Emotional Intelligence in Engineering Problem-Solving: A Phenomenological Study Among Manufacturing Engineers

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Abstract

Engineering graduates often enter the workforce with underdeveloped emotional intelligence (EI), leading to challenges in emotional regulation, decision-making, and social interactions that subsequently impact their employability and job performance. Despite its recognized importance for professional success, the integration of EI into engineering education remains inconsistent. This study aims to identify the essential Emotional Intelligence competencies required for successful engineering problem-solving. Using a phenomenological approach, semi-structured interviews were conducted with practicing engineers in a manufacturing setting. The findings reveal three key EI competencies frequently demonstrated by engineers, which are now formulated as empirical insights: (1) Initiative – Taking proactive steps to address issues and empirically validate assumptions; (2) Adaptability – Strategically adjusting to changes and collaborating across departments to manage uncertainty; and (3) Self-Recognition – Deep awareness of one's strengths, limitations, and the impact of one's behaviour on the team. These findings offer clear empirical insights into the critical role of Emotional Intelligence within the manufacturing engineering context, suggesting that engineering education programs should explicitly teach these skills.

Keywords: Emotional Intelligence, Engineering Problem-Solving, Initiative, Adaptability, Self-Recognition, Phenomenological Study.

Introduction

Emotional intelligence (EI) is increasingly recognized as a critical determinant of professional success in the engineering field. Its significance is evident in its strong correlation with enhanced job performance, effective stress management, rational decision-making, and the strengthening of interpersonal relationships within dynamic and challenging work environments (Talib et al., 2023; Ambotang & Hamid, 2021). Furthermore, a high level of EI among engineering professionals is a major contributor to effective collaboration, proficient communication, and adept conflict resolution within teams, while leaders with high EI can foster a positive work climate and enhance overall team performance (Ambotang & Hamid, 2021; Shofia etal., 2023). These soft skills are paramount in engineering disciplines, particularly those that require high technical precision and intensive team interaction for complex problem-solving.

The positive impact of EI begins even before engineers enter the workforce. At the academic level, a clear positive relationship exists between EI and academic achievement, where engineering students with high EI consistently demonstrate better performance in core subjects (Safa'udin, 2024; Wulandari & Pranata, 2023). EI also facilitates a smoother transition from academia to industry, building self-confidence and enhancing career decision-making abilities (Safa'udin, 2024; Wulandari & Pranata, 2023). Beyond academic and initial career success, EI plays a vital role in building psychological capital (PsyCap); such as self-confidence, optimism, hope, and resilience; which is crucial for maintaining mental well-being and overcoming challenges in the demanding engineering profession (Lye et al., 2022; Patil et al., 2023). From an employability perspective, EI serves as a key differentiator, as graduates with high EI are more proficient in the communication, teamwork, and problem-solving skills highly valued by employers (Patil et al., 2023; Lye et al., 2022). Therefore, the development of EI should be a major agenda for engineering institutions to ensure graduates are prepared to face the emotional and interpersonal demands of the workplace.

Despite its acknowledged importance, a significant problem persists: a majority of engineering graduates

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enter the workforce with underdeveloped EI. This deficiency manifests as difficulties in emotional regulation, low confidence in decision-making, and significant weaknesses in social interactions, which directly impair their ability to handle complex technical problems and manage critical issues within high-pressure manufacturing environments. This issue is particularly pertinent in the ASEAN region, where industry feedback frequently highlights that the Emotional Intelligence skill gap is among the biggest challenges faced by regional engineering graduates. This issue stems from an inconsistent and often marginalized integration of EI within existing engineering education curricula. Consequently, there is a critical misalignment between the recognized importance of EI and the actual teaching practices, ultimately producing graduates who are emotionally unprepared for the industry's demands.

While previous research has established the general importance of EI for engineers and the need for its integration into education, there remains a significant knowledge gap regarding the specific Emotional Intelligence competencies that are most critical for core engineering activities, particularly problem-solving within dynamic manufacturing settings. Therefore, this study aims to address this gap by investigating the lived experiences of practicing engineers. The primary objective of this research is to identify the empirical insights (empirical insights) concerning the essential emotional intelligence competencies required for successful engineering problem-solving in an industrial setting. By answering the research question - "What are the relevant emotional intelligence competencies required for success in Engineering problem-solving?" - this study seeks to provide empirical insights that can inform more targeted and effective EI interventions in engineering education.

Problem Statement

Although emotional intelligence (EI) is recognized as a critical aspect for professional success in engineering, the majority of graduates still enter the workforce with inadequate levels of EI. They often face difficulties in controlling emotions, lack confidence in making important decisions, and possess weak interpersonal skills. These problems subsequently affect their employability, job performance, and ability to adapt in dynamic and high-pressure professional environments. This issue stems from the inconsistent and incomplete integration of EI in the existing engineering education curriculum. Therefore, the main problem that needs to be addressed is the misalignment between the recognized importance of EI and its teaching practices that remain marginalized in the engineering education system, ultimately producing graduates who are emotionally unprepared to meet the actual demands of the industry.

Research Objective

This study is to identify the essential emotional intelligence skills required for success in Engineering problem-solving.

Research Questions

What are the relevant emotional intelligence competencies required for success in Engineering problem-solving?

Methodology

This study employed a qualitative, phenomenological research design to gain deep insights into the lived experiences of engineers. A purposive sampling strategy was utilized to select participants who could provide rich, relevant, and in-depth information pertinent to the research objective (Campbell et al., 2020). Specifically, a homogeneous sampling approach, a subtype of purposive sampling, was adopted to focus on individuals who shared similar key characteristics and could illuminate the specific phenomenon under study; emotional intelligence in engineering problem-solving (Creswell & Poth, 2018). This homogeneity was established by selecting participants who were all practicing engineers directly engaged in complex technical troubleshooting and daily problem-solving activities within the same manufacturing department.

The sampling frame was an electronic manufacturing company registered with the Federation of Malaysian Manufacturers (FMM) located in southern Johor. The study specifically targeted the manufacturing department, where engineers are critically engaged in daily problem-solving activities. To be eligible, participants had to be practicing engineers with direct involvement in technical troubleshooting and process improvement.

A total of six engineers were selected to participate in the study. This sample size is considered appropriate in phenomenological research, where the depth of understanding from a small number of participants is valued over breadth from a large sample (Smith et al., 2022). The participants comprised individuals of varying seniority levels and specializations within the manufacturing department, ensuring a diversity of perspectives while maintaining the homogeneity of their core professional context and experiences with problem-solving. The variation in seniority levels (e.g., Junior to Senior Engineer) was intentionally included to capture a broad range of experiences with problem-solving, yet all shared the critical and homogeneous trait of having direct, daily involvement in applying EI competencies to technical challenges in the same manufacturing context.

The nature of their work, which involves constant interaction with technical challenges, team members, and cross-functional departments, provided a fertile ground for observing and discussing the manifestation of emotional intelligence competencies in a real-world industrial setting.

Phenomenology Method and Interview Procedure

This study employs a phenomenological approach, specifically the interpretive (hermeneutic) tradition, rooted in Heidegger's philosophy. This approach was chosen as it allows the researcher to move beyond mere description, instead interpreting the contextual and nuanced meaning of engineers' lived experiences regarding EI competencies in an industrial setting. Compared to descriptive phenomenology (Husserl), the interpretive phenomenology used in this study emphasizes the co-construction of meaning and the researcher's role in interpreting those experiences within a broader context (Watson, 2024; Tavakol & Sandars, 2025; Sinfield et al., 2023). The primary goal of this method is to gain a deeper, contextual understanding of the *essence* of the engineers' lived experiences, which is crucial for generating new knowledge relevant to industry practitioners (Fréchette et al., 2020; Sinfield et al., 2023).

Phenomenological research is particularly valuable for exploring how individuals make sense of their experiences, often employing in-depth or semi-structured interviews. For this purpose, data were collected through semi-structured interviews conducted with the six selected engineers, with each interview lasting approximately 60 to 90 minutes. The interviews were guided by a protocol consisting of five core open-ended questions designed to elicit rich narratives about their experiences applying EI during challenging problem-solving situations. The methodology is inherently inductive, enabling the emergence of new knowledge that may not be anticipated by the researcher but is significant to practitioners (De Boer & Zeiler, 2024; Sinfield et al., 2023). The use of semi-structured interviews provided the necessary flexibility to encourage participants to share insights that might otherwise remain hidden, aligning with the inductive nature of qualitative research.

Given that this study uses the interpretive phenomenological approach, adherence to methodological rigour is essential to ensure the authenticity and depth of the findings. This interpretive approach, unlike the descriptive one, requires the researcher to be vigilant against personal bias through the process of reflexivity and bracketing, which is vital in capturing authentic lived experiences (Watson, 2024; Tavakol & Sandars, 2025; Sinfield et al., 2023; Jackson et al., 2018). Therefore, the choice of a method aligned with the research objectives—where the interpretive approach delves into contextual meaning—guided the entire research process to enhance the quality and trustworthiness of the results (Fréchette et al., 2020; Sinfield et al., 2023).

Figure 1 shows the flow chart for the phenomenological methodology and analysis.

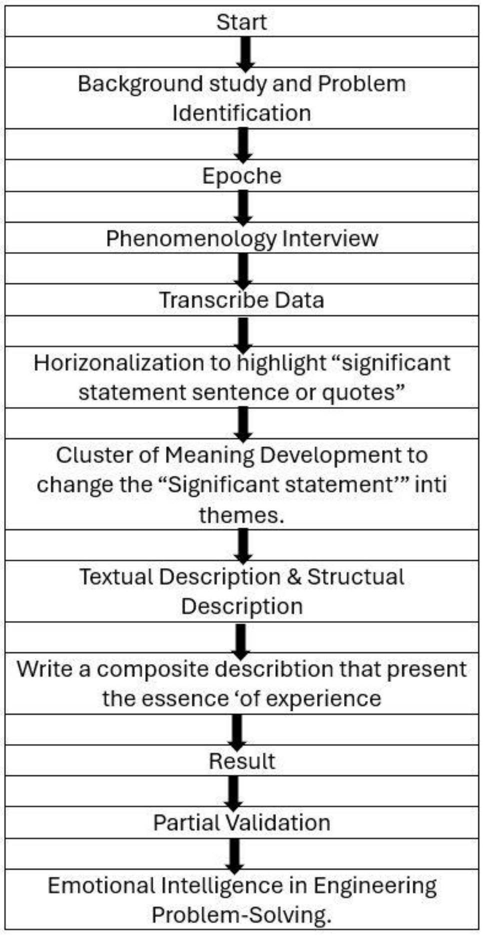

Figure 1. The Flow Chart for Phenomenological Methodology and Analysis

Data Analysis

The data analysis for this phenomenological study followed the systematic approach outlined by Moustakas (1994) to ensure a rigorous process of deriving meaning from the participants' lived experiences. The analysis involved several iterative stages aimed at distilling the essence of the engineers' experiences with emotional intelligence during problem-solving.

The initial step involved horizontalization, whereby each interview transcript was treated with equal value, and significant statements (horizons) that provided insight into the participants' experiences were identified. These statements were extracted verbatim, forming the raw data for subsequent analysis.

Following horizontalization, the significant statements were then clustered into meaning units or codes that represented specific aspects of the phenomenon. This process involved a meticulous reading and re-reading of the transcripts to identify recurring patterns and themes related to emotional intelligence competencies.

The coded meaning units were then synthesized to develop textural descriptions (what the participants experienced) and structural descriptions (how they experienced it) for each participant. This stage involved constructing individual textual-structural descriptions to capture the unique experience of each engineer.

Finally, through a process of imaginative variation and integration, a composite textual-structural description was developed. This synthesis, often referred to as the essence of the phenomenon, integrated all individual descriptions to identify the universal themes of emotional intelligence competencies that were essential for engineering problem-solving across all participants' experiences.

To ensure the trustworthiness of the analysis, several validation strategies were employed. Peer debriefing was conducted where the emerging themes were discussed with research supervisors to challenge interpretations and minimize researcher bias. Member checking was performed by sharing the preliminary findings with two participants to verify the accuracy and resonance of the interpreted data with their actual experiences.

Findings

As an engineer, the ability to solve complex problems in the industry does not rely solely on technical skills, but also requires mature emotional intelligence. As figure 2, Among the important skills to master are Initiative – taking proactive steps to address issues before they escalate; Adaptability – the ability to adjust quickly to changes in technology and market needs; and Self-Recognition – an awareness of one's own strengths and limitations to enable continuous learning and effective collaboration within a team.

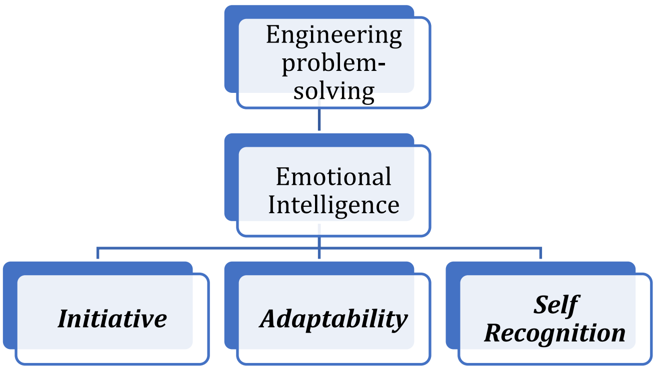

Figure 2: Findings of Emotional Intelligence

Initiative

Based on the analysis of the engineers' statements of initiative as table 1, the trait of initiative emerges as a fundamental value and critical daily practice in solving engineering problems within the industrial context. This initiative is not merely an additional action but a primary driver that enables engineers to gain deeper understanding, verify assumptions, and ultimately resolve issues more efficiently and effectively. The proactive approach demonstrated by these engineers directly translates into more robust and reliable problem-solving methodologies in industrial settings.

The detailed analysis reveals three key patterns of initiative that directly impact industrial problem-solving. First, engineers who proactively obtain primary data through physical measurements and direct observation (Engineers 1 & 2) bypass potential gaps in secondary reports, enabling empirical verification and reducing reliance on speculation. Second, the initiative shown in preliminary knowledge acquisition and planning (Engineers 3 & 4) through studying specifications, drawings, and initial calculations ensures that solutions are theoretically sound and practically feasible from the outset, preventing costly trial-and-error approaches. Third, the proactive expansion of investigation scope through comparative analysis across different models (Engineer 5) helps identify whether issues are isolated or systemic, ensuring comprehensive solutions rather than temporary fixes. Collectively, these initiative-driven approaches demonstrate how engineers in industry move beyond passive problem-solving to actively construct understanding, validate hypotheses, and develop solutions that address root causes rather than just symptoms.

Table 1. The analysis of the engineers' statements of initiative

No.	Engineer	Statement	Explanation
1	Engineer 1	**"I took the actual PCB part to analyse and take my own measurements..."**	This engineer did not wait for instructions. They proactively **took the physical component themselves** to analyze and take measurements. The actions of "taking" and "checking" show a high level of initiative.
2	Engineer 2	**"I took the actual PCB part to analyse and take my own measurements..."**	Similar to Engineer 1, this engineer shows initiative through proactive physical actions to investigate the problem hands-on.
3	Engineer 3	**"I was read the spec and take a calculator to make the initial calculation ..."**	This engineer did not just read the specifications passively. They took the next step by **immediately making their own initial**

			calculations before the actual analysis. This is a proactive action based on personal understanding.
4	Engineer 4	**"After I read the drawing, I'll confirm the same machine before, next I'll design the jig used...."**	This engineer systematically plans follow-up actions. The transition from reading the drawing to confirming the machine and then **planning to design their own tool (jig)** shows clear planning and initiative.
5	Engineer 5	**"Next, I take initiative to mail; I have another sample from different models to be measured.. ."**	This is the clearest example. This engineer literally uses the phrase **"I take initiative"**. They were not satisfied with the existing samples and proactively sought samples from other models for a more thorough comparison.

Adaptability

Based on the analysis of engineers' statements of Adaptability in interviews nas table 2, it can be concluded that adaptability is a crucial soft skill widely practiced in the engineering profession. In this context, adaptability is not merely about flexibility, but encompasses a proactive, strategic, and data-driven approach to handling uncertainty and solving complex problems. Overall, the excerpts show that adaptability is demonstrated through collective actions to obtain information. As mentioned by Engineers 1 and 2, they did not hesitate to organize meetings and interact with various departments such as Quality Control (QC), Production, and Warehouse. This action proves that an adaptable engineer understands the limits of their own knowledge and is willing to cross departmental silos to gather diverse data and build a stronger understanding of a problem. This aligns with the demands of modern engineering work, which requires close collaboration.

Furthermore, adaptability is also evident in a solution-oriented attitude and thorough investigation. Engineer 4, for example, emphasized the need to "research the design properly" to ensure the process has no defects. This shows that adaptability is not a rushed, reactive action, but a disciplined process of adjustment driven by curiosity to achieve optimal results. Similarly, Engineer 5 who went to the warehouse to check every stock to resolve a PCB issue demonstrates the ability to adapt investigation methods based on situational needs. Finally, adaptability is also closely related to pragmatic and data-driven planning. As stated by Engineer 6, to organize assembly stations, he first needed to know the standard time of each station. This shows that effective adaptation is not based solely on instinct but is preceded by a deep understanding of existing data and constraints, thereby enabling difficult decisions to be made with confidence.

Table 2. The analysis of the engineers' statements of Adaptability

No.	Engineer	Statement	Explanation
1	Engineer 1	**"...issuing an email to call a meeting to some departments ... for discussion regarding problems and data collection..."**	**Proactive Collaboration:** Not working in isolation. Immediately adapting their approach by involving various stakeholders to gain different information and perspectives.
2	Engineer 2	**"...I have to meet other departments to ask for different parts and the same part of the series..."**	**Seeking Comprehensive data :** Understands that the available data is insufficient. Adapting their strategy by seeking more diverse and specific data to strengthen the analysis.
3	Engineer 3	**"I need to set up the settings on the machine before the start date..."** *(Cont ext: To prevent problems)*	**Preparation and Technical Adjustment:** Adap ting machine parameters based on specific production requirements, demonstrating flexibility in handling equipment.
4	Engineer 4	**"...I need to research the design properly so that this process has no defects..."**	**Research and Improvement:** Not accepting the existing design. Willing to adapt and research the design to solve a potential defect problem before it occurs (proactive action).

5	Engineer 5	**"...I need to know every stock in the storage warehouse, so that I can take a sample for testing..."**	**Action-Oriented Investigation:** Facing an unclear problem (affected PCB) by adapting their method: going to the field, checking stock, and taking samples for testing based on their own assessment.
6	Engineer 6	**"...I had to first know the standard time of each station."**	**Data-Driven Planning:** Before making a physical adaptation (reorganizing stations), they adapted their plan by first obtaining critical data to ensure the decision would be effective.

Self-Recognition

Based on the analysis of the statements expressed by the engineers as table 3, it can be concluded that **Self-Recognition** is a critical element in the technical problem-solving process. This ability is reflected through several dimensions of internal awareness possessed by these engineers.

First, there is an awareness of **personal experience and knowledge**, as shown by Engineer 2. By actively reflecting on relevant past experiences, he demonstrates an understanding that the knowledge he has acquired is a valuable asset and the starting point for analyzing a new problem.

Second, there is an awareness of **one's own skill level and competence**. Engineer 5, for example, realizes that a task feels "simple" for him because the required data is complete. This statement not only shows confidence in his abilities but also a clear understanding of the external conditions that allow his skills to be applied effectively.

Third, the aspect of **metacognition** or awareness of one's own thought process is also clearly visible. Engineer 3 openly admits that he needs time to understand and visualize the problem after receiving data. This admission shows an introspective ability to recognize the speed and manner of his own information processing, which is a form of cognitive maturity.

Fourth, Self-Recognition is also reflected in the ability to **identify the limits of one's own knowledge**. Engineer 6 realizes that collaboration with other departments is an effective strategy to compensate for his shortcomings in certain areas. This awareness encourages a humble and open attitude to seek knowledge sources outside oneself, which ultimately enriches the solution.

In contrast, Engineer 4's statement focuses more on external obstacles ("lack of data") than self-evaluation. This contrast further underscores that authentic Self-Recognition occurs when an engineer is able to separate challenges originating from within themselves (such as knowledge, experience, and cognitive process) from challenges originating from their external environment.

Overall, Self-Recognition is not merely self-confidence, but a deep and honest understanding of one's own strengths, weaknesses, learning style, and limitations. This ability is the foundation for a more focused, adaptive, and effective problem-solving approach in the field of engineering.

Table 3: The analysis of the engineers' statements of Self Recognition.

No.	Engineer	Statement	Explanation
1	Engineer 2	"... Apart from that, I also try to recall previous issues of whether I have ever experienced the same problem or same condition or a new problem especially specification and reject quantity. It can help to analyse this problem."	This engineer is actively **reflecting on their own past experiences** as a first step in problem-solving. This shows an awareness of the value of their personal knowledge.
2	Engineer 3	"After I received the information or data. It took me a while to understand and imagine the problem........"	This statement shows an awareness of their **own cognitive process and limitations in understanding**. They acknowledge needing time to process information, which is a form of metacognition (thinking about their own thinking).
3	Engineer 4	"... after the meeting on the issue by the production department. I feel that this problem is	This is more of an **assessment of the external situation (lack of data)** than self-reflection. They are

		difficult to solve due to lack of data, it has to do additional testing and get a lot of data......"	identifying an external obstacle, rather than evaluating their own abilities, knowledge, or approach.
4	Engineer 5	".....Setting up this datasheet is simple for me because all the required data is already provided. I just need to perform an initial confirmation and test ten units of PCB to ensure that the specifications are correct…."	They demonstrate **a wareness of their own skill level** ("simple for me") and understand the conditions that make the task easy (complete data). This shows they can assess their own capabilities within a given context.
5	Engineer 6	"... discussions with other departments can help me to make calculations and set the rules more effectively...."	This engineer recognizes the **limitations of their own knowledge** and identifies a strategy (collaboration) to compensate for it. This shows self-awareness about the need for external input.

Discussion

Initiative

In an industrial context, initiative is a fundamental value and critical daily practice in solving engineering problems. This trait of initiative is not merely an additional action, but a primary driver that enables engineers to understand issues more deeply, validate assumptions, and ultimately solve problems more efficiently and effectively. Studies show that proactive behaviour and personal initiative of workers, including engineers, are crucial in generating, championing, and implementing innovations even when facing complex challenges and resource constraints (Weigt-Rohrbeck & Linneberg, 2019; Segarra-Ciprés et al., 2019; Björklund et al., 2022). Initiatives such as obtaining primary data through direct observation, early planning based on technical knowledge, and comparative analysis between models allow engineers to validate information empirically, avoid speculation, and ensure comprehensive solutions (Weigt-Rohrbeck & Linneberg, 2019; Ueki & Martínez, 2019; Omar et al., 2019). Furthermore, initiative is also closely linked to problem-solving skills, where proactive engineers are more likely to share knowledge, enhance innovation performance, and contribute to process improvements within the organization (Ueki & Martínez, 2019; Abbas et al., 2018). Overall, this initiative-based approach enables engineers to move beyond reactive solutions, build a robust understanding, validate hypotheses, and develop solutions that address the root causes of industrial problems (Weigt-Rohrbeck & Linneberg, 2019; Ueki & Martínez, 2019; Omar et al., 2019; Segarra-Ciprés et al., 2019; Björklund et al., 2022; Abbas et al., 2018).

Adaptability

Adaptability is an extremely important soft skill in the engineering profession, especially in facing evolving job roles, industry demands, and technological challenges. Adaptability in engineering is not just flexibility, but involves a proactive, strategic, and data-driven approach to handling uncertainty and solving complex problems. Studies show that adaptable engineers tend to collaborate across departments, gather information from various sources, and adjust investigation methods according to situational needs, aligning with the cooperation requirements in the modern engineering world (Brunhaver et al., 2024; Omar et al., 2023; Poláková et al., 2023). Adaptability is also associated with a disciplined problem-solving attitude and the ability to make decisions based on a deep understanding of existing data and constraints (Ishmael et al., 2025; Poláková et al., 2023; Sanz-Angulo et al., 2025). Additionally, studies find that adaptability contributes significantly to the employability of engineering graduates, career success, and the ability to work in dynamic and multidisciplinary environments (Brunhaver et al., 2024; Omar et al., 2023; Poláková et al., 2023). Therefore, the development of adaptability needs to be emphasized in engineering education through specific training, collaborative learning, and exposure to real-world situations to ensure future engineers are capable of adapting to the constantly changing industrial challenges (Brunhaver et al., 2024; Caeiro-Rodríguez et al., 2021; Sanz-Angulo et al., 2025).

Self-Recognition

Self-Recognition or self-awareness is an important element in the technical problem-solving process, as it involves an individual's ability to honestly assess their own experiences, skills, and knowledge limits. In the context of technical skills assessment, a systematic review shows that objective performance assessment; such as that conducted through machine learning; can help individuals identify their skill levels and areas needing improvement, thereby enhancing self-awareness of their strengths and weaknesses (Lam et al., 2022). Furthermore, the aspect of metacognition, which is the ability to understand and monitor one's own thought processes, is recognized as an important factor in the assessment and improvement of technical skills (Lam et al., 2022). Studies also emphasize that identifying knowledge limits and the need for collaboration are effective strategies for overcoming individual shortcomings, aligning with the concept of Self-Recognition which demands honesty in self-assessment (Lam et al., 2022). Therefore, Self-Recognition is not merely self-confidence, but involves deep reflection on experiences, skills, learning styles, and limitations, which forms the basis for a more focused, adaptive, and effective problem-solving approach in the field of engineering (Lam et al., 2022**).**

Conclusion

This study successfully identified three core emotional intelligence competencies essential in industrial engineering problem-solving: Initiative, Adaptability, and Self-Recognition. Initiative serves as the primary driver for proactive action, enabling engineers to validate assumptions empirically and implement innovations. Adaptability allows engineers to strategically adjust approaches, collaborate across departmental silos, and handle uncertainty in dynamic industrial environments. Meanwhile, Self-Recognition functions as the foundation for metacognition, enabling honest assessment of one's strengths, weaknesses, and cognitive processes, subsequently guiding self-improvement and effective collaboration.

The combination of these three attributes enables engineers to transcend reactive problem-solving, build deep understanding of issues, and subsequently develop holistic solutions capable of addressing root causes of problems within constantly evolving industrial environments.

The study's findings provide practical implications for engineering education. To bridge the gap between EI's importance and current pedagogical practices, targeted EI training needs to be integrated into curricula through: designing problem-based learning modules that foster Initiative; collaborative projects simulating real-world dynamics to develop Adaptability; and reflective exercises such as structured journals that promote Self-Recognition among students.

While providing deep insights, this study has limitations in terms of small sample size and specific industrial context that may limit the generalizability of findings. Future research is recommended to involve larger and more diverse samples across engineering disciplines, use mixed-methods approaches to quantify the impact of identified competencies, and conduct longitudinal studies to track the development of EI competencies from university to career stage.

In conclusion, this study provides a fundamental framework of essential EI competencies for engineering problem-solving, while offering clear guidance to educators and institutions for producing graduates who are not only technically proficient but also emotionally and socially intelligent.

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Conflict of Interest

The authors declare no conflict of interest.

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