

An illustration of a man and a woman in profile, facing each other. The man is on the left, colored in a dark blue silhouette. The woman is on the right, colored in a pink silhouette. Between them are two speech bubbles. The top speech bubble, originating from the man, contains a collection of blue icons representing various aspects of life: a key, a paw print, a female symbol, a dumbbell, a wine glass, a fish, a wrench, a smartphone, an airplane, a dollar sign, a car, a lightbulb, and a camera. The bottom speech bubble, originating from the woman, contains a collection of pink icons: a cross, a heart, a high-heeled shoe, a pair of scissors, a mirror, a flower, a vase, a ring, a film strip, a perfume bottle, and a small house. The background is a solid light blue.

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Industry Internship Experiences and Professional Socialisation: A Qualitative Study of CSE Students

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Industry internships have become a vital component of Computer Science and Engineering (CSE) education, serving as a bridge between academic learning and professional practice. This study explores how internship experiences contribute to the professional socialisation of CSE students through a qualitative analysis of secondary data. Drawing on experiential learning theory, organisational socialisation theory, and communities of practice, the study synthesises findings from peer-reviewed literature, institutional reports, and prior qualitative research. The analysis reveals that internships play a critical role in shaping professional identity, enhancing technical competence, and developing essential soft skills such as communication, teamwork, and adaptability. Furthermore, internships facilitate students' integration into workplace cultures and professional communities. However, the findings also highlight significant challenges, including unequal access to opportunities, lack of structured mentorship, and inconsistencies in learning experiences. The study underscores the importance of well-designed internship programs supported by strong industry-academia collaboration. It concludes that internships, when effectively structured, serve as transformative learning environments that prepare students for a successful transition into the professional workforce.

Keywords: internships, professional socialisation, CSE students, experiential learning, employability, soft skills, work-integrated learning

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1. Introduction

The transition from higher education to professional employment has become increasingly complex in the contemporary knowledge-driven economy. For students in Computer Science and Engineering (CSE), this transition is particularly significant due to the rapidly evolving nature of the technology sector, where both technical proficiency and professional competencies are essential. While universities traditionally focus on imparting theoretical knowledge and foundational skills, employers increasingly expect graduates to possess practical experience, workplace readiness, and professional behaviour (Jackson, 2015). In this regard, industry internships have emerged as a critical mechanism for bridging the gap between academic learning and professional practice.

Internships, often conceptualised as a form of work-integrated learning (WIL), provide students with opportunities to apply theoretical knowledge in real-world settings while simultaneously acquiring experiential knowledge (Fleming & Haigh, 2017). For CSE students, internships typically involve engaging in software development projects, participating in collaborative teams, and using industry-standard tools and technologies. These experiences are not only instrumental in enhancing technical competence but also play a vital role in shaping students' understanding of professional norms, expectations, and identities. Consequently, internships are increasingly viewed as a key site of professional socialisation.

Professional socialisation refers to the process through which individuals acquire the knowledge, skills, attitudes, and values necessary to function effectively within a professional role (Van Maanen & Schein, 1979). This process is particularly important in fields such as computer science, where professional practices are shaped by organisational cultures, team dynamics, and evolving technological standards. Through internships, students are exposed to these dynamics and begin to internalise the behaviours and expectations associated with professional roles. For instance, they learn how to communicate effectively with team members, adhere to deadlines, manage workloads, and navigate organisational hierarchies.

The importance of internships in facilitating professional socialisation has been widely recognised in the literature. Studies have shown that students who participate in internships demonstrate higher levels of employability, improved soft skills, and greater confidence in their professional abilities compared to those who do not (Silva et al., 2018). Moreover, internships provide a context for reflective learning, allowing students to evaluate their strengths and weaknesses and to align their career aspirations with industry realities (Kolb, 1984). This reflective dimension is particularly significant, as it enables students to construct a coherent professional identity.

Despite these benefits, the effectiveness of internships is not uniform across contexts. Several studies have highlighted challenges such as inadequate supervision, lack of meaningful tasks, and mismatches between

academic preparation and industry expectations (Jackson, 2015; Silva et al., 2018). In developing countries, including Bangladesh, these challenges may be exacerbated by structural constraints such as limited availability of quality internship opportunities, weak industry-academia collaboration, and disparities in access to resources. As a result, not all students can fully benefit from internship experiences, raising concerns about equity and effectiveness.

Another critical issue relates to the nature of learning that occurs during internships. While internships are often assumed to facilitate learning automatically, research suggests that the quality of learning depends on factors such as mentorship, organisational support, and opportunities for active participation (Lave & Wenger, 1991). In the absence of these factors, internships may become routine or exploitative experiences that do not contribute significantly to students' professional development. Therefore, it is essential to examine not only the outcomes of internships but also the processes through which learning and socialisation occur.

This study seeks to explore the role of industry internships in the professional socialisation of CSE students through a qualitative analysis of secondary data. By synthesising findings from existing literature, the study aims to identify key themes and patterns that characterise internship experiences and their impact on students' professional development. Specifically, the study addresses the following research questions:

- How do internship experiences contribute to the professional socialisation of CSE students?
- What skills and competencies are developed through internships?
- What challenges do students face during internships, and how do these affect their learning outcomes?

The significance of this study lies in its contribution to the understanding of professional socialisation in the context of CSE education. By adopting a theoretically grounded approach, the study provides insights into the mechanisms through which internships facilitate learning and identity formation. Furthermore, the findings have practical implications for educators, policymakers, and industry practitioners, highlighting the need for structured internship programs, effective mentorship, and stronger collaboration between academia and industry.

In conclusion, as the demands of the technology industry continue to evolve, the role of internships in preparing students for professional careers becomes increasingly important. Understanding how these experiences shape students' professional identities and competencies is essential for designing effective educational interventions and ensuring that graduates are well-equipped to meet the challenges of the modern workplace.

2. Literature Review

Internships are commonly understood as structured work experiences that integrate academic learning with practical application

in a professional setting. They are a key component of work-integrated learning (WIL), which emphasises the integration of theory and practice through experiential engagement (Fleming & Haigh, 2017). WIL frameworks suggest that learning is most effective when students actively participate in real-world contexts, where they can apply knowledge, reflect on experiences, and develop new skills.

Kolb's (1984) experiential learning theory provides a foundational framework for understanding how internships facilitate learning. According to Kolb, learning occurs through a cyclical process involving concrete experience, reflective observation, abstract conceptualisation, and active experimentation. Internships offer a rich environment for this cycle, as students engage in practical tasks, reflect on their experiences, and refine their understanding of professional practices.

Empirical studies have demonstrated that internships enhance both cognitive and non-cognitive learning outcomes. For example, Jackson (2015) found that students who participated in WIL programs reported significant improvements in problem-solving abilities, communication skills, and self-efficacy. Similarly, Silva et al. (2018) highlighted the role of internships in improving employability outcomes, including job placement and career readiness.

2.1 Professional Socialisation and Identity Formation

Professional socialisation is a central concept in understanding the impact of internships on students' development. Van Maanen and

Schein (1979) define organisational socialisation as the process through which individuals acquire the knowledge and behaviours necessary to assume a role within an organisation. This process involves both formal mechanisms, such as training programs, and informal interactions, such as mentorship and peer collaboration.

In the context of CSE education, professional socialisation involves learning not only technical skills but also the norms and values associated with the profession. These include coding standards, ethical practices, teamwork, and communication protocols. Internships provide a context in which students can observe and participate in these practices, thereby facilitating the internalisation of professional norms.

The concept of identity formation is closely linked to professional socialisation. According to Lave and Wenger (1991), learning occurs through participation in communities of practice, where individuals gradually move from peripheral participation to full membership. Internships can be seen as an entry point into such communities, where students begin to see themselves as professionals rather than learners.

Research has shown that internships play a critical role in shaping professional identity. For instance, Trede et al. (2012) argue that professional identity is constructed through a combination of experience, reflection, and social interaction. Internships provide opportunities for all three, enabling students to develop a sense of belonging and competence within their chosen field.

2.2 Development of Technical and Soft Skills

One of the most widely documented benefits of internships is the development of both technical and soft skills. Technical skills in CSE include programming, system design, debugging, and familiarity with development tools. Internships provide exposure to industry-standard technologies and practices that may not be fully covered in academic curricula.

However, the importance of soft skills has gained increasing attention in recent years. Robles (2012) identifies communication, teamwork, and professionalism as among the most critical skills required in the workplace. Internships offer a context in which these skills can be developed through interaction with colleagues, participation in meetings, and collaboration on projects.

Jackson (2015) emphasises that employability is not solely determined by technical competence but also by the ability to work effectively in teams, communicate ideas, and adapt to changing environments. Internships provide opportunities for students to develop these competencies in a real-world context, thereby enhancing their overall employability.

2.3 Challenges and Limitations of Internship Experiences

Despite their benefits, internships are not without challenges. One of the most common issues is the lack of meaningful tasks, which can limit learning opportunities. Some interns are assigned routine or administrative tasks that do not contribute significantly to

their professional development (Silva et al., 2018).

Another challenge is the lack of mentorship and supervision. Effective learning during internships requires guidance and feedback from experienced professionals. In the absence of such support, students may struggle to understand their roles and to learn effectively.

Inequality in access to internships is also a significant concern. Factors such as socioeconomic background, institutional reputation, and personal networks can influence students' ability to secure high-quality internships. This raises questions about equity and inclusivity in internship programs.

Additionally, the mismatch between academic preparation and industry requirements can create difficulties for students. While universities focus on theoretical knowledge, industry often demands practical skills and experience with specific technologies. This gap can lead to initial challenges for students during internships, but may also serve as a learning opportunity.

2.4 Internship Experiences in Developing Country Contexts

In developing countries, the challenges associated with internships may be more pronounced. Limited industry capacity, weak institutional support, and a lack of structured programs can affect the quality of internship experiences. In Bangladesh, for example, the rapid growth of the IT sector has created new opportunities for internships, but the quality

and accessibility of these opportunities vary widely.

Studies suggest that stronger collaboration between universities and industry is essential for improving internship outcomes (Fleming & Haigh, 2017). Structured programs, clear learning objectives, and effective supervision can enhance the quality of learning and ensure that internships contribute meaningfully to students' professional development.

2.5 Synthesis of Literature

The literature indicates that internships play a crucial role in the professional socialisation of students by providing opportunities for experiential learning, skill development, and identity formation. However, the effectiveness of internships depends on various factors, including the quality of supervision, the nature of tasks, and the level of institutional support.

While existing studies provide valuable insights, there is a need for more comprehensive analyses that integrate different theoretical perspectives and consider diverse contexts. This study addresses this gap by synthesising findings from multiple sources to provide a holistic understanding of internship experiences and their impact on professional socialisation.

3. Theoretical Framework

Understanding how industry internships contribute to the professional socialisation of Computer Science and Engineering (CSE) students requires a multidimensional theoretical lens. This study draws upon three complementary theoretical perspectives:

Experiential Learning Theory, Organisational Socialisation Theory, and Communities of Practice. Together, these frameworks provide a comprehensive explanation of how students acquire knowledge, internalise professional norms, and develop identities through internship experiences.

3.1 Experiential Learning Theory

Experiential Learning Theory (ELT), proposed by Kolb (1984), serves as a foundational framework for analysing internship-based learning. ELT posits that learning is a cyclical process consisting of four stages: concrete experience, reflective observation, abstract conceptualisation, and active experimentation. Internships offer a dynamic context in which this cycle is continuously enacted. For instance, when CSE students engage in real-world programming tasks (concrete experience), they reflect on their successes and challenges (reflective observation), develop new understandings of coding practices or system design (abstract conceptualisation), and apply these insights in subsequent tasks (active experimentation).

This iterative process is particularly relevant in technical fields such as computer science, where learning is not confined to theoretical instruction but is deeply embedded in practice. Internships allow students to move beyond classroom-based simulations to engage with authentic industry problems, thereby enhancing the depth and applicability of their knowledge (Fleming & Haigh, 2017). Moreover, ELT emphasises the importance of reflection, which is critical for transforming experience into meaningful learning. Reflective practices, such as journaling or

mentorship discussions, enable students to critically evaluate their performance and identify areas for improvement.

However, the effectiveness of experiential learning during internships is contingent upon the quality of the experience. Structured tasks, supportive supervision, and opportunities for reflection are essential for ensuring that students can fully engage in the learning cycle (Kolb, 1984). Without these elements, internships may fail to produce significant learning outcomes, highlighting the importance of intentional program design.

3.2 Organisational Socialisation Theory

Organisational Socialisation Theory provides a framework for understanding how individuals adapt to new professional environments. According to Van Maanen and Schein (1979), socialisation is the process through which newcomers acquire the knowledge, behaviours, and values required to function effectively within an organisation. This process involves both formal mechanisms, such as orientation programs and training sessions, and informal interactions, such as mentorship and peer relationships.

In the context of internships, CSE students enter organisations as newcomers and must navigate unfamiliar environments characterised by specific norms, expectations, and power dynamics. Through interactions with supervisors and colleagues, interns learn about organisational culture, communication protocols, and professional conduct. These experiences contribute to the

internalisation of professional norms, which is a key aspect of professional socialisation.

Organisational socialisation also involves the development of role clarity and self-efficacy. As interns gain experience and receive feedback, they become more confident in their abilities and more comfortable in their roles. This process is critical for building professional identity and preparing students for future employment (Bauer et al., 2007). Furthermore, the theory highlights the importance of socialisation tactics, such as mentorship and feedback, in facilitating effective adaptation. Structured onboarding processes and supportive work environments can significantly enhance the socialisation experience.

3.3 Communities of Practice

The concept of Communities of Practice (CoP), developed by Lave and Wenger (1991), offers a sociocultural perspective on learning and socialisation. According to this theory, learning occurs through participation in social communities where individuals share common goals, practices, and knowledge. Newcomers initially engage in legitimate peripheral participation, gradually moving toward full participation as they gain experience and competence.

Internships can be conceptualised as entry points into professional communities of practice. CSE students, as interns, begin at the periphery of these communities, observing and assisting with tasks. Over time, as they gain skills and confidence, they take on more complex responsibilities and become more integrated into the team. This progression reflects the process of identity

transformation, as students begin to see themselves as members of the professional community.

The CoP framework also emphasises the importance of social interaction and collaboration in learning. Interns learn not only from formal instruction but also from informal interactions with peers and mentors. These interactions facilitate the sharing of tacit knowledge, which is often difficult to convey through formal education (Lave & Wenger, 1991). In the context of software development, this may include best practices, debugging strategies, and collaborative workflows.

3.4 Integration of Theoretical Perspectives

While each of these theories offers unique insights, their integration provides a more comprehensive understanding of internship experiences. Experiential Learning Theory explains how students learn from practical experiences, Organisational Socialisation Theory elucidates how they adapt to professional environments, and Communities of Practice highlights the social and collaborative nature of learning.

Together, these frameworks suggest that professional socialisation is not a linear process but a dynamic interplay of experience, reflection, interaction, and identity formation. Internships serve as a critical space where these processes converge, enabling students to transition from academic learners to emerging professionals. This integrated theoretical framework guides the analysis of secondary

data in this study, providing a robust foundation for interpreting the findings.

4. Methodology

This study adopts a qualitative research design based on secondary data analysis to explore the role of internships in the professional socialisation of CSE students. Qualitative research is particularly suitable for examining complex social phenomena, as it allows for in-depth exploration of experiences, meanings, and processes (Creswell & Poth, 2018). Given the study's focus on understanding how students interpret and internalise internship experiences, a qualitative approach provides the necessary depth and flexibility.

Secondary data analysis involves the systematic examination of existing data sources to address new research questions or to gain additional insights (Johnston, 2017). This approach is appropriate for the present study, as it enables the synthesis of a wide range of findings from previous research, thereby providing a comprehensive understanding of the topic.

4.1 Data Sources and Selection Criteria

The data for this study were collected from multiple secondary sources, including:

- Peer-reviewed journal articles
- Conference proceedings
- Academic theses and dissertations
- Institutional and industry reports

To ensure relevance and quality, the following inclusion criteria were applied:

- Studies focusing on internships or work-integrated learning
- Research related to computer science, engineering, or closely related fields
- Studies addressing professional development, employability, or socialisation
- Publications in English and from credible academic sources

A purposive sampling strategy was used to select studies that provided rich and detailed insights into internship experiences (Patton, 2002). This approach ensures that the data are information-rich and relevant to the research objectives.

4.2 Data Analysis Procedure

The study employs thematic analysis, a widely used qualitative method for identifying, analysing, and interpreting patterns within data (Braun & Clarke, 2006). The analysis followed a systematic six-phase process:

- **Familiarisation with the data:** The researcher reviewed selected studies to gain an overall understanding of the content.
- **Initial coding:** Relevant segments of text were coded based on their relevance to the research questions.
- **Searching for themes:** Codes were grouped into broader themes representing key aspects of internship experiences.
- **Reviewing themes:** Themes were refined to ensure coherence and distinctiveness.

- **Defining and naming themes:** Each theme was clearly defined and labelled.
- **Producing the report:** The findings were interpreted and presented in relation to the theoretical framework.

This approach allows for a systematic and transparent analysis of qualitative data, ensuring that the findings are grounded in the evidence.

4.3 Ensuring Trustworthiness

In qualitative research, trustworthiness is essential for establishing the credibility and reliability of findings. This study employs several strategies to enhance trustworthiness (Lincoln & Guba, 1985):

- **Credibility:** Achieved through triangulation of multiple data sources, ensuring that findings are supported by diverse evidence.
- **Transferability:** Enhanced by providing detailed descriptions of the context and findings, allowing readers to assess their applicability to other settings.
- **Dependability:** Ensured through a transparent and systematic research process, including clear documentation of data selection and analysis procedures.
- **Confirmability:** Maintained by grounding interpretations in the data and minimising researcher bias.

4.4 Ethical Considerations

As the study relies on secondary data, it does not involve direct interaction with human participants. However, ethical considerations

remain important. All sources used in the study are properly cited, and intellectual property rights are respected. The study also ensures that data are used responsibly and that interpretations accurately reflect the sources (Mannan & Farhana, 2026).

4.5 Limitations of the Methodology

While secondary data analysis offers several advantages, it also has limitations. One key limitation is the lack of control over data collection, as the researcher relies on existing studies that may have different objectives or methodologies (Johnston, 2017). Additionally, the findings are dependent on the quality and scope of the available literature.

Another limitation is the potential for contextual differences across studies. Internship experiences may vary significantly across countries, institutions, and industries, which can affect the generalizability of the findings. Despite these limitations, the use of diverse sources and rigorous analytical methods helps to mitigate these challenges.

4.6 Justification of Methodological Approach

The choice of a qualitative, secondary data-based methodology is justified by the exploratory nature of the study. By synthesising existing research, the study provides a comprehensive overview of internship experiences and their role in professional socialisation. This approach is particularly valuable in identifying patterns and themes that may not be evident in individual studies.

Furthermore, the integration of theoretical frameworks enhances the analytical depth of the study, allowing for a nuanced interpretation of the findings. Overall, the methodology is well-suited to addressing the research questions and contributing to the existing body of knowledge.

5. Findings and Analysis

This section presents the findings derived from the thematic analysis of secondary qualitative data on industry internships and professional socialisation among Computer Science and Engineering (CSE) students. The analysis reveals six interrelated themes: professional identity formation, development of technical competence, acquisition of soft skills, workplace adaptation and organisational culture, mentorship and guided learning, and structural challenges and inequalities. These themes illustrate how internships function as a transformative space where academic knowledge is translated into professional practice.

5.1 Professional Identity Formation

A central finding across the literature is the role of internships in shaping students' professional identity. Professional identity refers to the self-concept based on attributes, beliefs, values, motives, and experiences as a member of a professional group (Trede et al., 2012). Internships provide a context in which students begin to perceive themselves as software engineers rather than merely learners.

Through exposure to real-world tasks, such as coding, debugging, and collaborative

development, students engage in activities that mirror those of professional practitioners. This engagement facilitates a shift in self-perception, as students begin to internalise the norms and expectations of the profession. According to Lave and Wenger (1991), this process reflects movement from legitimate peripheral participation to fuller participation within a community of practice.

Furthermore, identity formation is reinforced through social interaction and feedback. Interns receive validation from supervisors and peers, which enhances their confidence and sense of belonging. However, the process is not always linear. Some students experience identity conflict when their expectations do not align with workplace realities, leading to uncertainty about their career paths (Trede et al., 2012).

5.2 Development of Technical Competence

Internships play a significant role in enhancing technical skills, particularly in bridging the gap between academic curricula and industry requirements. While universities provide foundational knowledge in programming, algorithms, and system design, internships expose students to industry-specific tools, frameworks, and workflows.

For example, students often gain experience with version control systems (e.g., Git), agile development methodologies, and collaborative coding platforms. These experiences are critical for developing practical competence and aligning academic learning with industry expectations (Jackson, 2015).

However, the transition is not without challenges. Many students report an initial “skills gap,” where they feel inadequately prepared for the technical demands of the workplace. This gap can create anxiety, but also catalyses learning. Through continuous practice and feedback, students gradually develop proficiency and confidence.

Importantly, technical competence is not developed in isolation but is intertwined with other aspects of professional development. For instance, problem-solving skills are enhanced through collaborative work, and technical knowledge is deepened through practical application and reflection (Kolb, 1984).

5.3 Acquisition of Soft Skills

In addition to technical skills, internships significantly contribute to the development of soft skills, which are increasingly recognised as essential for employability. These include communication, teamwork, adaptability, time management, and emotional intelligence (Robles, 2012).

The workplace environment requires students to interact with diverse stakeholders, including team members, supervisors, and clients. These interactions necessitate clear communication, active listening, and the ability to articulate ideas effectively. Interns also learn to navigate team dynamics, resolve conflicts, and collaborate on shared goals.

Time management and adaptability are particularly important in fast-paced technology environments. Interns must balance multiple tasks, meet deadlines, and respond to changing project requirements. These experiences foster resilience and

flexibility, which are critical for professional success.

Moreover, internships provide opportunities for informal learning through observation and imitation. Students learn professional behaviours, such as workplace etiquette and communication styles, by observing experienced colleagues. This form of learning is often implicit but highly influential in shaping professional conduct (Lave & Wenger, 1991).

5.4 Workplace Adaptation and Organisational Culture

Another key theme is the process of adapting to organisational culture. Internships expose students to the norms, values, and practices that define workplace environments. This includes understanding hierarchical structures, communication protocols, and organisational expectations.

According to Van Maanen and Schein (1979), organisational socialisation involves both formal and informal processes. Interns may participate in orientation programs or training sessions (formal socialisation), as well as engage in informal interactions with colleagues (informal socialisation). Both processes contribute to the internalisation of organisational culture.

Adaptation to workplace culture is often challenging for students, particularly those with limited prior exposure to professional environments. They must learn to navigate expectations related to punctuality, accountability, and professionalism. However, successful adaptation enhances their readiness for future employment and

reduces the uncertainty associated with entering the workforce.

5.5 Mentorship and Guided Learning

Mentorship emerges as a critical factor influencing the quality of internship experiences. Effective mentorship provides guidance, feedback, and support, enabling students to navigate challenges and maximise learning opportunities. Mentors serve as role models, demonstrating professional behaviours and offering insights into industry practices.

Research indicates that mentorship enhances both technical and social learning outcomes. Interns who receive regular feedback are more likely to develop confidence and competence (Bauer et al., 2007). Conversely, the absence of mentorship can hinder learning, as students may struggle to understand their roles or to receive constructive feedback.

The quality of mentorship varies across organisations, highlighting the importance of structured internship programs that prioritise supervision and support. Organisations that invest in mentorship are more likely to produce positive outcomes for interns.

5.6 Structural Challenges and Inequalities

Despite the benefits of internships, several structural challenges and inequalities are evident in the literature. One major issue is the uneven distribution of internship opportunities. Students from prestigious institutions or with strong networks often have greater access to high-quality

internships, while others face significant barriers.

Additionally, some internships lack meaningful tasks, limiting opportunities for learning and development. In such cases, interns may be assigned routine or administrative duties that do not align with their academic training. This can lead to dissatisfaction and reduced motivation.

Another concern is the prevalence of unpaid or underpaid internships, which can exclude students from lower socioeconomic backgrounds. This raises important questions about equity and access in internship programs (Silva et al., 2018).

These challenges highlight the need for policy interventions and institutional support to ensure that internships are accessible, equitable, and meaningful for all students.

6. Discussion

The findings of this study provide a nuanced understanding of how industry internships contribute to the professional socialisation of CSE students. By integrating insights from Experiential Learning Theory, Organisational Socialisation Theory, and Communities of Practice, this discussion interprets the findings within a broader theoretical and practical context.

6.1 Internships as Sites of Experiential Learning

The findings strongly support Kolb's (1984) experiential learning model, demonstrating that internships function as dynamic environments for learning through experience. Students engage in real-world

tasks that require them to apply theoretical knowledge, reflect on their performance, and adapt their approaches. This iterative process enhances both technical and cognitive skills.

However, the effectiveness of experiential learning depends on the quality of the internship experience. Structured tasks, opportunities for reflection, and supportive supervision are essential for facilitating meaningful learning. Without these elements, internships may fail to realise their full potential.

6.2 Professional Socialisation and Identity Development

From the perspective of Organisational Socialisation Theory, internships serve as critical entry points into professional environments. Students acquire not only technical skills but also the norms, values, and behaviours associated with their profession (Van Maanen & Schein, 1979).

The process of identity formation observed in the findings aligns with the concept of communities of practice (Lave & Wenger, 1991). As interns participate in professional activities, they gradually transition from peripheral participants to active contributors. This transition is accompanied by increased confidence, competence, and a sense of belonging.

However, identity formation is influenced by contextual factors, such as organisational culture and mentorship. Positive experiences can reinforce professional identity, while negative experiences may lead to disillusionment or identity conflict.

6.3 Integration of Technical and Soft Skills

The findings highlight the interconnected nature of technical and soft skills. While technical competence is essential for performing tasks, soft skills enable effective collaboration and communication. This aligns with the broader literature on employability, which emphasises the importance of holistic skill development (Jackson, 2015).

Internships provide a unique context for integrating these skills, as students must navigate complex social and technical environments. This integration is critical for preparing students for the demands of the modern workplace.

6.4 Role of Mentorship and Organisational Support

Mentorship emerges as a key determinant of internship success. From a socialisation perspective, mentors facilitate learning by providing guidance, feedback, and support (Bauer et al., 2007). They also play a crucial role in transmitting organisational culture and professional norms.

The variability in mentorship quality observed in the findings underscores the need for structured internship programs. Organisations should invest in training mentors and establishing clear guidelines for supervision to ensure consistent and effective support.

6.5 Addressing Challenges and Inequalities

The challenges identified in the findings highlight important areas for improvement. Inequality in access to internships, lack of meaningful tasks, and inadequate supervision can undermine the benefits of internships. Addressing these issues requires coordinated efforts from universities, industry, and policymakers.

For example, universities can play a proactive role in facilitating internship placements, providing preparatory training, and ensuring that internships meet educational objectives. Industry partners can contribute by offering structured programs, meaningful tasks, and fair compensation.

6.6 Implications for Policy and Practice

The findings have several implications for policy and practice:

- **Curriculum Design:** Integrating internships into academic programs as a mandatory component can enhance learning outcomes.
- **Industry Collaboration:** Strengthening partnerships between universities and industry can improve the quality and availability of internships.
- **Mentorship Programs:** Establishing formal mentorship structures can enhance the effectiveness of internships.
- **Equity and Access:** Policies should address barriers to participation,

ensuring that all students have access to quality internship opportunities.

6.7 Contribution to Knowledge

This study contributes to the literature by providing a comprehensive synthesis of internship experiences and their role in professional socialisation. By integrating multiple theoretical perspectives, it offers a holistic understanding of the processes through which students develop professional competencies and identities.

7. Conclusion

This study set out to examine the role of industry internships in the professional socialisation of Computer Science and Engineering (CSE) students through a qualitative synthesis of secondary data. The findings demonstrate that internships are not merely supplementary academic activities but are central to the development of professional competencies, identity formation, and workplace readiness. By engaging in real-world tasks and interacting with professionals, students gain insights into industry expectations and develop the skills necessary to function effectively in professional environments.

One of the key contributions of this study is its emphasis on the multidimensional nature of professional socialisation. Internships facilitate not only the acquisition of technical skills but also the development of soft skills, such as communication, teamwork, adaptability, and problem-solving. These competencies are increasingly recognised as essential for employability in the modern workforce. Moreover, internships provide a

platform for identity transformation, enabling students to transition from academic learners to emerging professionals. This process is supported by experiential learning, social interaction, and participation in communities of practice.

However, the study also highlights several challenges that limit the effectiveness of internship experiences. Issues such as inadequate mentorship, lack of meaningful tasks, and unequal access to opportunities can undermine the potential benefits of internships. These challenges are particularly pronounced in contexts where industry-academia collaboration is weak or where institutional support is limited. Addressing these issues requires a coordinated effort from universities, industry partners, and policymakers.

From a practical perspective, the findings suggest several recommendations. Universities should integrate internships into the curriculum as structured and credit-bearing components, accompanied by reflective learning activities. Industry organisations should provide clear learning objectives, meaningful tasks, and effective mentorship to enhance the quality of internship experiences. Policymakers should focus on promoting equitable access to internships, ensuring that all students, regardless of background, have the opportunity to benefit from these experiences.

In conclusion, internships represent a critical mechanism for bridging the gap between education and employment in the field of CSE. When effectively designed and implemented, they serve as powerful tools for

professional socialisation, equipping students with the knowledge, skills, and identity required to succeed in the dynamic and competitive technology industry. Future research should build on these findings by incorporating primary data and exploring the long-term impacts of internship experiences on career trajectories.

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