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Research Article

Evaluation of the Effectiveness of the High School Double Track Program Using the CIPP Model

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Abstract
This study aims to evaluate the implementation of the Double Track Program in high schools as an educational innovation that integrates academic competencies and vocational skills to improve the quality and competitiveness of graduates. The evaluation was conducted using the CIPP (Context, Input, Process, Product) model to comprehensively examine program relevance, resource readiness, implementation, and results achieved. The approach used was descriptive qualitative through interviews, observations, and documentation studies with principals, teachers, and students at senior high school (SMA) Brawijaya Smart School Malang as the research location. The results showed that from the context aspect, the program is relevant to the demands of 21st century competencies and in line with the national agenda to improve the quality of human resources. However, there are still challenges in the form of unclear policy direction and differences in orientation between SMA and vocational schools (SMK). In terms of inputs, limited teaching staff with vocational expertise, inadequate practical facilities and limited financial support are the main obstacles. The process evaluation showed that schools had adapted the curriculum creatively, but the high academic load and time constraints impacted on the effectiveness of learning activities.

Keywords: CIPP model, double track, education evaluation, senior high school, vocational education

INTRODUCTION

Education plays an important role in the progress of human resources in a country and the quality education will lead a country to rapid progress (Juita et al., 2024; Vasilyeva et al., 2023). The development of human resources through education is not only about imparting knowledge but also about improving skills, creativity, and innovation that are essential for economic growth and community progress (Siregar & Hasibuan, 2024). As the backbone, education needs to be of good quality so that it can form an innovative and creative society and serve as a bridge to create an inclusive and sustainable environment (Hanif et al., 2024). Senior High School (SMA) is crucial for a person because at that level the skills that a person has will be very clear and will be developed in such a way. SMA plays a vital role in providing an adequate learning environment, supporting students to reach their full potential, and preparing them to compete at local, national, and even international levels.

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Effective curriculum management, as highlighted in studies on student achievement, emphasizes the importance of interactive learning approaches and continuous assessment to improve educational outcomes and prepare students for competitive challenges (Zulkifli et al., 2023). SMA in Indonesia is designed as an educational level oriented towards strengthening students' academic capacity and serving as a bridge to higher education. However, in recent years, a new policy has emerged in the form of the Double Track Program that integrates academic pathways with vocational training into the high school curriculum. The aim of this program in general is to provide alternative work competencies for students who do not continue to college, with the hope of improving their work readiness after graduation (Magfiroh & Wahono, 2024).

Although theoretically promising, the implementation of the Double Track Program in SMA presents several conceptual and technical challenges (Cholidah et al., 2024). Conceptually, there is an overlap between the functions of SMA and SMK (Alfiyah et al., 2022; Komara & Iskandar, 2025; Setiawan & Hermansyah, 2023). SMA, which is supposed to be academic in nature, is now directed to fulfill dual functions that are actually the main domain of vocational school (SMK). This leads to unclear differentiation between the two types of schools, which can have an impact on the understanding of the community, students, and even policy makers about the main orientation of each level. In addition, high school students, who should be focused on deepening academic material in preparation for college entrance exams, are now faced with vocational learning that could potentially reduce their concentration and academic performance. SMK emphasizes the development of practical skills and work readiness, with productive subjects positively contributing to students' readiness for the workforce (Gusdila et al., 2024; Rosmawati & Meilani, 2019), such as the entrepreneurial spirit in student learning to prepare independent entrepreneurs (Susanto et al., 2021), to the existence of partnerships between schools and industries to provide practical experience and soft skills, important for career readiness (Judijanto et al., 2024).

From a technical aspect, not all have adequate resources to optimally implement vocational training. Limited practical facilities, teachers' unpreparedness in teaching skills materials, and the increasingly heavy curriculum load are crucial issues (Alfiyah et al., 2022). In addition, the regulatory framework increasingly complicates the integration of vocational training into the SMA curriculum and the ambiguity of regulations between SAM and SMK (Komara & Iskandar, 2025). Students are forced to split their focus between two learning paths that require different approaches and learning strategies. This can lead to mental fatigue, decreased motivation to learn, and even potential failure in both academic and vocational aspects.

Previous studies on the Dual Track Program in Indonesia have largely focused on students' entrepreneurial readiness (Yulikah et al., 2022), vocational skills (Wibowo et al., 2022), and employability outcomes (Azizah et al., 2025). However, these studies emphasize program outcomes rather than examining how the program is implemented in high schools. Furthermore, existing research (e.g., Yulikah et al., 2022; Umar et al., 2026) use a quantitative or descriptive approach, limiting exploration of stakeholder experiences and institutional challenges arising during implementation, such as curriculum load, teacher readiness, infrastructure limitations, and overlapping orientations between SMA and SMK. Moreover, studies evaluating the Dual Track Program through a comprehensive framework such as the CIPP model are still limited. Therefore, this study aims to fill this gap by providing a qualitative evaluation of the Dual Track Program at SMA Brawijaya Smart School Malang. On the other hand, this research focuses on

program outcomes and the contextual conditions experienced by stakeholders during program implementation.

In addition, this comprehensive approach to vocational education, while beneficial for SMK students, may reduce the academic focus required for high school students preparing for higher education, thus requiring a clear differentiation between the two educational pathways to maintain their distinct objectives and effectiveness (Komara & Iskandar, 2025). In this program there are seven skill areas and 17 areas of expertise in the double track program, including (1) Multimedia skills, (2) Electrical Engineering skills, (3) Fashion skills, (4) Catering skills, (5) Electrical Engineering skills, (6) Beauty skills, and (7) Light Vehicle Engineering skills which are carried out outside of class hours. In its implementation, this program allocates more practical learning than theory with the hope that high school graduates will be more skilled in their field of work (Asrori et al., 2022).

Against this backdrop, a thorough evaluation of the program's effectiveness is warranted. One relevant evaluative approach is the CIPP (Context, Input, Process, Product) model developed by Stufflebeam. This model provides a comprehensive evaluation framework to assess the conditions of need, resource readiness, quality of implementation, and the results achieved from a program. CIPP model-based evaluation is expected to provide a complete picture to assess the condition of needs, resource readiness, quality of implementation, and the results achieved from a program. The CIPP model-based evaluation is expected to provide a complete picture of the success and challenges of the Double Track Program, as well as being an important consideration for education policy makers in Indonesia

METHOD

Research Design

This study employed a qualitative approach to evaluate the effectiveness of the double track program implementation in senior high schools through the CIPP evaluation model. This approach's ability to provide a thorough overview of program execution including elements of requirements assessment, resource allocation, implementation procedures, and attained results is the basis for its adoption. Because it consists of four interrelated fundamental components, Stufflebeam (2003) CIPP research design is seen to be pertinent for studying educational policy. First, the context component serves to assess the program's requirements, goals, and history. Second, the input component looks at program implementers' tactics, resources, and preparedness. Third, the process component evaluates the difficulties faced and the program's execution in the field. Fourth, the program's effect on students and schools is measured by the product component.

Data Collection

This research was conducted in several high schools in Malang that have implemented the Dual Track Program. Field observations, in-depth interviews, and documentation studies were among the methods used to collect data. The proposed interactive approach, which has three main phases: data reduction, data presentation, and formulation and verification of conclusions, was used to analyze the data (Miles & Huberman, 1994). The interview instrument focused on program relevance, the adequacy of resources and facilities, the learning process, and the outcomes experienced by students

and schools. Furthermore, in qualitative research, the quality of informants is more important than quantity. This informant selection used purposive sampling, which involves deliberately selecting informants based on the consideration that they have relevant knowledge and direct involvement in the program.

Criteria for policymakers to become informants in this research include: (1) direct involvement in program planning and implementation, (2) having decision-making authority regarding curriculum structure and program implementation, and (3) willingness to participate voluntarily. meanwhile, the criteria for students include (1) having participated in the double track program, (2) coming from different classes to ensure diversity of perspectives, (3) selected by considering diversity of gender and background. Therefore, the researcher used source triangulation by comparing data from nine respondents consisting of students and policy makers, as well as method triangulation with observation, interviews, and documentation to ensure the authenticity of the data. As a result, it is hoped that the assessment findings will fairly describe the actual conditions surrounding the field implementation of the Double Track Program.

Data Analysis

Data analysis in this study refers to the interactive model of Miles et al. (2014) which includes (1) power condensation where all raw data obtained from interviews, observations, and documentation are collected, then focused where the interview transcriptions are identified as the most relevant parts to the research questions, (2) presentation of condensed data arranged in a form that makes it easier to draw conclusions, such as a comparison table between informants, (3) drawing conclusions that are carried out gradually during the analysis process, not only at the end of the study and each conclusion is verified again with existing data to ensure the consistency and reliability of the findings. On the other hand, to ensure the validity of the findings in the study, several strategies are applied, including source triangulation (comparing data obtained to see the consistency of information) and technical triangulation (comparing interview data with findings from observations and documentation).

RESULT

This research produces rich and layered findings about the implementation of the Double Track Program in high schools when viewed from the perspectives of various stakeholders or teachers and students. The data analysed came from classroom observations, in-depth interviews, and documentation studies (curriculum, schedules, and activity reports). The results are presented according to the CIPP framework with an emphasis on the differences in experience and judgment between actors as well as the positive and negative consequences that arise during implementation.

Context

At the level of context, the results suggest that the Double Track Program is seen as an initiative aimed at providing students with supplementary practical skills alongside their general academic learning. The majority of students perceived the program as an alternative way to gain practical skills that scholars could use after they graduated from high school, especially if they were not going to pursue any further higher education. One of the students is quoted stating: “the programme gives us some useful skills to use based on what we do next if we don’t go to university”. Teachers too had similar aspirations,

seeing the program as a means to enhance students' employment and self-employment options after secondary school. Teachers at the schools were also larger vision of widening SMA's role with respect to education beyond just academic preparation. For example, one teacher said that "the program should be giving extra skills to students leading into hiring after graduation." However, interview data indicated different perspectives among teachers about the position of vocational learning in SMA. Many of the teachers were not sure where academic focus ends and vocational preparation begins in senior high schools. One teacher stated that "there is still confusion about whether SMA should focus mainly on academic achievement or also prepare students with vocational skills." Document analysis further showed that although policy documents formally support the implementation of the Double Track Program, operational guidelines related to competency standards, industry collaboration, and implementation mechanisms were not consistently detailed across schools.

Input

The findings concerning the input component reveal various limitations tied to teacher competence, learning facilities, curriculum structure, and program funding. Data from interviews revealed that a significant number of teachers tasked with vocational instruction lacked formal educational backgrounds in vocational training or professional certifications relevant to the fields they were teaching. One teacher shared, "My educational background is primarily in academics, which means I still require further training to effectively teach vocational practice." Educators also conveyed the importance of receiving technical training, teaching modules, and practice guidelines that better align with industry standards. Observations in classrooms indicated that practical learning activities across various schools were carried out with restricted access to equipment and facilities. In certain instances, practical sessions depended on demonstrations or simulations due to the unavailability of industry-standard tools and materials. A student shared that "at times, we rely on demonstrations for practice due to the limitations of our equipment." The curriculum documents revealed that vocational learning was thoughtfully woven into the students' current academic schedules. A number of students expressed challenges in balancing their academic studies with vocational practice, largely due to the demanding nature of their learning schedule. A student expressed that "we have academic classes and vocational practice simultaneously, which makes our schedule quite packed." The financial documents indicated that the operational funding addressed only a portion of the program's requirements, especially in terms of practical equipment and consumable materials. This shortfall led to necessary financial adjustments at the school level.

Process

The findings regarding the process component highlight the differences in how vocational learning activities are carried out in various schools. It was observed that vocational sessions typically took place after regular academic hours or were arranged on designated days. Consequently, a number of students shared their experiences of increased learning hours while participating in the program. A student remarked that "vocational practice typically takes place after regular classes, which means we often return home later than usual." During classroom activities, the primary teaching methods noted were demonstrations and straightforward practical exercises. Only a few schools have implemented project-based learning and field practice that involve real industrial

settings. Data from interviews and documentation revealed that monitoring and evaluation activities took place on a regular basis, though the methods of assessment varied from one school to another. Vocational assessment typically focused on the tangible outcomes of students' work or their engagement in activities, rather than relying on standardized competency rubrics. The level of industry involvement differed across various schools. Educators also shared insights about the extra demands they face in planning vocational learning activities in addition to their usual academic duties. A teacher shared that "organizing vocational practice sessions demands extra preparation time, as we also manage our regular academic teaching duties."

Product

The results regarding the product component suggest that students developed fundamental practical skills by engaging in the Double Track Program. Students shared that they acquired valuable experience in product creation, technical practice, and service-related activities aligned with their vocational specialization. A student shared, "This program taught me how to create simple products and directly apply practical skills." Teachers noted a rise in student engagement during vocational learning activities, especially among those who showed a greater enthusiasm for hands-on learning experiences. Documentation from the school indicated that certain student creations were showcased or promoted both within the school and in the nearby community. Nonetheless, the findings from both the interviews and document analysis revealed that the vocational competencies gained through the program lacked formal certification. A student shared, "While we do receive practical training, there is no official competency certificate provided upon completing the program." Many students shared their experiences of struggling to manage vocational activities alongside their academic duties, especially during exam times. A student expressed that "it becomes challenging to balance time between vocational assignments and studying for academic exams." Moreover, several teachers voiced their worries about the program's sustainability, particularly concerning the continuity of funding and the establishment of lasting partnerships with industry.

On the negative side, there are indications of a decline in academic performance for some students who have difficulty dividing their time between academic and vocational workloads, this is particularly the case for students who follow intensive vocational packages at the same time as preparing for national examinations/college entrance selection. In addition, some students felt that vocational learning was less relevant or in-depth due to the lack of real industrial practices and materials that had not been adapted to the local needs of the job market. In addition, most students still do not fully understand the purpose of the program. School teachers also expressed concerns about the sustainability of the program if financial support and partnerships were not strongly established.

When summarized based on participants' experiences. Students appreciate the opportunity to learn new skills but want more tangible practice, certification, and timings that do not interfere with academic studies, teachers appreciate the pedagogical value of the program but require training, realistic workloads, and infrastructure support; principals see strategic potential but assess the need for clear operational policies and funding, industry partners appreciate the initiative but require competency standards and student readiness for cooperation to be productive. Observation and documentation supported the consistency of these findings through evidence of existing practices,

implementation schedules and activity reports. Overall, the results show that the Double Track Program in high schools produces real added value in the form of practical skills, increased self-confidence, and entrepreneurial potential in some students, however, the effectiveness of the program is still limited by issues of teacher readiness, limited infrastructure, curriculum design that adds to the burden on students, weak certification mechanisms, and inadequate industry involvement. These findings provide a detailed picture of the factors that support and hinder the achievement of program objectives, as will be the basis for the discussion and policy recommendations.

DISCUSSION

The results show complex dynamics related to the implementation of the Double Track Program in senior high schools (SMA). From the perspectives of students, teachers, and principals, the program has positive potential in providing additional practical skills, but it also presents quite serious challenges especially in relation to identity, curriculum load, resource readiness, and the main purpose of education in SMA. This discussion seeks to outline these findings within a conceptual and educational policy framework, considering the effectiveness of the program in the context of national education goals.

First, when viewed from the purpose of education in SMA, the existence of the Double Track program poses a dilemma (Ul Jannah et al., 2025). SMA is conceptually designed as an academic level of education that is oriented towards preparing students to continue their studies to higher education (Makrydakis et al., 2025). This is affirmed in the national curriculum document, where SMA emphasizes mastery of science, literacy, and high-level thinking skills (critical thinking, problem solving, scientific reasoning). Meanwhile, vocational education is the main domain of Vocational High Schools (SMK), which aims to equip graduates with practical skills and work readiness (Aryawan, 2023; Putra, 2024). When SMA tries to combine these roles through the Double Track Program, there is a potential overlap of functions with SMK. This condition can lead to orientation confusion, both among students, parents, and the community, about what exactly is the priority achievement of SMA graduates (Zainuddin et al., 2015).

Secondly, from the input and process aspects, the results show that the readiness of human resources and infrastructure is still a fundamental problem. Most vocational teachers do not have the appropriate vocational background, so despite brief training, their competence has not been able to meet industry standards. This is in line with the findings of Alfiyah et al. (2022) who emphasized the need for competent educators for vocational learning to be effective. On the other hand, practice facilities are also not yet supportive, so vocational learning tends to be limited to simple practices in school laboratories (Farran & Nunez, 2025). As a result, the skills acquired by students are basic and cannot be formally recognized in the world of work due to the lack of competency certification (Evawati et al., 2024).

Third, in terms of curriculum, the integration of academic and vocational pathways in senior high schools creates a double burden for students (Li & Gao, 2025). Field data shows that there are students who experience a decline in academic performance because they must divide their focus on two types of learning that have different characteristics. This raises a serious question: can the academic goals of SMA still be achieved if the vocational program is run in parallel and intensively? Regulatory ambiguity and policy ambiguity between SMA and SMK have the potential to weaken the effectiveness of secondary education programs (Kartika et al., 2024). In this context,

the effectiveness of the Double Track Program in SMA seems to be achievable only if the curriculum design is flexible, differentiative, and selective, so as not to add excessive burden on all students (Almeida-Albuja & Castillo-Bustos, 2025).

Fourth, from the product dimension, although there is a positive impact in the form of increased basic skills, self-confidence, and entrepreneurial potential on some students, these results are uneven and tend to be unsustainable. Some students feel helped by the additional skills, especially for those who do not plan to continue their education to college (Magfiroh & Wahono, 2024). However, academically oriented groups of students feel burdened and consider the program to be a distraction from their focus on getting into university. This finding suggests that there is a segmentation of student needs in senior high schools that should be considered in program implementation. Without differentiation of participants, the Double Track Program has the potential to reduce the effectiveness of education in both academic and vocational pathways (Ozer & Perc, 2020).

Fifth, the findings related to industry involvement show that the existing cooperation is still very limited. In fact, in the theory of vocational education, the involvement of the business world and the industrial world (DUDI) is a key factor in ensuring the relevance of the skills acquired by students to the needs of the labour market. Without systematic and sustainable partnerships, vocational programs in senior high schools will only stop at providing basic skills that are less applicable in the real world (Fitrian & Sugiyono, 2020; Sumaryanto et al., 2023). This also confirms that the effectiveness of Double Track is influenced by external support, not just internal school factors (Fletcher et al., 2021).

Based on the description above, the effectiveness of the Double Track Program in high school can be said to be conditional (Firman, 2025). The program is effective only if it is implemented by paying attention to several important aspects: (1) the program must be selectively aimed at students who need an alternative vocational pathway, not applied equally to all students, (2) the curriculum must be flexible so as not to sacrifice the academic objectives of SMA, (3) the readiness of teachers and facilities must be met through training and procurement of adequate facilities, (4) industry involvement must be strengthened so that the skills acquired are relevant and have value in the job market, and (5) national policies must emphasize the differentiation of the functions of SMA and SMK, so that there is no confusion of the identity of secondary education institutions.

Thus, academically, it can be concluded that the Double Track Program does provide positive opportunities in enriching student competencies, but under current conditions it cannot be said to be fully effective in SMA. Without a differentiative policy, resource support, and a clear implementation mechanism, this program risks blurring the orientation of high school education and failing to meet the vocational competency standards that vocational schools already have. Therefore, the main recommendation of this study is the need to re-evaluate the policy design, target segmentation, and resource support so that the program can run in line with the objectives of secondary education in IndonesiaBased on the study's findings, a new set of policies is needed to define and promote the complementary functions of SMA and SMK so that the Dual Track Program can be fully realized. To improve the competency of vocational teachers, policymakers must prioritize teacher professional development through ongoing training. This will further ensure that vocational education becomes more applicable, practice-oriented, and aligned with labor market demands. Furthermore, it is crucial to improve practice facilities and expand collaboration with industry. The Dual Track Program has the

potential to become a dynamic and beneficial model for secondary education if implemented effectively. In this digital economy era, this program is expected to become a long-term model for secondary education in Indonesia, helping to raise the standard of Indonesian human resources.

CONCLUSION

The results of the evaluation of the Dual Track Program in senior high schools using the CIPP model show that the program has strategic potential in improving student competencies through the integration of academic and vocational learning. However, its effectiveness is still partial and depends on the availability of resources, policy clarity, and institutional support. From a context perspective, the program is in line with the goal of improving 21st century skills and employability of graduates, but functional ambiguity between SMA and SMK still exists, potentially obscuring the academic mission of SMA. In terms of inputs, the main challenges include limited competence of vocational teachers, inadequate practice facilities and insufficient funding. Regarding the process, implementation varies from school to school, characterized by local innovations and operational bottlenecks. The heavy curriculum load and limited time allocation also contributed to student fatigue and decreased academic performance. From the product dimension, although improvements in basic skills and self-confidence are evident in some students, these results are still uneven and not supported by formal certifications that validate competencies in the labor market.

This study is limited by its evaluative scope, which focuses on implementation outcomes within a specific timeframe and may not capture the longitudinal impact of the Dual Track Program. Variations in regional contexts and school capacity were also noted. Furthermore, stakeholder engagement was not comprehensively examined. Future research should employ mixed methods or a longitudinal approach to evaluate the long-term impact on student employability and academic outcomes. Furthermore, a comparative study between the Dual Track Program for SMA and SMK could yield deeper insights into institutional differentiation and the sustainability of vocational integration in general education.

Authors Contribution

H.W. and P.H.P. conceptualized the study. P.H.P. conducted the formal analysis and prepared the original draft. T.W.H., S.H., and S.S. contributed to the methodology, data interpretation, and manuscript review. S.O.A. and L.A.N. assisted with data collection and curation. All authors reviewed, revised, and approved the final manuscript.

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Competing interests

The author has declared that there are no conflicts of interest

Data availability

The data were provided upon request to corresponding author (putra.hilmi.fe@um.ac.id)

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