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# Analysis of Plant-Based Culinary Program Design to Improve Vocational High School Students Competence

**Rachel Tania Maharani✉, Basyirun Basyirun**

Postgraduate, Semarang State University, Indonesia

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**Abstract**

Global culinary trends indicate a significant increase in demand for plant-based cuisine in response to health, sustainability, and ethical concerns. This creates an urgent need for professionals competent in plant-based culinary processing. This article analyzes the design of plant-based culinary training programs at Vocational High Schools (SMK) in Indonesia to enhance student competency to meet the needs of the modern culinary industry. The method used is descriptive qualitative, based on a literature review and curriculum documents. The analysis reveals competency gaps, particularly in aspects of plant-based product innovation, advanced processing techniques, in-depth nutritional literacy, and environmental awareness. Recommendations for program development include the integration of technical skills, creativity, entrepreneurship, and an understanding of sustainability to address global market dynamics. The implementation of a holistic program is expected to increase the competitiveness of vocational high school graduates in the culinary sector, which is increasingly shifting toward healthy and environmentally friendly food options.

✉ Correspondence:
Jl. Tanjung Manunggal V, RT 03 / RW 04, Sukatali, Situraja, Jl. Raya Sumedang - Cibeureum No.16, Sukatali, Kec. Situraja, Kabupaten Sumedang, Jawa Barat 45371, Indonesia
E-mail: racheltaniamaharani08@students.unnes.ac.id

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## INTRODUCTION

The global culinary landscape is undergoing a significant transformation, driven by increasing consumer awareness of health, sustainability, and ethical considerations. This shift has led to a remarkable surge in demand for plant-based culinary options, moving beyond niche markets into mainstream dining experiences. Consequently, the food service industry is experiencing a critical need for skilled professionals proficient in the art and science of plant-based cooking. This evolving demand presents both a challenge and an opportunity for vocational education, particularly in countries like Indonesia, where the culinary sector plays a vital role in the economy and offers substantial employment prospects. Equipping future culinary professionals with the necessary expertise in plant-based cuisine is no longer a luxury but a fundamental requirement to meet the demands of a dynamic global market.

Vocational High Schools (SMK) in Indonesia are at the forefront of preparing students for direct entry into various industries, including hospitality and culinary arts. The curriculum in these institutions is designed to provide practical skills and theoretical knowledge relevant to industry needs. However, the rapid evolution of culinary trends, especially the escalating popularity of plant-based diets, often outpaces the updates in traditional educational frameworks. This disparity can lead to a gap between the competencies acquired by graduates and the actual skills required by employers in the modern food industry. Therefore, a proactive approach to curriculum development is essential to ensure that SMK graduates remain competitive and highly sought after.

The conventional culinary curriculum typically emphasizes meat-centric dishes, dairy, and eggs as primary ingredients, reflecting historical culinary traditions. While these skills remain valuable, a comprehensive understanding of plant-based ingredients, techniques, and nutritional principles is increasingly vital. Plant-based cooking demands a different set of skills, including innovative flavor development using diverse vegetables, grains, legumes, nuts, and seeds, as well as an understanding of plant-based protein alternatives and sustainable food practices. Without a dedicated focus on these areas, SMK graduates may find themselves ill-equipped to cater to a growing segment of the consumer market and potentially miss out on significant career opportunities.

Addressing this gap requires a thorough analysis of current industry needs. This involves engaging with restaurateurs, chefs, food manufacturers, and other stakeholders in the culinary sector to identify the specific skills and knowledge they seek in new hires related to plant-based cuisine. Such an analysis will provide critical insights into the scope and depth of training required, ensuring that any new program is directly aligned with market demands. Furthermore, understanding the nuances of how plant-based dining is integrated into various culinary establishments, from fine dining to casual eateries, will inform the practical application of skills taught within the program.

Following the identification of industry needs, the next crucial step involves the design of a contemporary plant-based culinary training program. This program must be meticulously structured to impart both foundational and advanced skills in plant-based cooking. It should encompass various aspects, including ingredient knowledge, innovative cooking techniques, menu development, nutritional considerations, and an understanding of food sustainability. The curriculum ought to be practical, hands-on, and simulate real-world kitchen environments, allowing students to experiment, innovate, and master the art of creating delicious and appealing plant-based dishes.

The integration of such a program into the existing vocational high school curriculum presents several benefits. Firstly, it enhances the relevance and modernity of culinary education, making it more appealing to prospective students and employers. Secondly, it empowers students with a broader skill set, increasing their versatility and employability in a diverse culinary landscape. Thirdly, it fosters innovation and creativity, as students learn to think beyond conventional ingredients and explore new flavor profiles and textures. Ultimately, this leads to the development of well-rounded culinary

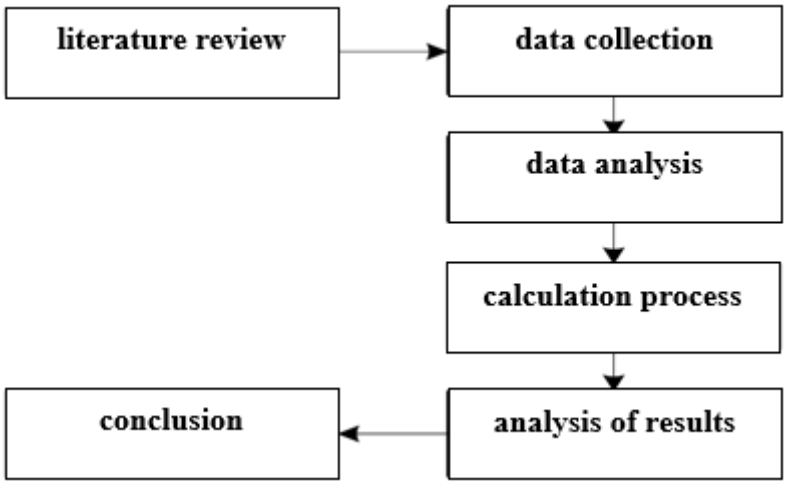
professionals capable of adapting to future industry trends.

Furthermore, the design of this program must consider pedagogical approaches that encourage critical thinking, problem-solving, and continuous learning. It should incorporate a blend of theoretical instruction, practical workshops, and potentially industry apprenticeships to provide a holistic learning experience. The assessment methods should also be designed to evaluate not only technical proficiency but also creativity, teamwork, and an understanding of food safety and hygiene in a plant-based context. This comprehensive approach ensures that graduates are not just skilled technicians but also innovative and responsible culinary practitioners.

In conclusion, this article aims to meticulously analyze the current industry needs concerning plant-based culinary expertise and subsequently propose a robust and contemporary plant-based culinary training program specifically tailored for Vocational High School students. By bridging the gap between existing educational offerings and evolving industry demands, this initiative seeks to significantly enhance the competence and employability of future culinary professionals, ensuring they are well-prepared to thrive in the dynamic and ever-expanding world of plant-based cuisine.

## RESEARCH METHOD

This study uses a qualitative descriptive approach based on literature review, aiming to analyze the design of a plant-based culinary program as an effort to improve the competency of vocational high school (SMK) students. This method was chosen to gain a deeper understanding of the needs of the culinary industry, vocational curriculum development, and global trends related to plant-based cuisine.




**Picture 1.** *Flowchart* of Literature Study
(Source : Kirana, I. O., Nasution, Z. M., & Wanto, A., 2019)

**Research Stages**

Based on the stages in Picture 1, this research process includes the following steps:

1. Literature Review

The initial step of the research was to collect various scientific references from international journals, industry reports, educational policy documents, and books related to plant-based culinary arts, vocational education, and curriculum development. The literature used came from peer-reviewed journals indexed in Scopus and SINTA from the last ten years.

2. Data Collection

Data was obtained from Indonesian vocational high school curriculum documents, food industry trend reports, and direct observation or interviews of learning activities at school or at a training location. This collection aimed to map the competencies required by industry for vocational high school graduates in the culinary field.

3. Data Analysis

The collected data was analyzed using content analysis techniques to identify key themes, such as skill needs, competency gaps, and relevant learning approaches. (Miles, Huberman & Saldaña, 2014)

4. Calculation and Processing

Although this research is qualitative, a simple quantification (where available) of the number of competencies required versus those provided in the curriculum was conducted. A comparative analysis was used to assess the alignment between the current vocational high school curriculum and the needs of the plant-based culinary industry. (Bowen, 2009)

5. Analysis of Results

The analysis results are presented in narrative and thematic form, highlighting existing gaps and potential new program designs. This analysis serves as the basis for designing an ideal training program for vocational high school students.

6. Conclusions and Recommendations

In the final stage, the researchers formulated conclusions and provided practical recommendations for curriculum developers, vocational high school teachers, and vocational education policymakers.

**Data Validation Techniques**

Data validity was maintained through source triangulation, which involved comparing and checking data from various relevant literature and industry reports. Additionally, peer debriefing with vocational education experts was conducted to strengthen data interpretation.

## RESEARCH RESULT AND DISCUSSION

1. Literature Review

Strengthening the competency of vocational high school (SMK) students in plant-based culinary arts has become a strategic issue as public awareness of healthy lifestyles and food sustainability increases. Several previous studies have highlighted the importance of integrating local food innovation, healthy food processing, and entrepreneurship education in supporting the job readiness of vocational high school graduates, particularly in the culinary creative economy sector.

Research conducted by Hasanah and Lestariningsih (2024) emphasized the urgency of improving the competitiveness of vocational high school graduates through hands-on entrepreneurship training in healthy food production. In the training, conducted at SMKN 2 Palangka Raya, students were taught how to make mayonnaise and vegetable salad as part of strengthening their life skills and entrepreneurial spirit. This training facilitated students not only in understanding the technical aspects of food processing but also in how to package and price products to create independent business opportunities. This program has been proven to increase students' enthusiasm and understanding of the importance of healthy food consumption and the potential of culinary products as a prospective business sector.

Similarly, a study by Kurniaditya et al. (2024) reinforces the idea that local food-based culinary education needs to be synergized with entrepreneurship aspects. In a workshop involving high school and vocational school students in Sukoharjo, they were introduced to making soft bake cookies using tempeh flour as a substitute. This activity was designed not only as a practical learning process but also as a platform to introduce healthy food innovations based on local ingredients. The use of tempeh as an alternative to wheat flour in modern products demonstrates an effort to reduce dependence on imported ingredients while enhancing the added value of traditional Indonesian food products. Furthermore, students were taught the importance of valuing local food as capital for sustainable and high-value culinary businesses.

Research by Enjelina and her team (2024) provides additional perspective through the development of a plant-based product program within a vocational education environment. This study emphasized that a product-based learning approach is highly effective in enhancing students' creativity and practical skills. The training program included the use of healthy food ingredients such as vegetables and nuts combined in modern preparations, as well as real food-based entrepreneurship training. This approach was designed to build connections between the school

learning process and the business world and the culinary industry, while also providing students with real-life experience in innovating and marketing their own products.

These three studies indicate that a well-designed plant-based culinary program can enhance the competencies of vocational high school students in both technical and non-technical aspects. Technical competencies include healthy food processing skills with an innovative approach, while non-technical competencies include character development, nutritional literacy, and business and entrepreneurial understanding. Furthermore, this type of training also encourages students to better recognize the potential of local foods as a source of business inspiration, strengthen cultural identity, and respond to the demands of today's increasingly health- and sustainability-conscious consumers.

Therefore, this literature provides an important basis for designing plant-based culinary education programs to enhance the competitiveness of vocational high school graduates. Programs that focus not only on cooking techniques but also encompass dimensions of product innovation, marketing, and entrepreneurship will be more relevant and adaptive to the challenges of the future workforce. Therefore, integrating a practical, local product-based, and contextualized approach to market needs is an effective strategy for strengthening the culinary curriculum in vocational high schools.

2. Data Collection

Learning outcomes in the culinary skills curriculum from Kemdikbud (2022), phase E, demonstrate a close relationship with the competency development objectives of students in the plant-based culinary program at the Vocational High School (SMK) level. In the preparation and processing element, students are guided to apply principles of sanitation, hygiene, and occupational safety, analyze recipes, and recognize nutritional elements in food. This is particularly important in the context of plant-based foods, as ingredients such as vegetables, grains, and tubers require hygienic handling and knowledge of nutritional value to maintain safety and high nutritional value. Furthermore, students are taught to identify the 5Ps of food additives (coloring, sweeteners, flavorings, softeners, and preservatives), which are relevant for improving the sensory quality of plant-based products. The preparation of basic spices for local cuisine and the utilization of agricultural and fishery ingredients demonstrate that this CP integrates a contextual approach based on local wisdom.

In the food processing element, students are focused on analyzing Indonesian food products and modifying traditional foods to better suit current consumer preferences, including the development of plant-based foods. This opens up opportunities to explore modifications to local recipes using plant-based ingredients as alternatives to animal-based ingredients, such as replacing meat with mushrooms, tofu, or tempeh. With this approach, students are not only required to reproduce recipes but also to innovate in creating healthier, more affordable, and sustainable plant-based food variations, while maintaining local flavors.

In terms of food presentation, Phase E of the CP program encourages students to understand various presentation techniques, from ready-to-serve plates, family service, and buffets. This skill is crucial for professionally introducing plant-based foods, as presentation aesthetics can influence consumer perceptions of the food. Attractive presentation and adherence to portion sizes are also essential vocational skills necessary to support careers in the modern culinary field, including in the healthy catering industry and plant-based restaurants.

Meanwhile, in the culinary entrepreneurship element, students are trained to understand the principles of market segmentation through the 4Ps approach (Product, Place, Price, Promotion). This CP not only fosters an entrepreneurial spirit but also provides opportunities for students to develop marketing strategies for plant-based foods through online and offline media. In the context of global trends that increasingly emphasize healthy lifestyles and sustainability, the ability to design products, set selling prices, select distribution channels, and effectively promote food products are essential skills that will support vocational high school students' job readiness and economic independence.

Overall, the learning outcomes of phase E demonstrate an integrative learning approach, combining mastery of technical skills with a contextual understanding of local food culture and the dynamics of the modern culinary market. Each CP element provides a crucial foundation for students to develop as skilled workers and entrepreneurs in the plant-based culinary field. Therefore, phase E is a key step in supporting the design of culinary programs that are not only adaptive to industry needs but also responsive to issues of health, the environment, and food sustainability, particularly in the utilization of plant-based ingredients, as will be outlined in the program.

According to Chandra, Elsty, and Azhari (2025), the innovation of plant-based instant Padang rice combines traditional flavors with modern technology to meet the needs of today's consumers who prioritize a healthy, practical, and sustainable diet. By replacing animal protein with mushroom-based ingredients formulated to resemble the texture and flavor of authentic Padang dishes, this innovation combines modern processing technologies such as freeze-drying and instant hotpot packaging with a self-heating mechanism. This allows consumers to enjoy a warm meal without additional equipment, perfectly suited to a fast-paced and dynamic urban lifestyle.

From the perspective of plant-based culinary programs for industry, particularly for developing student competencies in culinary arts at vocational high schools (SMK), this article provides important insights. First, global and local trends indicate an increasing interest in vegetarian and vegan foods that are healthy and contribute to environmental sustainability. Therefore, curricula or training programs that integrate plant-based processing, mastery of modern conservation techniques, and recipe innovations from traditional culinary traditions are highly relevant and valuable. In this program, students are trained to develop product research and experimentation skills, from formulating plant-based recipes and processing techniques like freeze-drying to innovative, practical packaging, such as self-heating instant hotpots.

The development process for Plant-Based Instant Padang Rice also demonstrated the importance of implementing sensory and hedonic testing using panelists to measure the product's taste, aroma, texture, and appearance. This can be an effective learning module for students, equipping them with the ability to evaluate products objectively and based on market preferences. Furthermore, product development with a variety of additional ingredients, such as the addition of vegetable cream to vegetable rendang sauce, provides students with an understanding of how to balance flavor and texture to enhance consumer acceptance, especially among younger generations who desire practical yet appetizing food.

Product innovation that combines the authentic flavors of Padang cuisine with local plant-based ingredients and modern technology not only enhances practicality and quality but also fosters awareness of the environmental impact of food consumption. In the context of vocational high school learning, this can encourage students to focus beyond culinary aspects and also consider the role of the food industry in supporting sustainability. Courses or training programs can be designed to integrate nutrition theory, modern processing techniques, product development, and environmental sustainability principles.

This overall approach supports the achievement of comprehensive competencies for students, who are not only able to prepare delicious food but also be innovative, efficient, and responsive to market trends and sustainability issues. Thus, the development of a structured and applicable plant-based culinary program is not only relevant to meet the needs of the modern instant food industry but also serves as a crucial bridge in preserving culinary traditions while educating the younger generation about the importance of healthy and environmentally friendly innovation in gastronomy. This article clearly underscores the enormous potential of the synergy of culture, technology, and environmental awareness in shaping future culinary training programs that are more adaptive and highly competitive.

3. Data Analysis

A content analysis of a number of related literature and data reveals three key themes that are crucial in designing a plant-based culinary

program to improve vocational high school students' culinary competencies. First, students must possess both technical and non-technical skills. Literacy in healthy plant-based food processing, mastery of modern technologies such as freeze-drying and innovative packaging, and a thorough understanding of nutritional value and sanitation are essential foundations. These technical skills are reinforced with hands-on practice modules that hone innovative recipe development and modifications to traditional culinary products, such as replacing animal protein with mushrooms or tempe.

Second, there are competency gaps that still need to be addressed, particularly in linking mastery of cooking techniques with entrepreneurship and marketing aspects. Many students lack sufficient experience in effectively packaging, pricing, and promoting plant-based products in the modern market. Studies by Hasanah and Lestariningsih (2024), Kurniaditya et al. (2024), and Enjelina et al. (2024) emphasized that entrepreneurship training integrated into the culinary learning process significantly contributes to reducing this gap, ensuring graduates are prepared for the workforce and have the potential to start independent businesses.

The third theme is a relevant and contextual learning approach, emphasizing local product-based learning, developing healthy culinary innovations, and directly linking it to market needs and environmental sustainability. This approach combines literature studies, cooking practices, recipe experimentation, and sensory evaluation (hedonic testing) to obtain authentic feedback from consumers or panelists. This real-product-based approach also teaches students the importance of understanding local culture, nutritional value, and emerging global trends in culinary and sustainability. Therefore, a curriculum that holistically integrates technical, creative, and entrepreneurial aspects is better able to meet future competency demands.

Overall, this content analysis concludes that designing an effective plant-based culinary program must incorporate and adapt to the technical skills needed for plant-based processing and modern food technology, address gaps in entrepreneurial and marketing competencies, and implement a contextual learning approach relevant to local and global market dynamics. This program, which integrates technical and non-technical learning, is considered capable of increasing the competitiveness of vocational school graduates while supporting the development of a healthy, practical, and sustainable culinary industry. This approach not only prepares students to become skilled workers but also creative entrepreneurs who understand cultural values and the importance of innovation in facing future challenges.

4. Calculation and Processing Data

The following is a comparative analysis table between the current vocational school curriculum and the needs of the plant-based culinary industry.

| **Aspect** | **Current Vocational High School Curriculum (Phase E, Kemdikbud, 2022)** | **Plant-Based Culinary Industry Needs** | **Level of Alignment** | **Notes & Program Development Recommendations** |
|---|---|---|---|---|
| Food Processing | Teaches sanitation, hygiene, recipe analysis, and knowledge of the 5Ps of food additives to maintain quality | Focus on processing plant-based ingredients, innovating substitutions for animal proteins using mushrooms, tofu, tempe, modern techniques like freeze-drying and self-heating packaging | Quite high | Addition of modules on innovative plant-based food processing and modern preservation techniques are essential to enhance product quality and shelf life |
| Product Innovation | Modification of traditional foods and analysis of flavor and texture; however, plant-based innovation is limited | Development of authentic plant-based recipes replacing animal proteins, with sensory and hedonic testing as part of product validation | Moderate | Need to strengthen research and experimental product development focusing on plant-based ingredients, including sensory evaluation |

| | | | | |
|---|---|---|---|---|
| Presentation and Aesthetics | Teaches various presentation techniques: ready-to-serve plates, family service, and buffets | Attractive presentation to enhance appeal of plant-based foods, as aesthetics strongly influence consumer perceptions, especially for vegetarian products | High | Maintain and further improve modern presentation skills with an emphasis on aesthetics for plant-based dishes |
| Nutrition Literacy | Basic introduction to nutrition and importance of nutritional value in food | In-depth knowledge of nutritional content of plant-based ingredients, health benefits, and their impact on healthy and sustainable diets | Needs strengthening | Integrate detailed plant-based nutrition literacy and environmental impact topics as part of culinary education |
| Culinary Entrepreneurship | Teaches market segmentation, 4Ps marketing principles, and strategy development for culinary products | Ability to develop plant-based culinary businesses, choose proper distribution channels, and promote products effectively using online and offline media | Quite high | Additional training on plant-based business models and digital marketing tailored to healthy food markets is recommended |
| Environmental Awareness | Sustainability aspects are not yet a main focus | Emphasis on carbon footprint reduction, use of local plant-based ingredients, and sustainable culinary business concepts | Low | Modules on environmental sustainability and food ethics should be explicitly incorporated into the curriculum |
| Packaging Technology | Focus on traditional packaging techniques emphasizing hygiene and shelf life | Use of advanced packaging technologies such as freeze-drying and self-heating packaging for practical and longer-lasting instant products | Relatively low | Add courses on modern food processing and innovative packaging technologies to support plant-based instant food production |
| Creativity Development | Practical training and innovation mostly with common traditional products | Product-based innovation using plant-based ingredients requiring creativity in recipe development and production techniques aligned with market trends | Moderate | Stronger emphasis needed on creativity and innovation in plant-based recipes, ingredients, and production methods |

**Picture 2.** *Table* Of Comparative Analysis

5. Analysis of Results

The analysis from the provided article and supporting sources reveals several critical gaps between the current vocational high school culinary curriculum and the evolving needs of the plant-based food industry, as well as substantial potential for the design of innovative training programs for Indonesian SMK (vocational high school) students.

Identified Gaps:

Although the current curriculum (Kemdikbud, 2022) lays a strong foundation in terms of hygiene, basic nutrition, food processing, and entrepreneurial skills, it still heavily centers on traditional culinary techniques and ingredients, especially animal-based products. The curriculum offers some exposure to food innovation and product development, but specific attention to plant-based cooking, advanced preservation technologies, environmental awareness, and modern marketing strategies is lacking. Courses rarely address the complexities of plant-based protein alternatives, the intricacies of flavor development with vegetables, nuts, pulses, and seeds, or the consumer trends driving the global rise in plant-based dining.

Notably, the aspect of environmental awareness, such as sustainability practices and

carbon footprint reduction, is minimally integrated into the learning outcomes, despite the growing importance of these themes in both the culinary sector and consumer consciousness. Similarly, competencies related to modern food packaging technologies (freeze-drying, self-heating packaging, etc.) that are increasingly used in industry are not yet sufficiently embedded in the curriculum.

**Potential for New Program Design:**

The article highlights that a forward-looking plant-based culinary training program must expand on several fronts:

- Technical Proficiency in Plant-based Foods: SMK programs should provide hands-on experience in using plant-based ingredients as core components, focusing on flavor building, nutritional balancing, and innovative culinary applications. This also includes exposure to sensory and hedonic evaluation techniques to ensure products not only meet nutritional standards but also appeal to consumers.
- Integration of Sustainability and Local Food Systems: Embedding modules on environmental sustainability, local food sourcing, and food ethics aligns student skill sets to current industry and societal trends, answering consumer demand for greener, more ethical products.
- Advanced Food Processing and Packaging Technologies: Training in freeze-drying, vacuum sealing, and self-heating packaging prepares students to develop practical, long-lasting, and high-quality plant-based foods suitable for the modern marketplace, echoing innovations in industry and research (Chandra et al., 2025).
- Entrepreneurship and Digital Marketing for Healthy Foods: The curriculum should be updated with dedicated modules on business model canvases, digital marketing, market segment targeting for plant-based foods, and e-commerce strategies. This will equip students to launch their own plant-forward ventures or contribute more effectively to the existing food industry (Hasanah & Lestariningsih, 2024).
- Creativity and Product Innovation: Emphasizing creativity through project-based or product-based learning—such as developing new plant-based recipes with local ingredients like tempeh or jackfruit—not only connects students to Indonesian food heritage but also cultivates the ability to respond to changing global trends (Kurniaditya et al., 2024; Enjelina et al., 2024).

**Guidance for Ideal SMK Plant-Based Culinary Training Design**

To bridge the gap, an ideal training program for SMK students should:

- Integrate plant-based recipe formulation as a core competence, focusing on flavor development, texture, and innovative uses of local products;
- Include modern preservation and packaging technology training as part of practical coursework;
- Mandate modules on environmental sustainability, highlighting local sourcing and food waste reduction;
- Blend traditional in-class learning with project-based, hands-on product innovation workshops, emphasizing real-world problem solving and teamwork;
- Establish partnerships with local food businesses, plant-based product manufacturers, and restaurants for apprenticeships, guest lectures, and industry-aligned projects;
- Integrate entrepreneurship and digital marketing labs, teaching students how to position, promote, and sell plant-based culinary products online and offline.

Through such an approach, the curriculum will better align with current and future industry needs, enhancing the skillset, adaptability, and employability of vocational high school graduates.

## CONCLUSION

The analysis highlights the urgent need to update vocational culinary education to better meet the evolving demands of the plant-based food industry. While current vocational high school curricula in Indonesia cover essential culinary skills, there is a notable gap in specialized knowledge and competencies related to plant-based cooking, nutrition, sustainability, and modern food technologies. Addressing these gaps

through the integration of innovative modules on plant-based ingredient processing, advanced preservation techniques, nutrition literacy, environmental awareness, and entrepreneurial skills is crucial to prepare students for a competitive job market.

Moreover, fostering creativity and innovation in plant-based recipe development, along with practical, hands-on training, will empower students to contribute meaningfully to the culinary sector's transformation. Emphasizing sustainability and health not only aligns with global industry trends but also cultivates responsible future culinary professionals. Therefore, a comprehensive, industry-aligned plant-based culinary training program specifically designed for Vocational High School students is essential to enhance their competence, employability, and readiness to excel in the dynamic culinary landscape.

## REFERENCES


Bowen, G. A. (2009). Document analysis as a qualitative research method. Qualitative research journal, 9(2), 27-40. https://doi.org/10.3316/QRJ0902027

Chandra, J. A., Elsty, K., & Azhari, K. N. (2025). Nasi Padang Instan Plant-Based: Menyajikan Tradisi dengan Sentuhan Inovasi. Jurnal Inovasi Kewirausahaan, 2(1), 37-46. https://doi.org/10.37817/jurnalinovasikewirausahaan.v1i3

Enjelina, A. D., Surya, K. R. A., Nasution, S. N., & Salsabila, Y. (2025). Peningkatan Keterampilan Kewirausahaan Siswa SMK melalui Pelatihan Pembuatan Cookies Inovatif Berbahan Tepung Mocaf, Tepung Beras, dan Jahe. Jurnal Abdi Masyarakat Indonesia, 5(3), 897-906. https://doi.org/10.54082/jamsi.1878

Hasanah, U., & Lestariningsih, N. (2024). Pelatihan pembuatan Mayonaise dan Salad Sayur untuk Meningkatkan Life Skill Siswa di SMKN 2 Palangka Raya. Kayuh Baimbai: Jurnal Pengabdian Masyarakat, 1(3), 60-65. https://journal.aishaedu.com/index.php/kbjpm/article/view/31

Hashimov, E. (2014). Qualitative Data Analysis: A Methods Sourcebook and The Coding Manual for Qualitative Researchers: Matthew B. Miles, A. Michael Huberman, and Johnny Saldaña. Thousand Oaks, CA: SAGE, 2014. 381 pp. Johnny Saldaña. Thousand Oaks, CA: SAGE, 2013. 303 pp. Technical Communication Quarterly, 24(1), 109–112. https://doi.org/10.1080/10572252.2015.975966

Kemdikbud. (2022). Capaian Pembelajaran Program Keterampilan Tata Boga Fase A–F. Kurikulum Merdeka.

Kirana, I. O., Nasution, Z. M., & Wanto, A. (2019). Proyeksi indeks pembangunan manusia di indonesia menggunakan metode statistical parabolic dalam menyongsong revolusi industri 4.0. Jurnal Pendidikan Teknologi dan Kejuruan, 16(2), 202-212. https://doi.org/10.23887/jptk-undiksha.v16i2.18178

Kurniaditya, V. H., Natanael, J. C., & Prasetya, B. G. (2024). Workshop Pembuatan Soft Baked Cookies dengan Subtitusi Tepung Tempe untuk Siswa SMA dan SMK di Sukoharjo. Empowerment, 7(03), 374-383. https://doi.org/10.25134/empowerment.v7i03.10882

Suwintari, I. G. A. E., Wirawan, P. E., & Iswara, A. M. Y. (2025). Pelatihan Pemanfaatan Produk Oleofood Sawit Pada Industri Perhotelan dan UMKM. Jurnal Pemberdayaan Pariwisata, 7(1), 18-32. https://doi.org/10.30647/jpp.v7i1.1907