

LINK AND MATCH CURRICULUM PLANNING MANAGEMENT AT SMK CENTER OF EXCELLENCE (SMK CENTER OF EXCELLENCE)

*¹ **Margareta Wahyu Dwi Utari** , ² **Zainal Arifin** ,

¹ Curriculum Development, Faculty of Education, University of Indonesia Education, Bandung, Indonesia

¹ Curriculum Development, Faculty of Education, University of Indonesia Education, Bandung, Indonesia

Author's e-mail:

¹ margareta.utari@santamaria.sch.id ; ² zainalarifin.tp@gmail.com

*Corresponding author: margareta.utari@santamaria.sch.id

Abstract. *The demands of the times, technology, and science have made the direction of the global industry as well as experience development. The development of the global industrial direction has also impacted the implementation of education in vocational education, especially in Vocational High Schools. Thus, SMK revitalization is often carried out by considering the needs and dynamics of industrial life. Currently, the prevailing SMK revitalization policy is the Center for Excellence SMK. Not all Vocational Schools become pilot Vocational Schools as Centers of Excellence Vocational Schools because one of the requirements is that the curriculum of vocational institutions must be aligned or linked and matched with industrial. Curriculum management capabilities are very influential in developing a curriculum aligned with industrial. The purpose of this study was to specifically discuss the management of curriculum planning, which is aligned between the Center of Excellence Vocational School in Region 1 Central Jakarta and industrial. In particular, the results of this study are explored and explained in detail the curriculum planning management process at the Center of Excellence Vocational School related to the determination of competency skills that align with the policies of the Center of Excellence Vocational School. In total, all schools that became the research object are three SMK Centers of Excellence members of Area 1 Central Jakarta. For this reason, the research method used is a qualitative approach, with data collection techniques through interviews (the management team and academic unit curriculum developers) and document studies.*

Keywords: *Center of Excellence, Link and Match Curriculum, Vocational High School, Vocational Revitalization*

1. INTRODUCTION

A particular characteristic of vocational education is that its graduates are prepared to meet the criteria and be accepted in business and industry. Competency and work skills are applied more when learning vocational education. However, ironically, compared to graduates from equivalent levels of education, such as high school, the employment and unemployment rates of SMK graduates are higher (Kurniawan et al., 2021; Sukianto, 2022; Wijaya & Utami, 2021). SMK graduates are not yet optimal in preparing experts and working according to the needs of the world of work.

The industrial revolution 4.0 also contributed to and influenced the paradigm of vocational education. The effect is not only on the diversity of professions and new types of competencies but on increasing competence to have cognitive, skills, and critical skills and solve problems (Blanco et al., 2019). Thus, vocational education is not only sufficient for conventional and rigid learning on work competencies prepared by the government because industry needs are changing, and the demand for individual skills is increasing.

Following up on the sensitivity of vocational education to changes and developments in the industrial revolution, Presidential Instruction Number 9 of 2016 states that SMKs must be revitalized to improve the quality and competitiveness of human resources. This instruction was then elaborated and strengthened in Presidential Regulation 68 of 2022 concerning the Revitalization of Vocational Education and Vocational Training. The revitalization of vocational education aims to improve vocational education, starting to shift from *supply-driven* to the paradigm of the needs of the world of work and industry or *demand-driven* (Aini & Purba, 2022; Napitupulu, 2022; NN, 2021). Thus, SMK, as one of the vocational education institutions, must be able to develop and improve the ability of school resources to achieve graduates who meet industry criteria.

One aspect that needs to be considered and focused on in revitalizing SMKs is the competency-based curriculum in SMKs. The SMK curriculum must be adaptive and relevant to profile criteria in the world of work. This is stated in Article 13 of Presidential Decree Number 68 of 2022 that the alignment of vocational education with the business world, industrial world, and the world of work is carried out in the preparation and adjustment of the curriculum. The alignment of this curriculum is one of the focuses of *link and match* in SMK. The need for more alignment between the school curriculum and the world of work is one of the factors why vocational graduates have low absorption in the workforce (Azman et al., 2020; Disas, 2018; NN, 2020).

To ensure the success and achievement of the curriculum, curriculum management skills are needed. Management has a vital position and role in every organization and institution, including schools. Leaders responsible for management are the main factors in making changes and policies to achieve the curriculum successfully (Dehghani et al., 2011). In line with management functions in general, curriculum management holds roles and functions aligned with curriculum development, namely planning, organizing, implementing, and supervising (Hamalik, 2006). The management function in the curriculum is needed as a reference in developing an effective and efficient curriculum.

Currently, the SMK revitalization program is the SMK Center of Excellence program. This program continues the previous program, namely the SMK *Center of Excellence*. The focus of the SMK-PK program is to increase funding for resources to support the quality and competitiveness of SMKs. This program started in 2021. The focus of this SMK-PK is the development of study programs that align with the needs of the industrial revolution 4.0 and are in line with the focus on the country's development sector. One of the requirements that SMKs must fulfill to become SMK-PKs is a curriculum that is aligned or *linked and matches* the world of industry, business, and work.

The success of *the link and match* vocational curriculum is due to the right curriculum managerial processes and functions. There is interaction, communication, and discussion between school institutions and industry to achieve curriculum alignment. The initial curriculum *link and match* process starts with a needs analysis and alignment between the school and industry (Maulina & Yoenanto, 2022; Nurita et al., 2021). For this reason, the researchers focused on the context of competency planning management and aligned curriculum needs at the Center for Excellence Vocational High School. The dimensions of this competency planning management include vision and mission planning between schools and the world of work, mapping needs, and procedures adopted by schools and work partners to manage a harmonized curriculum.

2. LITERATURE REVIEW

a. Curriculum Management

Generally, management is the process of achieving organizational goals, which include planning, organizing, directing, and controlling or controlling human resources and other organizational resources. Another meaning regarding management is also

conveyed by Sondang P Siagian (in Mulyono, 2008); that is, management is the ability and skill to obtain results in a series of achieving goals through other people's efforts.

Management is defined as functions and activities. Management is devoted to more than just organizational, managerial activities, or executive institutions. Management is related to human activity and is essential in an organization or institution in achieving goals and realizing the mission for achieving the vision; activity management is defined as an activity. Management as a function includes planning, organizing, implementing, and supervising.

Planning or planning is the process of compiling, determining, and utilizing resources in an integrated and rational manner so that the activities to be carried out can take place effectively and efficiently in the direction of the goals to be achieved. Organizing or organizing, namely, the functions and objectives to build structures and parts that are mutually integrated vertically and horizontally. Next is actuating or actuating, namely motivating and stimulating group members so that tasks can be implemented according to organizational goals. And finally, the supervisory or controlling function is an action for detection and demands in the implementation of an activity so that its implementation does not deviate from what was not planned (Arifin, 2012).

In curriculum development, management functions are also needed to plan, organize, implement, and supervise the curriculum. This is also in line with the dimensions of curriculum development, which consist of planning, organizing, implementing, and evaluating the curriculum (Hamalik, 2017). Curriculum management becomes systems and procedures that serve as guidelines for schools. In this case, human and supporting resources are involved to carry out and ensure that the learning and teaching process can be carried out properly so that students can achieve the best results.

Curriculum management is concerned with managing the distribution and availability of curriculum documents in schools, socializing ideas and documents, providing professional assistance to school principals, school planning in implementation, teacher qualifications and workload, work atmosphere and facilities, teachers, process monitoring, and program follow-up. (Arifin, 2012; Hamalik, 2006; Rusman, 2018). Curriculum management becomes systems and procedures that serve as guidelines for schools. In this case, human and supporting resources are involved in carrying out and ensuring that the learning and teaching process can be carried out properly so that students can achieve the best results. Therefore, it is essential to view curriculum management as the management of systems, procedures, and people to ensure successful learning and teaching and promote increased levels of student achievement.

b. Curriculum Planning Management

Planning is a series of actions for the future. In the concept of management, planning is one of the management functions. This function includes setting goals and organizing what actions will be taken to achieve these goals. Planning aims to achieve a consistent and coordinated set of operations to obtain the desired results. Planning involves intellectual functions because it will relate to the functions of system elements in the future. The planning process is not based on forecasts or predictions for the future but on reality and careful analysis.

Curriculum planning management is a comprehensive function to produce systems for the effectiveness, design, development, implementation, and evaluation of district (local) curricula. This curriculum planning includes several work steps and must be specified in the curriculum policy as an administrative approach (Nichols et al., 2006). The fundamental elements proposed by Nichols et al. (2006) in curriculum planning management, such as needs assessment, curriculum development cycle, document planning, human resource engagement, implementation planning, decision-making processes, etc.

3. RESEARCH METHODS

This research explored curriculum planning management in harmony between industry, business, and work with the Center for Excellence Vocational School. The focus of research related to curriculum planning management is competency planning management and curriculum objectives. For this reason, this research method uses a qualitative approach.

The data source was obtained from interviews with school principals or deputy principals in the field of curriculum who are curriculum leaders or managers and curriculum decision makers at SMK Pusat Excellence Area 1 Central Jakarta. The Center of Excellence Vocational Schools that participated in this study were three Vocational Schools, consisting of 1 State Vocational School and 2 Private Vocational Schools. The consideration for selecting these three schools is that the implementation of the Center of Excellence Vocational School has been going on for two years, from 2021/2022 to the 2022/2023 academic year.

Data were collected for approximately one month, using interview techniques and document studies, namely curriculum documents. In interpreting research data, this study uses qualitative analysis techniques. Data analysis includes procedures, data collection, data reduction and categorization, data display, and drawing conclusions.

4. RESULTS AND DISCUSSION

Link and match or alignment are one of the Ministry of Education and Culture policies to increase the relevance of Vocational High Schools to the needs of the industrial world, the business world, and the world of work (Disas, 2018). This *link-and-match* policy is a process of extracting the competencies needed by the job market in the future and is expected by companies to support SMK as a *demand driver* required by the industrial world, the business world, and the world of work. This *link and match* is also a solution for Vocational Schools to correct *the mismatch* between curriculum achievements at Vocational High Schools and work profile achievements in the industrial, business, and work.

In creating *links and matches*, the Ministry of Education and Culture stated that SMKs must meet five conditions in *linking and matching* with the industrial world (Kemendikbud, 2020). *First*, the *link and match* between vocational schools and the industrial world form a joint curriculum periodically synchronized between the two institutions. *Second*, the industry provides guest teachers or lecturers as teaching practitioners. *Third*, the implementation of internships for SMK students that are jointly designed. *Fourth*, competency certification to measure the level of expertise. *Fifth*, the industry's commitment to absorb vocational school graduates.

The realization of *link and match* is driven by openness between industry and SMK. Managerial, negotiation, and communication skills between Vocational Schools and industry are needed to encourage industry openness to Vocational High Schools. Based on interviews with the three schools, management skills play an important role in Vocational Schools to *link and match* with industry and then be trusted as Vocational Centers of Excellence. On average, for one year since the Socialization of the Center for Excellence Vocational High School in 2020, the three Vocational Schools have prepared and formed intensive communication with partners in the industrial world and the business world so that the fulfillment of the requirements as a Center for Excellence Vocational School can be fulfilled. The following is a summary of the focus of the interview findings regarding aspects of curriculum planning management.

Table 1. Focus of Research Findings

Curriculum Planning Management Area	Findings
Analysis of curriculum alignment needs	• Needs analysis is usually carried out through discussions or FGDs with industrial.

	<ul style="list-style-type: none"> • Industrial partners who work with schools have collaborated with more than accepting apprentices or practical students. • Competency development collaboration from industrial usually starts with the school communicating it to industrial. • Several industrial partners are willing to offer some of the competency criteria needed by industrial to schools. Most industrial only follow the competencies formulated by schools and the government.
Vision planning method, mission, and curriculum goals aligned with industrial	<ul style="list-style-type: none"> • Involvement of human resource development parties in the company in curriculum alignment. • Alignment is done with the collaboration method. • Vision and mission will be discussed and updated for 1 – 2 years depending on evaluation, suggestions, and conformity to local government policies and industrial.
Curriculum preparation aligned with industrial	<ul style="list-style-type: none"> • Company involvement in school assistance during the Vocational Center of Excellence program. • Forms of alignment that are planned and prepared between schools and industrial partners, such as seminars related to work ethics, industrial class implementation, internships in class XI, teacher internships in the industry for 2-3 months, developing industrial classes, which are collaborations between schools and companies. • Preparation begins with the signing of the MoU for internships and industry certification. • Analyse the suitability and relevance of the curriculum with teachers in schools, then draft proposals for cooperation with industry. • The constraints faced are usually industry parties that are not yet collaborative because they have their own standards with the field of work. • Communication, which is still a challenge for schools in continuing apprenticeship collaboration, is a continuation of collaboration for curriculum alignment and other <i>link and match programs</i>.

a. Needs Analysis in Curriculum Planning in Accordance with Industrial

Needs analysis is the first procedure carried out in the curriculum development stage. This needs analysis can be carried out by analyzing the social context, community needs and scientific developments, competency needs by teachers, learning needs by students, and several sources considered ideal to underlie curriculum development. SMK is always related to the world of industry, business, and work, so the industry can become an important foundation in developing the curriculum at SMK. Work needs and competencies are very dynamic, especially in the era of the industrial revolution 4.0, which requires that SMKs that wish to become Vocational High Schools at Centers of Excellence must develop forms of cooperation in a curriculum aligned with industry partners.

From the interviews, it was found that the three curriculum leaders mentioned that the needs analysis had been carried out since the introduction of the Center for Excellence Vocational School. Two of the schools interviewed said that the industry has often collaborated in conceptualizing the competencies needed by the industry

from school graduates. Thus, the school already has collaborative partner assistance, and a needs analysis can be conducted.

The procedures carried out during the analysis of collaboration needs and curriculum alignment, namely (1) communication with industrial partners; (2) socialization of the SMK Center of Excellence program and curriculum requirements that are aligned between schools and industry; (3) offer of skills and competence programs developed by schools in accordance with government policies related to the competency spectrum of SMKs; (4) supply of competency needs from industry and analysis of the availability of needs in the school curriculum; (5) FGD with the company to negotiate several competency requirements and cooperation programs agreed upon by schools and industry; (6) program monitoring and evaluation planning and cooperation; (7) signing and cooperation agreement; and (8) assistance from the industry during the SMK registration process to become an SMK with a Center of Excellence. These eight stages are the procedures passed by the three Centers of Excellence Vocational Schools to work together and build collaboration in the curriculum between schools and industry.

The human resources involved during the needs analysis process are from both parties. From the school side, the human resources involved were the principal, vice principal for curriculum, vice principal for public relations, head of the skills program, productive teachers, and several teachers from normative and adaptive subjects. The aim is that this curriculum collaboration is not only aimed at productive subjects but must be aligned with the curricula of other subjects. However, this is still difficult to achieve according to the three schools. Furthermore, from the industry side, there is usually HRD, especially the coordinator in charge of internships and institutional cooperation, and departmental supervisors aligned with the school's expertise program. Even in some companies, company leaders such as directors and managers also participate in providing suggestions for collaboration between schools and the industry.

b. Forms of Alignment Planning between Vocational Schools and Industrial

The form of *link and match* manifests in the curriculum, especially in the competency spectrum of expertise programs. However, there are widespread forms of collaboration between schools and industry, such as apprenticeships, industrial classes for grade 10 held for 1-3 months, seminars by bringing in speakers from industry, and the issuance of Document Three, a curriculum supplement explaining ethics. And work culture, internships for grade 11 for six months, productive teachers who do internships in the industry for 1-2 months, certification of professional expertise for teachers, and certification of skills for students, building collaborative classes between schools and industry, cooperation to ensure the absorption of graduates, and assistance with practical assistance in laboratories and school *business units*.

These programs vary for each school, depending on the industry's openness to establish the *link and match* with schools. With the implementation of these programs, the three schools have built good collaboration with industry, so they are entrusted to become Vocational Schools Centers of Excellence. The strong collaboration between schools and industry began with apprenticeships, then expanded into further collaboration in several programs to support curriculum and learning achievements. The presence of industry, a partner of these schools, makes the school believe that the openness of industry to develop expertise programs in schools is a school's strength to qualify to become an SMK Center of Excellence. Apart from industry openness, local government support through school supervisors to encourage schools to continue collaborating and negotiating with industry is another factor in the realization of the three schools to become Vocational Centers of Excellence.

c. Obstacles in Industrial Preparation

During the process of *link and match collaboration and collaboration* with industry, of course, the three schools met with several challenges and obstacles. These

challenges and obstacles include (1) some industry parties are not open to schools to *link and match* because they have criteria and conditions for cooperation with non-industrial institutions; (2) the cooperation of teachers in all subjects and integrating and elaborating between expertise competencies and subject competencies is still lacking; (3) unsustainable communication between schools and industry; (4) the school's busyness in fulfilling administrative tasks and fulfilling obligations to the regional and central government, so that it often takes up the time of school leaders; (5) there are still several SMKs that do not understand the forms of *link and match* with the industry.

CONCLUSION

Center of Excellence Vocational School is a continuation program for the revitalization of vocational schools, one of the focuses of which is that SMKs must be able to *link and match* with industry. The goal is to build important collaborations between the two parties to realize the SMK paradigm from *supply-demand-driven* to *demand-driven*. The success of a Vocational School in becoming a Vocational Center of Excellence is a curriculum managerial capability *linked and matched* with industry partners.

Based on the results of interviews and document studies, it was found that forms of *link and match* between schools and industrial partners started from apprenticeship collaborations to several curriculum developments that were collaborative and aligned with industry needs, implementing industrial classes, assisting industry practitioners, apprentice teachers, and expertise certification. Human resources, both school leaders, teachers, and industry are involved in realizing school and industry collaboration.

However, while carrying out *the link and match*, several obstacles also existed. These obstacles come from the school related to communication, preoccupation with the school's obligations to the local government, the ability to integrate and collaborate on competencies, and from the industry to open up and continue cooperation with schools. According to the curriculum leaders, the presence of this SMK Center of Excellence is a solution for improving schools in terms of individual human resources at school, facilities and infrastructure resources, and other forms of collaborative activities with industry apart from apprenticeships. The average school takes one year to plan and prepare a curriculum and programs aligned with the industry to be included as a requirement to become an SMK Center of Excellence.

REFERENCES

- Aini, Y. N., & Purba, Y. A. (2022). Analisis Penyerapan Tenaga Kerja Dan Program Link & Match Pada Lulusan Sekolah Menengah Kejuruan (SMK) Program Kelautan & Perikanan. *Jurnal Kebijakan Sosial Ekonomi Kelautan dan Perikanan*, 12(1), 23–37. <https://doi.org/10.15578/jksekp.v12i1.10339>
- Azman, A., Simatupang, W., Karudin, A., & Dakhi, O. (2020). Link and match policy in vocational education to address the problem of unemployment. *International Journal of Multi Science*, 1(7), 76–86. <https://www.multisciencejournal.com/index.php/ijm/article/view/78>
- Blanco, E., Schirmbeck, F., & Costa, C. (2019). Vocational Education for the Industrial Revolution. In *Lecture Notes in Networks and Systems* (Vol. 47). Springer International Publishing. https://doi.org/10.1007/978-3-319-95678-7_71
- Dehghani, M., Pakmehr, H., & Jafari, H. (2011). Managerial Challenges of Curriculum Implementation in Higher Education. *Procedia - Social and Behavioral Sciences*, 15(2011), 2003–2006. <https://doi.org/10.1016/j.sbspro.2011.04.043>
- Disas, E. P. (2018). Link and Match sebagai Kebijakan Pendidikan Kejuruan Link and Match as a Vocational Education Policy. *Jurnal Penelitian Pendidikan*, 18(2), 231–242. <https://doi.org/10.17509/jpp.v18i2.12965>

- Hamalik, O. (2006). *Manajemen Pengembangan Kurikulum*. PT Remaja Rosdakarya.
- Kemendikbud. (2020). *Lima Syarat “Link and Match” Pendidikan Vokasi dan Dunia Industri*. Kementerian Pendidikan dan Kebudayaan. <https://www.kemdikbud.go.id/main/blog/2020/09/lima-syarat-link-and-match-pendidikan-vokasi-dan-dunia-industri>
- Kurniawan, R., Jaedun, A., Mutohari, F., & Kusuma, W. M. (2021). The Absorption of Vocational Education Graduates in The Automotive Sector in The Industrial World. *Journal of Education Technology*, 5(3), 482–490. <https://doi.org/10.23887/jet.v5i3.35365>
- Maulina, M., & Yoenanto, N. H. (2022). Optimalisasi link and match sebagai upaya relevansi smk dengan dunia usaha dan dunia industri (DUDI). *Jurnal Akuntabilitas Manajemen Pendidikan*, 10(1), 27–37. <https://doi.org/https://doi.org/10.21831/jamp.v10i1.48008>
- Napitupulu, E. L. (2022). *Arah Pendidikan Vokasi Belum Jelas dan Masih Berbasis Sekolah*. Kompas. <https://www.kompas.id/baca/dikbud/2022/04/19/pendidikan-vokasi-belum-jelas-dan-masih-berbasis-sekolah>
- Nichols, B., Shidaker, S., Johnson, G., & Singer, K. (2006). *Managing Curriculum and Assesment*. Linworth Books.
- NN. (2020). *Indonesia to tackle skills mismatch through sector skills bodies*. International Labour Organization. https://www.ilo.org/jakarta/info/public/pr/WCMS_759040/lang--en/index.htm
- NN. (2021). *Demand Driven Lembaga Vokasi*. Kementerian Koordinator Bidang Perekonomian Republik Indonesia. <https://www.ekon.go.id/publikasi/detail/2925/demand-driven-lembaga-vokasi>
- Nurita, A., Astuti, F., Samsudi, S., Made, I., & Hadromi, H. (2021). Evaluation of Link and Match Vocational High Schools - Industry and Bussiness World in Improving Human Resources. *Proceeding ISET (2021) Universitas Negeri Semarang International Conference on Science, Education and Technology 7 (1)*, 7, 32–38.
- Sukianto, D. E. (2022). *Kenapa Pengangguran Justru Didominasi Lulusan SMK*. Koran Kaltara. <https://korankaltara.com/kenapa-pengangguran-justru-didominasi-lulusan-smk>
- Wijaya, M. O., & Utami, E. D. (2021). Determinan Pengangguran Lulusan SMK di Indonesia Tahun 2020. *Seminar Nasional Official Statistics*, 2021(1), 801–810. <https://doi.org/10.34123/semnasoffstat.v2021i1.1048>