrated AI-based competency curriculum to facilitate the transition of vocational education at the Vocational High School level.

Keywords: *Artificial Intelligence, Productive Curriculum, Teacher Training, Vocational High School Mentoring*

Introduction

The swift progression of Artificial Intelligence (AI) (Fakiha, 2023) has created new opportunities while concurrently presenting substantial obstacles for educational systems at multiple levels. AI provides transformative capabilities, including personalized learning, automated assessment, data-driven enhancement of instructional materials, and analytical support for academic decision-making—elements crucial for improving the quality of vocational education and ensuring graduates' preparedness for the digital labor market (Chen & Chen, 2020).

In vocational education, incorporating AI into the curriculum offers strategic advantages. In addition to enhancing students' technical skills, AI promotes project-based learning, real-world simulations, and performance-based evaluations that are more objective and responsive to industry requirements (Lameras, 2022). Nonetheless, the implementation of this new technology transcends infrastructure; educators' preparedness as change agents and instructional designers is the pivotal factor for effective AI integration. Recent studies underscore a disparity between AI's technical capabilities and educators' pedagogical preparedness. In the absence of sufficient capacity-building for educators in AI literacy, ethical application, and integrative methodologies, the advantages of AI in education will not be realized to their fullest potential (Hamal et al., 2022).

Vocational education in Indonesia, particularly at Vocational High Schools, must equip students to operate in a world increasingly shaped by artificial intelligence (Studi et al., 2024). This requirement necessitates integrating AI ethics into the curriculum, enabling both students and educators to understand the ramifications of this technology and use it ethically. Through comprehensive education on AI ethics, students and educators will not only attain proficiency in technology usage but also build the capacity to contribute to the advancement of ethical technology in the future (Isdayani et al., 2024).

The following is a translation of the research context into English, employing an active voice that is technical, concise, and aligned with international vocational education literature standards:

The Vocational High School backdrop warrants particular attention. As entities tasked with cultivating a proficient workforce, SMKs must revise their curricula to ensure graduates retain competency in technical skills relevant to the contemporary, increasingly digital labor market that swiftly embraces AI solutions. The incorporation of AI (Susandi et al., 2025) into the productive curriculum necessitates a design that goes beyond mere content; it must serve as a fundamental component of instructional engineering, integrating practical application, assessment, and industry collaboration. Moreover, teacher training and subsequent support—particularly through coaching and mentoring—are crucial for translating learning into classroom practice and advancing AI-driven instructional technologies (Lameras, 2022).

Method

The researcher organized the approach for the AI Integration Training and Mentorship in Productive Curriculum Development at SMK Ilhami Kemiri, Tangerang Regency, according to a systematic workflow, as depicted in the flow diagram in Figure 1.

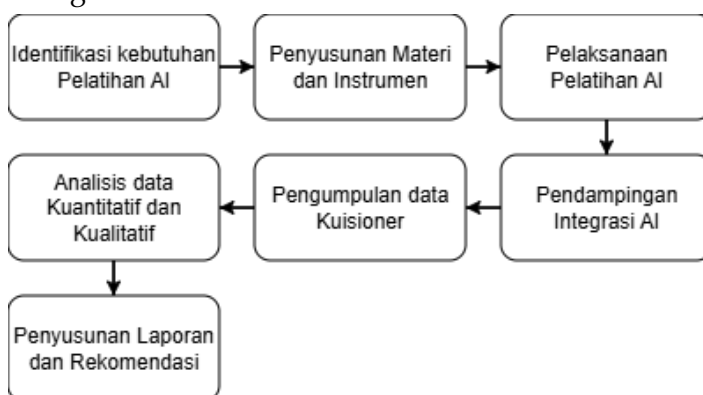


Figure 1. Research Method Flowchart

The research stages encompass the entire process from the initial needs identification to the final report preparation, utilizing a **mixed-methods**

approach (Mixed & Lumajang, 2024). This approach integrates quantitative and qualitative data to obtain a comprehensive overview of the teachers' conditions and the effectiveness of the training and mentorship activities.

Identification of AI Training Needs

In the first stage, the researcher identifies the teachers' competency requirements regarding the understanding and implementation of Artificial Intelligence in productive subjects (Side et al., 2024). This process involves preliminary discussions, informal interviews, and a review of the existing curriculum documents. This identification proves essential for mapping **skill gaps** (Misbahudin et al., n.d.) and determining the training focus to ensure relevance to the actual learning environment at SMK Ilhami Kemiri.

Development of Materials and Instruments

Based on the results of the needs identification, the team develops training materials covering fundamental AI concepts, AI application in vocational education, the use of AI-supporting instructional tools, and strategies for AI integration within the productive curriculum. During this phase, the researcher also constructs measurement instruments in the form of questionnaires to capture teachers' perceptions, understanding, and readiness both before and after the training. The instruments utilize a Likert scale to facilitate quantitative analysis (Mulyatiningsih et al., 2025).

Below is the translation of your research methodology section into English, employing active voice that is technical, professional, and adheres to international journal publication standards:

Methodology of Research

Execution of Artificial Intelligence Training

The researcher administers the training via onsite sessions employing a hands-on, practical methodology. Educators examine case studies on AI applications in vocational education, demonstrations of educational AI technologies, and simulations of AI incorporation into Lesson Plans (RPP). The training approach emphasizes application, enabling teachers to use the supplied examples (Anwar, 2024) promptly.

Mentorship in AI Integration

Following the training, the team provides coaching to ensure educators effectively apply their newly acquired knowledge. This mentorship includes direct support in developing AI-driven educational tools, technical advice on AI platforms, and oversight of classroom implementation. This phase is essential to ensure that knowledge transmission extends beyond the training period and persists in practical teaching applications (I Kadek Suartama, 2024).

Data Collection via Questionnaire

Throughout the training and mentorship periods, the researcher gathers data using the previously established questionnaires. All participating educators submit these questionnaires to assess changes in comprehension, levels of technology adoption, readiness for AI implementation, and the perceived advantages of the program. The resulting data serve as the basis for program evaluation (Hanis & Wahyudin, 2024).

Analysis of Quantitative and Qualitative Data

The researcher employs a quantitative methodology to examine questionnaire data, aiming to discern response patterns, levels of knowledge enhancement, and instructor preparedness. Qualitative analysis is used concurrently for open-ended responses, observational notes, and mentorship outcomes. The amalgamation of these two analyses facilitates a comprehensive assessment of the training implementation and AI incorporation within the productive curriculum (Sofwatillah, 2024).

Preparation of Report and Recommendations

The concluding phase entails preparing a detailed report that includes analysis results, field observations, and recommendations for AI-driven curriculum improvement. These recommendations encompass sustainable enhancement tactics, prospective training requirements, and the long-term trajectory of the productive curriculum. This report serves as a reference for the school in developing policies to enhance teacher competency and revise the curriculum (Tyaningsih & Wulandari, 2024).

Results and Discussion

Participant Profile and Preliminary Observations

The participants in the AI Integration Training and Mentorship at SMK Ilhami Kemiri, Tangerang Regency, comprise educators from many disciplines across both the productive and adaptive clusters. Their instructional responsibilities encompass various disciplines, including Server and Networking, Digital Simulation, Graphic Design, Natural and Social Sciences (IPAS), and Civics. This diversity illustrates that the demand for AI applications in education has broadened across other domains, transcending Information Technology competencies.

The respondents' teaching experience ranges widely, from under 1 year to over 7 years. This composition suggests that the training encompasses a range of junior to senior educators, necessitating a flexible instructional methodology. Educators from the Computer and Network Engineering (TKJ) and Office Power and Management (OTKP) departments constitute the majority of participants, embodying the two principal occupational competences at SMK Ilhami Kemiri. This linkage reinforces the school's strategic commitment to building effective curricula centered on digital technologies.

Teachers' Preliminary Proficiency in AI

The questionnaire results indicate that the teachers' preliminary knowledge and comprehension of Artificial Intelligence are categorized as moderate. The predominant number of respondents assessed their comprehension at level 3 on the designated scale. This research suggests that although teachers have a basic understanding of AI, they have not yet fully comprehended its implementation methods or its application in instructional contexts and effective curricula.

This intermediate level of foundational comprehension functions as an appropriate baseline for the training program. Thus, the researcher focuses the training on improving practical skills, technological proficiency, and educators' capacity to directly apply AI-based tools in the creation of instructional materials and in the assessment of learning.

Educators' Interest and Perception of AI Integration

The questionnaire results indicate that educators have a strong interest in using AI for instructional purposes. They acknowledge that AI proficiently aids multiple facets of education, including the development of instructional materials, the creation of digital modules, the design of automated assessments, and the enhancement of administrative efficiency.

Educators offered positive evaluations, noting that the program broadened their perspectives on the digital revolution in vocational education. Participants recognized that AI improves the quality of productive learning, especially in the Computer and Network Engineering and Office Power and Management departments. This perspective indicates that AI integration has substantial potential for inclusion in the school's productive curriculum, contingent upon sustained mentorship.

Educator Preparedness for AI Implementation

Teachers' preparedness to deploy AI is categorized as adequate; however, the majority of respondents indicated a need for more comprehensive practical training. Numerous educators asserted that the incorporation of AI requires specific implementation examples and enhanced technical support, particularly for the use of AI in creating learning modules, formative assessments, learning outcome evaluations, and digital learning media.

Educators emphasized the importance of strengthening foundational comprehension, advancing digital literacy, and cultivating the practice of using AI tools in everyday activities. These findings offer a foundation for future training programs that must implement a more application-focused, project-based learning methodology.

Requirements and Preferred Instruments for AI Training

The respondents exhibit a strong interest in mastering diverse AI technologies, such as ChatGPT, Gemini, Sora AI, and Grok AI, as well as AI-driven educational applications that facilitate assessment and instructional content creation. This aspiration to master these tools demonstrates a strong motivation to use AI as a professional resource in education.

Educators delineated various distinct training requirements, classified as follows:

1. Increased frequency and stratified training programs.
2. Pragmatic guidance for the integration of AI in educational settings.
3. Case studies about specific subjects.
4. Development of instructional modules utilizing artificial intelligence.
5. Enhancing technological proficiency for beginner educators.

These comments underscore a disparity between conceptual comprehension and technical preparedness, which sustainable training programs can proficiently address.

Assessment of Programs and Suggestions for Development

The training evaluation indicates that educators provided positive and constructive feedback on the program. The majority of educators value the training and seek additional regular and organized sessions. Several respondents recommended offering monthly mentorship sessions centered on practical experience.

- a) Suggestions for enhancements in future training encompass:
- b) Establishing additional structured and sustainable training sessions.
- c) Augmenting rigorous practical sessions.
- d) Choosing more comprehensive resources that correspond with particular subject criteria.
- e) Offering personalized assistance for educators encountering technical challenges.
- f) Providing AI-driven educational modules, manuals, and templates.

These recommendations demonstrate that the effective integration of AI into the educational curriculum depends on ongoing mentorship and extensive technical support for instructors.

Consequences for Effective Curriculum Development

The questionnaire results indicate that teachers are prepared and eager to incorporate AI into effective curriculum development. Improving teacher proficiency in AI applications can yield more innovative educational tools, facilitate more effective personalized learning, and enhance overall productivity—especially within the Computer and Network Engineering (TKJ) and Office Power and Management (OTKP) departments, which are closely aligned with advancements in digital technology.

The implementation of AI in the vocational curriculum, supported by sustainable training and mentorship, can facilitate educational reform at the Vocational High School (SMK) level. This integration ensures the educational process is responsive to industry requirements and the latest technological advancements.

Table 1. Ilhami Vocational School Teacher Questionnaire

No	Respondent details	AI Knowledge	AI Integration Readiness	Practical skills and training needs	Barriers to integration	Preparing for AI in education	Training needs for AI integration	AI tools & applications you want to master	Suggestions for training improvement
1	H. Jajang Lukman, Server & Network, 7+ years	3 (Medium)	3 (Medium)	3 (Needs improvement)	3 (Medium)	AI can make learning easier	Seminar for better integration	ChatGPT	Training is conducted more frequently
2	Opiyati S.Pd, PKN, 4-7 years old	3 (Medium)	3 (Medium)	4 (Good ability)	4 (Significant challenges)	Improve students' skills	AI application usage training	ChatGPT	Training should be more planned
3	Akmal Baihaqi, Simdig, 1-3 years	4 (Good)	3 (Medium)	4 (Good ability)	1 (Small challenge)	AI is very helpful for learning	More AI awareness seminars	Gemini, ChatGPT, Sora AI, Grox	Regular and routine training
4	Aziz Raviky, Graphic Design, <1 year	4 (Good)	4 (High)	5 (Very good ability)	3 (Medium)	AI enhances students' abilities	Seminar on practical uses of AI	ChatGPT	More practice-based training

Artificial Intelligence (AI) Integration Training and Mentoring in Productive Curriculum Development at Ilhami Kemiri Vocational School, Tangerang Regency

Muhammad Syukri¹, Bambang Suhartono², Murinto³, Herman⁴

5	Siti Rosidah, Natural Sciences, 1-3 years	2 (Basic)	4 (High)	4 (Good ability)	3 (Medium)	Can improve teaching methods	Assistance in the use of AI tools	AI for learning assessment	More regular training schedule
6	Muhamad Rasad, PAI, 1-3 years	4 (Good)	3 (Medium)	3 (Needs improvement)	3 (Medium)	AI will enrich student experience	In-depth training on AI	ChatGPT, Semua aplikasi AI	Training consistency needs to be improved
7	Suhayati, Guidance and Counseling, 4-7 years old	3 (Medium)	4 (High)	4 (Good ability)	2 (A little)	AI is important for student guidance	Seminars on AI tools usage	All AI applications are easy to use	Training is more accessible to everyone
8	Fitriani, Mathematics, 1-3 years	3 (Medium)	3 (Medium)	3 (Needs improvement)	3 (Medium)	AI makes the learning process easier	Training related to the application of AI in the classroom	Canva	Focus on relevant curriculum
9	Effilia Nurhardianti, English, 4-7 years old	3 (Medium)	4 (High)	5 (Very good)	4 (Big challenge)	AI can make learning more fun	Deepening training for AI teaching	All applications	More in-depth training is needed
10	Laelaturrahmah, Islamic Education, 7+ years	4 (Good)	4 (High)	4 (Good ability)	3 (Medium))	AI improves the quality of teaching	AI-based training for education	All applications	More gradual and quality training
11	More gradual and quality training	4 (Good)	4 (High)	4 (Good ability)	3 (Medium)	AI is useful in education	Practical training for using AI	AI content creation	More sustainable training
12	Suyarno, PJOK, <1 year	2 (Basic)	4 (High)	3 (Needs improvement)	3 (Medium)	AI improves the effectiveness of education	Basic training in AI usage	All applications	Gradual and well-scheduled
13	Apiati, PKK,	4 (Good)	4 (High)	4 (Good ability)	3 (Medium)	AI benefits	Training in	All applications	Training needs to be better

	7+ years					educatio n	two fields		
--	-------------	--	--	--	--	---------------	---------------	--	--

Conclusion

The following is a translation of the research findings section into English, employing an active voice that is technical, robust, and adheres to international journal manuscript standards:

The research findings indicate that training and mentorship in Artificial Intelligence (AI) integration substantially improve teachers' knowledge, insights, and preparedness to create an effective curriculum at SMK Ilhami Kemiri, Tangerang Regency. The questionnaire results indicate that teachers demonstrate significant interest in employing AI as an auxiliary resource in the educational process, especially for creating instructional materials, producing digital content, and automating evaluations.



Figure 1. Discussion and consolidation of representatives from universities, schools and the industrial world

These findings align with international trends in vocational education that require digital transformation of the productive curriculum. In the context of Vocational High Schools (SMK), the incorporation of AI not only improves instructional quality but also guarantees that graduates acquire competencies aligned with industry requirements. Thus, AI training for SMK teachers goes beyond simple skill enhancement; it signifies a purposeful adjustment to technological progress.

Nonetheless, comprehensive talks indicate that teachers' technical preparedness is inconsistent. Educators lacking technical proficiency necessitate comprehensive and enduring mentorship. This scenario highlights that AI deployment cannot rely on a single training session. Institutions should design it as a multi-phase program model that includes fundamental literacy, practical application, and the development of project-based instructional tools.



Figure 2. Photo of Ilhami Vocational School teachers during training activities

Moreover, educators' enthusiasm for tools such as ChatGPT, Gemini, and other educational AI applications indicates their preference for user-friendly tools that integrate seamlessly into their regular instructional

practices. The results underscore the immediate need for training models derived from real-world case studies and for AI-driven instructional templates.

This research indicates considerable enthusiasm and a substantial chance to integrate AI into the productive curriculum. Nonetheless, it also reveals technical and skill-related obstacles that institutions must overcome through sustainable, ongoing training initiatives.



Figure 3. Joint Learning between Ilhami Vocational School

Teachers and Representatives from the Industrial World



Figure 4. Joint Learning between Ilhami Vocational School Teachers and Representatives from Universities

The study on training and mentorship for the integration of Artificial Intelligence (AI) in effective curriculum creation at SMK Ilhami Kemiri produces numerous significant conclusions:

Teachers have sufficient foundational knowledge of AI; however, they need more comprehensive training on technical implementation and the application of AI in developing instructional materials, assessments, and learning management systems.

Educators exhibit significant enthusiasm for the application of AI. They acknowledge the advantages of AI in augmenting instructional

effectiveness, improving instructional materials, and facilitating effective curriculum development.

Implementation preparedness is at a modest degree. Educators need ongoing training, specialized mentorship, and practical resources to effectively integrate AI into the classroom.

The favored AI tools predominantly include platforms like ChatGPT, Gemini, and AI-driven educational applications, reflecting a teacher preference for efficient, user-friendly instruments that directly facilitate instructional tasks.

Participants regard the training program as exceedingly advantageous and underscore the necessity for its regular continuance. Educators offered constructive criticism, recommending that forthcoming training be more structured, rigorous, and focused on practical application, and that project-based instructional tools be created.

Recommendation

The following is a translation of the strategic recommendations section of your manuscript into English, employing tactical active sentences, high academic weight, and adhering to the reporting standards of research outputs or vocational institution policies:

Strategic Proposals

The report presents strategic recommendations for school administrators, teachers, training providers, and future research areas based on the research findings and analysis.

School administrators must implement strategic measures, such as establishing structured, ongoing training programs each semester, enhancing the technological infrastructure, and granting teachers access to AI tools for their daily operational needs. Additionally, they should create internal policies governing AI integration within vocational curricula, particularly as a standardized framework for lesson planning (RPP), module development, and assessment. Teachers should engage in advanced applied AI training sessions, such as those involving ChatGPT and Gemini, implement AI-assisted Project-Based Learning (PjBL) models in vocational disciplines like Computer and Network Engineering (TKJ) and Office Administration (OTKP), and consistently improve their digital

literacy through autonomous experimentation in developing instructional media and assessments.

Conversely, training providers should offer rigorous, individualized mentorship, especially for educators who remain at the fundamental level of technological literacy. Additionally, they must develop highly relevant training modules—such as AI-driven learning templates, practical case studies, and technical manuals—while conducting regular assessments to ensure the training's efficacy aligns with educators' changing requirements. Future research should focus on evaluating the efficacy of classroom instruction following educators' implementation of AI, examining the impact of AI use on the learning outcomes of vocational high school (SMK) students, and developing replicable AI-based vocational curriculum models for other vocational institutions.

Acknowledgements

Here is the translation of your acknowledgments section into English, employing sincere, serious, and academically appropriate active sentences:
Appreciations

The author conveys profound appreciation to SMK Ilhami Kemiri, Tangerang Regency, for their assistance, collaboration, and receptiveness during the AI integration training and mentorship initiatives. I express my gratitude to Universitas Ahmad Dahlan, Yogyakarta, for its academic assistance and research facilities.

Gratitude is extended to the speakers and my Academic Supervisors for their assistance, mentorship, and intellectual contributions throughout the study. Additionally, I wish to express my gratitude to all the parties involved.

References

Anwar, R. N. (2024). Pelatihan Pengenalan Artificial Intelligence (AI) untuk Meningkatkan Kompetensi Guru pada Transformasi Digital. 2(1), 27–36.

- Chen, L., & Chen, P. (2020). Artificial Intelligence in Education : A Review. 8. <https://doi.org/10.1109/ACCESS.2020.2988510>
- Fakiha, B. (2023). Enhancing Cyber Forensics with AI and Machine Learning: A Study on Automated Threat Analysis and Classification. 13(4), 701-707.
- Hamal, O., Faddouli, N. El, Hachem, M., Harouni, A., & Lu, J. (2022). Artificial Intelligent in Education. 1-11.
- Hanis, M., & Wahyudin, D. (2024). Pemanfaatan Artificial Intelligence (AI) Dalam Penyusunan Asesmen Pembelajaran Bagi Guru Sekolah Dasar.
- I Kadek Suartama, etl. (2024). Pelatihan dan Pendampingan Integrasi Aplikasi Praktis Artificial Intelligence (AI) dalam Pembelajaran bagi para Guru SKB. 9(November), 689-698.
- Isdayani, B., Thamrin, A. N., & Milani, A. (2024). Implementasi Etika Penggunaan Kecerdasan Buatan (AI) dalam Sistem Pendidikan dan Analisis Pembelajaran di Indonesia. 4(1), 714-723.
- Lameras, P. (2022). Power to the Teachers : An Exploratory Review on Artificial Intelligence in Education.
- Misbahudin, A. R., Asmaul, R., & Lulusan, K. (n.d.). UPAYA MEMINIMALKAN GAP ANTARA Callan , V . . (2003). Generic Skills: Understanding Vocational Education and Training Teacher and Students. 20(3), 12-14.
- Mixed, G., & Lumajang, I. (2024). Jurnal Pengabdian Masyarakat Akademisi Pendampingan Pembelajaran Metode Penelitian Jurnal Pengabdian Masyarakat Akademisi. 3(1), 53-59.

- Mulyatiningsih, E., Kharismawati, A., Trilisiana, N., Boga, T., Yogyakarta, U. N., Teknik, P. S., & Yogyakarta, U. N. (2025). *Jurnal abdi insani*. 12(September), 4469–4477.
- Side, S., Eka, S., Zubair, S., & Magfirah, N. (2024). Pelatihan Pemanfaatan Artificial Intelligence (AI) dalam Penulisan Artikel Ilmiah Pada Guru SMAN 11 Kabupaten Pangkep. 4(1), 58–65.
- Sofwatillah, E. al. (2024). Teknik Analisis Data Kuantitatif dan Kualitatif dalam Penelitian Ilmiah. 15(2), 79–91.
- Studi, P., Teknologi, P., & Indonesia, U. P. (2024). Kemampuan Guru SMK Mengimplementasikan Artificial Intelligence dalam Perangkat Ajar. 5(4), 5828–5835.
- Susandi, D. G., Suhardjono, D. W., Damayanti, E., & Mustika, D. (2025). Adaptasi Guru terhadap Integrasi Kecerdasan Buatan dalam Pembelajaran : Studi Kualitatif di Sekolah Berbasis Teknologi. 4(3), 3749–3755.
- Tyaningsih, R. Y., & Wulandari, N. P. (2024). Persepsi Mahasiswa terhadap Pemanfaatan Teknologi Artificial Intelligence (AI) dalam Memecahkan Masalah Matematika dan Membuat Karya Ilmiah. 4, 360–368.