

Strengthening Vocational High School Leadership through PAKEM SMK: A Project Action Plan–Based Change Project in Riau Province

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ABSTRACT

Background: Vocational High Schools (SMKs) play an important role in preparing graduates for employment, higher education, and entrepreneurship. In Riau Province, the role of SMKs has become increasingly strategic due to regional growth in the energy, plantation, and creative industry sectors.

Contribution: This study introduces a practice-oriented leadership development approach through the Project Action Plan framework, emphasizing direct implementation of school-based change projects.

Method: This study adopted a Participatory Action Research (PAR) approach involving 25 selected SMK leaders from June to September 2022. The program consisted of leadership training, PAP implementation, and project evaluation.

Results: The program achieved a high satisfaction level, with 96% of participants reporting being “very satisfied” and all participants recommending the program. Evaluation results showed high scores in project planning (M = 2.57), risk identification (M = 2.52), and PAP document organization (M = 2.70).

Conclusion: The PAKEM SMK program demonstrates that combining structured change projects through the PAP framework with continuous mentoring can strengthen leadership capacity and support institutional improvement within SMKs.

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1. Introduction

Vocational High Schools (SMK) are vocational education institutions designed to prepare graduates to directly enter the workforce, pursue higher education, or engage in entrepreneurship [1]. The role of SMK principals and leadership teams is crucial, as they ensure that the institution develops in alignment with its vision and mission [2]–[4]. Therefore, managerial and leadership competencies are key factors for SMKs to effectively produce human resources that meet the demands of the contemporary era.

Leadership has been consistently identified as a decisive factor in the success of educational institutions. An effective school leader functions as an administrator and a driving force for institutional development [5], [6]. Transformational leadership, in particular, has been shown to contribute positively to teacher job satisfaction, motivation, collaboration, and organizational commitment [6], [7]. Nevertheless, empirical findings highlight persistent challenges, such as limited vision, lack of transparency in governance, and insufficient recognition of teachers, which negatively affect organizational stability and school performance [8].

Additional managerial challenges SMK leaders face include the scarcity of productive human resources, inadequate facilities for practical training, and excessive administrative workloads. While managerial competence has been shown to influence teacher performance significantly [9], it does not always directly correlate with overall school performance [10], [11]. External factors, such as linkages with local communities and industry partners (DUDI), also play an essential role. Partnerships with DUDI can strengthen curriculum relevance, facilitate student internships, and enhance graduate employability, although limited resources and weak management practices often hinder sustainable collaboration [12].

In Riau Province, there are 306 vocational high schools (SMKs) spread across 12 regencies and municipalities with diverse geographical conditions, creating disparities in school development across the province [13]. Although graduate employability indicators continue to improve, several indicators related to school leadership effectiveness have shown a declining trend. Despite the provincial Minimum Service Standards (SPM) Index reaching 74.23, students' literacy and numeracy competencies remain at a moderate level, with only around 40% to 70% of students achieving minimum competency standards. In addition, indicators related to SMK partnerships and alignment with industry, learning quality, and school climate have also declined compared to the previous year [13]. These conditions highlight the need to strengthen SMK leaders' managerial capacities to improve the learning environment and sustain graduate competitiveness.

In Indonesia, various studies have explored efforts to strengthen the leadership and managerial capacity of SMK leaders. One study applied a coaching approach using the IGROW concept to support transformational leadership among SMK principals [14]. Other studies focused on strengthening school management activities [15], particularly in relation to industry collaboration [16], [17], teaching performance, and educational practices within vocational schools [18]. In addition, several studies discussed the importance of fostering an

innovation culture in SMKs [19]. However, these studies mainly discussed transformational leadership, school management activities, industry collaboration, teaching performance, and innovation culture in vocational schools. Most of them were still limited to conceptual or descriptive discussions. Studies that involve direct intervention programs and provide a structured approach to help SMK leaders implement sustainable institutional change are still limited. In addition, research on practical leadership capacity development programs specifically designed for SMK leaders remains limited.

To address these challenges and research gaps, PT Pertamina Hulu Rokan WK Rokan (PHR WK Rokan), in collaboration with Politeknik Caltex Riau (PCR), initiated the Strengthening the Vocational Ecosystem in Riau Province [20] program. In Riau Province, the role of SMKs has become increasingly strategic, as the region serves as a hub of economic growth driven by the energy, plantation, and creative industry sectors. This program aims to strengthen the managerial capacity of SMK leaders, empower SMK students' entrepreneurial skills, and certify SMK administrative staff [21], [22]. This study focuses specifically on the capacity development for SMK leaders. The program is conducted through structured change projects that utilize the Project Action Plan (PAP) framework, adapted from the DIES NMT program at Potsdam University, Germany [23], [24]. Therefore, this study aims to examine the implementation of the PAKEM SMK program in enhancing vocational school leadership capacity through the PAP framework. The initiative enhances the managerial capabilities of SMK leaders and is designed to be replicated at the school level, thereby generating tangible impacts on students, teachers, and institutions alike.

2. Method

2.1. Research Design

This study was conducted using a Participatory Action Research (PAR) approach [23]. This approach was selected because participants were directly involved in the planning, implementation, and evaluation processes of the PAPs proposed within the program. The program was implemented in three interconnected, incremental phases. The first phase focused on leadership capacity development and on preparing PAP documents. The second phase involved implementing the PAPs at each participant's school, supported by mentoring and periodic progress monitoring. The third phase focused on reporting and reflecting on the implementation results, including the outputs and outcomes achieved from each PAP.

The evaluation process was carried out throughout the program using multiple data sources, including mentoring records, participant feedback questionnaires, project reports, and follow-up interviews conducted after the program completion. The evaluation aimed to examine participant experiences, implementation challenges, leadership development, and the institutional impacts generated through the change projects.

2.2. Program Implementation Design

The capacity-building initiative for SMKs is introduced under PAKEM SMK (*Penguatan Kapasitas Kepemimpinan SMK*). The program is implemented systematically and in a structured

manner to ensure the achievement of its intended objectives. In general, the stages of program implementation are illustrated in Figure 1.

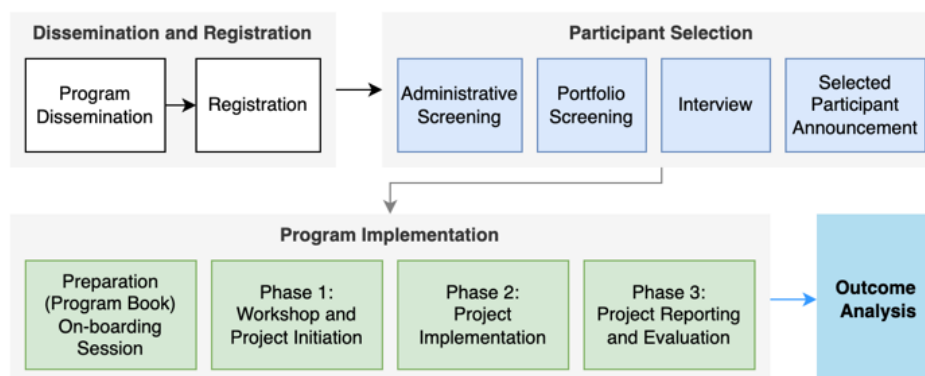


Figure 1. Program stages

The recruitment process for the program was conducted online via social media and WhatsApp groups and was shared with the Riau Provincial Education Office to reach SMK leaders in the PT PHR WK Rokan area. Participants included principals, vice principals, heads of study programs, and unit heads who are teachers in leadership roles. Eligible leaders come from Pekanbaru, Dumai, Siak, Bengkalis, Rokan Hilir, Rokan Hulu, and Kampar. After receiving the information, interested participants needed to register and upload their documents via a specific link.

The selection process had three stages to ensure candidate quality and commitment. First, the administration team conducted an eligibility screening. Next, portfolio assessments and project proposals were evaluated by external examiners and program facilitators. Finally, interviews validated project plans and assessed candidate commitment. Results were announced on the PCR website and Instagram. Selected participants had to sign a consent and commitment form to engage fully in the program, and confirmation was only provided upon return to the organizing committee.

2.3. Program Implementation Plan

As explained previously, this program was implemented using a PAR approach [25]. The detailed activities carried out in each implementation phase are described as follows. Preparation Phase. In this phase, the facilitators developed a detailed program plan presented in a program. The handbook was distributed to participants as a reference for the schedule and technical guidelines, and it also included lists and profiles of the committee, facilitators, and participants to provide comprehensive information and facilitate initial networking. After distributing the handbook, the committee organized detailed accommodations for participants.

Phase 1: Capacity Building Workshop and Change Project Planning, phase 1 focused on problem identification, proposed-solution sessions, and project management using the PAP framework, along with topics on digital transformation and essential tools for it. All activities were conducted as workshops with a collaborative learning approach [26]. Only 30% of the

sessions involved material delivery, while 70% emphasized participant collaboration facilitated by the facilitators. This phase occurred in person at PCR and Grand Jatra Hotel, Pekanbaru, from 20–23 June 2022.

Phase 2: Project Implementation, phase 2 was the implementation stage of the PAP conducted at each SMK from 24 June to 18 September 2022. Implementation was based on the main tasks and supporting tasks designed in the previous phase. Participants received intensive online mentoring from assigned facilitators, with progress evaluated periodically. Each participant was required to prepare progress reports detailing achievements and challenges and present these in the evaluation sessions. Facilitators recorded progress, identified issues, and provided constructive feedback to ensure the project aligned with the PAP framework.

Phase 3: Personal Development, Networking, and Project Reporting, phase 3 was held from 19–22 September 2022 at Aryaduta Hotel Pekanbaru, emphasizing personal development, networking, and evaluation of PAP implementation. Key activities included (1) personal development through personality identification and public speaking, (2) networking with local industries and startups to initiate collaborations with participating SMKs, (3) peer consulting sessions for sharing experiences and identifying alternative solutions, and (4) project presentation sessions. Participants presented the outcomes, challenges, and solutions of their change projects, which served as accountability measures and replicable practices for other SMKs. At the end of this phase, participants completed feedback questionnaires to support program improvement.

2.4. Evaluation Instruments and Analysis

The program evaluation was conducted across all implementation phases using multiple evaluation approaches. In Phase 1, participant satisfaction data were collected using a structured questionnaire comprising Likert-scale and open-ended questions on the workshop materials, facilitators, mentoring process, and overall program experience. In Phase 2, the implementation progress of each PAP was monitored through mentoring reports and periodic progress discussions between facilitators and participants. The Phase 3 evaluation used a performance-based assessment through project presentations conducted before facilitators and evaluators. Participants were assessed based on the implementation of their PAP projects, presentation quality, project outcomes, and their ability to respond to questions and feedback. This approach reflects authentic assessment, as participants demonstrated real implementation results from their respective schools [27]–[29].

Quantitative data from participant satisfaction questionnaires and presentation assessment scores were analyzed using descriptive statistics, including averages and score distributions, to describe participant responses and project performance [30]. Furthermore, the thematic approach was also applied to the qualitative data, such as participants' open-ended questionnaires and mentoring activity results [31].

2.5. Impact Analysis

Impact measurement was conducted in two stages: analysis of project achievements at the end of implementation, and follow-up analysis one year after program completion. The initial analysis was based on participant reports as realizations of their PAP, including project outcomes, successes, and challenges at each SMK. The follow-up analysis assessed how much PAKEM SMK influenced individual participants and their institutions. Data were collected through performance achievements, consolidated records, and in-depth interviews exploring post-program outcomes. All data were analyzed qualitatively and presented in a report as the basis for evaluation and future program development.

3. Results and Discussion

The results and discussion present the research findings and their discussion. Write down the findings obtained from the results of research that has been done, and these must be supported by adequate data. Research results and findings must address the research questions or hypotheses in the introduction. The discussion section needs to be described scientifically. Kindly frame it along the following lines:

3.1. Participant Selection Result

The total number of applicants for the program was 95 leaders. After completing all stages of the selection process, 25 participants were declared successful and eligible to join the program. The participants' demographic details are presented in Figure 2 (left), while their leadership positions within the SMKs are shown in Figure 2 (right).

Figure 2 shows that the program participants came from six districts and cities in Riau Province, with the largest numbers originating from Pekanbaru and Dumai. In terms of positions, the most dominant role was vice principal with 12 participants, followed by principal with 7 participants. In addition, there were also participants serving as heads of the professional certification board (LSP) at their respective SMKs. Figure 2 illustrates the demographic diversity and the variety of leadership positions among the participants.

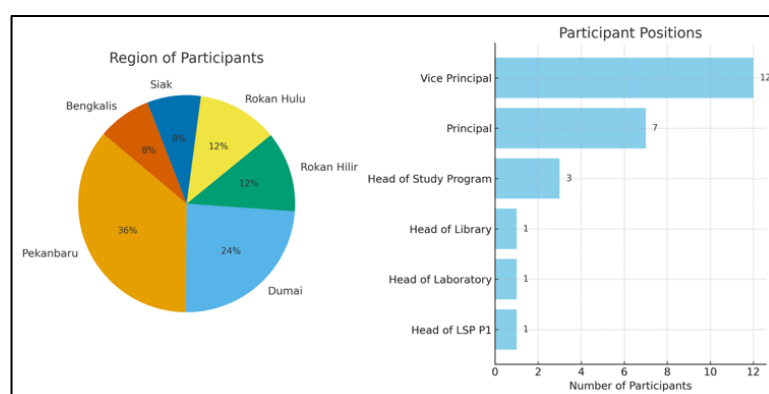


Figure 2. Selection Result, Participant Region (left) and Participant Positions (right)

Furthermore, the program was open to both public and private SMKs, with the distribution of participants shown in Figure 3. According to the data, five principals from

public SMKs and two from private SMKs participated in the program. Meanwhile, among vice principals, seven participants were from public SMKs and five from private SMKs.

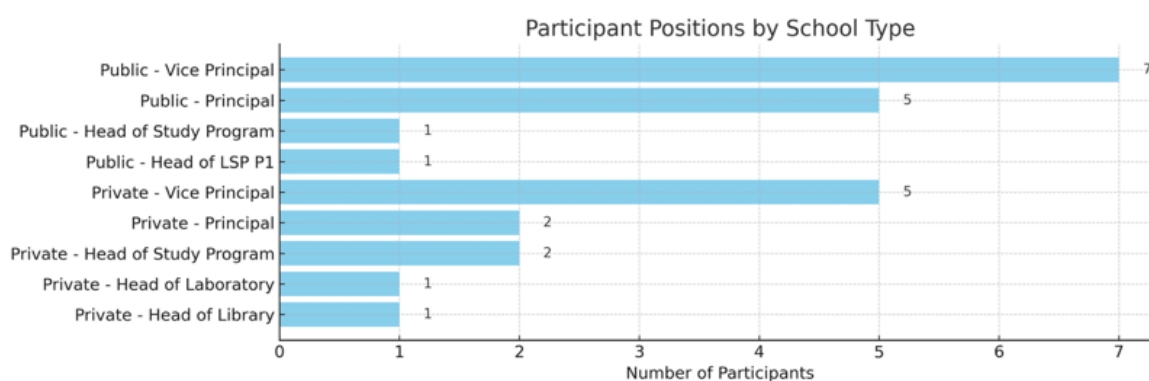


Figure 3. Public and private SMKs

3.2. Preparation Phase

In this phase, a program handbook was produced that contained detailed information on the agenda and the schedule of activities. In addition, the handbook included information about the facilitators, the organizing committee, and the program schedule.

3.3. PAR Phase 1: Capacity-Building Workshop and Change Project Planning

Phase 1 of the Participatory Action Research (PAR) focused on leadership capacity development and collaborative change project planning. During this phase, participants identified and reflected on leadership and institutional challenges experienced in their respective vocational schools, including issues related to human resources, curriculum, infrastructure, governance, and industry collaboration. Through collaborative workshops and peer discussions, participants explored potential solutions and prioritized institutional problems based on urgency and feasibility. The activities are shown in [Figure 4](#) and [Figure 5](#).

Participants were then introduced to the PAP framework as a structured tool for planning institutional change projects. The PAP framework provides a structured approach for leaders to effectively manage projects by outlining tasks, required resources, timelines, and anticipated outcomes, ensuring all elements align with the project's goals. Facilitators assist participants in transforming identified challenges into actionable plans by clearly defining project objectives, implementation phases, expected deliverables, and potential risks involved. In addition, the program emphasized the importance of digital leadership by introducing participants to freely accessible digital tools, including Google Docs, Google Sheets, Google Calendar, Jamboard, and Microsoft Excel, to support school management, communication, collaboration, and data-driven decision-making processes, as shown in [Figure 5](#). The use of these tools encouraged SMK leaders to become more adaptive and responsive in managing educational activities while maximizing freely available digital resources within their schools.

At the end of the activity, participants presented their PAP proposals and received feedback from facilitators and peers to refine their project plans before implementation in their

respective schools. This cycle resulted in various proposed change projects related to school governance, curriculum alignment, digital learning, literacy programs, entrepreneurship, and industry collaboration within vocational schools.



Figure 4. Presentation on the crises to opportunity session



Figure 5. Digital tools for Leaders

The proposed PAP projects reflected the diverse challenges and priorities faced by vocational schools in Riau Province. The projects addressed various areas, including school governance, curriculum alignment with industry, digital learning innovation, literacy development, entrepreneurship programs, teaching factory initiatives, public relations management, and student internship preparation. The list of proposed change projects can be shown in [Table 1](#) and [Table 2](#).

Table 1. Participants change project

School	Change Project Title	Objective
SMKS Erna Dumai	Curriculum Synchronization with PT Pelindo	To align the curriculum with industry needs
SMKS Muhammadiyah 3 Terpadu	Outdoor Study for Fun Learning	To create an enjoyable learning process
SMKS Analisis Kesehatan Yayasan Abdurrah Pekanbaru	Smart Classroom for Digital Learning	To improve digital teaching and learning capacity
SMKN 5 Dumai	Alumni Tracer Study 2022	To collect and document alumni data
SMKS Perbankan Riau	Teacher Assessment Instrument	To evaluate teacher performance for rewards or sanctions
SMKS Analisis Kesehatan Yayasan Abdurrah Pekanbaru	Tabrani Multi-Purpose Station	To develop a self-service library station
SMKN 3 Tanah Putih	Literacy Development and Library Utilization	To improve the literacy skills of students and teachers
SMKN 3 Mandau	Student Internship (PKL) 2022/2023	To ensure practical and organized student internships
SMKS Islam Inayah Ujung Batu	Development of Teaching Factory for Food Processing (APHP)	To strengthen student entrepreneurship skills through product development
SMKN 1 Tambusai Utara	Development of IT Architecture Design	To design the IT room architecture
SMKS Korpri Duri	Guest Teacher Program for Industry Exposure	To introduce students to industry needs and practices
SMKS Migas Teknologi Riau	Development of an Independent Curriculum	To align learning with industry requirements
SMKN 3 Dumai	Curriculum and Teaching Material Alignment with Industry	To prepare curriculum and teaching materials aligned with the industry
SMK Perminyakan Dumai	Establishment of a New Competency Program	To open new competency programs supporting the school vision and competitiveness
SMKN 6 Pekanbaru	IoT Workshop for ICT Teachers and Students	To improve IoT knowledge and skills for teachers and students
SMKN 2 Pekanbaru	Efficiency and Effectiveness of Public Relations through SOP	To ensure PR activities run effectively with SOPs

Table 2. Participants change project

School	Change Project Title	Objective
SMKN 1 Tualang	Bedelaw Business Center	To promote school products
SMKS Muhammadiyah 3 Terpadu	Improving Discipline and Character Education Implementation	To strengthen school discipline
SMK Perikanan Provinsi Riau	Planning the Riau Fisheries Vocational School Expo	To coordinate an expo for school promotion
SMKN 1 Rimba Melintang	Administrative Service Standards	To create benchmarks and guidelines for quality educational services
SMKS Terpadu Ismailiyah Rambah Hilir	Moodle-Based Learning Management System for English Learning	To provide additional media for improving English comprehension
SMKN 1 Rimba Melintang	Teacher-Parent-Student Meetings for Knowledge Mapping and Communication	To build positive relationships and effective communication among teachers, parents, and students
SMK Perikanan Provinsi Riau	Development of Laboratory SOPs at SMKN 5 Dumai	To prepare SOP documents for laboratory practices in several competencies
SMKN 1 Koto Gasib	Workshop on Preparing KKM Documents	To train teachers in preparing and completing KKM documents
SMKN 2 Pekanbaru	Establishing LSP Schemes and Implementation Teams	To align competency tests with industry standards

3.4. PAR Phase 2: Change Project Implementation Phase

At this phase, participants implemented the change projects they had developed in the form of a PAP at their respective SMKs. The implementation process was monitored through mentoring activities that evaluated participants' progress and achievements against the main tasks outlined in the PAP document. The discussions covered the percentage of project completion for the main tasks and milestones, the challenges encountered, and alternative solutions to address them. All mentoring activities were conducted online, during which each participant reported their progress, and the results were documented by facilitators using a prepared document by the program committee. As seen in [Table 3](#), the mentoring process was carried out in detail by aligning predetermined targets with the actual achievements of participants during the mentoring sessions. The table also contains comprehensive notes on the challenges faced and the adjustments made to the PAP during its implementation in each SMK.

Table 3. Sample of mentoring record

Project Title	Target (%) – Achievement (%)	Mentoring 2 Target (%)	Notes
Establishment of Program Scheme and Task Force Team	66.67% - 66.67%	85.71%	During the industry visit, time was limited, and some activities were not fully completed. The company was not open to certain aspects. Effective time management and monitoring could not yet be carried out. There is a possibility of extending until the second mentoring stage.
Curriculum Synchronization of SMK Erna Dumai with PT Pelindo (Persero) Regional Branch Dumai for the Office Automation and Governance Expertise Program	42.86% - 42.86%	100%	Some activities were rescheduled because they involved all expertise programs, specifically for TASK 1. Documentation was completed with photos and minutes. All activities are targeted to be completed by the end of August. If unexpected issues arise, there may be a one-week delay.

3.5. PAR Phase 3: Personal Development, Networking, and Project Reporting

This phase focused on reflection, networking development, and evaluation of the implemented PAP projects. In this phase, participants strengthened their leadership and communication capacity through collaborative activities, including public speaking workshops, peer discussions, and institutional branding sessions [Figure 6](#). The activities encouraged participants to reflect on their leadership experiences and communicate institutional initiatives more effectively.

The program also emphasized the importance of external collaboration and digital leadership in vocational education. Participants engaged in networking activities with local industries, startups, and MSMEs to explore potential partnerships related to student internships, teaching factory initiatives, and curriculum alignment. In addition, participants were encouraged to make full use of freely accessible digital tools, such as Google Workspace applications and Microsoft Excel, to support communication, project coordination, documentation, data management, and school promotion activities.



Figure 6. Change project result presentation

The integration of these digital tools was reflected in several PAP projects, including digital learning initiatives, tracer study systems, smart classroom development, learning management systems, and improvements to administrative services within vocational schools. Lastly, participants presented the outcomes of their PAP implementation before facilitators and evaluators using a performance-based assessment approach. The presentations focused on project implementation, challenges, outputs, outcomes, and institutional impacts achieved at their respective schools. Feedback and reflection sessions were conducted to identify implementation challenges, share good practices, and support the sustainability of future institutional improvement initiatives.

3.6. Change Project Evaluation Result and Analysis

The presentation evaluation rubric was designed to evaluate both the implementation process and the outcomes of participants' PAP projects. The rubric was grouped into three evaluation dimensions: (1) Change Project Implementation, consisting of project planning, clarity of objectives and outcomes, implementation progress, and risk identification; (2) Communication Skills, consisting of oral communication and the ability to respond to evaluators' feedback and questions; and (3) Document Quality, consisting of the organization of PAP documents and the quality of presentation media. This last aspect also reflected participants' ability to utilize digital tools to support project management, documentation, and presentation activities. The assessment was conducted during the project presentations in front of evaluators. The evaluators' evaluation results are presented in [Figure 7](#).

[Figure 7](#) shows that the participants' average scores ranged from 2.17 to 2.70 on a 3-point scale. The lowest average score was for the quality of presentation media ($M = 2.17$), while the highest was for the organization of PAP documents ($M = 2.70$). The high score in the PAP document organization reflects the role of the PAR approach and the structured PAP management practices introduced during Phase 1. These practices were consistently monitored and evaluated throughout Phases 2 and 3, resulting in more organized, traceable project documentation.

In terms of change project implementation, all evaluation aspects obtained average scores above 2.50, including background, objectives, outputs, and outcomes ($M = 2.57$), potential risks and mitigation strategies ($M = 2.52$), and project planning ($M = 2.57$). These findings indicate that participants were generally able to plan and implement their PAP projects effectively. Meanwhile, oral communication during presentations received relatively lower scores ($M = 2.30$), suggesting that presentation and communication skills remain areas for further improvement among participants.

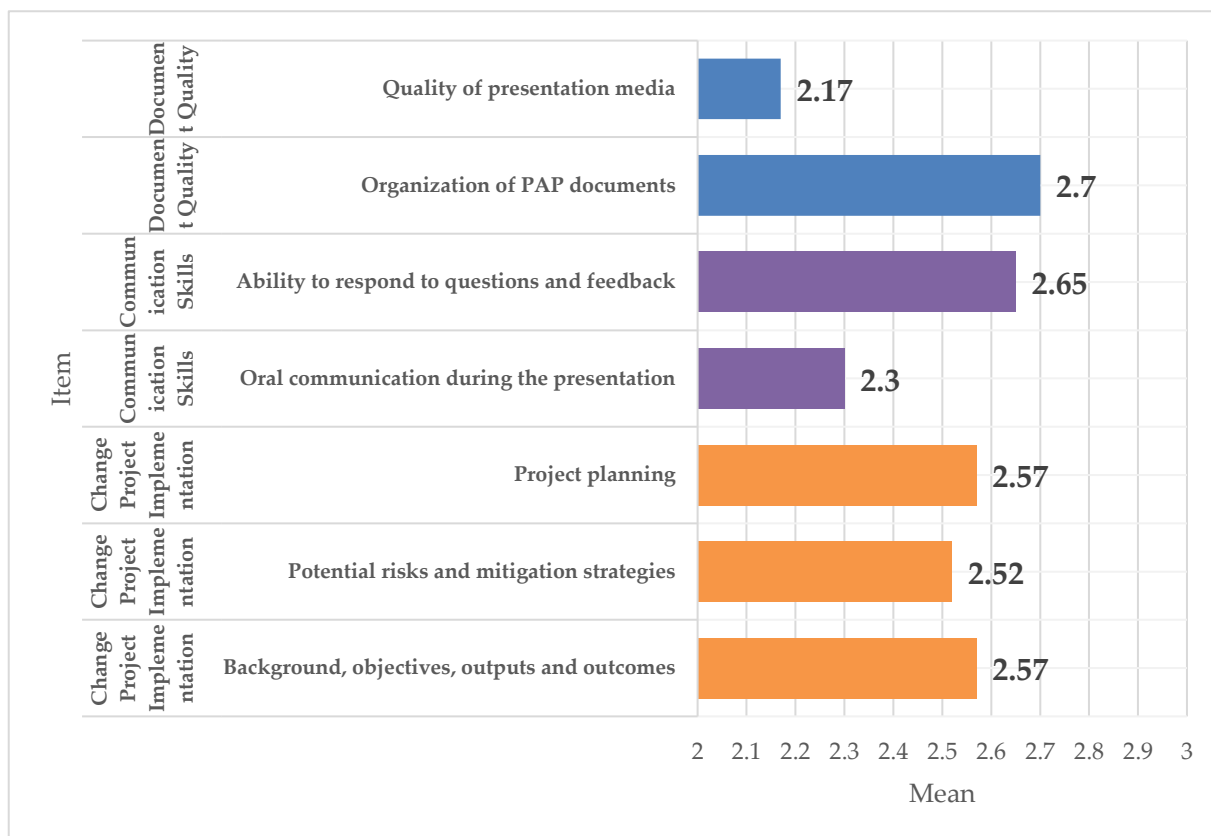


Figure 7. Evaluation result

3.7. Feedback

Based on the feedback survey on the implementation of the PAKEM program, overall participant satisfaction was rated very high. Out of 25 respondents, 23 participants reported being “very satisfied” with the program (92%), while one participant indicated being “satisfied” and another “somewhat satisfied” for phase 1. Notably, no participants expressed dissatisfaction. Consistent with this result, all participants in phase 3 reported being very satisfied; none marked satisfied or below. Improvement in phase 3 is reflected in the survey results. The detailed figure of participant satisfaction is shown in [Figure 8](#).

This high level of satisfaction was further reflected in the average scores across multiple aspects of program implementation. The highest score was recorded for the “date and time of implementation” aspect (4.9), followed by “materials,” “resource persons and facilitators,” and “methods and activities,” each with an average score of 4.8. The elements most appreciated by participants included the quality of the materials, the role of the facilitators, collaboration, discipline, motivation, and service delivery. Participants also demonstrated strong enthusiasm for continuing the program.

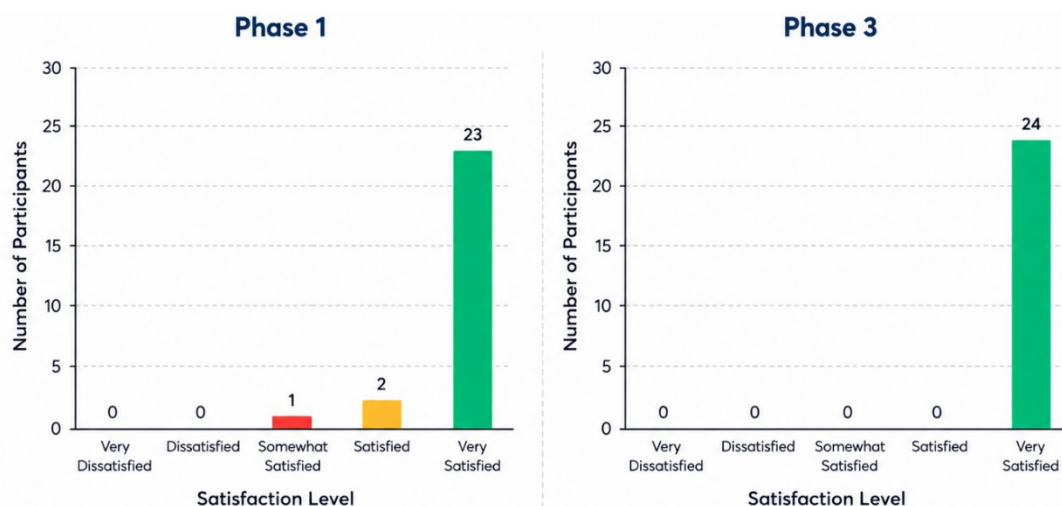


Figure 8. Participant satisfaction survey result (left: phase 1, right: phase 3)

This was evidenced by 24 respondents indicating that they were “very satisfied” with their participation in all program activities (100%). Furthermore, the program achieved an exceptionally high recommendation rate, with all participants stating they would “highly recommend” it to colleagues or other schools. The feedback provided by participants in phases 1 and 3 is shown in Figure 9.

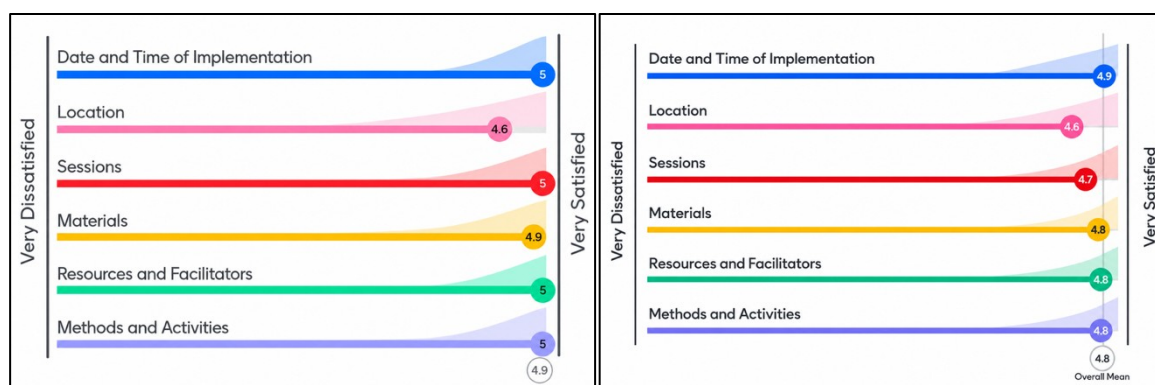


Figure 9. Participant Feedback for Phase 3 (left: phase 1, right: phase 2)

Based on the thematic analysis, the key elements most appreciated by participants during the PAKEM SMK, with terms such as *discipline*, *facilitator*, *family-like atmosphere*, *service*, *cooperation*, and *collaboration* appearing most prominently, reflect the program’s ability to create a structured yet supportive environment. Other frequently mentioned words, including *materials*, *mentor*, *motivation*, *creativity*, and *information*, emphasize the content's relevance and facilitators' important role, while terms like *on time*, *professional*, and *comfortable facilities* point to effective organization and logistics. Overall, the responses suggest that participants valued both the academic rigor and the interpersonal dynamics of the program, resulting in a positive and engaging learning experience. The most appreciated terms are shown in Figure 10.

through interviews with all participants, focusing on achievements and challenges encountered during the implementation of their change projects. The results revealed that the PAKEM SMK program significantly positively impacted school leadership in Riau Province. Five leaders became practice instructors for the *Guru Penggerak* program, one was appointed as a *Guru Penggerak*, and two advanced to strategic positions as school principals.

Furthermore, four vocational schools secured government grants under the *SMK Pusat Keunggulan* (Center of Excellence) and *Pusat Keunggulan Lanjutan 2023* schemes, reflecting trust in their quality and potential. These grants provided opportunities for facility development, teacher competency enhancement, and stronger collaboration with industry. Overall, the program not only strengthened individual leadership capacities but also fostered institutional transformation and improved the quality of vocational education in Riau. These impacts show the role of industry in supporting the quality of education. In this program, SKK Migas, PT PHR WK Rokan, and the Provincial Government of Riau took part in reinforcing SMK leadership capacity through PAKEM SMK.

The results of this program indicate that the PAKEM SMK initiative successfully achieved its primary objective, namely, strengthening the managerial capacity of selected vocational school principals in Riau Province. The high level of participant satisfaction reflects a strong alignment between the program design and the leadership development needs of vocational school leaders. The program's success was influenced by several factors, including the use of the PAP framework, continuous mentoring throughout the implementation process, collaborative learning activities, and the direct implementation of change projects within participants' respective schools. These approaches allowed participants to reflect on institutional challenges, collaboratively formulate solutions, and directly implement leadership practices within their own SMK environments, which is consistent with the participatory nature of the PAR approach. In addition, the use of accessible digital tools helped participants manage documentation, communication, and project coordination more effectively.

These findings are consistent with previous studies that highlight the importance of training and mentoring in strengthening leadership capacity. Nurkholis [32] found that instructional leadership training improves principals' understanding and readiness to lead the learning process. Similarly, Nurdin [33] demonstrated that training delivered through workshops, group discussions, and mentoring enhances principals' competencies in managing change, implementing the Merdeka Curriculum, and improving learning quality. However, this study differs from previous studies in terms of implementation outcomes. While previous studies mainly emphasized competency improvement, behavioral change, and school culture, the PAKEM SMK program demonstrates the direct implementation of institutional change projects through PAP-based interventions conducted within vocational schools. The findings also indicate that teamwork, stakeholder involvement, and organizational support were important factors influencing the implementation process. These findings suggest that leadership development programs may become more impactful when participants are directly

involved in planning, implementing, and reflecting on institutional change projects within their own institutions. These study results also align with transformational leadership perspectives that emphasize collaborative participation [34], shared organizational goals, and the development of institutional capacity through active involvement in school improvement processes [35]. Previous studies also highlight that sustainable institutional change depends on organizational participation and shared ownership of implemented initiatives.

Despite the positive results, several challenges emerged from the thematic analysis. Some SMK leaders did not fully involve their teams during PAP implementation, limiting collaboration within SMK. In several cases, insufficient preliminary studies and limited coordination with SMK principals led to changes in project objectives during implementation. The findings also highlight the importance of external support, particularly from industry partners, considering the strong need for collaboration between vocational schools and industry. In addition, communication-related aspects, particularly oral presentation and presentation media quality, received lower scores than project implementation aspects. These findings suggest that while participants were generally able to plan and implement change projects effectively, communication skills, stakeholder coordination, and institutional collaboration remain important areas for future improvement.

4. Conclusion

Concrete change initiatives within their schools, resulting in observable institutional improvements. These findings underline the importance of combining structured frameworks with ongoing mentoring to support meaningful and sustained change. Leadership development, in this context, becomes more than a training activity, it becomes a process that connects learning to real implementation. Participants indicated their very satisfied level reached 92% in phase 1 and 100% in phase 3 (96% across all training phases). This study contributes both practically and contextually to SMK leadership development. The program demonstrates how leadership training can move beyond conceptual understanding by integrating direct institutional change projects through the PAP framework. The adaptation of the PAP approach to the SMK context also provides a practical, structured reference for leadership capacity development programs that can be implemented and adapted in other provinces across Indonesia. In addition, the collaboration between industry, higher education institutions, and vocational schools in this program highlights the importance of cross-sector partnerships in strengthening the vocational education ecosystem and supporting sustainable SMK improvement initiatives.

Further studies could explore how the PAP framework performs across different contexts and examine factors influencing the success of change projects, such as team engagement, organizational support, and industry collaboration. Longer-term, more quantitative investigations would also be valuable for better understanding the relationship between leadership capacity development and vocational high school performance.

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References

- [1] M. Wahid and D. Ratnasari, "Literature Review: Strategies to Increase the Hiring Rate and Shorten the Waiting Period of Vocational School Graduates in Workforce," *J. Ris. Ilmu Pendidik.*, 2024, <https://doi.org/10.56495/jrip.v4i4.910>
- [2] L. Stoll, "Professional Learning Community," in *International Encyclopedia of Education*, Elsevier, 2010, pp. 151–157.
- [3] G. Redondo-Sama, S. Khaqan, T. Morlà-Folch, and A. Munté-Pascual, "Leading schools through dialogue: the role of principals in schools as Learning Communities," *J. New Approaches Educ. Res.*, vol. 14, no. 1, p. 12, Apr. 2025, <https://doi.org/10.1007/s44322-025-00033-0>
- [4] B. Bartanen, A. N. Husain, D. D. Liebowitz, and L. K. Rogers, "The Returns to Experience for School Principals," *Am. Educ. Res. J.*, vol. 61, no. 5, pp. 1030–1073, Oct. 2024, <https://doi.org/10.3102/00028312241266216>
- [5] S. D. Nabella, "The Influence of Leadership and Organizational Culture Mediated by Organizational Climate on Governance at Senior High School in Batam City," *J. Educ. Soc. Res.*, vol. 12, no. 5, p. 119, Sep. 2022, <https://doi.org/10.36941/jesr-2022-0127>
- [6] S. Sulpakar, R. Ridwan, S. Sudjarwo, H. Hariri, and H. Herdian, "Transformational Leadership Practices of Senior High School Principals in Indonesian Context by Gender," *WSEAS Trans. Adv. Eng. Educ.*, vol. 19, pp. 164–174, Jul. 2022, <https://doi.org/10.37394/232010.2022.19.18>
- [7] L. Langdon Warren, "The Importance of Teacher Leadership Skills in the Classroom," *Educ. J.*, vol. 10, no. 1, p. 8, 2021, <https://doi.org/10.11648/j.edu.20211001.12>
- [8] F. F. A. Marom, "Pengaruh Gaya Kepemimpinan Kepala Sekolah dan Budaya Organisasi Terhadap Kinerja Guru di SMKN 1 Jenangan." *etheses.iainponorogo.ac.id*, 2025.

- [9] V. Virgana and M. Lapasau, "Elevating Teachers' Performance through Locus of Control, Leadership Style, Environmental Factors, and Work Motivation.," *Knowl. Manag. E-Learning*, 2024, <https://doi.org/10.34105/j.kmel.2024.16.003>
- [10] A. R. Bakri, U. Sulistiyo, and M. Hidayat, "Kompetensi Manajerial Kepala Sekolah Dalam Meningkatkan Kinerja Guru Smk Negeri 11 Muaro Jambi," *J. Educ. Dev.*, vol. 11, no. 3, pp. 280–286, Sep. 2023, <https://doi.org/10.37081/ed.v11i3.5357>
- [11] H. Hamka, "The Role of Principals on Teacher Performance Improvement in a Suburban School," *QALAMUNA J. Pendidikan, Sos. dan Agama*, 2023, <https://doi.org/10.37680/qalamuna.v15i1.2409>
- [12] S. Kurniawati and M. I. Fitriani, "Principal's Risk Management Strategy in Realizing Quality Continuity in Educational Institutions Case Study at SMK Negeri 1 Kopang," *J. Vision. Penelit. dan Pengemb. dibidang Adm. Pendidik.*, vol. 13, no. 1, p. 77, Apr. 2025, <https://doi.org/10.33394/vis.v13i1.14919>.
- [13] I. Gunawan, "Analisis statistik Pendidikan di Provinsi Riau Tahun 2023-2024," *ALPHA J. Stat. Demogr. and Engineering*, 2025, [Online]. Available: <https://jurnal.nawansa.com/index.php/ALPHA/article/view/536>.
- [14] W. Windasari, S. Trihantoyo, A. Wulandari, and R. N. Fitria, "Transformational Leadership Training for Vocational School Principals in Ponorogo District: Strengthening Professional Learning Communities," *J. Pengabd. UNDIKMA*, vol. 5, no. 3, p. 388, Aug. 2024, <https://doi.org/10.33394/jpu.v5i3.12224>
- [15] A. Purnomo, S. Danim, and A. Khairi, "Management efficiency and school culture, and teacher performance in Indonesian vocational school during fiscal austerity," *J. Konseling dan Pendidik.*, vol. 14, no. 1, pp. 217–227, Mar. 2026, <https://doi.org/10.29210/1202500>
- [16] N. G. Ramadhan, Purnomo, Widiyanti, S. Suhartadi, and O. Purnawirawan, "Model of Education System in Indonesia Vocational High Schools Based on the Aspects School Cooperation with Industry Through Work-Based Learning to Improve Sustainable Development Goals (SDGs)," *J. Lifestyle SDGs Rev.*, vol. 5, no. 3, p. e05013, Feb. 2025, <https://doi.org/10.47172/2965-730X.SDGsReview.v5.n03.pe05013>
- [17] A. N. F. Astuti, . Samsudi, I. M. Sudana, and . Hadromi, "Exploring Management Industrial Class at the Vocational High School in Indonesia," *J. Educ. Soc. Res.*, vol. 13, no. 3, p. 181, May 2023, <https://doi.org/10.36941/jesr-2023-0068>
- [18] E. M. Sangadji, S. Sopiah, and B. S. Narmaditya, "Does Leadership Effectiveness Matter for Indonesia Vocational Teacher Performance? The Mediating Role of Work Motivation," *Indones. Res. J. Educ. |IRJE|*, vol. 5, no. 2, pp. 345–359, Aug. 2021, <https://doi.org/10.22437/irje.v5i2.12541>
- [19] I. P. Sari, W. R. Yasmin, R. Triyoga, I. Indri, W. G. Mulawarman, and A. Akhmad, "Strategic Leadership Practices in Fostering Innovation Culture in Vocational Education: A Case Study," *Nusant. J. Pendidik. Indones.*, vol. 6, no. 1, pp. 41–54, Jan. 2026, <https://doi.org/10.62491/njpi.2026.v6i1-4>

- [20] R. Prayuda, M. I. Rosyadi, R. Fikri, and M. F. Amrillah, "Integrating Environmental Sustainability and Borderland Development: A Tourism Model for Rupert Island, Indonesia," *Int. J. of Sustainable Development and Planning*, 2025, <https://doi.org/10.18280/ijstdp.200730>
- [21] T. Osawa, "Rethinking the local wisdom approach in peatland restoration through the case of Rantau Baru: A critical inquiry to the present-day concept of Kearifan Lokal," *Local governance of peatland restoration in Riau, Indonesia*, 2023, https://doi.org/10.1007/978-981-99-0902-5_6.
- [22] R. T. Wahyuni, M. I. Zul, H. Azwar, and E. Susianti, "Program Penguatan Kapasitas Tendik SMK Sebagai Salah Satu Upaya Pendukung Penguatan Ekosistem Vokasi di Provinsi Riau," *Din. J. Pengabd. Kpd. Masy.*, vol. 6, no. 5, pp. 1368–1378, Oct. 2022, doi: <https://doi.org/10.31849/dinamisia.v6i5.11123>
- [23] H. Adam and R. Rena, *Polycrisis and economic development in the Global South*. api.taylorfrancis.com, 2025.
- [24] W. Cahyadi, L. Cahyadi, C. C. Cen, and L. Candrasa, "Leadership, work motivation, and polytechnic culture impact on effective commitment and work ethics and its implications on the lecturer performance of Indonesia," *J. Mod. Project Management*, 2024, [Online]. Available: <https://journalmodernpm.com/manuscript/index.php/jmpm/article/view/727>.
- [25] J. M. Chevalier, *Participatory action research: Theory and methods for engaged inquiry*. taylorfrancis.com, 2019.
- [26] X. Yang, "A Historical Review of Collaborative Learning and Cooperative Learning," *TechTrends*, vol. 67, no. 4, pp. 718–728, Jul. 2023, <https://doi.org/10.1007/s11528-022-00823-9>
- [27] E. K. Appiah-Odame, "Authentic Assessment for Motivating Student Learning and Teaching Effectiveness in Rural, High-Need Secondary Schools in Manitoba, Canada," *Eur. J. Math. Sci. Educ.*, vol. volume-5-2, no. volume-5-issue-2-june-2024, pp. 93–104, Jun. 2024, <https://doi.org/10.12973/ejmse.5.2.93>
- [28] Y. Zhan, D. Boud, and Z. Du, "Designing for authentic assessment: a scoping review," *High. Educ.*, Nov. 2025, <https://doi.org/10.1007/s10734-025-01588-9>
- [29] J. T. M. Gulikers, T. J. Bastiaens, and P. A. Kirschner, "A five-dimensional framework for authentic assessment," *Educ. Technol. Res. Dev.*, vol. 52, no. 3, pp. 67–86, Sep. 2004, <https://doi.org/10.1007/BF02504676>
- [30] J. W. Creswell, *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications, Incorporated. 2009.
- [31] Q. Roberson and J. L. Perry, "Inclusive Leadership in Thought and Action: A Thematic Analysis," *Gr. Organ. Manag.*, vol. 47, no. 4, pp. 755–778, Aug. 2022, <https://doi.org/10.1177/10596011211013161>

- [32] K. E. Prabowo, A. Sulistyahati, and Nurkolis, "Strengthening the instructional leadership capacity of school principals to improve the quality of learning," *Abdimas J. Pengabdian Masyarakat Universitas Merdeka Malang*, 2026, <https://doi.org/10.26905/abdimas.v11i1.16664>
- [33] D. Nurdin, S. Suryadi, Uum Murfiah, and Arip Amin, "Training to Strengthen Competency of School Principals in the Implementation of the Independent Curriculum," *Din. J. Pengabd. Kpd. Masy.*, vol. 9, no. 2, pp. 549–555, Apr. 2025, <https://doi.org/10.31849/dinamisia.v9i2.23440>
- [34] C. Rhodes and S. Fletcher, "Coaching and mentoring for self-efficacious leadership in schools," *Int. J. Mentor. Coach. Educ.*, vol. 2, no. 1, pp. 47–63, May 2013, <https://doi.org/10.1108/20466851311323087>.
- [35] P. Hallinger, "Leading Educational Change: reflections on the practice of instructional and transformational leadership," *Cambridge J. Educ.*, vol. 33, no. 3, pp. 329–352, Nov. 2003, <https://doi.org/10.1080/0305764032000122005>