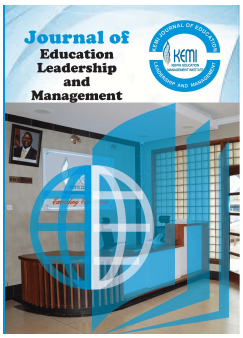

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The Role of Industry Partners in Providing Practical Training Towards the Success of Competency-Based Education and Training at Kitale National Polytechnic, Kenya

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Abstract

Competency-Based Education and Training (CBET) has emerged globally as a transformative approach to Technical and Vocational Education and Training (TVET), emphasizing the acquisition and application of practical, industry-relevant skills over theoretical knowledge alone. In Kenya, CBET was introduced in TVET institutions in 2018 to address persistent challenges such as youth unemployment, skills mismatch, and limited employability of graduates. Central to the success of CBET is effective collaboration between TVET institutions and industry partners, particularly in the provision of practical training opportunities such as internships, industrial attachments, mentorship, and on-the-job training. Despite policy support under Vision 2030 and the TVET Act of 2013, evidence suggests that industry participation in practical training remains inconsistent, limiting the realization of CBET objectives. This study therefore explored the role of industry partners in providing practical training towards the success of Competency-Based Education and Training at Kitale National Polytechnic, a leading TVET institution in Kenya's North Rift region. The study was guided by the Experiential Learning Theory. The study adopted a mixed-methods research design, incorporating both qualitative and quantitative approaches. The target population comprised teaching staff across various departments, administrative personnel, students in their final year of study, industry partners currently collaborating with the institution, and recent graduates. The target population was 2,000 participants and a sample size of 96 was determined using Yamane's (1967) formula. The study used structured questionnaires and Semi-structured interview guides to collect data. Quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) version 28.0, generating descriptive statistics (frequencies,

percentages, means and standard deviations). Qualitative data were analyzed thematically, involving transcription, coding, categorization, and interpretation of emergent themes. Data presentation utilized tables, charts, and narrative descriptions to effectively communicate findings. The study found that 81.4% of respondents (mean = 4.11) agreed that internship placements, industrial attachments, and mentorship by technical experts were the major forms of collaboration that enhanced students' technical competence. The study concluded that strengthening collaboration frameworks, improving communication, and encouraging the participation of small and medium enterprises would improve the effectiveness and sustainability of CBET in Kenya. The study recommended that the Ministry of Education should increase industrial attachment opportunities through partnerships with small and medium enterprises and non-traditional industries. The findings contribute valuable insights for policymakers, TVET institutions, and industry stakeholders seeking to strengthen TVET–industry linkages in Kenya.

Key terms: Competency-Based Education and Training, TVET institutions, Experiential Learning Theory, Industry

1.0 Introduction

1.1 Background of the study

Competency-Based Education and Training (CBET) is increasingly being adopted worldwide as a strategy for equipping learners with relevant work-related skills, knowledge, and attributes. Unlike traditional education models that emphasize theoretical mastery, CBET focuses on learners' ability to apply acquired knowledge in practical settings, thereby improving their employability and readiness for the job market (Jwan, 2022). In Kenya, CBET was rolled out in TVET institutions in 2018 as part of the broader education reform agenda, aiming to reduce youth unemployment, address the mismatch between education outcomes and labour market needs, and strengthen industry-responsive training. However, for CBET to succeed, it must be anchored in strong partnerships between training institutions and industry stakeholders, particularly in the area of practical training opportunities that provide learners with exposure to real work environments (Schroeder, 2025).

Globally, industry–TVET partnerships have been recognized as critical for successful vocational education. Countries such as Germany, Switzerland, and Australia have well-established dual training systems where students combine classroom learning with industrial attachments and mentorship. These systems are celebrated for producing graduates who transition smoothly into the workforce, as they acquire technical skills directly relevant to industry demands (Deissinger & Gonon, 2021). Empirical studies show that such collaborations not only enhance technical competence but also improve graduates' chances of securing meaningful employment (Otache, 2022). Furthermore, universities and technical institutions that partner with industry often benefit from mentorship programs, curriculum co-development, and the adoption of new technologies, all of which enrich learners' practical experiences and professional readiness (Aliu & Aigbavboa, 2021). These examples demonstrate that structured industry engagement in training is central to the effectiveness of CBET.

Across Africa, TVET institutions are increasingly turning to industry collaboration as a strategy for bridging the skills gap and reducing unemployment. In South Africa and Rwanda, CBET frameworks have been

adopted with an emphasis on industry partnerships, particularly in the provision of industrial attachments, practical training, and real-time feedback on emerging skills needs (Habiyaremye, Habanabakize & Nwosu, 2022). Despite these efforts, challenges such as inconsistent industry participation, weak policy support, and unclear institutional expectations still limit the effectiveness of such collaborations (Allais, 2022). The UNESCO IIEP (2020) study covering seven African countries—including Ethiopia, Ghana, and Morocco—found that while policies on CBE are well developed, industry involvement in practical training remains uneven, thus weakening the translation of policy into practice.

Kenya has prioritized CBET within the framework of Vision 2030 and the TVET Act of 2013, identifying TVET as a cornerstone of industrial and economic transformation (Muchira, Kiroro, Mutisya, Ochieng & Ngware, 2023). Central to this strategy is industry collaboration, especially in curriculum design, industrial attachments, and mentorship, which ensure that learners graduate with both theoretical knowledge and practical competence (Ministry of Education, 2019). Nonetheless, studies highlight persistent barriers such as limited internship opportunities, employer reluctance to host trainees due to liability concerns, and inadequate institutional mechanisms for managing partnerships (Chepkoech, 2021). These challenges weaken the capacity of TVET institutions to deliver the practical training envisioned in the CBET framework, resulting in graduates who still struggle to meet labour market demands.

Several studies in Kenya affirm the importance of practical training opportunities provided by industry partners. For instance, Musyimi (2021) showed that partnerships in the North Rift region enhance students' learning by exposing them to real-life work environments, thus improving their technical competence and career prospects. However, Ayieko et al. (2023) found that while many TVET institutions claim to have industry linkages, these partnerships are often shallow, inconsistent, and limited in scope. Only a small percentage of the employers report that training is aligned to their specific skill requirements, suggesting a gap between policy aspirations and practice. The Kenya Private Sector Alliance (KEPSA), in collaboration with the Ministry of Education, has attempted to bridge this gap through initiatives like the Dual TVET Program, which connects students to industry placements. Yet, the reach of such programs is still limited relative to the growing demand for practical training among learners.

For CBET to be successful in Kenya, industry partners must play an active role in providing practical training opportunities such as internships, attachments, and mentorship. These engagements are not only essential for equipping learners with technical competence but also for ensuring that institutions like Kitale National Polytechnic meet the labour market's evolving needs (Osawa et al., 2023). Kitale National Polytechnic, one of the leading TVET institutions in the North Rift, offers a strategic case for examining how industry collaboration contributes to CBET success. Understanding the nature, effectiveness, and challenges of its partnerships with industry will provide valuable insights into strengthening TVET–industry linkages in Kenya. By focusing on the role of industry partners in providing practical training, this study seeks to highlight best practices and identify barriers that must be addressed to enhance the relevance, quality, and sustainability of CBET implementation.

1.2 Statement of the Problem

Competency-Based Education (CBE) in Technical and Vocational Education and Training (TVET) was introduced in Kenya to address persistent challenges such as youth unemployment, skill mismatches, and the increasing demand for industry-relevant training. One of the key pillars of successful CBE implementation is industry involvement in offering practical training opportunities, including internships, industrial attachments, and mentorship. These opportunities are crucial in equipping learners with hands-

on experience, improving technical competence, and bridging the gap between classroom learning and labour market expectations. Despite these benefits, many TVET institutions, including Kitale National Polytechnic, continue to face challenges in establishing consistent and effective collaboration with industry partners. The availability and quality of practical training opportunities often vary across programs due to capacity limitations, legal concerns, or unclear institutional expectations. Limited evidence exists on how industry partners contribute to providing practical training and the extent to which these partnerships influence institutional success. This study therefore seeks to explore the role of industry partners in providing practical training towards the success of Kitale National Polytechnic, with the aim of informing strategies for strengthening TVET–industry linkages in Kenya.

1.3 Research Objective

To explore the role of industry partners in providing practical training towards the success of Kitale National Polytechnic. Specifically, the study sought to examine the forms of industry collaboration in practical training and their contribution to students' technical competence and institutional success.

1.4 Research Questions of the Study

What is the role of industry partners in providing practical training towards the success of Kitale National Polytechnic?

2.0 Literature review

Smith and Brennan Kemmis (2018) studied the effectiveness of workplace-based learning in Australian TVET institutions under the national training system. Using a qualitative case study methodology involving interviews with instructors, students, and employers across five training providers, the study found that structured apprenticeships embedded in workplace settings enhanced students' technical capabilities and soft skills. It concluded that industry-led training opportunities were vital in applying theoretical knowledge practically. However, the study noted a gap in ensuring equity of access for students in rural and remote regions.

Billett (2024) explored the role of industry-led internships in vocational learning in Germany and the Netherlands. Employing a mixed-methods design (surveys and observation), the study revealed that real-time industry exposure enhanced learners' motivation, professional identity, and technical competence. It concluded that companies' willingness to mentor and assess learners was central to success. A key gap identified was the need for stronger alignment between institutional curricula and workplace expectations to avoid mismatch in skill development.

Alwasilah, Rahman, and Suzuka (2019) conducted a longitudinal study on industry-education collaboration in Indonesia, specifically in hospitality and automotive trades. Using interviews, document analysis, and student performance tracking, the study found that students who underwent six-month industrial attachments outperformed those with minimal exposure. It concluded that frequent communication between colleges and employers ensured consistency in expectations. However, it also highlighted challenges such as insufficient training supervisors in the industry and lack of feedback mechanisms for evaluating student performance.

Oketch, McCowan and Schendel (2021) examined the level of engagement by the private sector in TVET

education in Ghana and Nigeria using a multi-case research approach. Institutional surveys and interviews with stakeholders were used to gather the data. Many industries allowed students to train and practice on their equipment, but they were not usually involved in supervising or assessing the students. The results revealed that being able to apply theory helped students prepare for the workforce, but the lack of strong links and policy encouragement limited frequent cooperation between these groups. The study found that firms are not following consistent formats for monitoring and assessing industrial training offered to students.

Zembere and Chinyemba (2020) analyzed how well industrial training placements work at vocational institutions in Malawi. Findings from the survey and interviews with 40 employers showed that only a small number of students, 42%, had access to useful job training. According to the study, while employers understood the importance of helping trainees, time, money or laws prevented them from getting more involved. One key problem was that there was no main coordinating tool to link students with industry.

Namuyiga and Luyombya (2022) evaluated the collaboration between Ugandan technical institutions and the private sector in providing internships. Using a case study design with data from 5 institutions and 25 companies, findings showed that while internship programs existed, many were uncoordinated and unstandardized. The study concluded that regular engagement forums between schools and industries improved partnership quality. A major gap identified was the absence of clear national internship policies to guide implementation and accountability.

Wambua and Githui (2021) examined the availability and quality of industrial attachments among TVET learners in Nairobi County, Kenya. Using a descriptive survey design involving 100 students, 20 instructors, and 15 industry supervisors, the study found that over 60% of learners did not receive consistent mentorship during attachments. However, it concluded that learners who were adequately mentored showed better transition into employment. The study recommended structured supervisory frameworks and formal assessment tools. A key gap identified was the limited collaboration between institutions and industry in co-developing attachment programs.

2.1 Experiential Learning Theory (ELT)

David Kolb first introduced Experiential Learning Theory (ELT) in 1984. The theory argues that knowledge is formed as people work through and change their experiences. Kolb believes learning takes place through four steps: having a real experience, observing carefully, understanding at a conceptual level and using ideas to experiment. According to ELT, authentic learning comes from people interacting with and thinking over content, instead of simply taking in information. It is from this theory that many learning approaches such as Competency-Based Education have emerged in vocational and technical environments.

It is assumed in ELT that learning happens always, in cycles, allowing learners to respond and learn by applying what they know. To Kolb, strong learning relies on bringing together ideas and actual experiences. Beard and Wilson (2006) have confirmed that ELT benefits technical training because active experience, internships and simulations promote better understanding and remembering skills. This theory also suggests that skills are best picked up and used if learning happens in places where they will be used.

With regard to this study, ELT relates to the study objective on the role of industry partners in providing practical training role. At Kitale National Polytechnic, learning happens through partnerships with industry and involves students completing attachments, internships and projects on real tasks. ELT explains why it

is difficult to implement these approaches because of differences in schedules and insufficient training available opportunities from the industry.

3.0 Research Design and Methodology

3.1 Research Design

The approach used in the study was mixed, allowing quantitative and qualitative techniques work together. Based on Schoonenboom and Johnson (2017), researchers perform mixed methods studies by integrating quantitative and qualitative methods to understand a research question more comprehensively. The selected design was appropriate due to its ability to provide detailed qualitative knowledge of stakeholders working together in industry, along with quantitative data that shows how far and wide these collaborations have become.

3.2 Target Population

The study targeted a population consisting of stakeholders directly involved in CBET implementation at Kitale National Polytechnic. This included 120 teaching staff across various departments, 45 administrative personnel, 1,580 students in their final year of study, 35 industry partners currently collaborating with the institution, and 220 recent graduates (the past two years).

3.3 Sample Size

The study employed both probability and non-probability sampling techniques to select respondents. The sample size was determined using Yamane's (1967) formula:

$n = N/(1+N(e)^2)$,

$n = 2,000/ (1+2,000(0.1)^2)$

$n = 95$

Category of Respondents(P)	Population(A)	Sample Size $(A/P)n$
Teaching Staff	120	5
Administrative Staff	45	2
Final Year Students	1,580	75
Industry Partners	35	3
Recent Graduates	220	10
Total	2,000	95

3.4 Research Instruments

The tools that were used in this study were questionnaires, interview guides, observation checklists and Document analysis. Questionnaires were the primary method utilized to obtain observable information from Final Year Students and Recent Graduates while structured interviews were conducted with the

administrative staff and industry partners. Observation checklists were used to assess the physical spaces, facilities and classes developed as part of industry collaborations. A document analysis guide was designed to systematically examine key institutional documents, such as Competency-Based Education and Training (CBET) curricula, partnership agreements, training records, and graduate tracer studies

3.5 Data Analysis Procedures

After data collection, data cleaning and coding were done. Quantitative and qualitative data analysis methods were both employed. SPSS version 28.0 was used to analyze quantitative data, and descriptive data (such as frequencies and means) and correlation analyses were conducted. The qualitative information received was analyzed by comparing similar points, categorizing them, and making sense of the discovered themes. Findings were presented using tables, charts, and by providing clear descriptions in writing.

4.0 Results and discussion

Role of Industry Partners in Providing Practical Training

4.1 Practical Training

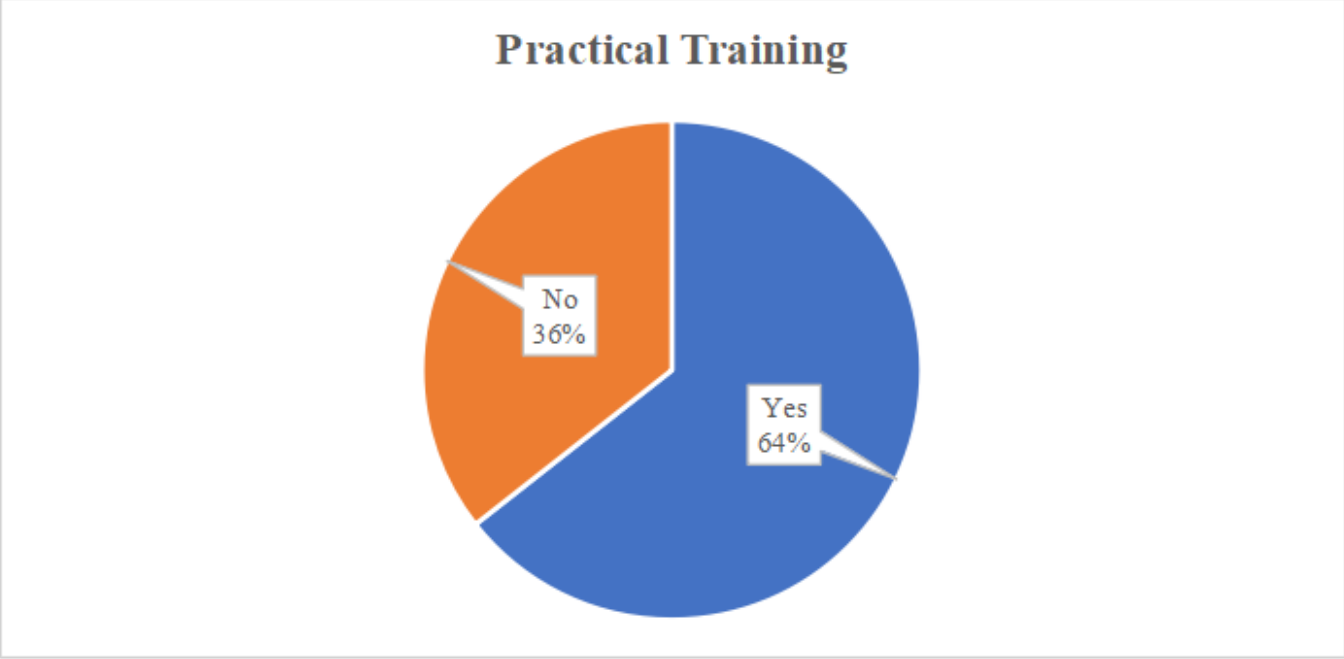

Figure 1: Practical Training

Figure 1 shows that a significant majority of industry respondents (64.4%) confirmed that they had previously provided practical training opportunities to students from Kitale National Polytechnic. This high level of participation demonstrates a generally strong industry commitment to skills development and academic-industry linkages. However, a notable 35.6% of respondents indicated that they had not participated in any such engagements. This gap highlights an untapped potential within the industry that, if strategically approached, could enhance the institution's training coverage. It suggests the need for more robust awareness campaigns, targeted partnerships, and mutual benefit frameworks to encourage

broader participation by industry players who have yet to be engaged.

Otache (2022) points out that this type of work is important for connecting what is studied in theory with how it is applied in practice. However, 35.6% who have not participated indicate room for expanding industry involvement. Malik et al. (2021) suggest that targeted awareness campaigns and incentive structures can motivate more organizations to offer practical training, thereby enhancing the overall impact of industry-academia collaborations.

4.2 Type of Practical Training

Table 1 Type of Practical Training

Type of Practical Training	Frequency	Percentage (%)
Industrial attachment/internships	49	88%
On-the-job training	36	65%
Mentorship programs	28	50%
Site visits	24	42%
Apprenticeship programs	16	28%
Other (e.g., workshops/seminars)	5	9%

Sources: Research Data (2025)

Table 1 reveals that industrial attachments and internships are the most prevalent form of practical engagement, cited by 88% of organizations. On-the-job training (65%) and mentorship programs (50%) also feature prominently, indicating that most industry partners prefer training formats that are integrated into regular work environments. Site visits (42%) and apprenticeship programs (28%) were less common, possibly due to logistical, regulatory, or resource constraints. The relatively low uptake of apprenticeship schemes and structured workshops (9%) indicates a need for increased advocacy for more formal and longer-term capacity-building models. Promoting these less-utilized methods could contribute to more comprehensive and immersive skill development for students. Otache (2022) highlights that such opportunities are instrumental in equipping students with hands-on skills relevant to the workplace. The relatively lower prevalence of apprenticeship programs (28%) suggests potential for growth in structured, long-term training models. Malik et al. (2021) advocate for the expansion of apprenticeship schemes to provide more comprehensive skill development pathways for students.

4.3 Number of Students Hosted

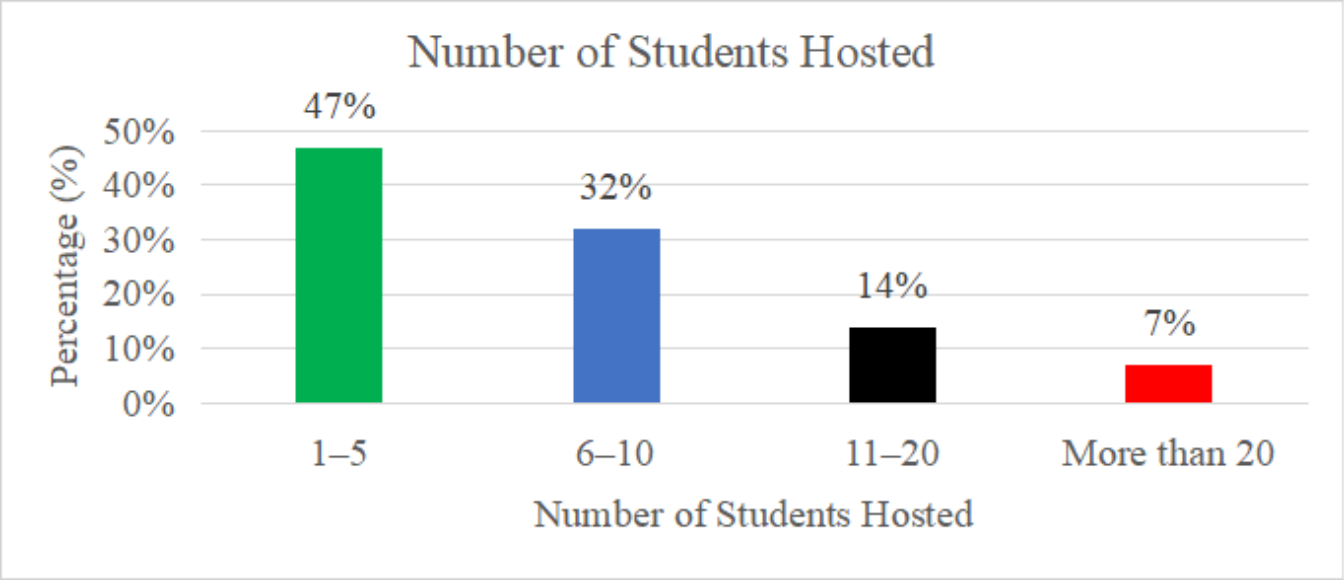

Figure 2 Number of Students Hosted

As illustrated in Figure 2, nearly half (47%) of the respondents host between 1 and 5 students per year, with another 32% accommodating 6 to 10 students. This suggests that most organizations offer limited placement slots, potentially reflecting limitations in capacity, supervision, or infrastructure. Only 21% host more than 10 students, an indication that while partnerships exist, their scale remains relatively moderate. There is clear potential for the Polytechnic to engage in strategic dialogues with industry partners to explore ways of scaling up student placements through incentives, collaborative programs, or co-financing models. The observation that nearly half of the organizations host between 1 and 5 students annually indicates limited capacity for student placements. Otache (2022) emphasizes the need for scaling up such opportunities to accommodate more students, suggesting that collaborative programs and co-financing models can alleviate capacity constraints.

4.4 Duration of Attachment

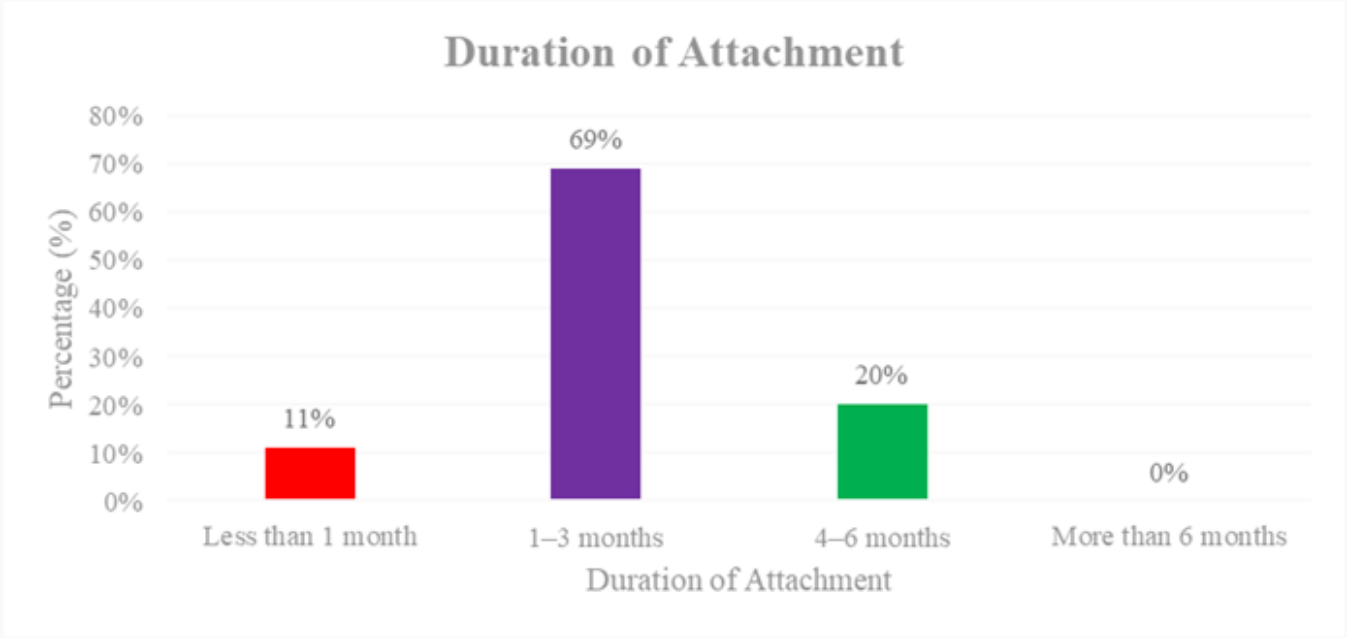

Figure 3 Duration of Attachment

Figure 3 shows that the majority of training attachments last between 1 and 3 months (69%), aligning with the traditional academic calendar for industrial placements. Only 20% of respondents offer longer attachments of 4–6 months, while none provide training exceeding six months. This implies that while short-term engagement is widely practiced, extended exposure—often critical for acquiring complex or specialized skills—is limited. The Polytechnic may need to review its curriculum and policy frameworks to encourage or mandate longer attachments in collaboration with willing industry partners.

The typical duration of training attachments lasting between 1 and 3 months (69%) reflects standard academic calendar structures. However, Otache (2022) argues that extended exposure, often critical for acquiring complex or specialized skills, is limited in such short-term engagements. To address this, institutions may need to review curriculum and policy frameworks to encourage or mandate longer attachments in collaboration with industry partners, thereby enhancing the depth of student learning experiences.

4.5 Perceptions of Industry Partners

Table 2 Perceptions of Industry Partners

Statement	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)
a. Practical training enhances student readiness for the workforce	2%	3%	8%	54%	33%
b. Our organization benefits from engaging students during training	1%	6%	12%	51%	30%
c. Students come prepared with basic technical competencies	4%	7%	17%	47%	25%
d. There is effective coordination between the Polytechnic and our firm	6%	12%	23%	41%	18%

e. We are willing to increase student intake for training	2%	9%	22%	46%	21%

Sources: Research Data (2025)

The responses summarized in Table 2 indicate strong endorsement of the value of practical training. A total of 87% of respondents agreed or strongly agreed that practical training enhances student readiness for the workforce. The findings are consistent with findings by Otache (2022), who emphasizes the role of experiential learning in preparing students for the workforce. Similarly, 81% agreed that organizations benefit from engaging students, reflecting mutual value in the collaboration. However, perceptions of student preparedness were slightly less positive, with only 72% agreeing that students possess the necessary basic technical competencies, signalling a need to enhance foundational skills before placement.

Notably, only 59% of respondents agreed there is effective coordination between their organizations and the Polytechnic, suggesting a need for improved communication, clearer expectations, and better support mechanisms. Encouragingly, 67% expressed willingness to increase student intake, which presents a valuable opportunity for the Polytechnic to expand partnerships if systemic coordination and quality assurance mechanisms are strengthened.

However, the perception that only 72% of students possess necessary basic technical competencies suggests a need for strengthening foundational skills within academic programs. Additionally, the finding that only 59% perceive effective coordination between their organizations and the Polytechnic indicates room for improving communication and support mechanisms (Malik et al., 2021).

5.0 Conclusions and recommendations

5.1 Conclusions

The study concluded that industry involvement in providing practical training opportunities such as internships, attachments, and mentorship significantly enhances students' technical competence. However, inconsistent availability of such opportunities, coupled with challenges like limited industry capacity, legal concerns, and unclear institutional expectations, hinders their full effectiveness across all programs.

5.2 Recommendations

The Ministry of Education should increase the number of industrial attachment slots by collaborating with SMEs and non-traditional industries. It should also provide incentives to industry players offering attachments, such as tax reliefs or government recognition.

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