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Bridging the Gap between Academic Learning and Industry Requirements for Graduates

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Abstract: *The gap between the competencies of graduates and the needs of companies is both wide-ranging and intricate. The research was done to determine the gap between industries and academia with an aim to develop much better employability in Saudi Arabia's graduates. The gaps were vast while considering the expectations of the potential employer's skills versus existing educational practice. Although different models exist to integrate internships and co-op programs to complete the educational path, this study discussed how to bridge the gap with what is referred to as a "bridging program." An organization can tailor such a bridging program to allow graduates to focus on specific skills and build knowledge in specific areas. Indeed, bridging-program investments are advisable for organizations to make in fresh graduates. Graduate development programs are highly effective; thus, the adoption of such will equip the graduates more suitably for the professional world in doing their job with requisite skills.*

Keywords: Skill Gap, Employability, Graduate Competencies, Academic Learning, Higher Education

1. Introduction

The Saudi economy has experienced significant growth and transformation under the vision of its current leadership. There is a strong demand for skilled professionals in Saudi Arabia to lead new strategic projects. The core aim of Saudi Vision 2030 is to lessen the country's dependence on oil by diversifying its economy, focusing on emerging sectors like tourism, manufacturing, and technology. Over the past two decades, research has explored quality within education. However, there are still unresolved questions about how effectively universities are preparing students for the complex and evolving job market. Some believe that undergraduate business programs are not equipping students adequately for the workforce. The concept of "graduate employability"—or how ready recent graduates are to enter the workforce—has been central to policy discussions on national competitiveness since the 1980s. Despite these discussions, concerns remain about whether these programs impart the necessary skills to secure and retain jobs. One reason for this "employability gap" could be the disconnect between what students learn in college and the practical skills businesses need.

To better prepare students, especially those in fields like computer science and software engineering, it's essential to evaluate the quality of education based on both academic and industry standards. This assessment helps identify areas where students may be lacking,

allowing educators to address these gaps and focus on skill development. Many in computer science education have noted that graduates often lack key knowledge and skills required for success in their careers. Donda (2023) describes this as a "knowledge deficiency," where students may be missing critical abilities or understanding in both academic and business contexts. When computer science graduates enter the workforce or pursue further studies, they may discover gaps in their knowledge that were expected of them in their education or by employers. These gaps might include limited familiarity with software development tools, weak communication skills, or a lack of understanding of foundational concepts like object-oriented programming or user interface design (Felser & Wynn, 2023). Many graduates feel unprepared for the demands of software-related roles, not only in terms of coding but also in communication, understanding software tools, and applying development techniques and engineering principles.

The disparity between the competencies of bachelor's degree graduates and the requirements of companies is both complex and extensive. While the Saudi Arabian government has implemented various training programs to address this issue, the private sector still faces challenges in employing local graduates, particularly as the nation seeks to diversify its economy away from oil dependence. Understanding what private sector companies prioritize in graduates is essential for making informed resource allocation and spending decisions. The discord between academic curricula and industry needs can result in graduates being unemployed or underemployed due to skill gaps (Jackson, 2010).

Research Objectives are developed as below

- To identify the most essential skills that fresh graduates must possess to secure employment
- To determine the key areas where Saudi Arabian bachelor's degree graduates fall short in meeting the requirements of employers in various industries
- To develop strategies and recommendations for bridging the gap between industry and academia to enhance graduate's employability

2. Literature review

Collaboration between educators and industry professionals has been shown to improve students' employability. There is a broad consensus that government agencies, decision-makers in higher education institutions, business departments, and employers must work together to actively promote work-related skills and knowledge for students' and society's mutual benefit. Ibeaheem et al. (2018) emphasized the need for universities to contribute more to skill development for Saudi graduates to meet societal expectations. This study aims to evaluate how effectively Saudi universities prepare students for the workforce, particularly in addressing the high unemployment rate among female graduates.

Yusuf and Jamjoom (2022) investigated the perspectives of Saudi students and educational leaders on employability skills in higher education, aligning with Saudi Vision 2030's sustainability goals. Their findings, consistent with previous research, highlighted the essential role of employable skills in achieving Saudi Arabia's economic objectives, especially for fostering sustainable job opportunities. The study reinforced calls for collaboration among stakeholders to cultivate transferable skills. Given the persistent unemployment issues, the researchers recommended a national policy framework to support collaboration among companies, universities, and jobseekers in Saudi Arabia.

Further research by Alshammari (2023) explored the relationship between students' language skills, academic performance, and the requirements of their future careers at the University of Hail. Alkutbi (2018) identified effective language use as a vital aspect of language learning for both Saudi students and educators. Written English was cited as a significant barrier for Saudi students learning English as a second language, underscoring the need for targeted language development to improve students' career readiness.

2.1 Bridging Academic Learning and Industry Needs in Graduate Competencies

Many people believe that higher education should do a better job of preparing students for the realities of the workplace. As a result, improving graduate employability has become a key focus for universities. A competency-based approach to hiring raises the question of what it truly means to be "competent." Various studies have defined competence differently, using terms like "abilities," "knowledge," and "skills." However, as Ashworth and Saxton pointed out, it is unclear if competence is a personal trait, a specific action, or the outcome of an action (Vitello et al., 2021). This ambiguity makes "competence" a complex and somewhat challenging concept to fully grasp, yet it remains essential when discussing skills needed in an academic and professional context. Having marketable skills and being able to secure a job are closely linked, but success requires more than just practical skills or academic knowledge (Wong, 2020). With the job market continually evolving, aligning academic training with industry needs is more challenging than ever. New graduates often struggle with uncertainty, sometimes spending time and effort on jobs that are not the right fit for their skills. Smaller and newer companies tend to hire recent graduates who possess subject-specific expertise, while larger, more established companies typically seek candidates with more experience. Rather than investing resources in extensive training, these mature companies often prefer hiring promising graduates who are already prepared to contribute effectively. This approach allows them to maximize their resources by focusing on job-ready candidates.

The business world recognizes the value and importance of MBA programs, yet each company has unique standards for prospective employees. Recent MBA graduates often face challenges finding jobs, especially if they lack practical experience and specialized skills. When businesses encounter complex problems requiring expert knowledge, they bear the consequences of an unprepared workforce. Opportunities exist for individuals who can quickly learn, consistently perform well, and handle tasks of varying complexity. O'Grady et al. (2023) reported that only 7% of graduates from India's top 20 business schools were considered employable and found quality jobs. Meanwhile, 93% of graduates from mid- and lower-tier business schools struggled with prolonged unemployment or accepted low-paying positions. Tilak and Choudhury (2021) further highlighted that over 90% of Indian business school graduates faced joblessness, pointing to significant gaps in knowledge and resources that hinder employment prospects. Several factors contribute to MBA programs falling short of their goals. According to FICCI and Ernst & Young, outdated curricula and a shortage of qualified instructors have contributed to low hiring rates for business school graduates in India. The skill gap among MBA graduates has widened due to limited course innovation, research with minimal real-world impact, and weak connections between universities and businesses (Batra, 2021). NASSCOM has noted that, although 3 million college graduates and postgraduates enter India's labour force each year, only 25% of technical degree holders and 10% to 15% of graduates with other degrees find employment. The current environment is not well-suited to fostering successful career growth (Jackson, 2021).

Saudi Arabia has significantly increased its investments in information and communication technology (ICT), positioning itself as a future leader in the region. With a compound annual

growth rate of 11.4%, Saudi ICT investments were projected to grow from SR 27 billion in 2010 to SR 46.3 billion in 2015 (Al-Rashedi, 2014). This growth is expected to create numerous opportunities within organizational IT departments and local IT companies. However, there is currently a severe shortage of qualified IT professionals in Saudi Arabia. According to the Saudi Arabian Commission for Information Technology and Communication (CITC), approximately 30,000 IT specialists were needed by 2014. This shortage could hinder IT operational efficiency, potentially affecting overall business performance and leaving local IT companies struggling to meet the rising demand in the industry. To support sustainable growth in ICT, building a strong national workforce of skilled IT professionals is essential. The primary goal of conducting an IT skills gap analysis is to gain a clearer understanding of the current state of IT competencies in Saudi Arabia, analyse market needs, and systematically assess the supply and demand for ICT skills. The ultimate objective is to boost the ICT sector's competitiveness by aligning Saudi Arabia's training, education, and workforce development initiatives with evolving market demands (Mohamed, 2012).

2.2 Aligning University Curriculum with Job Market Demands

Connecting university curricula with industry needs is becoming increasingly challenging due to rapid technological advancements and shifting trends in the labor market. Many recent graduates enter the workforce with uncertainty, often spending time and energy on jobs that don't align well with their skills. Startups and smaller companies generally prefer hiring new graduates with relevant skills and experience, while larger corporations tend to seek more seasoned professionals. Established businesses are often hesitant to invest in extensive graduate training, opting instead to recruit individuals who already possess the necessary skills. To bridge the gap between academic learning and the demands of the workplace, an employer-focused approach is essential. Universities should prioritize career counselling and guidance from the start of students' programs, enabling them to make informed choices and align their studies with career goals (Wendler et al., 2012).

For decades, educators have refined methods to teach practical computer skills and foster competencies in areas like problem-solving and effective communication, which are highly valued in the job market. Yet, there's limited emphasis on cultural competence and open-mindedness toward diversity—qualities that are just as important as professional credentials. Colleges and universities, therefore, play a pivotal role in ensuring that graduates are not only technically skilled but also prepared to navigate the complexities of today's diverse and interconnected society (Brighouse et al., 2016). A new approach, known as the multiple-tier co-op model, suggests that employers start involving students in cooperative (co-op) programs as early as high school. This early engagement allows students to gain valuable work experience while continuing their studies. While this model has had a notable impact on the IT industry, its broader potential for shaping Industry 4.0 and Industry 5.0 has been largely overlooked. Industry 4.0, despite the rise of automation, still relies heavily on human skills, presenting new challenges for workers as innovative technologies, organizational models, and work practices are introduced. With the ongoing digital transformation, there's an urgent need for greater flexibility and for adapting to these emerging demands (Sima et al., 2020).

To boost graduate employability, universities emphasize creativity and teamwork, particularly in fields like accounting, where a wide range of skills is essential. Accounting programs are expected to equip students with technical skills, business knowledge, and personal competencies such as critical thinking, self-directed learning, management, communication, leadership, and teamwork (Pefanis Schlee & Harich, 2010). These abilities, often called soft skills or non-technical skills, are valued by both entry-level and experienced professionals.

There is a strong demand for accounting education to integrate technical and soft skills thoroughly. Recruiters increasingly emphasize the importance of skills like written and verbal communication, collaboration, and critical thinking. Senior managers particularly value interpersonal, leadership, and communication skills in accounting graduates (Kalargyrou et al., 2012). In Saudi Arabia, universities play a key role in preparing students for the job market by teaching transferable skills like teamwork, professional awareness, and effective communication. Studies from Tunisian business schools show that entry-level accountants benefit from a mix of theoretical knowledge and practical skills, with confidence, ethical awareness, communication, and collaboration being crucial for success (Oyewo, 2016).

As business and job market demands continuously evolve, it's crucial to assess how well academic programs can adapt to changing workplace requirements. Although industries are advancing rapidly, college courses often lack the flexibility to keep pace. Academic programs should be regularly updated to align with the needs of the business world. Educators can also evaluate current teaching methods, making improvements to enhance relevance and effectiveness. So far, much of the focus has been on classroom-based and theoretical approaches. However, incorporating real-world case studies into the curriculum would make learning more practical. A valuable approach is to regularly invite guest speakers from various industries and create opportunities for students and faculty to engage with them directly (Naik et al., 2021).

2.3 Effectiveness of Organizational Training Programs in Bridging the Gap Between Academia and Industry

More people are recognizing the importance of organizational training programs in helping students transition smoothly from college to the workforce. These programs bridge the gap between academic knowledge and industry needs, especially in fields where technology evolves rapidly. Organizational training programs employ various methods to enhance employees' skills, including collaborative projects, workshops, and online courses aimed at addressing real-world challenges. In fields like IT, these programs might cover new programming languages, advanced software tools, or emerging technologies like blockchain and AI. What sets these programs apart is their ability to adapt to changing technologies and customer demands (Burhan Ismael et al., 2021). A well-executed skill development program significantly boosts a company's competitiveness. Organizations need to foster continuous learning and development to innovate, respond to market shifts, and capitalize on new opportunities. This not only helps companies stay ahead of the competition but also attracts top talent who seek employers that support professional growth. In fast-paced fields like IT, the ability to quickly learn and implement new tools is crucial. Reducing the skills gap provides companies with an advantage when introducing new products, entering new markets, and adopting new technologies (Akpan et al., 2022).

To ensure that employees are well-versed in both current and emerging tools, companies must commit to ongoing learning and development opportunities. A key aspect of this commitment is fostering adaptability, allowing employees to grow with changing job roles, technologies, and industry standards. This approach enhances career progression for individuals while strengthening the organization's resilience and competitive edge (Jerman et al., 2020). An effective continuous learning strategy involves supporting professional certifications, providing access to diverse learning resources such as online courses, workshops, and lectures, and establishing individualized learning plans. Companies should also promote a learning culture that values research, knowledge-sharing, and self-reflection (Patphol et al., 2021).

Customized training solutions are an effective way to develop a workforce, as they address the unique needs of each company and its employees. By tailoring training to be both practical and aligned with a company's long-term objectives, this approach helps bridge the gap between academic knowledge and real-world application. When businesses understand their specific needs, they can design personalized training programs that help employees strengthen areas for improvement, build on their skills, and gain confidence to tackle future challenges (Li, 2022). Partnerships between companies and educational institutions can enhance training programs by incorporating advanced research and teaching resources. Through collaboration, organizations can create training tailored to meet their specific needs, ensuring employees receive the most relevant and up-to-date instruction (Al-Kassem, 2021).

3. Methodology

To better understand knowledge gaps and confirm findings from previous studies and a systematic literature review, this study explored several approaches. Ultimately, we chose an action-based model that included semi-structured interviews with managers in the Public Investment Fund (PIF)'s Digital and Technology department. PIF, a Saudi Arabian sovereign wealth fund established in 1971, invests on behalf of the Saudi government. Its managers bring extensive expertise and a broad range of perspectives due to the diversity of projects and subsidiaries within the organization. The primary data collection method for this study was semi-structured interviews, allowing participants to openly discuss common challenges faced by new recruits in their companies. This format enabled researchers to ask follow-up questions for deeper insights. Understanding these knowledge gaps was crucial, as there was limited prior research on this topic. The principal researcher took handwritten notes to document the interviews, which were conducted in English. The interviews consisted of two main sessions. The first focused on the manager's role and leadership responsibilities, while the second examined the challenges recent graduates face on the job and specific knowledge gaps that hinder them from securing positions. This session targeted 15 key skill areas. Occasionally, participants elaborated on topics they believed graduates should understand, and the interviewer aimed to determine if these were actual issues within their workplaces. Responses that were unclear to the interviewer were excluded from the results. When additional details were needed, the interviewer used clarifying or leading questions. The responses from the manager interviews were compiled and used to create a set of questions focused on the eight skills that managers identified as most valuable. These questions were designed to gauge graduates' confidence in these skills.

The study participants were selected to assess how well graduates from PIF's Graduate Development Program (GDP) meet managerial expectations. This study identified 15 essential skills from job-hunting platforms like LinkedIn and Indeed and asked 10 managers from PIF's Digital and Technology department to rank the top 8 skills out of these 15. These 8 skills are communication, problem-solving, critical thinking, ethical conduct, adaptability, teamwork, data analysis and research skills. These managers, each with a minimum of 7 years of experience, lead various teams within PIF and in private-sector companies established or owned by PIF. Their identities and professional details—such as name, gender, years of experience, roles in PIF and the private sector, management styles, and recruitment practices—were documented in the interview report. The complete semi structure interview questions are attached in the Appendix. Following the manager interviews, short surveys were distributed to 40 graduates who participated in PIF's Graduate Development Program (GDP) and now work in the IT sector, as well as to graduates who did not participate in the program. Varied

responses were given, which were analysed using data analysis tools to assess how well graduates' skills aligned with managers' expectations.

4. Findings

Ten managers from PIF's Digital and Technology department were interviewed using a standardized set of questions. Their responses were analysed to identify the skills they consider most essential for graduate success in the workplace. A scoring system was created to help managers prioritize these critical skills.

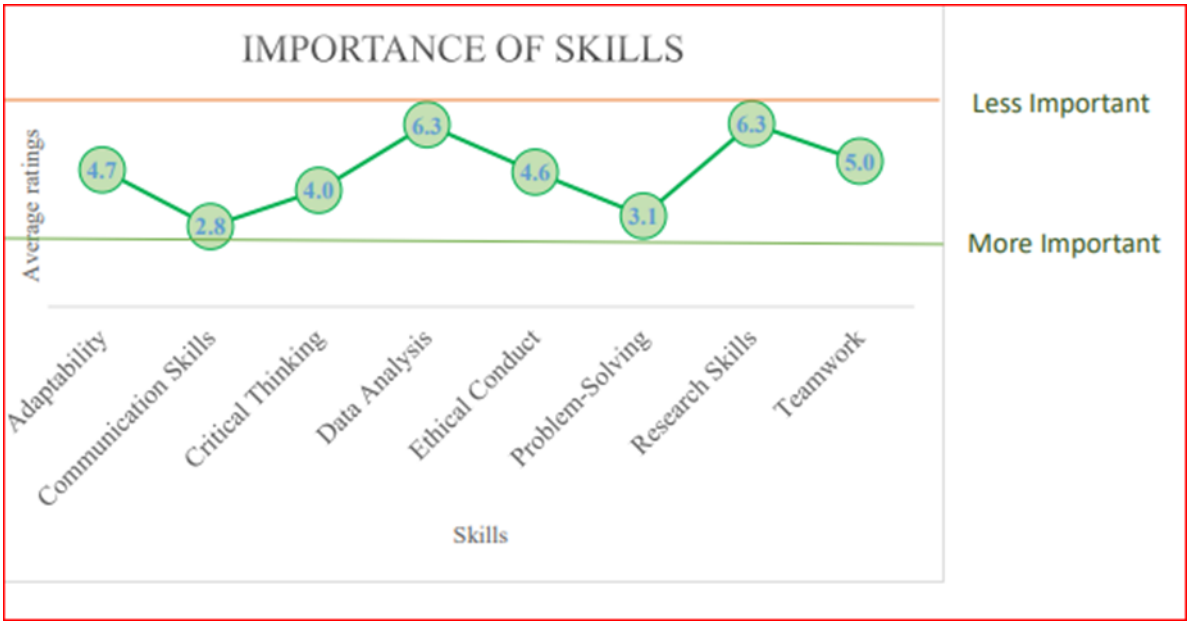
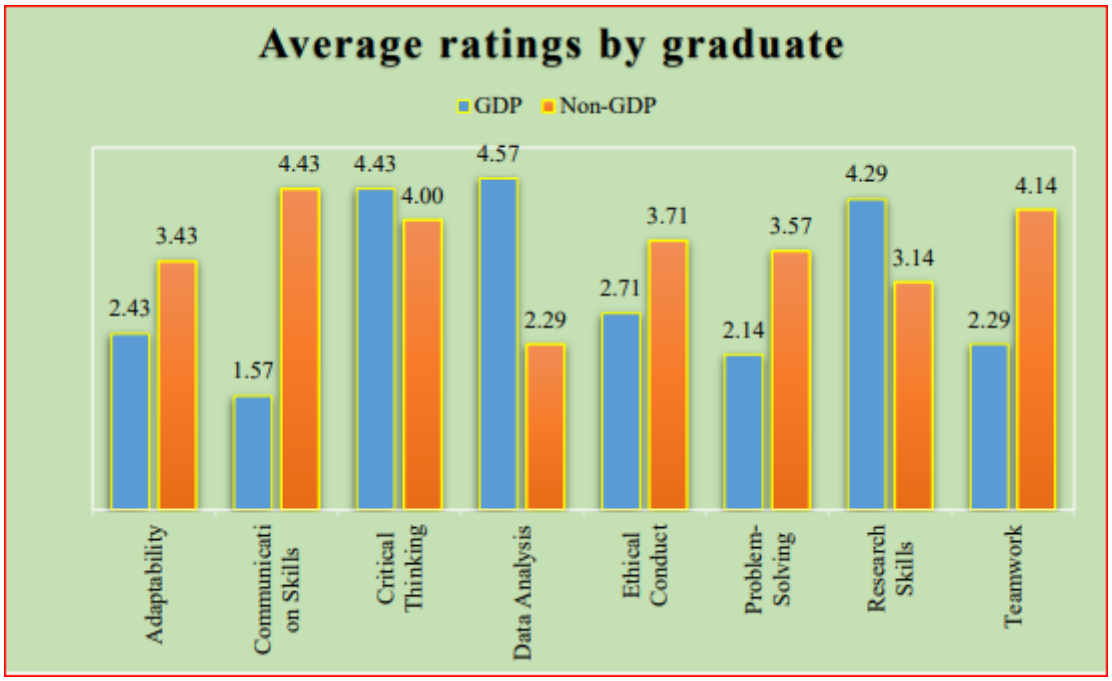


Diagram 1: importance of skills according to managers

The diagram 1 presents the average importance rating for each skill as ranked by managers within the Public Investment Fund (PIF). In this rating system, a lower mean score indicates higher importance. Communication skills and problem-solving are rated as the most critical skills for fresh graduates, with mean scores of (2.75) and (3.11), respectively. This suggests that managers prioritize these abilities when considering new hires, viewing them as essential competencies in the workplace. Critical thinking (mean score 4), ethical conduct (4.63), adaptability (4.7) and teamwork (5.0) rank relatively high, reflecting the value placed on thoughtful decision-making and integrity. Conversely, skills such as data analysis (6.25) and research skills (6.29) are rated lower in importance, suggesting that managers may consider these skills beneficial but not as crucial as others. Overall, this ranking highlights the emphasis managers place on interpersonal and problem-solving abilities, which are seen as foundational for graduate employability and success.

On the other hand, we distributed 40 questionnaires—20 to GDP graduates and 20 to non-GDP graduates. Then we analysed the differences between fresh graduates (those with less than two years of experience) employed in PIF's Digital and Technology department who completed the PIF Graduate Development Program (GDP) and those who did not participate in the program. With a response rate of 96%, some responses were excluded for not meeting the sample criteria, such as those from individuals with more than two years of experience or those enrolled in advanced degree programs. Graduates rated their confidence in each of the eight identified skills on a scale of 1 to 5, with 1 indicating the highest level of confidence. The diagram 2 compares the average confidence ratings of graduates from PIF's Graduate Development

Program (GDP) and non-GDP graduates across eight key skills. Lower scores indicate higher confidence. Overall, GDP graduates exhibit greater confidence in several skills compared to their non-GDP counterparts. For example, GDP graduates' rate themselves significantly higher in adaptability (2.43 vs. 3.43), communication skills (1.57 vs. 4.43), and teamwork (2.29 vs. 4.14). They also show a stronger sense of ethical conduct (2.71 vs. 3.71) and problem-solving (2.14 vs. 3.57). However, both groups report similar confidence levels in critical thinking, with average ratings of 4.43 for GDP and 4.00 for non-GDP graduates. The largest disparity is in communication skills, where GDP graduates' rate themselves much more confidently than non-GDP graduates. These findings suggest that the GDP program may enhance graduates' confidence in essential workplace skills, especially in adaptability, communication, and teamwork.



GDP = graduates who enrolled and finished PIF graduate development program
Non-GDP = graduates who did not enrol in PIF graduate development program

Diagram 2: comparison set of skills according to GDP and Non-GDP

The analysis of PIF's Graduate Development Program (GDP) reveals notable differences in confidence levels across key skills between GDP graduates and non-GDP graduates.

Adaptability: GDP graduates show higher confidence in adaptability, with an average score of 2.43 compared to 3.43 for non-GDP graduates. The structured training provided by the GDP seems to better prepare graduates for the rapidly changing digital and technology sector.

Communication Skills: GDP graduates score much higher in communication confidence (1.57) than non-GDP graduates (4.43). This suggests that the program's focused training has a significant impact on enhancing graduates' communication abilities, which are essential in tech-driven industries.

Critical Thinking: Both GDP and non-GDP graduates show low confidence in critical thinking, with scores of 4.43 and 4.00, respectively. This indicates that neither group feels particularly well-prepared to handle complex problem-solving in the workplace.

Data Analysis: Non-GDP graduates have higher confidence in data analysis (2.29) compared to GDP graduates (4.57), possibly due to more hands-on experience outside the program. This indicates a need for more technical training within the GDP, especially in a data-critical industry like IT.

Ethical Conduct: GDP graduates demonstrate greater confidence in ethical conduct (2.71 vs. 3.71), likely due to the program's focus on professional integrity and ethical standards.

Problem-Solving: GDP graduates feel more confident in problem-solving skills, with an average score of 2.14, compared to 3.57 for non-GDP graduates. This highlights the effectiveness of the program's training in practical problem-solving skills.

Research Skills: Non-GDP graduates rate themselves higher in research skills (3.14 vs. 4.29 for GDP graduates). While both groups likely learned research techniques in their studies, confidence in applying these skills at work grows more with practical experience than formal education.

Teamwork: GDP graduates are more confident in teamwork (2.29) compared to non-GDP graduates (4.14). The GDP's emphasis on collaboration appears to foster strong teamwork skills, essential in the fast-paced IT field.

Overall, the findings emphasize the value of structured training programs like the GDP in building confidence in essential workplace skills, particularly adaptability, communication, problem-solving, and teamwork, which are crucial in today's dynamic job environments.

5. Discussion

First objective: To identify the most essential skills that fresh graduates must possess to secure employment Communication skills and problem-solving

Findings from the study revealed that to enhance employability, recent graduates need a mix of technical skills, interpersonal abilities, and a commitment to lifelong learning. While technical expertise is foundational in fields like IT, soft skills are often the key differentiators. Findings from the study proved that employers highly value skills such as communication, problem-solving, critical thinking, adaptability, and teamwork. Effective communication and teamwork foster a productive work environment, while problem-solving skills help overcome challenges and improve processes. Graduates can develop these abilities through internships, project-based learning, and extracurricular activities, highlighting the importance of a well-rounded education. The ideal skill set for graduates includes technical proficiency, strong interpersonal skills, and the ability to continuously learn and adapt. Developing these competencies is a shared responsibility among employers, educational institutions, and graduates. By focusing on these areas, recent graduates can enhance their employability and navigate the complexities of today's job market more effectively.

Second objective: To determine the key areas where Saudi Arabian bachelor's degree graduates fall short in meeting the requirements of employers in various industries

Apart from the graduate GDP, non-GDP graduates report lower confidence in a few key skills: adaptability, communication, ethical conduct, problem-solving, and teamwork. Non-GDP graduates rated their adaptability as lower, implying they may not feel as ready to handle changes or adjust to dynamic work environments. This is a skill highly emphasized in more structured training. Their rating is considerably lower especially in areas of communication

skills, which shows less confidence in the dissemination of information and interaction with colleagues and clients. Such a gap can come from limited exposure to practical communication training that normally comes under a graduate development program.

Also, non-GDP graduates aren't nearly as confident in ethical conduct; this would indicate that they might feel less prepared to deal with professional standards and maintaining integrity within their positions, probably because of the lack of heightened training in the expectations of ethics. Lower rating scores for problem-solving could be indicative of an inability to give attention to and surmount challenges; it also could be because of lesser exposure to real-world, problem-based learning. Finally, and not very surprisingly, the non-GDP graduates always ranked lower in the ability to work within a team, thus likely having more problems concerning their teamwork capability—a very well-developed skill through group projects or even team-based events in structured programs like the GDP. Overall, findings in this area have underlined the importance of targeted training and certain experiential learning approaches for driving confidence and competence in these key workplace skills.

Third Objective: To develop strategies and recommendations for bridging the gap between industry and academia to enhance graduate's employability

Many recent graduates report challenges with workplace communication, particularly in customer interactions and written communication. Some struggle to compose detailed memos, likely due to a preference for brief, text-based communication. Additionally, they often use overly technical jargon with clients, and some find it difficult to communicate with supervisors or seek help, which can hinder teamwork. Extra-curricular activities, like public speaking or writing workshops, could help foster communication skills by providing constructive feedback from professionals. During interviews, managers frequently noted the lack of project experience as a significant weakness among young graduates. Candidates with experience in large-scale projects through internships or capstone projects are often preferred. Graduates who can clearly explain their roles within team projects and how their contributions align with broader goals stand out to employers. Problem-solving abilities were also highlighted as crucial; some managers assess this through programming challenges or algorithm-based tasks to gauge analytical skills. Introducing organization-specific scenarios in training programs could help graduates develop these problem-solving skills.

Managers also value personal qualities like enthusiasm, a proactive attitude, and the ability to see the bigger picture, often weighing these more heavily than technical skills. While these traits may not be required, they positively impact hiring decisions. There's a noticeable gap between knowledge areas assessed during interviews and those observed as lacking once new hires start working. Some areas, like oral communication and problem-solving, emerge as persistent challenges, as well as familiarity with specific tools such as Linux, which could be addressed through targeted questions during interviews. Finally, graduates often struggle with receiving constructive feedback and may hesitate to ask for help, which affects teamwork and motivation. Studies confirm that new hires can lack active listening, openness to feedback, and self-motivation. This study aligns with these findings, highlighting challenges in communication, teamwork, and personal behaviours, suggesting a broader skill deficiency among recent graduates.

6. Conclusion

This research supports the growing evidence that new graduates often lack preparation in essential areas such as configuration management tools, effective communication, and passing

comprehensive assessments. It also provides a fresh look at these skill gaps, offering qualitative insights into areas that previous studies may have overlooked. Key areas where educators should focus include real-world project experience, familiarity with industry software, enhanced problem-solving skills, and clear communication of solutions. While adding more technical training to curricula may seem challenging, it's crucial to equip students with the skills needed for professional settings, including managing client and customer relations.
Graduate development programs have shown to be effective in bridging these gaps, particularly in soft skills, and foster greater loyalty to the organization. Unlike academic programs, which are primarily focused on broad education and personal growth, these development programs are tailored to prepare graduates for specific job requirements. This study emphasizes the need for a balanced approach where both educational institutions and organizations contribute to preparing graduates for real-world demands.

7. Practical implications

Integrating graduate development programs within organizations is essential for helping new graduates' transition smoothly into the workforce. These programs enhance recruitment and talent acquisition by identifying candidates who align with the company's vision and culture. While graduates bring a variety of skills, development programs help refine and focus on the specific skills needed for their roles, de-emphasizing less relevant ones. Since each organization has its own unique operations, universities cannot realistically equip students with all the skills required by every company in the region.

Graduate development programs also establish performance metrics, allowing graduates to receive constructive feedback on their strengths and areas for improvement. This structured feedback helps them understand what they are doing well and where they need to grow, making them more effective in the job market. Additionally, graduates who participate in these programs tend to stay with the organization longer, as the programs foster loyalty. Graduate development programs are a valuable long-term investment, helping to significantly reduce employee turnover. By bridging the gap between academic training and industry expectations, these programs equip graduates with the skills they need to succeed in their roles.

Author Contributions Statement

The authors worked collaboratively for this paper. Conceptualization: Ahmed, Nasreen, Anusuyah, Shereen, H. M. Mahfuzur, & Tin; Methodology: Ahmed; Formal analysis and investigation: Ahmed; Writing - original draft preparation: Ahmed; Review and editing: Nasreen, Anusuyah, Shereen, H. M. Mahfuzur, & Tin; Resources: Ahmed; Supervision: Nasreen; Formatting: H. M. Mahfuzur.

All authors have read and agreed to the published version of the manuscript.

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Informed Consent Statement

Informed consent was obtained from all individual participants included in this study.

Data Availability Statement

The data are available from the corresponding author upon request.

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Conflict of Interest Statement
The authors have no competing interests to declare that are relevant to the content of this study.

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