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INTEGRATING SOFT AND TECHNICAL SKILLS IN IT EDUCATION: INSIGHTS FROM THE SFIA MODEL

In today's rapidly evolving digital economy, acquiring relevant and up-to-date skills has become essential for students, particularly those preparing for careers in information technology. The dynamic nature of the IT sector – shaped by continuous innovation, automation, and global digitalization – requires future professionals to go beyond theoretical knowledge and develop a robust set of competencies that reflect real-world industry needs. Employers are increasingly seeking graduates who can demonstrate not only technical proficiency but also adaptability, critical thinking, communication, and ethical awareness [2, с. 443]. Therefore, aligning educational outcomes with recognized frameworks for digital skills is key to ensuring that students are equipped to enter the workforce as capable, confident, and future-ready professionals.

In the context of our research on digital competencies, particular attention should be paid to the Skills Framework for the Information Age (SFIA), which serves as a global standard for classifying professional skills in the field of information technology. SFIA provides a structured, consistent language to describe professional capabilities and is designed to support organizations, governments, and individuals in workforce development and digital transformation [6].

SFIA is notable for addressing both technical and non-technical dimensions of professional competence. In addition to outlining a wide range of technical skills, the framework emphasizes the importance of soft skills – also referred to as behavioural factors – that are crucial for successful performance in complex, technology-driven environments. This dual focus reflects the evolving

demands of the modern workplace, where technical expertise must be complemented by interpersonal effectiveness, adaptability, and ethical responsibility.

One of the most valuable aspects of SFIA is its recognition that professional competence is shaped by multiple elements: experience, technical skills, knowledge, and behavioural factors. These behavioural factors, or soft skills, play a fundamental role in determining how effectively a person can apply their technical knowledge in real-world scenarios. The SFIA generic attributes directory provides a comprehensive description of these behavioural skills, which are essential for navigating the complex challenges of the digital workplace (see Fig. 1).

Figure 1. The context for SFIA: the components of professional competency, including skills, knowledge, experience, and behavioural attributes, as presented in the official SFIA framework.
Source: *The context for SFIA – SFIA Foundation*

Among the most emphasized behavioural competencies are collaboration and communication, which are critical for effective teamwork and information sharing. The ability to interact constructively with colleagues and stakeholders ensures that technical solutions are aligned with organizational goals and client needs. An improvement mindset is equally important, as it reflects a commitment to continuous personal and professional development.

Creativity is another key behavioural factor highlighted by SFIA. It involves the generation of original ideas and the ability to implement novel solutions, which are vital for driving progress and adapting to unforeseen

challenges. Decision-making, which encompasses critical thinking and analytical judgment, supports the selection of optimal solutions and strategic direction. Leadership, meanwhile, involves guiding teams, influencing decision-making processes, and promoting positive outcomes at various levels of responsibility.

Lifelong learning and skill development are also fundamental components of behavioural competence. SFIA promotes an attitude of continuous education, which allows professionals to remain current with new tools, technologies, and methodologies. Planning and problem-solving, as behavioural attributes, relate to the ability to structure tasks, allocate resources efficiently, and overcome obstacles through analytical reasoning and solution-oriented thinking [6].

Adaptability is particularly relevant in the digital age, where shifts in technology, markets, and organizational structures demand flexibility and resilience. Professionals who can adjust their approach and remain effective under changing conditions are highly valued across all sectors. Finally, the framework includes a focus on security, privacy, and ethics. Professionals are expected to adhere to ethical principles, ensure the confidentiality and protection of data, and contribute to building trust in digital systems and practices.

All of these behavioural competencies are integral to the formation of a well-rounded IT professional. They are not separate from technical skills but work in tandem to enhance overall performance. For example, a software developer with strong coding abilities will be far more effective if they can also communicate clearly, adapt to new project requirements, make informed decisions, and collaborate within a multidisciplinary team [6].

Teaching soft skills to IT students requires intentional, practice-oriented approaches that go beyond traditional lecture formats [4, с. 443]. One of the most effective methods is project-based learning, where students work in teams to solve real-world problems, simulating professional environments that demand collaboration, communication, adaptability, and decision-making [2, с. 432]. Integrating interdisciplinary coursework – such as combining programming

tasks with user experience design or discussions on digital ethics - helps students apply soft skills in meaningful contexts [5, c. 257].

Gamification has been identified as an effective pedagogical approach for fostering soft skills in IT education. Gamification incorporates a variety of dynamic elements that transform traditional learning into an interactive, motivating, and skill-building experience [1, c. 48]. Key features include quests and point-based reward systems that encourage sustained engagement and goal-oriented behaviour. Real-time feedback mechanisms provide immediate reinforcement, allowing students to track progress, adjust strategies, and take ownership of their learning. A critical advantage of gamified environments is the creation of a "safe space to fail," where students can experiment with solutions without fear of negative consequences, thus promoting resilience, creativity, and adaptive thinking. Collaborative components such as team quests, weekly missions, and shared achievements foster communication, leadership, and cooperation core soft skills for IT professionals working in cross-functional teams [3, c. 45]. Gamification also supports personalization and learner autonomy through choice activities, custom learning paths, and avatar or profile customization. These elements empower students to take control of their learning journey, align activities with their interests, and build confidence in their decision-making.

In parallel, English for Specific Purposes (ESP) courses tailored to the IT field can significantly enhance students' ability to communicate technical ideas clearly and effectively in international work settings [5, c. 257]. By practicing language in authentic IT-related scenarios – such as writing bug reports, presenting solutions, or participating in agile meetings – students not only develop language proficiency but also refine their interpersonal and professional communication skills.

Embedding these strategies into the curriculum ensures that soft skills are developed alongside technical expertise, empowering graduates to thrive in collaborative, cross-functional, and global digital environments. In conclusion,

the integration of frameworks like SFIA into IT education provides a clear roadmap for aligning learning outcomes with industry expectations. By systematically fostering both technical and behavioural competencies, educational institutions can prepare professionals who are not only technically skilled but also adaptable, communicative, ethically responsible, and ready to lead in the ever-evolving digital landscape.

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