

Discrepancy in Industrial Acceptance Between Vocational High School (SMK) and Bachelor's Degree (S1) Graduates: a Combined Analysis of Secondary Data and Industry Perspectives

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ABSTRACT

This study examines the employment acceptance gap between SMK (vocational high school) and S1 (university) graduates across industrial sectors in Indonesia. BPS data shows that the open unemployment rate for SMK graduates is higher than that of S1 graduates, even though SMK is designed to produce job-ready workers. This mixed-method study uses secondary data from BPS and the Ministry of Manpower, as well as semi-structured interviews with five HRD practitioners from manufacturing, services, logistics, retail, and technology sectors. The findings indicate that the gap is caused by skills mismatch, low soft skills among SMK graduates, and limited industry linkages. In contrast, S1 graduates are considered more adaptable in cognitive and communication skills, although not always in technical skills. The study highlights the need for vocational education reform, including curriculum improvement, industry-based competency certification, and stronger collaboration between government, schools, and industries to improve SMK graduates' employability and reduce the unemployment gap.

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Introduction

Vocational High School (SMK) in Indonesia was built in order to solve the employment problem. But, the current data presents a paradox. The open unemployment rate for SMK graduates, as reported by the Central Statistics Agency BPS, (2024), stood at 8.39%, which was higher than that of SMA graduates (6.26%) and S1 graduates (4.17%). This gap manifests the discrepancy of SMK's aim to produce job-ready graduates and the fact in labour's market.

S1 graduates dominate organizations' employment across all sectors, especially in managerial, strategic and development functions (OECD, 2020; WEF, 2025). Industries generally prefer S1 graduates for high-end positions that involve analytical reasoning, critical thinking, and adaptability, whereas SMK graduates are employed for job-skilled level and might need to be retrained (Kementerian Ketenagakerjaan, 2023; McKenzie, 2021). Key questions This study seeks to answer one key question: Why does the industrial sector continue to value S1 graduates over SMK even though the latter are vocationally oriented? In response to this, we combine the quantitative analysis of national data with HRD professionals experience (Rosyada, 2018; Triyono et al., 2019). This amalgam of methodologies, gives a more in depth insight on systemic and systematic causes of problems, such as disaccordance with skill either between and with soft-skills or between industry and schools (Yuniarsih and Suwatno, 2021; Susanti and Nugroho, 2022).

Method

The current study design was an integrated mixed methods approach--quantitative, secondary treatment data analyses and qualitative interviews. It enables the triangulation of signal between macro-statistical data and micro-insights from employers, and therefore the validity of results (Creswell and Plano Clark, 2018; Miles et al., 2014).

Quantitative Data (Secondary)

Secondary data obtained from the Central Statistics Agency BPS (2024), the Ministry of Manpower Kementerian Ketenagakerjaan, (2023), and Basic Education Data System Data Pokok Pendidikan, (2023). These are open indicators related to unemployment rates, employment distributions of graduates across sectors, and recruitment trends, expressing the macro-level view of the labor market absorption of SMK and S1.

Qualitative Data (Interviews)

The study included five HRD professionals from five companies in the manufacturing, service, IT, logistics, and retail sectors, who were interviewed in semi-structured interviews. Interviews were conducted online using Zoom and phone calls, allowing for more in-depth discussion beyond the statistics Sugiyono, (2019).

Result and Discussion

Quantitative Findings: Secondary Data Analysis

According to the data from BPS (2019, 2021, 2024) and the Ministry of Manpower Kementerian Ketenagakerjaan, (2023), a discrepancy in labor absorption between graduates from SMK with S1

persists. SMK leavers mostly were absorbed in informal and technical–operational posts such as production workforce, technicians, or the field staff, and S1 leavers across the managerial and strategic positions (World Bank, 2020; ILO, 2019). Figure 1 explain Employment Absorption Rate of SMK and S1 Graduates (2018–2024).

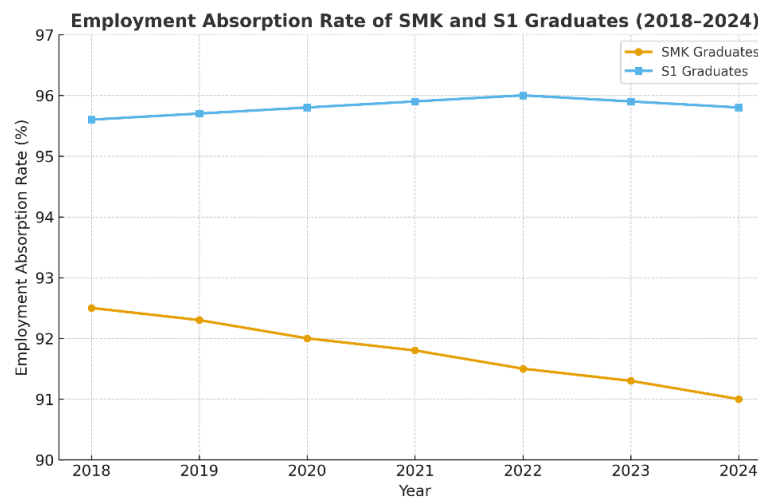


Fig 1: Employment Absorption Rate of SMK and S1 Graduates (2018–2024)

As indicated in the chart, the employment absorption rate of SMK graduates was 91.61%, meanwhile S1 graduates was 95.83% [BPS 2024] in 2018–2024. Although appears to be small differences, considered nationally this is a big differences in job market, and therefore, in competitiveness.

From 2018 to 2024, the difference of the absorption rate between SMK and S1 graduate were widened. This pattern was especially pronounced in formal sectors with strong demand for workers, such as in finance, logistics, and technology, where employers systematically advantaged graduates of S1. In the mean time, the technicians that were SMK alumnus still worked at relatively low level of operation with less chance for career promotion.

Data from BPS always indicate that open unemployment status of SMK graduates is the highest compared to other education levels BPS (2024). This in turn supports existing claim that vocational schools did not meet the demand of industry transformation (Suyanto and Jannah, 2021; Gunawan et al., 2020). This paradox is an indication that the orientation of SMKs to vocational cannot meet with the needs of industry that developed Susanti and Nugroho, (2022).

Qualitative Findings: HRD Interviews

Based on the quanlitative coulducted approach, this study also used the poll cerned in- terview technique in which 5 HRD professionals from introduces and service organizations participated.

These interviews aimed to provide further understanding of employer's opinion on the SMK and S1 graduates in the job market.

1. Profile of Informants

The five HRD experts were chosen purposively to be spread across various industries, and to ensure differences in viewpoints. Their profiles are summarized in Tabel 1 below:

Table 1. Profile of HRD Informants by Sector, Position, and Experience

No	Position/Job Title	Sector	Years of Experience
1	HR Manager	Manufacturing	12 years
2	Senior HR Officer	Technology	10 years
3	Talent Acquisition Specialist	Retail	8 years
4	HR & Operations Coordinator	Logistics	11 years
5	HR Supervisor	Services	9 years

2. Interview Instruments

Semi-structured interviews were guided by four core questions:

- a. What are your perceptions of the readiness of SMK graduates compared to S1 graduates for employment in your sector?
- b. What specific skills do you find lacking among SMK graduates?
- c. How do SMK and S1 graduates differ in terms of adaptability, critical thinking, and soft skills?
- d. To what extent do industry certifications influence your recruitment decisions for SMK graduates?

3. Data Analysis Procedure

Interviews were transcribed and thematically analyzed using the process of coding and categorization Miles et al., (2014). Three key themes were identified as follows (i) skills mismatch, (ii) soft skills deficiency, (iii) no industry certification.

4. Qualitative Findings from HRD Interviews

In addition to the quantitative data, this study conducted five interviews with HRD practitioners in different types of businesses. There were common patterns of skill gaps between SMK and S1 graduates as evidenced in the interview.

a. Manufacturing Sector

In the manufacturing sector, graduates of the SMK program needed to be retrained to fit into factory conditions Yuniarsih and Suwatno, (2021). As the HR Manager explained: “Most of the SMK graduates need intensive retraining before they can fit into the needs of the factory.” (HR Manager, Manufacturing)

b. Technology Sector

In technology industry, HR executives indicated that S1 graduates demonstrated better cognitive skills such as critical thinking and inventive capacity (McKenzie, 2021; OECD, 2020). The Senior HR Officer emphasized: “S1 graduates are more critical and innovative but SMK graduates are good at following orders. (Senior HR Officer, Technology)

c. Retail Sector

Employers in the retail industry perceived SMK graduates to be dependable for operational purposes yet non-initiative and incapable of decision making (Talent Acquisition Specialist, Retail). As Talent Acquisition Specialist said: “SMK graduates are dependable for operational functions, but passively responsive when it comes to making decisions.” (Talent Acquisition Specialist, Retail)

d. Logistics Sector

HR in the logistics sector reported that S1 graduates were better at multitasking and under pressure (ILO, 2019), while employers in service sector said that SMK graduates did not have relevant industry certifications (Kemenaker, 2023). The HR and Operations Coordinator emphasised: “S1 graduates are also better at multitasking and coping with pressures of work that’s always evolving, SMK graduates are often unable to adapt with shifting demands around them.” (HR & Operations Coordinator, Logistics)

e. Service Sector

The HRD officer who comes from the service sector noted that the SMK graduates do not receive certification tailored very closely to what is needed by some industries, so the graduates are not the one who got much priority in recruiting:

“Many of them did not have the certifications relevant to our industry’s professional demands, so we’d have a bias towards candidates with higher education backgrounds.” (HR Supervisor, Services)

5. Thematic Analysis of HRD Interviews

From these five interviews, three main themes were identified:

- a. Skill Mismatch – It was an issue and that the students were not taught the right skills by the school to answer the challenge of business’ world a. Many graduates were ill-equipped for the job market, particularly in areas such as manufacturing and logistics, where technical skills related to industry were a must.
- b. Lack of Soft Skills – A few HRD practitioners observed SMK graduates were devoid of initiative, adaptability and critical thinking. They may have factored in operational aspects, but not too much of decision making and innovation in their work and that limited their career growth pace compared to S1 graduates.
- c. Non Certification – A recurring issue was the lack of industry-relevant certifications among SMK graduates. This placed them at a disadvantage during recruitment processes, as companies tended to prioritize candidates with higher education backgrounds or those already holding professional certifications.

These themes reinforce the argument that the employability challenges faced by SMK graduates are not only rooted in academic preparation but also in the broader alignment between vocational education, industry needs, and professional certification standards.

Discussion

Quantitatively and qualitatively, it is evident that employability problems experienced by SMK graduates are multi-dimensional (Rosyada, 2018; Triyono et al., 2019). The structural issues include:

1. Skill mismatch – divergence of SMK curricula from changing industry needs (Gunawan et al., 2020; OECD, 2020).
2. Lack of Soft Skills – compared to S1 graduates, S1 D3 graduates have less adaptive, critical thinking, and initiative (Susanti and Nugroho, 2022; Yuniarsih and Suwatno, 2021).
3. Non Certification – lack of industry Acknowledged qualifications limits employability (Kementerian Ketenagakerjaan, 2023; World Bank, 2020).

These findings confirm previous research that vocational education in Indonesia has too often not prepared graduates for global competition (Tilaar, 2015; WEF, 2025). Based on BPS (2024), the

non-active unemployment rate of SMK graduates was 8.39%, the highest among other educational background. This quantitative evidence is in line with industry testimonies suggesting that SMK graduates are frequently not equipped with the skills required by the labor market.

For example, an HR Manager in a manufacturing company mentioned that the majority of SMK graduates need retraining that is very hard before they can suit themselves with factory works Yuniarsih and Suwatno, (2021). This understanding may provide partial understanding to the puzzle of why the unemployment rate of SMK graduates is even higher compared with their peers (BPS, 2024; World Bank, 2020) when the policy logic assumes that vocational education should lead to immediate employment (OECD, 2020; Kementerian Ketenagakerjaan, 2023). In technology industry, a Senior Officer of HR claimed that S1 graduates are less risky and more open-minded than SMK graduates who have less ability to think critically and creative. These qualitative insights help explain why industries with rapidly-changing technologies often prefer to hire S1 graduates, since adaptability and problem-solving are seen as more valuable than rote technical knowledge.

The mismatch is also vivid in the retail sector. While SMK graduates are reliable for routine duties, they are generally thought to be incapable of taking initiative and making decisions, in the words of a Talent Acquisition Specialist. This is consistent with BPS data where SMK graduates are dominated in operational-level jobs instead of in supervisory or managerial ones. In the logistics domain, the HR and Operations Coordinator indicated that S1 graduates are in a position to cope with multitasking and fast changing job demands better than SMK graduates which is consistent with the number of the above finding in which SMK graduates have difficulty in competing in fast changing, high demand industry.

Certification was a structural obstacle. An HR Supervisor from the services industry highlighted that a lot of SMK graduates do not possess industry recommended certifications thus making them less competitive in the labour market. The direct observation is consistent and fits well with the quantitative evidence on the higher likelihood of SMK graduates' unemployment, thereby indicating that certification frictions are a major barrier to employment.

The combination of statistical trends and employer testimonies highlights that the barriers faced by SMK graduates are multi-faceted. They are based not just on academic readiness, but on related curriculum alignment, soft skills, and industry certification readiness assessments.

Limitations of the Study

The present study does have several limitations that must be recognized. First, the qualitative informants were only classified into five HRD practitioners' categories, not covering the whole

industry in Indonesia. As a result, the results of the interviews are not generalizable to the wider workforce. Second, there was some considerable dependence on self-reported view of HR practitioners which could be offset by sectoral perspectives and subjective interpretations. Lastly, the extent of secondary data analysis was constrained to aggregated figures sourced from BPS and the Ministry of Manpower only, without the possibility to make disaggregated findings on regional and sub-sector level. The subject of this study, especially regarding the instrumental topics of precarious employability and adrtocracy, would have also revisited by future research that involved a larger, more diver informants, as well as included longitudinal data and mixed-method in order to portray the heterogeneous pictures of the employability gap between SMK and S1 graduates.

Conclusion

The present study has revealed substantial differences in employability, labor market absorption, and career prospects between SMK and S1 alumni. There is no more to say of SMK graduates, as they are a group that despite being confined to technical and operational positions, they still stand in the shadow of unemployment and upward mobility (BPS, 2024; Kementerian Ketenagakerjaan, 2023). The quantitative result indicated that 2024 averaged unemployment rate of SMK graduates was 8.39%, this was the highest compared to other levels of education.

Findings Findings from interviews of HRD shed light on three key issues: (1) skill mismatch between SMK's curriculum and industry needs, (2) lack of soft skills (e.g., flexibility, initiative, critical thinking), and (3) lack of industry-related certification. These conditions cause a decreased competitiveness of SMK-graduates in a labour market which is turning towards digitalization and innovation.

These graduates, however, have shown to possess a good potential to fulfill the operational and technical roles, given sufficient retraining, certification, and workplace exposure. So, vocational education should not be downgraded; it should be made more industry relevant.

Recommendations

1. Integration of Industry Certification: Integrate certifications that are accepted by the industry into the SMK curriculum to narrow the certification gap, and to improve the students' employability (World Bank, 2020).
2. Teacher Internship Programs: Implementing internships for SMK teachers to gain industrial experience so their teaching is relevant to current practices Gunawan et al., (2020).
3. Government-Industry Collaboration: Reinforce 3-way partnership to establish lifelong

reskilling and upskilling for graduates/alumni in response to evolving sectors.

4. Soft Skills Development: Provide communication, teamwork, problem-solving and critical thinking modules in building projects and industry mentors Susanti and Nugroho, (2022).
5. Expanded Internship Opportunities: Offer longer full-time workplace internships to increase technical skills development and exposure to good professional practices ILO (2019).

Adopting these recommendations will enhance the employability of SMK graduates, narrow the gap between the unemployment rate of S1 and SMK graduates and enhance the competitiveness of Indonesia's workforce in the digital economy.

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