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Beyond Technical Skills: Uncovering Durable Competencies Through Multi-Level Stakeholder Analysis

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Abstract

The persistent skills gap in the workforce, exacerbated by rapid technological advancements, has become a critical global issue across sectors. In collaboration with the International Professional Services Organization (IPSO), this study conducted 75-minute focus group interviews in May 2024 with three distinct groups: recent college graduates, master's and doctoral-level graduates, and managers with five or more years of professional experience. Each group, consisting of four participants, was recruited by the IPSO, and they have diverse backgrounds in education, gender, ethnicity, and region. Each interview was audio-recorded and transcribed. Manual content analysis across groups identified metacognitive skills such as reading the room, learning how to learn, self-directed learning, and navigating ambiguous situations as key durable skills defined as transferable competencies across roles, companies, industries, and over time. Focus groups also highlighted critical thinking, communication, and professionalism; however, technological skills were notably absent from the responses. Addressing the findings requires collaborative efforts. Higher education institutions (HEIs) should systematically embed those durable skills across curricula from the first year through graduation. Industry partnerships are highly recommended as they facilitate unstructured real-world learning opportunities. Most critically, students must take active ownership of their learning journey.

Keywords: skills gap, career readiness, durable skills, metacognitive skills, technical skills, focus group

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Beyond Technical Skills: Uncovering Durable Competencies Through Multi-Level Stakeholder Analysis

Ae-Sook Kim, Kiku Jones, Guido Lang, Holly J. Raider, Aamer Sheikh and Kathleen Simione

1. INTRODUCTION

Today's economy is driven by rapid technological advancement. Even though artificial intelligence (AI) and advanced automation give us productive gains across sectors, it also adds significant challenges by shifting our demands for skills (Wingard & Farrugia, 2021). In fact, jobs requiring social and emotional skills have experienced the greatest wage growth in recent decades, a shift driven by automation reducing the need for routine tasks (Deming, 2017). Looking ahead, the World Economic Forum (2025) reports that 59% of the world's workforce needs training by 2030 to upskill or reskill to adapt to the rapidly evolving skills demands. Similarly, Deloitte (2020) and McKinsey Global Institute (2024) both project that demand for basic cognitive skills will decrease due to AI integration, while demand for advanced technological skills and social-emotional capabilities continues to rise.

Social and emotional skills and higher cognitive skills are considered durable skills critical for career success due to their long-lasting impact and transferability across jobs, roles, and sectors. However, nearly one-third of organizations struggle to fill positions requiring these competencies (Deloitte Insights, 2020). This skills gap significantly concerns both employers and higher education institutions (HEIs) as unfilled positions incur a substantial economic impact alongside employee training and retraining costs (Levesque, 2019). The gap directly affects economic productivity, growth, and competitiveness (Kenan Institute of Private Enterprise, n.d). HEIs bear the critical responsibility of preparing students successfully for their careers.

To address the skills gap issues, this study, in collaboration with an International Professional Services Organization (IPSO), conducted three focus group interviews with employees of this IPSO. Interviewees included recent college graduates, recent master's and doctoral-level graduates, as well as managers. We expect these three different focus groups to provide insight into identifying the skills gap among recent graduates. To address identified deficiencies, this study further proposes potential solutions for HEIs.

2. LITERATURE REVIEW

Durable Skills and Skills Gap

The Business Higher Education Forum (BHEF) & Burning Glass's comprehensive study in 2018 analyzed about 56 million resumes and over 150 million job postings and concluded there was a clear skills gap. Even though job candidates need blended skills in three groups of foundational skills, that are human skills, business enablers, and digital building blocks, less than 20% of the job seekers listed skills in their resumes in all three groups. In the new era of the digital economy, in-demand skills are constantly updating. The skills gap is not only a problem for high-level talent but also for the middle-level skills credentials which include postsecondary sub-baccalaureate certificates and associate's degrees. The Georgetown Center on Education and the Workforce (2024) found that over 25% of middle-level skills credentials do not have a direct occupational match (Strohl et al., 2024).

Which skills are in high demand now, and which will be in the future? In technology-driven economies, the traditional soft/hard skills distinction fails to capture dynamic changes in the demand for skills. Daniel (2020) underscores a need for a new skill-development framework in consideration of the following three critical questions: "Are skills more durable or perishable? Are skills transferable across roles, job families, or industries? Are skills in demand, and will they be so in the future?" (para. 4) Capturing the essence of these questions, the term 'durable skills' is preferred over 'soft skills' because those skills have a long-lasting impact. Durable skills are indispensable, critical to career success, and in high demand. For instance, Mursion's study (2021, as cited in Pelosse, 2022) reported 44% of HR professionals prefer applicants possessing strong durable skills over those holding strong technical skills. However, durable skills are often found to be lacking in graduates. Even though 70% of the requested skills on job postings are

durable skills, on average about 70% of employers across sectors report trouble finding the skilled talent needed (Cole et al., 2021; ManpowerGroup, 2024). This shortage has increased by 32% as compared to 2015 (Pelosse, 2022).

American Succeeds defines durable skills as "a combination of how you use what you know - skills like critical thinking, communication, collaboration, and creativity - as well as character skills like fortitude, growth mindset, and leadership" (Cole et al., 2021, p.9). In related studies, various terms have been used to describe durable skills which include but are not limited to 'essential (soft) skills,' 'employability skills,' '21st century skills,' 'human skills.' After analyzing 82 million job postings, American Succeeds identifies communication, leadership, metacognition, critical thinking, and collaboration as the top durable skill competencies, listed by their ranking, that are in high demand (Cole et al., 2021; Hutson et al., 2023).

As durable skills are interpersonal, intrapersonal, or behavioral in nature, they are difficult to measure and credential. They are also given less priority in teaching at HEIs due to an overemphasis on knowledge-based learning and hard skills (Mahmud & Wong, 2022). Traditional teaching methods like lecture-based teaching have little to do with fostering durable skills. Instead, non-traditional methods such as gamification, simulation, role-playing, inquiry-based, service, project-based, and experiential learning better assist in nurturing durable skills (Almeida & Morais, 2023; Mahmud & Wong, 2022; Tan et al., 2022). To bridge the skills gap, the first step is to enhance the awareness of faculty at HEIs on the importance of critical durable skills for students and to engage faculty in incorporating those skills into the existing course structure (Almeida & Morais, 2023; BHEF & Burning Glass, 2016). Pedagogical innovations are essential, not optional. Furthermore, to align education with industry market needs, HEIs are strongly encouraged to collaborate with business leaders to develop work-based learning programs (BHEF & Burning Glass, 2016; Fox, 2024).

Discipline Specific Literature on Skills Gap

There have also been extensive studies on the skills gap within various specific business disciplines. In prior studies, researchers have primarily employed surveys to determine the nature and extent of the skills gap. It appears that most of the skills gap can be attributed to the lack of durable skills among recent graduates as opposed to hard or technical skills. Even when employers provide opportunities for recent graduates to obtain durable skills, there appears to be a different perception of such opportunities among recent graduates. A survey of Human Resource (HR) managers in German and Italian companies as well as students and recent graduates of a European business school employed in Germany and Italy found that approximately 80 percent "of HR managers indicate they offer formal training to young graduates and that they are involved in the performance appraisal sessions, while only 22 percent of students confirm they receive formal training and only 26 percent declare to be inserted in a performance appraisal process" (Succi & Wieandt, 2019, p. 114). These results show the need for employers to communicate more clearly with their employees and involve new and recent employees in opportunities to learn durable skills. The AACSB also recognizes the skills gap and recently held a roundtable discussion in Barcelona between academic leaders and business leaders to brainstorm about how business and academia can cooperate with each other to bridge the skills gap. Specifically, the AACSB recommends that universities help students learn durable skills by teaching presentation skills, building resilience among students, teaching students how to frame problems, help students develop maturity through experiential learning, providing mentorship, and teaching and modelling values for students (AACSB, 2024).

Stanton and Stanton (2020), Mitchell et al. (2021) and Umamaheswaran et al. (2023) examine the skills gap among recent graduates of business analytics and information systems programs. Stanton and Stanton (2020) document that employers want recent graduates in these disciplines to possess the following essential skills: analytical, communication, problem solving, teamwork and being innovative. They remind educators to use assignments and projects that enable students to learn these skills. Mitchell et al. (2021) also note the importance of such skills and recommend educators use team-based projects that ideally involve students from multiple disciplines, and multiple assignments to help students develop such skills. Umamaheswaran et al. (2023) report on the importance of durable skills in business analytics jobs and suggest the use of experiential learning to help enable students to learn such skills. Finally, Han and Ren (2024) confirm, studying job ads in China, that big data professionals need to possess communication, leadership and

teamwork skills and propose that universities work with alumni and industry partners to enable students to obtain such skills through real-world practical experiences.

Several recent papers have documented the skills gap between what accounting students learn in universities and what accounting firms expect from these students in a professional setting and that this gap exists not just in the United States but also in other countries (Burns et al., 2022; McCrary, 2022, Dolce et al., 2020). Berry and Routon (2020) use a large sample of accounting majors to examine whether accounting majors improved their skills in their undergraduate degree programs, and they report the greatest improvement in their hard or technical skills. However, there is less improvement in durable skills. The accounting profession has included communication, decision-making, and leadership, as necessary professional core competencies for accountants (AICPA, 2018). Thus, educators need to consider how best to help equip accounting students with these essential skills. Burns et al. (2022) recommend that accounting programs use problem-based, team-based, and peer-assisted learning as well as reflection to help enable accounting students to learn durable skills.

Almeida and Devedzic (2022) document the importance of durable skills in entrepreneurship. The authors use 38 essential skills specified in the European Entrepreneurship Skills Framework developed by the European Commission and find skills such as emotional intelligence, persistence, and resilience are particularly important for Portuguese and Serbian entrepreneurs. Ferreira et al. (2023) document that there seems to be an increased emphasis on the importance of these skills after the COVID-19 pandemic in advertising and digital marketing. Specifically, "the prevalence of soft skills training had increased in 2020. In 2019, soft skills training tended to be focused on the company culture and workplace environment, with respondents suggesting that training was required in basic communication etiquette, teamwork, client communication, negotiation skills, and public speaking. In 2020, soft skills seemingly focused less on company culture and more on communication both within and outside of the organization. Several respondents indicated that new employees would receive training in basic interpersonal skills and learning how to communicate between departments" (Ferreira et al., 2023, p. 42-43). In addition, adaptability was the skill identified by survey respondents as the most important for new employees' success in advertising and digital marketing careers.

Guidotti et al., (2023) document that soft skills are especially important in sports management. The authors emphasize the importance of lifelong learning and call upon HEIs to consider utilizing interactive learning and teaching techniques along with internships to help sports management students learn crucial soft skills. Such skills are also of great importance in the supply chain industry. Bak et al. (2019) and Fantozzi et al. (2024) document the key role that soft skills such as communication play in supply chain management positions and call on educators to modify their teaching methods and work with employers to create opportunities for students to learn these essential skills.
All in all, the skills gap has been well documented in various business disciplines. HEIs appear to be better at imparting technical skills to their students. However, employers report that their new employees lack durable skills like communication, decision-making, leadership, problem solving, teamwork, and being innovative.

3. CAREER READINESS FRAMEWORK

The National Association of Colleges and Employers (NACE, 2022) defines career readiness as "a foundation from which to demonstrate requisite core competencies that broadly prepare the college educated for success in the workplace and lifelong career management" (NACE, 2022, p. 9).

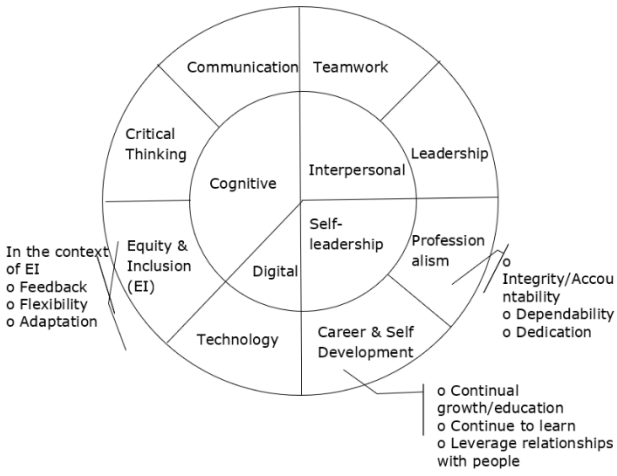


Figure 1. Career Readiness Framework

The NACE lists critical thinking, communication, equity & inclusion, teamwork, leadership, professionalism, career & self-development, and technology as the core competencies. We adopt these eight competencies as the career readiness framework for this study. Seven of the

competencies fall into broader durable skills categories which are cognitive, interpersonal, and intrapersonal skills. The career readiness framework is presented in Figure 1.

4. METHODOLOGY

This research is part of an ongoing collaboration between the authors' university – specifically the School of Business and an IPSO. The questions for the focus groups (see Appendix A) were developed collaboratively with representatives from the IPSO. Three focus groups were conducted on-site at the IPSO at the end of May 2024. Each focus group lasted 75 minutes, consisted of four participants from the IPSO, and was facilitated by two of the authors. Four participants are the minimum size recommended for focus groups (Krueger & Casey, 2014). The composition of the three multi-level focus groups reflected different career stages within the organization. The recent college graduate group comprised analysts and consultants with business or STEM-designated majors. The recent graduate program alumni group included participants with full-time and part-time MBA degrees, MS in Business Analytics, and a PhD. Their positions at IPSO included analyst and consultant roles. The participants in these two focus groups had up to two years of post-graduation professional experience. The manager focus group consisted of managers and senior managers at the IPSO with supervisory responsibility for groups with characteristics similar to the other two focus groups, but not necessarily supervisors of the specific individuals in the other focus groups. Participants in this focus group had between five and 20 years of professional experience.

For all three focus groups, the IPSO strived to have broad representation, including participants from public and private sector business units with varied industry and subject matter expertise. The IPSO also ensured the focus groups were diverse in educational experience, major area of study, gender, ethnicity, and region. Despite the efforts undertaken to ensure a broad representation in the focus groups, the participants ultimately constitute a convenience sample of IPSO's employees. Each focus group was audio recorded and subsequently transcribed. The average word count of the three transcripts is 15,430 words (SD = 3,225.77).

The transcripts were analyzed using two sequential methods: (1) a manual content analysis using a collaborative qualitative analysis approach (Richards & Hemphill, 2018) followed by (2) an automated topic modeling analysis using Latent Dirichlet Allocation or LDA (Blei et al., 2003). For the manual content analysis, the authors identified themes iteratively within and across each focus group as recommended for qualitative analysis (Strauss & Corbin, 2015). To this end, we alternated between identifying themes independently and agreeing on identified themes in regularly scheduled group meetings, thus applying the constant comparative method of qualitative content analysis in a collaborative fashion (Gibbert et al, 2008).

Following the manual content analysis, we employed topic modeling using LDA to identify additional themes in each focus group automatically (Jelodar et al., 2019). The optimal number of topics for each focus group was determined based on the metric proposed by Cao et al. (2009). After applying LDA, the most important terms for each topic were extracted and compared across the focus groups.

5. RESULTS

The manual content analysis draws several central themes from the focus group interviews. Those themes are centered on durable skills and are presented in Table 1. For the recent college graduates focus group, there was a central theme of "Reading the room"/Being aware of the organization. This included dimensions such as reading body language, interpreting interpersonal dynamics among others, and being aware of how organizational decisions are made. Interviewees mentioned that understanding the context, current state and situation, the vocabulary used, and figuring out how to add value are challenging, especially at their first job.

Recent College Graduates
• "Reading" the room
• Being aware of the organization
Master's & Doctorate-Level Graduates
• Managing stress, balancing work/life
• Recognizing the need for continuous learning
Managers
• Seeing how their work impacts other parts of the project/organization, seeing the big picture
• Feeling overwhelmed, giving up easily

Table 1: Manual content analysis results

They did not feel that their university experience had prepared them well for unstructured situations. The participants said that they learned by observing other employees who had been there longer and listening to how these

employees were able to ask the right questions. Looking at Figure 1, this focus group spoke more about cognitive and intrapersonal durable skills - specifically, critical thinking, communication, and career & self-development.

The central themes of the recent master's and doctoral-level graduates focus group were managing stress and balancing work/life and recognizing the need for continuous learning. This group was caught in a generational divide. This divide put them in a position that required leadership and communication to bridge the divide. In addition, the stress of managing work/life balance led to the best employees leaving. The focus group therefore expressed the need to manage this stress. In addition, they discussed the need for continuous learning. This self-awareness that they have more to learn in the field and that it is a continuous cycle points directly to one of the core competencies in the NACE career readiness framework, career & self-development. This focus group spoke about each of the durable skills categories and in fact touched on all seven of the core competencies associated with them. For intrapersonal, the professionalism core competency was included when the participants discussed their desire to ensure that they meet the increasing responsibilities of their role. For cognitive skills, communication was described when discussing the need to bridge the divide between the generations. Critical thinking was included when discussing both the need to find ways to manage stress and balance work and life. Equity and inclusion were also included here when the topic of work/life balance was discussed. Also, when talking about obtaining additional degrees/certifications, discussion of the ability of some to be able to take classes full-time vs. part-time and the differences in the ability to take part in extracurricular activities. For interprofessional skills, this group brought in the discussion of teamwork and leadership. They discussed the importance of learning how to be on a team and how to provide feedback to others.

The manager focus group recognized the challenges in new/recent hires not seeing the "big picture" and/or how their work impacted other parts of the project/organization. This challenge appears to be centered on the issue that new/recent hires are unable to see the connections of their work with those of others in the organization or the larger community. This points back to the core competencies of teamwork, leadership, and critical thinking. The managers also highlighted the challenges of helping to prevent new hires from feeling overwhelmed and "giving up" so easily. Some participants also shared that new/recent hires who encounter challenges choose just not to complete the task rather than conduct research on how to resolve the challenges or ask for help. This issue appears to point to both professionalism and communication.

The central themes of the recent college graduates and the manager focus groups tend to complement each other. The recent college graduates focused on the intrapersonal competency of career and self-development and the cognitive competencies of critical thinking and communication. The manager focus group indicated there was a lack of skills among new/recent hires in the areas of interpersonal competencies (teamwork and leadership), intrapersonal competency (professionalism), and cognitive competencies (critical thinking and communication). Between the two groups they mentioned each of the core competencies but one, equity & inclusion. However, during the manager focus group, the participants did indicate that the new/recent hires often were involved in the Diversity, Equity and Inclusion (DEI) and sustainability initiatives at the IPSO. The recent master's and doctoral-level graduates focus group covered all competencies. This is fitting as they are in that middle ground both generationally and professionally.

The automated topic modeling analysis using LDA identified two topics for each focus group along with the top 10 most important terms associated with each topic. The topics were rather broad in nature, as indicated by such terms as "learn", "question", "skill", "business", "help", "career", "people", etc. More information about the topic modeling analysis results can be found in Appendix C. As a result, no additional themes beyond those found by the manual content analysis were identified.

6. DISCUSSION

What We Have Learned

Our findings point to the need for greater durable skill development among college students before their first jobs and for graduate program alumni as they take on roles of increasing complexity or responsibility.

Our research offers unique insights that go beyond extant research on employer reports of skills gap by using focus group discussions and a grounded theory approach to examine the career readiness of recent college and graduate program graduates.

The interview protocol in the focus groups used open-ended questions about initial work assignments and what knowledge, skills, or abilities were the most helpful in addressing the challenges recent graduates faced at work. Although the interview protocol did not specifically ask about durable skills or technical skills, it is striking that neither the recent college graduates in their first job nor the recent graduate program graduates cited technical knowledge or skills as most helpful. Rather, both groups pointed to durable skills as the most needed and most helpful. In fact, even when technical skills were mentioned, such as a client using a new platform or a different programming language, the focus group participants emphasized the importance of metacognitive skills such as learning how to learn, self-directed learning, adapting their current knowledge to an unfamiliar domain, judgment in knowing when and (from whom) to ask for help. It is poignant that focus group participants did not mention the lack of technical knowledge or technical skills as a challenge.

Also consequential is that members of the recent college graduate group noted their first job was challenging because they had to navigate ambiguous situations and address complex problems that lacked formulaic solutions. They observed that their college experiences did not prepare them for these challenges, as their coursework typically included detailed grading rubrics, problems with knowable solutions (and answer keys), and, in general, offered clear and structured pathways for academic success. They indicated that mentors, those who are either assigned or emerged through organic connections, helped them to navigate those situations.

These findings point to an important opportunity for HEIs to build durable and metacognitive skills through integration across curricula and as students progress to graduation. Conceptually, strengthening critical thinking and problem-solving abilities involves learning objectives and pedagogies that prepare students to apply knowledge in increasingly ambiguous and complex situations so that by graduation they are able to apply knowledge in novel situations, such as competency-based assignments. At the same time, the findings point to a need to intentionally, increasingly hold students accountable for their role in their learning and development. Examples of accountability include meeting deadlines, effective communication, and class participation. Additionally, actively building professional networks assists students in preparing for their future careers.

Potential Solutions

Although numerous previous studies acknowledge the skills gap, identify the skills deemed essential, and point out the need for curricular change, specific recommendations narrowing the skills gap are limited. That said, internships and real-world experiences are frequently suggested to help develop durable skills (Almedia & Morais, 2023; Arvanitis et al., 2022; De Villiers, 2010; Tan et al., 2022). Tan et al. (2022) suggest that internships and other real-world experiences improve students' cognitive skills, including planning and analyzing, critical thinking, and problem-solving. The recent graduates focus groups in our study also stressed the value of internships and other experiential learning in providing them with an opportunity to develop critical thinking, problem solving, communication, and interpersonal skills.

Although internships certainly provide a benefit, students typically do not have the opportunity to participate in an internship until their junior year, resulting in only one internship experience prior to their first full-time job. In addition, an internship opportunity might not be available for all students, and in some cases, students' circumstances might not allow them to take advantage of an external internship. Alternatively, we suggest embedding internships or some form of experiential learning into individual courses early in a student's program with integration across the curriculum. This can take the form of virtual simulations that model internship experiences if actual experiences are not practical to deploy. This could help support and reinforce skill development and better prepare students for their external internships.

Durable skills can also be developed with other hands-on learning including active learning and problem-based learning (Mahmud & Wong, 2022), both of which could facilitate critical thinking skills. All three of our focus groups recognized the importance of incorporating this type of learning. The managers emphasized the need to move away from structured assignments and tasks. They recommended adding complexity and providing learning opportunities that were "messy," providing students with conditions that simulate what they would see in the workplace. Partnering with industry to develop these unstructured more real-world learning opportunities can facilitate students' adaptability, another critical skill noted by employers and the

managers focus group. It is important for students to be aware and prepared to adjust for changes in deliverables and due dates and other workplace changes. The partnership can and should extend beyond individual assignments to courses and programs to further provide more real-world experiences. As we discussed with the IPSO in the study, this can be done with the creation of micro-credentials and certifications.

Additionally, both the undergraduate and graduate student focus groups noted that learning to ask questions and recognizing the need for continuous learning were critical. Arvantis et al.'s study (2022) concluded that this "learning to learn" was critical to narrowing the skills gap. This was confirmed in our focus group interviews. Arvantis et al. (2022) also note that universities "should find ways to embed educational practices in social and work interactions" (p. 71) to facilitate flexibility, adaptability, initiative, and autonomy; all considered key soft skills. Regarding social and work interactions, we found it important to provide opportunities for students to learn about career expectations including appropriate work responsibility and timelines, professional etiquette and communication. This is another area where education and industry can partner in the development of mentoring programs and other educational opportunities.

Clearly, focused efforts are needed by educators, industry, and students to narrow the skills gap. As noted, for educators, these efforts can include increasing internship and experiential learning opportunities inside and outside the classroom. They can also include creation of courses, assignments and programs that facilitate skill building and other programmatic changes. Industry can assist by collaborating with educators on curricular development to meet the needs of a dynamic environment and supporting students by providing mentorship and internship opportunities.

7. CONCLUSION

Contributions

This study makes several important theoretical and practical contributions. Theoretically, this study provides additional evidence for the importance of durable skills in academic curricula, which are often overshadowed by technical skills. Moreover, this study brings to light certain durable skills that have been overlooked in the literature, such as one's ability to "read," or be aware of, the organization/room and seeing how one's work impacts other parts of the project/organization.

Additionally, this study highlights significant differences in the perceived importance of skills across career stages, specifically between recent graduates, master's and doctoral-level graduates, and managers. Most previous studies identified skills gaps from the perspectives of employers. A limited number of studies incorporated both employers' and employees' perspectives, and those were based on survey methods. The current focus group interviews with multi-level participants help us to collect a deeper and richer experience of the participants through the social interaction of the group (Gundumogula & Gundumogula, 2020; Kitzinger, 1995). The focus groups of both employees and managers helped us to draw the common themes from each group and enabled us to compare similarities and differences in knowledge and experience from multi-level focus groups. To the best of our knowledge, this is the first study to utilize this approach (Winke, 2017).

Practically, this study provides actionable recommendations for HEIs aiming to better prepare students for the workforce. Specifically, it points to the need for decreasing scaffolding coupled with increasing ambiguity and complexity as students advance in their programs. Furthermore, it suggests integrating durable skills into curricula through non-traditional teaching methods such as experiential learning, role-playing, and simulations. This study also emphasizes the importance of collaboration between educational institutions and industry to help students develop durable skills through internships, mentoring programs, and real-world projects.

Limitations

This study is not without its limitations. First, there are limitations stemming from the use of focus groups from one IPSO. The focus groups were representatives from the IPSO selected by the IPSO. As such, certain biases may have been inadvertently introduced in the participant pool. Additionally, the authors moderating the focus groups may have influenced the participants' individual responses. Second, the number of participants in each focus group was on the low end of the recommended size (Krueger & Casey, 2014). Likewise, there was only one focus group for each participant category. As a result, the focus groups only captured a limited range of viewpoints. Third, the interpretation of the data was subject to the authors' biases and perspectives. While efforts were made to reduce

these biases, it is possible that other researchers may have identified different themes resulting from the focus groups. As such, findings from this study should be interpreted with caution.

Future Research

Future research would benefit from increasing the size and diversity of the participant pool outside of the IPSO using independent focus group moderators. This would help capture a broader range of perspectives. Additionally, future research may benefit from using survey-based or longitudinal research designs to triangulate this study's findings. Likewise, future research should include employer perspectives from different industries and policy makers. Lastly, future research could be conducted in different geographic regions and cultures.

8. DISCLAIMER

The views, opinions, findings, and conclusions expressed in this paper are strictly those of the authors and do not necessarily reflect the view of Deloitte. Deloitte takes no responsibility for any errors or omissions in, or for the correctness of, the information contained in this paper.

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APPENDIX A: FOCUS GROUP QUESTIONS

Recent College Graduates / Master's and Doctoral-level Graduates

On-the-job readiness:

1. [For graduates: What specific knowledge, skills, or abilities were you looking to develop by attending graduate school?]
2. Consider a specific project in the first few months/year that you worked on as a full-time employee after you completed your degree:
    a. What were the biggest challenges you experienced?
    b. What knowledge, skills, or abilities were the most helpful to address those challenges?
        i. Which of those knowledge, skills, or abilities were developed in college/university?
        ii. Which experiences, courses, programs, resources, or tools at college/university assist in developing those?
    c. What knowledge, skills, or abilities were needed most but lacking?
        i. Which ones could have been developed during your college/university years?
        ii. Which ones were missing from college/university education?
        iii. Was there any that you thought would be useful but turned out not to be?
    d. To close the gap, what actions did you take? (e.g., any training, consultations, etc.) Could you please share your experience?

Overall holistic:

1. Knowing what you know now, would you choose the same program/major again? If not, what program/major would you pick?
2. What advice would you give to current or future students to be better prepared for the rapidly evolving job market?

Management

Assessment of Staff:

1. Consider a specific team project where recent hires (either undergraduate or graduates) got involved and you managed in the last 2-3 years:
    a. What are the greatest gaps in knowledge, skills, and abilities of the recent hires you have observed?
    b. What do you have to do to close the gaps (e.g., via on-the-job or formal training)?
    c. What could be estimates of the cost of training/retraining the recent hires to close those gaps? (e.g., time and money spent)

A general assessment of the recent hires' knowledge, skills, and abilities

1. What specific knowledge, skills, and abilities do you consider as key differentiators in your hiring decisions?
2. Why are those knowledge, skills, and abilities important for your (team) work?
3. How do you assess whether an employee possesses the needed knowledge, skills, and abilities to be effective in their role?

Other:

1. What are the two to three knowledge, skills, and abilities that you would like to prioritize for undergraduates/ graduates to develop during their college/university years?

APPENDIX B: COMMON THEMES FOUND USING MANUAL CONTENT ANALYSIS

Common Themes

Cognitive

- Communication
- Critical Thinking *
- Figure out/deal with ambiguity *
- Flexibility (open-minded approach) *
- Problem-solving (including creativity) *

Interpersonal

- Leadership
- Collaboration/Teamwork
- Giving feedback

Intrapersonal

- Learning how to learn
- Ability to accept & Apply feedback
- Learning how to ask questions
- Persistence *

Common, Manifest Differently

- Adaptability
- Mentorship
- Relationship Building/Networking

**Themes found in the manager focus group*

APPENDIX C: RESULTS OF AUTOMATED TOPIC MODELING ANALYSIS

Topics / Focus Group	Topic 1	Topic 2
Recent College Graduates	learn, question, skill, business, talk, time, answer, guess, student, marketing	help, college, people major, class, course, school, mind, experience, career
Recent Master's & Doctoral-level Graduates	skill, learn, people, project, school, graduate, team, help, specific, classroom	time, program, feedback, question, MBA, client, experience, undergraduate, student, class
Managers	talk, feedback, learn, training, person, cost, practitioner, focus, junior, skill	people, hour, team, time, project, client, understand, school, job, week