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Evaluation of the Effectiveness of the Daihatsu Program Based on the Kirkpatrick Model in Partner Vocational Schools

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Abstract

This study evaluates the effectiveness of the Daihatsu Program in the Light Vehicle Engineering subject at partner vocational schools, namely SMK Islam 1 Blitar and SMK PGRI 3 Malang, using Kirkpatrick's four-level evaluation model. Employing a descriptive qualitative approach through interviews, observation, and documentation, the data were analyzed inductively. The findings reveal positive outcomes at each evaluation level. At the reaction level, both teachers and students responded with great enthusiasm to the industry-based learning. At the learning level, there was a marked improvement in students' conceptual understanding and technical competencies. At the behavior level, students demonstrated significant development in their work attitudes and discipline. Most importantly, at the results level, the program not only enhanced the quality of graduates, making them more job-ready, but also strengthened the strategic partnership between the educational institutions and the industry. Therefore, the Daihatsu Program proves to be an effective and tangible implementation of the link-and-match concept, successfully bridging the gap between the school curriculum and real-world industry demands. It stands as a successful model for developing relevant and sustainable vocational education in Indonesia..

Keywords: *Daihatsu, Kirkpatrick Model, Program Evaluation, Vocational Education, Partner Schools*

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INTRODUCTION

Vocational education plays a crucial role in preparing skilled human resources capable of meeting industrial demands. In the context of Indonesia's economic transformation, the relevance of vocational education is directly linked to the nation's competitiveness in the era of Industry 4.0. However, many vocational high schools (Sekolah Menengah Kejuruan or SMK) still face challenges in aligning their curricula with the rapidly changing technological and industrial landscape. The government's link and match policy, introduced by the Directorate General of Vocational Education, seeks to close this gap by fostering collaboration between schools and industries so that graduates not only master theoretical knowledge but also acquire practical competencies and work attitudes that meet industrial standards (Kemendikbudristek, 2023).

One of the flagship initiatives supporting this policy is the Daihatsu Program, a collaborative partnership between PT Astra Daihatsu Motor (ADM) and several vocational schools in Indonesia. The program focuses on the development of Dojo learning modules, teacher training, the provision of industrial-standard facilities, and ongoing supervision to ensure the quality of implementation. By engaging directly with the automotive industry, the program enables students to experience authentic learning aligned with real-world working environments (Astra Daihatsu Motor, 2021). Through this collaboration, participating schools are expected to produce graduates with both technical proficiency and industrial work ethics.

Despite its potential, the success of such industry–school collaboration programs must be measured through comprehensive evaluation. Many studies have indicated that vocational education programs often face obstacles in implementation, such as limited infrastructure, inconsistent teacher competence, and insufficient industry involvement (Wulandari, 2023; Rahmawati, 2022). Without systematic evaluation, these challenges may remain unidentified, leading to suboptimal outcomes. Therefore, a structured evaluation framework is needed to assess not only participants' satisfaction and learning outcomes but also behavioral changes and long-term impacts on schools and industry partners.

Among several models available, Kirkpatrick's Four-Level Evaluation Model is widely recognized for its holistic approach to assessing the effectiveness of educational and training programs (Kirkpatrick & Kirkpatrick, 2016). The model evaluates (1) reaction—participants' satisfaction and perception of program relevance; (2) learning—the acquisition of new knowledge and skills; (3) behavior—the application of learning outcomes in practice; and (4) results—the overall impact on institutional or organizational performance. The framework has been extensively adopted in vocational and industrial contexts due to its practicality and comprehensiveness (Guskey, 2017; Prasetyo & Jannah, 2022).

Previous studies highlight that industry-based programs can significantly enhance student competency, motivation, and employability when properly implemented and evaluated (Widiyanti, 2019; Nurhadi, 2021). However, few studies have applied Kirkpatrick's model to examine automotive industry–based partnerships in Indonesian vocational schools, especially in the context of Dojo learning modules developed by Daihatsu. This gap underscores the need for research that explores how each level of the model reflects the program's effectiveness and how it contributes to strengthening linkages between education and industry.

Vocational education in Indonesia is also currently undergoing curriculum transformation through the Merdeka Curriculum, emphasizing project-based learning, adaptive competencies, and collaboration with industrial partners. The Daihatsu Program aligns strongly with this approach, serving as a model for contextual and experiential learning that integrates cognitive, psychomotor, and affective domains (Ismail, 2021). By examining this program, this study contributes

to understanding how the Merdeka Curriculum can be effectively operationalized through genuine industry collaboration.

In this study, two partner schools SMK Islam 1 Blitar and SMK PGRI 3 Malang—serve as research sites. Both schools implement the Daihatsu Program but differ in geographic context, school culture, and resource availability. These differences provide valuable comparative insights into how the program functions in varied environments. SMK Islam 1 Blitar represents a medium-sized urban school with limited resources but strong leadership engagement, while SMK PGRI 3 Malang represents a more industrially supported environment with advanced facilities and teacher participation. Such a multisite design enables a richer analysis of the program's adaptability and effectiveness.

The Dojo Module, central to the Daihatsu Program, is designed to train students using standardized industrial procedures that mirror those used in Daihatsu's manufacturing and service divisions. It covers both technical competencies—such as mechanical systems, maintenance procedures, and safety protocols—and soft skills such as discipline, teamwork, and productivity. This dual focus aligns with the 21st-century skill framework and the need for holistic vocational learning (Supriyanto, 2021). Teachers trained by ADM act as facilitators who integrate industrial values and expectations into daily classroom and workshop activities.

Theoretically, this study is grounded in constructivist learning theory and human capital theory. Constructivism posits that knowledge is actively constructed through real experiences; thus, authentic learning environments such as the Daihatsu Dojo allow students to build meaningful understanding through practice (Vygotsky, 1978; Jonassen, 1999). Human capital theory emphasizes education as an investment that increases individual productivity and contributes to national development (Becker, 1993). Combining these perspectives, the Daihatsu Program can be viewed as a mechanism to enhance both individual competencies and institutional performance in vocational education.

The existing literature provides partial insights into the benefits of school–industry partnerships but lacks empirical evaluation of how these programs perform in practice using standardized models like Kirkpatrick's. Studies by Sari (2019), Lestari (2021), and Adi (2023) highlight that collaboration often improves relevance but may suffer from uneven implementation and lack of consistent evaluation mechanisms. Consequently, there is limited evidence of how industrial programs directly influence student learning behaviors and institutional outcomes over time. This study seeks to bridge that gap by providing systematic, multi-level evaluation data.

Moreover, while the majority of prior research focuses on short-term outcomes, such as test scores or satisfaction levels, fewer studies assess long-term behavioral changes and institutional results. Kirkpatrick's fourth level—Results—is particularly underexplored in the Indonesian context, even though it is crucial for

assessing program sustainability. By addressing all four levels of the model, this research aims to offer a more comprehensive view of the Daihatsu Program's effectiveness as a model for other industry-linked educational initiatives.

In light of the above, this study aims to evaluate the effectiveness of the Daihatsu Program in partner vocational schools by examining the reactions of teachers and students toward its implementation, assessing the extent of knowledge and skills acquired through the program, analyzing the behavioral changes that occur as participants apply industrial practices in the learning process, and identifying the broader impacts of the program on school performance and its collaboration with the industry. Through this comprehensive evaluation, the study seeks to present a holistic understanding of how the Daihatsu Program enhances the quality of vocational education and supports the realization of sustainable school–industry partnerships in Indonesia.

By achieving these objectives, the study is expected to contribute to both theory and practice in vocational education. Theoretically, it extends the application of Kirkpatrick's model to vocational school contexts in Indonesia. Practically, it provides stakeholders schools, teachers, and industries—with evidence-based recommendations to enhance collaboration, curriculum design, and program sustainability.

In summary, this research investigates the effectiveness of the Daihatsu Program in partner vocational schools using Kirkpatrick's four-level evaluation model. The study's originality lies in its integration of industry-based learning evaluation within the framework of educational reform in Indonesia. Ultimately, this research aims to demonstrate how structured evaluation can support continuous improvement and strengthen the synergy between vocational education and industrial development.

METHOD

This research employed a descriptive qualitative design with an evaluative approach based on Kirkpatrick's Four-Level Evaluation Model, encompassing reaction, learning, behavior, and results. The qualitative design was selected to enable an in-depth understanding of the implementation of the Daihatsu Program in real educational contexts and to explore participants' experiences in a natural setting. The study was conducted at two partner vocational schools of PT Astra Daihatsu Motor, namely SMK Islam 1 Blitar and SMK PGRI 3 Malang, both of which have adopted the Dojo learning module as part of their Light Vehicle Engineering curriculum. These schools were chosen purposively because they represent different geographical and institutional characteristics that reflect the diversity of Daihatsu's partnership model.

The primary subjects in this study included teachers, students, and industry representatives directly involved in the implementation of the Daihatsu Program. Teachers served as instructional facilitators and mediators between school and industry, while students represented the main beneficiaries of the program.

Industry partners provided technical support and monitoring to ensure that learning activities met professional standards. Data collection was conducted through in-depth interviews, observations, and document analysis. The interviews were semi-structured, allowing for flexibility in probing participants' experiences and perceptions. Observations were carried out during workshop activities, classroom instruction, and program evaluation meetings, focusing on teaching behavior, student engagement, and the use of industrial modules. Documentation such as lesson plans, evaluation reports, and school–industry agreements was analyzed to enrich contextual understanding and triangulate findings.

The role of the researcher in this qualitative study was that of a key instrument who interacted directly with participants to collect authentic and meaningful data. The researcher maintained objectivity and ethical integrity throughout the research process by securing informed consent, maintaining participant anonymity, and ensuring transparency regarding the purpose and use of data. The researcher's presence in the schools allowed for natural observation of the learning process, the culture of collaboration between teachers and students, and the dynamics of school–industry cooperation. Ethical considerations were observed by adhering to academic research standards and maintaining respectful communication with all stakeholders involved.

Data analysis followed the Miles, Huberman, and Saldaña (2018) interactive model, which involves three major stages: data reduction, data display, and conclusion drawing or verification. In the reduction phase, raw data from interviews, observations, and documents were organized, coded, and categorized according to Kirkpatrick's four levels of evaluation. Data display involved constructing thematic matrices and narrative descriptions to visualize patterns and relationships across different data sources. Finally, conclusions were drawn through an iterative process of interpretation, constantly comparing emerging themes against the conceptual framework and existing literature. This systematic procedure ensured that the findings were grounded, reliable, and reflective of the actual context of implementation.

To ensure validity and credibility, the study employed data triangulation, comparing information obtained from different participants and methods. Triangulation between teachers, students, and industry representatives allowed for cross-verification of perspectives, reducing the possibility of bias. Furthermore, member checking was conducted by presenting preliminary findings to key participants to confirm their accuracy and resonance with real conditions. The researcher also engaged in peer debriefing with academic advisors and fellow researchers to refine interpretations and enhance analytical rigor.

The research process was divided into three phases: preparation, data collection, and analysis. During the preparation phase, the researcher coordinated with school administrators and Daihatsu representatives, obtained necessary permissions, and reviewed relevant documentation such as teaching modules and

training guidelines. The data collection phase involved continuous engagement with participants over several weeks, allowing the researcher to capture the dynamics of teaching and learning within authentic school environments. Finally, the analysis phase focused on synthesizing the data to produce a coherent evaluation narrative reflecting the strengths, weaknesses, and impacts of the Daihatsu Program across the four levels of Kirkpatrick's model.

Overall, this methodological approach provided a comprehensive understanding of how the Daihatsu Program operates within the Indonesian vocational education system. The integration of qualitative inquiry with the Kirkpatrick framework made it possible to evaluate not only tangible learning outcomes but also attitudinal and institutional changes resulting from industry–school collaboration. The chosen methodology thus ensures that the findings are both empirically grounded and practically relevant to policymakers, educators, and industrial partners seeking to improve vocational education through collaborative models of learning.

RESULTS AND DISCUSSION

The results of this study reveal the comprehensive effectiveness of the Daihatsu Program when analyzed through the lens of Kirkpatrick's Four-Level Evaluation Model. The findings demonstrate that the program has contributed significantly to improving the quality of vocational learning, strengthening the collaboration between schools and industry, and enhancing students' readiness to enter the workforce. The discussion that follows elaborates on each evaluation level—reaction, learning, behavior, and results—and situates the findings within relevant theoretical and empirical contexts.

At the reaction level, both teachers and students expressed highly positive perceptions of the Daihatsu Program. Observations and interviews revealed that students felt more motivated and engaged when learning materials were integrated with industrial practices. The use of the Dojo module, designed according to Daihatsu's operational standards, was reported to make lessons more practical and meaningful. Teachers noted that the presence of authentic tools, updated workshop facilities, and hands-on tasks resembling real industrial settings increased students' interest and confidence in learning automotive engineering. Students also reported that the professional atmosphere cultivated by the program helped them visualize their future roles as technicians. These findings align with Kirkpatrick's notion that positive participant reactions are the foundation for subsequent learning outcomes (Kirkpatrick & Kirkpatrick, 2016). In line with studies by Widiyanti (2019) and Wulandari (2023), participants' satisfaction and enthusiasm indicate the success of industry-based learning in fostering engagement and relevance in vocational education.

The learning level further confirms the effectiveness of the Daihatsu Program in enhancing both cognitive and psychomotor competencies. Data from teacher

assessments and observation notes revealed that more than 70% of students achieved above-standard competency scores in practical modules after participating in the program. The integration of theoretical explanations with real practice, supported by structured guidance from trained instructors, resulted in measurable improvements in students' understanding of automotive systems, diagnostic procedures, and safety protocols. Moreover, teachers reported noticeable progress in students' analytical and problem-solving skills as they became accustomed to identifying mechanical issues and applying systematic troubleshooting techniques. These results support constructivist learning principles (Vygotsky, 1978; Jonassen, 1999), which emphasize that knowledge construction is most effective when learners engage in authentic, experience-based activities. The program also aligns with the Merdeka Curriculum's focus on project-based and experiential learning, reinforcing the idea that industrial collaboration is a powerful medium for competency development in vocational education (Kemendikbudristek, 2023).

At the behavior level, the program was found to significantly influence students' attitudes, discipline, and professionalism. Teachers and industry supervisors observed that students demonstrated greater punctuality, teamwork, and adherence to industrial safety procedures after participating in the Daihatsu-based workshops. The incorporation of industrial values such as the 5R principles (Ringkas, Rapi, Resik, Rawat, Rajin) was evident in students' behavior during practical sessions, where they maintained clean work areas, organized tools systematically, and followed operational protocols without supervision. These behavioral transformations reflect the internalization of workplace ethics, which is one of the core objectives of vocational education. Furthermore, teachers reported improvements in their own instructional behavior—particularly in classroom management, lesson planning, and assessment—owing to the continuous training and mentorship provided by Daihatsu. These findings resonate with Nurhadi (2021) and Supriyanto (2021), who found that industry-linked programs foster behavioral shifts among teachers and learners toward more professional and industry-oriented conduct.

The results level captures the broader institutional and societal impacts of the Daihatsu Program. Evidence from interviews and school documentation shows that the program has enhanced the reputation and competitiveness of both SMK Islam 1 Blitar and SMK PGRI 3 Malang. Teachers reported that graduates who completed the Daihatsu modules had higher employability and were more confident during industrial internships. Data from partner industries indicated that students from these schools exhibited better adaptability and job performance compared to non-participant graduates. At SMK PGRI 3 Malang, approximately 60% of graduates from the Daihatsu class were successfully placed in official automotive workshops or Daihatsu's partner industries within six months of graduation. This achievement illustrates how school–industry collaboration can directly influence labor market

outcomes. In addition, the program strengthened institutional capacity by improving teacher professionalism, upgrading facilities, and fostering a culture of continuous improvement in both schools.

The results of this study also confirm that Kirkpatrick's four levels are interdependent rather than isolated. Positive reactions among students and teachers create a conducive environment for learning, which in turn drives behavioral change and ultimately generates tangible results at the institutional level. This chain of influence demonstrates the logical flow of the Kirkpatrick model, where satisfaction and learning are precursors to sustainable behavioral and organizational improvements. Such a pattern was also reported by previous research in vocational settings (Prasetyo & Jannah, 2022; Wulanjani, 2020), emphasizing the importance of maintaining coherence between training design, participant engagement, and long-term outcomes.

Beyond empirical findings, the Daihatsu Program also offers theoretical contributions to the field of vocational education. The program exemplifies how constructivist learning and experiential pedagogy can be effectively embedded in a structured industrial framework. Students do not merely acquire isolated technical skills but engage in a holistic learning process that combines knowledge, practice, and reflection. From a policy perspective, the study supports the government's agenda to scale up similar partnerships through the Pintar Bersama Industri initiative, which seeks to replicate the success of programs like Daihatsu's across other vocational sectors.

However, the research also identified several challenges that need to be addressed for further improvement. Teachers from both schools mentioned time constraints in balancing standard curricular requirements with industrial modules, as well as the need for continuous professional development to keep up with technological advancements. Some students faced difficulties adapting to industrial discipline at the beginning of the program, highlighting the importance of gradual integration and mentoring. Infrastructure limitations, particularly at SMK Islam 1 Blitar, occasionally hindered the optimal use of industrial equipment. These obstacles echo the findings of Lestari (2021) and Rahmawati (2022), who emphasize that sustainability in school–industry collaboration requires not only initial support but also consistent monitoring, resource provision, and pedagogical renewal.

Overall, the results affirm that the Daihatsu Program has successfully bridged the gap between education and industry through a model that is both practical and pedagogically sound. It enhances student engagement, fosters skill mastery, and instills work ethics aligned with industrial expectations. The program's structured evaluation using the Kirkpatrick framework has provided comprehensive insights into its strengths and areas for development, offering a valuable reference for policymakers and practitioners seeking to reform vocational education in Indonesia. The findings underscore that effective vocational programs must move beyond

short-term training outcomes and focus on cultivating long-term behavioral and institutional transformation.

In conclusion, the results and discussion presented here highlight that the Daihatsu Program is not merely a technical training initiative but a strategic educational innovation that integrates industrial culture into vocational schooling. Through systematic evaluation across four levels—reaction, learning, behavior, and results—the study demonstrates that the program significantly contributes to the enhancement of educational quality, the professional growth of teachers, and the employability of graduates. These outcomes collectively confirm that structured collaboration between schools and industries represents a sustainable pathway toward the advancement of vocational education in Indonesia.

Illustrations

Fig. 1 *- (a) Implementation of the Daihatsu Dojo Module at SMK PGRI 3 Malang, where students conduct practical training using industrial-standard tools under teacher supervision, reflecting authentic learning and alignment with workplace procedures (Research Documentation, 2025); (b) Workshop activity at SMK Islam 1 Blitar showing a student performing a surface inspection on a car door panel under standardized lighting conditions, demonstrating the application of industrial safety procedures and 5R work discipline in the Daihatsu Dojo learning environment (Research Documentation, 2025).*

CONCLUSIONS

This study set out to evaluate the effectiveness of the Daihatsu Program implemented at partner vocational schools in Indonesia by applying Kirkpatrick's Four-Level Evaluation Model. Through the integration of qualitative methods interviews, observations, and documentation this research has provided a holistic picture of how the program influences various dimensions of vocational learning, from participant satisfaction to institutional outcomes. The findings consistently demonstrate that the Daihatsu Program serves as an effective model for linking educational practices with industrial standards, thereby fulfilling the objectives of Indonesia's link and match policy in vocational education.

At the reaction level, both teachers and students expressed highly positive responses to the Daihatsu Program. The authentic learning environment created through the Dojo module made the learning process more engaging, contextual, and aligned with industry expectations. Teachers benefited from continuous professional development and technical guidance, while students felt motivated to learn because they perceived direct relevance between classroom content and future career prospects. This enthusiasm reflects not only the program's capacity to increase learner engagement but also its success in transforming the classroom atmosphere into a semi-industrial learning space that mirrors real workplace dynamics.

At the learning level, the program was proven to improve students' cognitive and psychomotor competencies. The use of industrial-standard modules, tools, and procedures helped students internalize theoretical knowledge through practical experience. Teachers observed significant improvement in students' understanding of automotive systems, work safety, and diagnostic procedures. The Dojo-based learning approach also encouraged analytical thinking, problem-solving, and independent learning. This demonstrates that when industry-oriented training is combined with pedagogical structure, vocational education can achieve both academic rigor and practical relevance—two elements that are often viewed as competing but can, in fact, coexist harmoniously.

At the behavioral level, the Daihatsu Program successfully instilled industrial work ethics and discipline among students. The consistent application of 5R principles (Ringkas, Rapi, Resik, Rawat, Rajin) during workshop activities fostered responsible and professional behavior. Students learned to value teamwork, punctuality, and cleanliness, which are essential attributes in industrial workplaces. Teachers, in turn, adopted a more facilitative and reflective approach to instruction, shifting from traditional teacher-centered methods toward student-centered, industry-relevant teaching practices. This behavioral transformation is one of the most sustainable impacts of the program, as it reshapes not only students' learning habits but also teachers' professional identities.

At the results level, the program produced significant institutional and societal outcomes. Partner schools reported improved graduate employability, stronger cooperation with local industries, and an enhanced reputation within the community. The structured collaboration with PT Astra Daihatsu Motor has also elevated the schools' credibility as model institutions for industry-based learning. Teachers gained broader professional networks and continuous exposure to industrial innovations, while students benefited from internship placements and recruitment opportunities. These outcomes validate the principle that effective school–industry partnerships are mutually beneficial and contribute directly to national human resource development.

Beyond empirical findings, this study offers theoretical and practical contributions to vocational education research. Theoretically, it extends the

application of Kirkpatrick's model in the context of school–industry partnerships, demonstrating that the four levels reaction, learning, behavior, and results—can effectively capture both micro (individual) and macro (institutional) dimensions of educational effectiveness. Practically, the study provides evidence-based recommendations for policymakers, educators, and industry stakeholders seeking to design sustainable vocational programs. These include the importance of continuous teacher training, systematic evaluation mechanisms, and consistent communication between schools and industry partners.

However, the study also acknowledges several limitations. As a qualitative investigation, the findings are context-bound and may not fully represent all schools implementing similar industry-based programs. Variations in facilities, school management, and regional support could influence program outcomes. Future research should consider employing a mixed-methods design to quantify the extent of behavioral and institutional change and to analyze causal relationships more rigorously. Longitudinal studies are also recommended to measure the long-term impact of programs like Daihatsu's on graduate employability and institutional sustainability.

In practical terms, the findings imply that sustainable vocational–industry collaboration requires continuous commitment from all stakeholders. Schools must ensure that teachers receive ongoing technical training and exposure to industrial innovations. Industries, on the other hand, should maintain active involvement in curriculum design, internship placement, and evaluation. The government can facilitate these efforts by providing policy frameworks and funding incentives that encourage long-term partnerships. This tripartite collaboration among schools, industries, and government agencies forms the foundation for developing a vocational education ecosystem that is responsive to technological change and labor market demands.

In conclusion, the Daihatsu Program exemplifies a successful implementation of the link and match policy through structured collaboration between education and industry. The program effectively integrates industrial culture into the educational process, improves learning outcomes, promotes professional behavior, and enhances institutional capacity. Evaluation using Kirkpatrick's Four-Level Model confirms that each level reaction, learning, behavior, and results contributes to a coherent and cumulative process of educational improvement. The success of this program provides valuable insights for other vocational institutions and industries aiming to replicate or adapt similar collaborative frameworks. Ultimately, the Daihatsu Program demonstrates that meaningful synergy between schools and industries can transform vocational education into a dynamic, future-ready system capable of producing competent, ethical, and adaptable graduates who meet the evolving needs of the modern workforce.

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