

# Higher education and the new role of the teacher: the relevance of soft skills to enhance the professional identity

## La educación superior y el nuevo papel del docente: la relevancia de las *soft skills* para fortalecer la identidad profesional

Maria José Varadinov<sup>1</sup>: Polytechnic Institute of Portalegre, Portugal.

[mjvaradinov@ipportalegre.pt](mailto:mjvaradinov@ipportalegre.pt)

Luís Miguel Cardoso: Polytechnic Institute of Portalegre, Portugal.

[lmcardoso@ipportalegre.pt](mailto:lmcardoso@ipportalegre.pt)

Date Received: 04/21/2024

Acceptance Date: 08/14/2024

Date of Publication: 10/30/2024

### How to cite this article:

Varadinov, M. J., & Cardoso, L. (2024). Higher Education and the new role of the teacher: the relevance of soft skills to enhance the professional identity [La educación superior y el nuevo papel del docente: la relevancia de las *soft skills* para fortalecer la identidad profesional]. *European Public & Social Innovation Review*, 9, 1-15. <https://doi.org/10.31637/epsir-2024-1146>

### Abstract:

**Introduction:** The labor market is defined today by permanent changes that are transforming the curricula in Higher Education Institutions (HEIs). HEI professors are becoming teacher-mentors who focus on improving students' perception of professional identity. Four European universities created the "Teach-BEASTs - Teaching to BE Aware STudents (Teach-BEASTs)", an Erasmus+ program focused on this redefinition of the role of the teacher. The objectives are to demonstrate the practical value of transferred knowledge and skills in STEM subjects. **Methodology:** is based on a solid literature review of the article's theoretical framework and key concepts. On the other hand, it focuses on the analysis of the role of academic teachers, professors, officials in charge of academic career directions and the educational process, as well as deans and directors. **Results and discussion:** focus on Career Awareness Pills, which are modules that encourage students to reflect on the material covered from the perspective of their interests, passions, aptitudes, and the market value of the skills and information obtained that will be examined and constitute the core of the methodology. **Conclusions:** the first conclusions corroborate the objectives, specifically highlighting the value of activities to develop social skills or interpersonal skills.

<sup>1</sup> Corresponding Author: María José Varadinov. Polytechnic Institute of Portalegre (Portugal).

**Keywords:** higher education; teacher's role; labor market; soft skills; design thinking; STEM; professional awareness; Teach-BEASTs.

### **Resumen:**

**Introducción:** El mercado laboral se define hoy por cambios permanentes que están transformando los currículos en las Instituciones de Educación Superior (IES). Los profesores se están convirtiendo en profesores-mentores para mejorar la percepción de la identidad profesional de los estudiantes. Cuatro universidades europeas crearon el programa "Teach-BEASTs – Teaching to BE Aware STudents (Teach-BEASTs)", un programa Erasmus+ centrado en esta redefinición. Los objetivos son demostrar el valor de los conocimientos y habilidades transferidos en materias STEM. **Metodología:** se basa en una sólida revisión de la literatura sobre el marco teórico del artículo y los conceptos clave. Por otro lado, se centra en el análisis del papel de los docentes académicos, profesores, funcionarios encargados de las direcciones de carrera académica y del proceso educativo, así como de los decanos y directivos. **Resultados y discusión:** se centran en las Píldoras de Conciencia Profesional, módulos que alientan a los estudiantes a reflexionar sobre el material desde la perspectiva de sus intereses, pasiones, aptitudes y el valor de mercado de las habilidades y la información obtenida y constituyen el núcleo de la metodología. **Conclusiones:** las primeras conclusiones corroboran los objetivos, concretamente resaltando el valor de las actividades de desarrollo de habilidades sociales.

**Palabras clave:** educación superior; rol docente; mercado de trabajo; *soft skills*; *design thinking*; STEM; sensibilización profesional; Teach-BEASTs.

## **1. Introduction**

This article aims to describe a new approach to the contemporary role of the teacher in Higher Education called Teach-BEASTs. Employers now value a professional who combines knowledge with skills, especially soft skills that are highly relevant in our society. Therefore, the teacher must become a mentor, who accompanies the students throughout their training, enabling them to acquire greater awareness about themselves, the challenge of the job market and how the deepening of soft skills can make a difference in this increasingly competitive world. To have students who are more aware of themselves and of these challenges, it is necessary to train teachers, giving them tools to modify practices, rethink the curriculum, and methodologies and implement soft skills in their syllabus, namely in STEM (the Teach-BEASTs approach). With these soft skills, students can enhance their professional identity, and their future roles and tasks, be prepared for a changing labor environment and cope with a VUCA world. This is why Higher Education Institutions are changing the teachers' role, creating more opportunities for mentorship and career counselling, connected with a new type of curriculum, more focused on soft skills that are vital for the future of all students. In fact, universities are increasingly committed to adapting their training strategies to a labour market characterised by a VUCA environment: the VUCA environment in which organisations currently operate is characterised by volatility, uncertainty, complexity and ambiguity. (Waller, 2019). In many sectors, the introduction of new technical features will trigger a paradigm change that affects the entire value system. These threaten to disrupt established value chains, alter the shape, nature, and content of products and their distribution, and serve as a catalyst to produce a tsunami of change and dislocation. The VUCA pressures will require firms to shift from linear patterns of reasoning to problem-solving using synthetic and simultaneous thinking. They cannot be disregarded because concealed within the obstacles are critical opportunities for survival and sustainability (Stewart, 2026). According to Guo *et al.* (2023), against this backdrop, an increasing number of educators advocate for the reverse

design and customisation of students' courses based on their future job needs. Indeed, OBE has been widely promoted and applied by universities to help students enhance their VUCA skills. Universities' specific forms of OBE include educational travel, experiential education, internships, extracurricular activities, and so on. These are methods for planning, delivering, and evaluating instructions that require administrators, tutors, and students to focus their attention and efforts on the desired educational outcomes. Students' learning experiences impact their self-efficacy and expectancies, which in turn influence their interests, personal objectives, career choice, and performance. As a result, higher education began to change from "process" to "outcome" as its guiding principle. Specifically, universities have reversely designed their curriculum contents and teaching methods based on a comprehensive understanding of labor market demands, beginning with a blueprint of what students must do and then planning the courses, teaching, and evaluation to ensure that learning occurs thoroughly.

Teachers' conventional job of just transmitting knowledge is becoming outmoded. Mentorship appears to improve teaching outcomes and student learning, hence boosting educational quality, according to a growing body of research (Moloney et al., 2023). The mentor-mentee relationship facilitates the transfer of several fundamentals and variables such as pedagogical, academic information, psychological, attitudes, and behaviors during the mentoring process. This paradigm emphasizes the importance of mentors and mentees maintaining a mutually beneficial connection throughout time (Zanchett, 2017). Thus, when institutions create enabling environments that encourage and promote healthy and productive mentorship, this practice can play an important role in constantly nurturing the professional knowledge, skills, and attitudes that the teaching force requires to more effectively educate and prepare their students. Mentorship, or mentoring, has lately gained traction in educational studies (Alegado, 2018; Soe, 2018). Mentoring is a general phrase that refers to any relationship between a more experienced individual known as a mentor and a less experienced someone known as a mentee (Hudson, 2016).

According to numerous authors (Heinekke et al., 2012), mentoring has recently become connected with collaboration, collegiality, and interaction. It should not involve one-way guiding, in which the mentor wields control in a top-down relationship and just conveys knowledge or gives advice. Mentoring should instead involve interaction, discussion, and dialogue, with the mentor and mentee exchanging ideas and building knowledge together. Mentoring therefore closely reflects the co-construction model of learning, in which new knowledge is generated through collaboration and social interaction (Ellis et al., 2020).

The Teach-BEASTs project, supported by the thoughts of the authors already mentioned, highlights that educators are evolving to become mentors who guide students in exploring their professional identities, fostering critical thinking, and nurturing their passions. This mentoring model aims to prepare students not only for initial employment but also for adaptability and growth throughout their careers (Kamarudin et al., 2020; Modrea et al., 2023).

Bearing in mind these challenges, the main objective of this article is to present the innovative approach called Teach-BEASTs, a project being developed in collaboration between the University of Information Technology and Management (Poland), Alma Mater Studiorum – Università Di Bologna (Italy), Universitat Ramon Llull Fundacio (Spain) and the Polytechnic Institute of Portalegre (Portugal), seeking to revolutionize STEM education through several key objectives: the practical value of STEM knowledge and skills; demonstrate the real-world applicability of STEM education by integrating it with non-technical areas and emphasizing interdisciplinary learning; the implementation of Teacher-Mentor roles; encouraging reflective questioning, helping students identify their passions and promoting career-oriented thinking;

addressing innovative teaching models; transition from traditional class-based teaching to project-based teaching, using the Design Thinking methodology, which emphasizes problem-solving, creativity and student engagement. According to Gray et al. (2022), the foundation should be the mentor-mentee relationship, as mentoring influences professional development, academic performance, and personal development. The mentor-mentee relationship is complex, but it works successfully when the faculty mentor has expertise, both parties communicate effectively, goals are established, and the resident actively participates in the process. Residents who pursue an academic career benefit from faculty mentors with knowledge and scientific connections. In addition to faculty mentors, senior or chief residents play an important role in mentoring.

This article will provide a thorough description of this project, the objectives, the methodology and how it will be implemented. For now, the authors will focus on the expected results and debate the advantages of this project. Future research will include the results that will be obtained from the teacher training activities, allowing full analysis and discussion.

## 2. Methodology

This article has a thorough theoretical framework provided by a state-of-the-art literature review regarding the fundamental topics that contextualize this project and detail how the project's methodology is being implemented. It presents a new approach regarding the challenges of contemporary HEIs, teachers and students, entitled Teach-BEASTs.

The first step of the Teach-BEASTs project methodology involved a comprehensive analysis of diverse stakeholders within HEIs, including academic instructors, career office staff, and university management. The focus is on how these roles can adapt to support new teaching paradigms (Universities UK and UKSES, 2014; UKCES, 2015).

The second step was to define how to achieve the proposed objectives, so a Teacher Training Program was developed, focused on the development of transversal skills - Soft Skills and Career Planning. Recognizing the need for HEIs to adapt to the constantly changing job market, the Teacher Training program emphasizes the development of interpersonal skills among educators. This initiative focuses on equipping teachers with the ability to effectively engage students, stimulate their imagination and interests, and make the educational process engaging the VUCA world of work.

The third step was to give teachers new tools to deal with the described challenges, so the Professional Awareness Pills were developed to give teachers new instruments. When the Teacher Training Program is implemented, the Professional Awareness Pills will be tested. The Professional Awareness Pills were designed to make students reflect on their learning, concerning their personal and professional goals, as well as the market value of their skills.

In summary, the methodology includes a solid literature review to describe the most important challenges HEIs are facing, the need to define new roles for teachers and how students must become more aware of themselves and their professional identity; and the presentation of the Teach-BEASTs project, how it relates to the HEIs challenges, its objectives and the description of the Teacher Training Program as a strategy to give teachers new instruments through the Professional Awareness Pills, developed by the projects' team. These steps are described in this article.

## 3. Discussion

The main objective of the Teacher Training Program is to enable educators to foster skills in

students that are aligned with market needs, including interpersonal skills and professional career development. Soft skills, often known as interpersonal or people skills, are non-technical qualities that allow individuals to effectively engage and communicate with others. Unlike hard skills, which are job-specific and often gained through school or training, soft skills are more closely tied to personal characteristics and features that promote successful interactions in both professional and personal contexts. Soft skills are a diverse set of abilities that contribute to a person's overall effectiveness and success. Some common soft skills are Communication, the ability to express information clearly and effectively, both orally and in writing. Good communication skills include attentive listening, clarity of language, and the ability to communicate ideas concisely. Teamwork is the ability to collaborate and work cooperatively with others toward a similar objective. This includes being able to provide ideas, compromise, and encourage team members to reach common goals. Adaptability is the ability to adjust and thrive in changing circumstances or conditions. Being flexible entails being open to new ideas, accepting change, and swiftly learning and changing to new situations. Problem-solving is the ability to detect obstacles, assess situations, and devise workable solutions. Effective problem-solving requires critical thinking, creativity, and the capacity to approach problems from several viewpoints. Leadership is the ability to inspire and motivate people to reach their maximum potential. Leadership entails directing, empowering, and persuading individuals or teams to achieve objectives and promote good change. Time management is the ability to prioritize tasks, plan calendars, and efficiently allocate time to achieve goals. Effective time management promotes productivity, reduces stress, and enables individuals to consistently fulfill deadlines; Emotional intelligence is the ability to recognize, manage, and express emotions in oneself and others. Emotional intelligence entails self-awareness, self-regulation, empathy, and effective interpersonal interactions. Soft skills are widely seen as critical traits for success in today's dynamic and interconnected society. While hard skills are unquestionably vital for completing specific tasks, soft skills are equally important for navigating the intricacies of today's world and achieving long-term success and fulfillment in both professional and personal areas. Individuals who want to prosper in today's dynamic and interconnected world should prioritize developing and improving their soft skills. Therefore, this project is focused on soft skills and specific objectives include content development based on career needs, assisting educators in creating disciplinary content that reflects the current demands of the job market, expanding students' understanding of the practical applicability of these skills and awareness-raising techniques to empower teachers with methods and tools that raise students' awareness of the relevance of their learning to their personal interests and market needs.

This is why the Teach-BEASTs project outlined a training program for teachers in order to achieve the aforementioned objectives. The training will use tools such as Soft Skills Pills and Career Planning Pills to facilitate the planning of classes focused on meeting the demands of the job market, promoting student involvement and increasing professional awareness (Scott *et al.*, 2019). According to Bridgstock (2009), recent changes in education and labor market policies have put institutions under more pressure to produce employable graduates. However, there is disagreement on what constitutes employability and which graduate characteristics are required to promote employability in tertiary students. The author believes that in today's information- and knowledge-intensive economy, employability requires more than just the generic abilities that graduate employers value. To achieve the best economic and social outcomes, graduates must be competent to negotiate the workplace and self-manage their careers. A model of desirable graduate traits emphasizes self-management and career-building skills for long-term career management and employability.

This training program's target audience includes teachers, those responsible for educational guidance and course coordinators. The training program is entitled "Improving Professional



Guidance and the Development of Soft Skills in Teaching” because institutions face the challenge of adjusting offerings to meet the changing needs of the job market. To achieve this goal, teachers must continue to improve their professional skills. This involves exploring new teaching approaches and engaging students effectively, stimulating their imagination and interests, and making the educational process engaging and attractive because the labor market is changing. Scott (2021) contends that substantial data supports the claim that a degree is no longer adequate for companies and that graduates must additionally possess a variety of extra abilities.

This training program will also address the emphasis on acquiring graduate qualities, also known as lifelong learning, generic, transferable, or soft skills, that have evolved because of the focus on graduate employability. Many institutions prioritise certain characteristics above others. These characteristics were summarized as follows: communication, critical thinking, global citizenship, teamwork, independence, problem-solving, and information literacy. Others include lifelong learning; research, scholarship, and inquiry; employability and career development; global citizenship; communication and information literacy; ethical, social, and professional understanding; personal and intellectual autonomy; and collaboration, teamwork, and leadership. HEIs want graduates to be career-ready, and it is critical when developing and embedding employability skills to include the perspectives of employers and recruiters, as employers regard a willingness to learn as a critical talent in the workplace. (Scott, 2021; Damoah, 2021). Damoah (2021) concluded that the skills assessed in the study included knowledge, enterprise leadership, numeracy skills, technical management, teamwork skills, interpersonal skills, communication skills, IT literacy skills, improved learning skills, and creativity and innovation abilities. Employers received higher ratings for knowledge, enterprise leadership, technical management, collaborative abilities, interpersonal skills, and numeracy skills.

Soft skills have become the core of the teaching activities in education, connected with PBL and teamwork (Vogler, 2017), for example, because employers value soft skills that they consider crucial for creating positive interactions with both customers and coworkers. Fogleman (2019) contends that companies usually want soft skills such as critical thinking, teamwork, leadership, and communication. As a result, when employing new staff, these "skills" should be assigned the same importance as technical skills. Higher education institutions serve a dual purpose by offering graduates both training and concentrated educational experiences. This entails providing students with the required information and abilities to pursue their desired jobs, as businesses often look for a few soft talents when hiring new employees. In addition to their graduate degree, students must demonstrate that they possess life skills that may be applied in several circumstances. As a result, the curriculum must make a transition from textbook learning to practical pedagogical approaches that blend subject-specific knowledge with essential life skills. A mutually beneficial outcome occurs when graduates have improved life skills and graduate employment outcomes, which not only benefit them socially and economically, but also improve the reputation of universities. However, research continues to highlight pedagogical approaches and curriculum design as key support systems for building students' competencies and life skills (Scheuring et al., 2024).

The most important purpose of this Teacher Training Program is to train teachers to foster skills in students, related to the needs of the job market, such as soft skills and professional career development. The specific objectives include assisting teachers in the development of disciplinary content based on "professional careers", considering the current demands of the job market and aiming to expand students' understanding of the practical applicability of these skills and training teachers with techniques, methods and tools that make it possible to raise students' awareness of the relevance of their learning to their interests and the needs of the job

market.

The Teacher Training Program integrates the use of tools called Soft Skills Pills and Career Planning Pills, to facilitate the planning of classes focused on meeting the demands of the job market, promoting student involvement and professional awareness and contributing to a more holistic and future-oriented. This training represents an opportunity for teachers to familiarize themselves with new teaching methodologies and practices, as well as to adapt their curricular content to the needs of the current job market. By participating in the sessions, teachers have the chance to improve their pedagogical skills and will be pioneers in implementing innovative methodologies, breaking new ground in teaching and exploring ways to make content more accessible and relevant for students at IPP. By training teachers with the innovative approaches proposed in training, we seek to expand the reach and impact of these initiatives, ensuring that more students benefit from new teaching and learning practices.

The Teacher Training Program include introducing participants to innovative teaching methodologies and resources to enhance student learning and career preparation, facilitating the integration of soft skills and career-focused activities into academic courses, namely STEM, empowering faculty to select and adapt teaching approaches to effectively meet the needs of their students and promote reflection and planning for the integration of learned methodologies into teaching practices, fostering educational innovation in a mentor-mentee relationship (Mullen, 2021).

Contents include Part I – Soft Skills Pills: Interpersonal Skills: Concept, Why are interpersonal skills important?, Examples of interpersonal skills, Interpersonal Skills and Tools, Exercises: Soft Skill Pill: Selection, presentation and discussion; Part II - Career Design Pills: How can I add career development activities to my UC?, Objectives, What are Career Design Pills like?, Pill dimensions: difficulty, time and value, Pill Verification Career, Group work: Exploration, selection and presentation of Career Pills; Part III - Teaching Innovation Laboratory, Selection of tools for the program, Update of the UC program, Feedback from colleagues, Sharing and Reflection. Part I is critical because it allows students to build employability and 'work-ready' abilities by considering both technical skills relevant to their discipline and soft skills needed by employers. Beckingham (2023) demonstrates how skills can be developed through a variety of work experience opportunities, including work-based and work-related learning; in-class activities and alternative teaching approaches, such as project, inquiry, and problem-based learning; and by scaffolding both soft skills development and reflective practice, students can become more confident in articulating these skills when applying for graduate work.

Training will take place in distinct phases: Discover Soft Skills Pills: Introduction to Soft Skills Pills - a collection of simple activities designed to be integrated perfectly into Curricular Units to reinforce students' interpersonal skills; Try the Soft Skills Pills: apply the Soft Skills Pills through the reverse classroom methodology, allowing you to actively participate and apply soft skills in practical scenarios; Discover Career Pills: Explore Career Pills, a series of simple but impactful activities, designed for easy integration into Curricular Units, designed to facilitate students' growth and professional preparation; Select Career Pills: delve into the logic inherent to each Career Pill and identify those that best align with each pedagogical style, ensuring a personalized teaching approach; Teaching Innovation Laboratory: and a Workshop that aims to design and plan the integration of methodologies learned into individual teaching practices, promoting innovation in educational strategies.

The Teacher Training Program will have a total of 7 hours of contact and 19 hours of individual work, so the training will last a total of 26 hours, equivalent to 1 ECTS. The course is intended

to have a daytime schedule and be concentrated in one week on a date to be defined preferably September or October. The objective is for the course to be recurring and in-person. The course is also intended to use Portuguese and English as working languages, as a way of preparing teachers at the beginning of their careers for the internationalization of the Polytechnic Institute of Portalegre. Required resources and materials include the Workshop Guide, presentation slides, the Soft Skills Pills Activity Guide and examples of Career Pills activities. The expected results of this training are that teachers at the Polytechnic Institute of Portalegre will have the opportunity to strengthen their pedagogical abilities and become pioneers in the implementation of novel approaches, forging new ground in teaching, and researching ways to make information more accessible and relevant to students. By training teachers in the creative ways recommended during training, we hope to broaden the scope and effect of these efforts, ensuring that more students benefit from new teaching and learning practices.

The Teach-BEASTs project predicts several key outcomes, the most significant of which is the use of Professional Awareness Pills that will be made available to all Higher Education teachers. These Teacher Training Programs are intended to help students to reflect on their interests, passions, skills, and the market value of their skills and knowledge, thereby enhancing self-awareness career readiness and professional identity.

We believe that teachers will conclude that the Teach-BE(A)STs approach is an extension (plug-in) to the teaching methodological framework currently used by teachers, providing detailed guidelines on how to improve a teaching methodology to an approach that enables students to understand how the job market values learning outcomes and stimulates students' internal motivation for learning based on discovered interests.

Unlike traditional methodologies, which focus primarily on the effectiveness and efficiency of teaching strategies in the areas of knowledge assimilation and skill development, the Teach-BEASTs framework, namely the Teacher Training Program, broadens teaching/learning processes to include new dimensions such as job market usefulness of learning outcomes and passion-driven professional development led by university teachers.

After completing this Teacher Training Program, we believe that all participants will be more prepared to train their students to face the VUCA world, teachers will be more aware of the importance of soft skills, particularly in STEM, they will understand and apply the Professional Awareness Pills, contributing decisively to strengthening soft skills in students and their professional identity awareness. After the conclusion of the Teacher Training Program, our most important outcomes will be the data from the participants that will be collected for further analysis and discussion, enabling the project team to evaluate the impact of this new approach, identify strong points, detect weaknesses, correct strategies and redefine the path of the framework or its steps, if required.



## 5. Conclusions

The Teach-BEASTs project recognizes that Higher Education Institutions' primary goals are to prepare students for the future labor market and to offer industrially relevant courses. However, the information and abilities that businesses demand vary from what students' study at their university (or University of Applied Sciences); in certain cases, we cannot forecast what an industry will want in a few decades. To prepare students for future jobs, industry and Higher Education Institutions must collaborate and communicate extensively, and professors play an important role in this transition. Education can be future proofed by teaching lecturers to use and incorporate cutting-edge pedagogies and technology into their courses (ter Beek, 2022).

Higher Education Institutions are investing more in student employability development to better prepare them for the workforce. The dynamic, ever-changing workplace that HEIs prepare students for needed generic skills that are transferable across industries (van der Baan, 2024; Soundaraajan, 2020). Employers nowadays search for characteristics that go beyond academic aptitude. These characteristics include efficient written and spoken communication, the capacity to work and develop in a team, multitasking, and other dynamic business skills. Employers place a high value on generic skills as added characteristics, and these are some of the qualities they look for in candidates during an employee interview. Universities are regarded to provide a substantial contribution to the development of human capital. Universities should modify their curricula to better meet the needs of the labor market, which could make it simpler for recent graduates to find and keep jobs. Employers, higher education institutions, graduates, and workers all want to see employability skills taught in higher education programs.

Jackson and Lee (2024) examined the skills and labor market and classified industry-relevant talents into three categories: foundation (e.g. communication/numeracy), adaptive (e.g. problem-solving/independent working/innovation), and collaborative (e.g. working with various individuals). Employers emphasize these above discipline-related abilities because they allow graduates to adapt to work situations and make meaningful contributions in complex, cross-cultural, and collaborative environments. The widely held idea that skill development is favorably associated with employment has resulted in significant investment in authentic learning activities to enhance industry-relevant abilities among higher education students (Clarke, 2018; Tomlinson, 2021; Tuonen, 2019). Notable advances among specific groups were more visible in coursework degrees, probably due to the explicit integration of focused skill projects. This demonstrates the potential utility of university courses in improving human capital, particularly for students who have had limited exposure to appropriate developmental opportunities. Overall, Jackson and Lee's (2024) findings emphasize the necessity of ensuring that all students may benefit from in-curricular skill-related activities, as well as educators understanding the need for interventions that are tailored to various student requirements. Higher education plays a vital role in offering chances for the development of industry-relevant skills, as well as establishing skill-related teaching and practice.

The recent PISA-VET (Rausch et al., 2024) assesses employability skills classified as fundamental, transversal, or transferable skills, cross-domain or generic skills, core skills, key competencies, soft skills, and 21st-century skills. They represent a broader set of cross-cutting and foundational skills required for workplace success and navigating a changing labor market, such as problem-solving, critical thinking, communication, collaboration, literacy, numeracy, and information and communication technology (ICT) literacy.

Although the skills required by employers vary by sector and country, the studies consistently stress communication skills, interpersonal skills, teamwork, technical abilities, and managerial skills (Nghia et al., 2024). Communication skills appeared to be the most sought-after soft skills among graduates since they allow professionals to connect with their teams, negotiate with their clients, and so provide significant benefits to their firms. Students can increase their self-efficacy and re-evaluate what they have learned in higher education, which will be extremely beneficial to their future professional path. In parallel, while at university, students should be prepared for career growth, helping them to fully comprehend what is significant, as well as what suits their temperaments. Employers throughout the world are looking for talented graduates who can hit the ground running. Researchers aimed to discover lists of skills desired by companies and improve these skills for students to make them more employable after graduation. However, these skill lists may not be very useful because market skills are constantly changing. As a result, it requires new ideas on what defines employability rather than skill lists, therefore soft skills such as inventiveness and adaptability are critical in this century (Tsirkas, 2020; Ghani, 2018).

The Teach-BEASTs project is a ground-breaking endeavor to transform STEM education and meet the issues posed by the VUCA environment. By embracing Design Thinking ideas and emphasising interpersonal skills, the project intends to provide students with the tools and abilities they need to survive in an ever-changing work market. Design thinking is an inventive methodology based on a collection of skills, methods, and mindsets. Many educators focus on establishing 21st-century abilities in their students. These skills are classified into three categories: life and career skills, learning and innovation skills (including creativity and invention, communication, cooperation, and problem-solving), and information, media, and technology skills. However, experts frequently neglect the impact of design thinking on the achievement of curriculum goals such as basic knowledge and abilities. Using the design thinking approach, educators provide a variety of specialized courses to educate design thinking principles and skills while also cultivating students' innovative abilities. Researchers determined that design thinking increased students' participation and a variety of skills, including presenting, problem-solving, cooperation, and so on. In summary, multiple research shows that a design thinking-based curriculum focuses on students developing works and facilitating their real-world problem-solving abilities (Lin *et al.*, 2020).

Using Design Thinking, this project aims to develop a generation of professionals who are not only technically proficient but also socially and emotionally intelligent, capable of navigating the complexities of the modern workforce with confidence and resilience, through innovative pedagogical practices, mentoring, and self-reflection.

This article presented and described the project, namely the Teacher Training Program and the Career Awareness Pills, the relevance and the positive new mindset that can be created in Higher Education Institutions by “Teach-BEASTs – Teaching to BE Aware STudents (Teach-BEASTs)”.

Future research will focus on the results obtained in the Teacher Training Program, the impact on teachers' practices, curriculum changes that can be implemented using this methodology, and students' professional awareness that will be enhanced by this framework and can be the starting point for new analysis and further discussion.

## 6. References

- Alegado, P. J. E. (2018). A qualitative investigation of the effects of mentoring: teachers' narrative from Tianjin, China. *J. Teaching & Training*, 5(2), 112-126. <https://doi.org/10.5296/jet.v5i2.13285>
- Beckingham, S. (2023). Baseline skills—scaffolding soft skills development within the curriculum. In J. Carter, M. O'Grady, & C. Rosen (Eds.), *Higher Education Computer Science* (pp. 253-274). Springer. [https://doi.org/10.1007/978-3-031-29386-3\\_17](https://doi.org/10.1007/978-3-031-29386-3_17)
- Bridgstock, R. (2009). The graduate attributes we've overlooked: enhancing graduate employability through career management skills. *Higher Education Research & Development*, 28(1), 31-44. <https://doi.org/10.1080/07294360802444347>
- Clarke, M. (2018). Rethinking graduate employability: the role of capital, individual attributes and context. *Studies in Higher Education*, 43(11), 1923-1937. <https://doi.org/10.1080/03075079.2017.1294152>
- Damoah, O. B. O., Peprah, A. A., & Brefo, K. O. (2021). Does higher education equip graduate students with the employability skills employers require? The perceptions of employers in Ghana. *Journal of Further and Higher Education*, 45(10), 1311-1324. <https://doi.org/10.1080/0309877X.2020.1860204>
- Ellis, N. J., Alonzo, D., & Nguyen, H. T. M. (2020). Elements of a quality pre-service teacher mentor: A literature review. *Teaching and Teacher Education*, 92. <https://doi.org/10.1016/j.tate.2020.103072>
- Fogleman, D. (17 de mayo de 2019). *Why we should start calling soft skills "employability skills"*. Training Industry. <https://acortar.link/aZ6iCy>
- Ghani, E. K., Rappa, R., & Gunardi, A. (2018). Employers' perceived accounting graduates' soft skills. *Academy of Accounting and Financial Studies Journal*, 22(5), 1-11. <https://acortar.link/lI3Mjw>
- Gray, D., & Kleinschmit, K. (2022). Mentoring and career counseling for residents. In M. Macaluso, L. J. Houston, J. M. Kinzie, & D. S. Cowley (Eds.), *Graduate Medical Education in Psychiatry* (pp. 321-331). Springer. [https://doi.org/10.1007/978-3-031-00836-8\\_20](https://doi.org/10.1007/978-3-031-00836-8_20)
- Guo, Y., Zhao, Q., Cao, Z., & Huang, S. (2023). The influence of tourism and hospitality students' perceived effectiveness of outcome-based education on their VUCA skills. *Scientific Reports*, 13, 8079. <https://doi.org/10.1038/s41598-023-35186-5>
- Heikkinen, H. L., Jokinen, H., & Tynjälä, P. (2012). Teacher education and development as lifelong and lifewide learning. In H. L. T. Heikkinen, H. Jokinen, & P. Tynjälä (Eds.), *Peer-group mentoring for teacher development* (pp. 19-46). Routledge.
- Hudson, P. (2016). Forming the mentor-mentee relationship. *Mentoring and Tutoring: Partnership in Learning*, 24(1), 30-43. <https://doi.org/10.1080/13611267.2016.1163637>
- Jackson, D., & Li, I. (2024). Perceived skill outcomes among coursework and research

- graduates and evolution over time. *Journal of Further and Higher Education*, 48(4), 449-466. <https://doi.org/10.1080/0309877X.2024.2346742>
- Kamarudin, M., Kamarudin, A. Y., Darmi, R., & Saad, N. S. (2020). A review of coaching and mentoring theories and models. *International Journal of Academic Research in Progressive Education and Development*, 9(2), 289-298. <http://dx.doi.org/10.6007/IJARPED/v9-i2/7302>
- Lin, L., Shadiey, R., Hwang, W. Y., & Shen, S. (2020). From knowledge and skills to digital works: An application of design thinking in the information technology course. *Thinking Skills and Creativity*, 14(6), 100646. <https://doi.org/10.1016/j.tsc.2020.100646>
- Modrea, A. F., & Ban, A. R. (2023). *The importance of mentoring for the profession of an engineer*. In L. Moldovan, & A. Gligor (Eds.), *The 16th International Conference Interdisciplinarity in Engineering, Inter-Eng 2022. Lecture Notes in Networks and Systems*, Vol. 605, pp. 475-485. Springer. [https://doi.org/10.1007/978-3-031-22375-4\\_38](https://doi.org/10.1007/978-3-031-22375-4_38)
- Moloney, M., Pope, J., & Donnellan, A. (2023). What is mentoring and who mentors? In M. Moloney, J. Pope, & A. Donnellan (Eds.), *Professional Mentoring for Early Childhood and Primary School Practice* (pp. 15-37). Springer Texts in Education. Springer. [https://doi.org/10.1007/978-3-031-37186-8\\_2](https://doi.org/10.1007/978-3-031-37186-8_2)
- Mullen, C. A., & Klimaitis, C. C. (2021). Defining mentoring: a literature review of issues, types, and applications. *Ann N Y Acad Sci.*, 1483(1), 19-35. <https://doi.org/10.1111/nyas.14176>
- Nghia, T. L. H., Anh, N. P., & Kien, L. T. (2024). English language skills and employability: a theoretical framework. In T. L. H. Nghia, L. T. Tran, & M. T. Ngo (Eds.), *English Language Education for Graduate Employability in Vietnam. Global Vietnam: Across Time, Space and Community* (pp. 71-93). Springer. [https://doi.org/10.1007/978-981-99-4338-8\\_4](https://doi.org/10.1007/978-981-99-4338-8_4)
- Rausch, A., Abele, S., Deutscher, V., Greiff, S., Kis, V., Messenger, S., Shackleton, J., Tramonte, L., Ward, M., & Winther, E. (2024). Designing an international large-scale assessment of professional competencies and employability skills: Emerging avenues and challenges of OECD's PISA-VET. *Vocations and Learning*, 1-40. <https://doi.org/10.1007/s12186-024-09347-0>
- Scheuring, F., & Thompson, J. (2024). Enhancing graduate employability - exploring the influence of experiential simulation learning on life skill development. *Studies in Higher Education*, 1-15. <https://doi.org/10.1080/03075079.2024.2334837>
- Scott, F. J., & Willison, D. (2021). Students' reflections on an employability skills provision. *Journal of Further and Higher Education*, 45(8), 1118-1133. <https://doi.org/10.1080/0309877X.2021.1928025>
- Scott, F. J., Connell, P., Thomson, L. A., & Willison, D. (2019). Empowering students by enhancing their employability skills. *Further and Higher Education*, 43(5), 692-707. <https://doi.org/10.1080/0309877X.2017.1394989>

- Soe, H. Y. (2018). The impact of teachers' professional development on the teachers' instructional practices: an analysis of TALIS 2013 teacher questionnaire, Finland. *World Voices Nexus*, 2(3). <https://acortar.link/NfGXeq>
- Soundararajan, G., Aro-gordon, S., Ravikumar, A. y Jesrani, D. (2020). *Employability skills needed in the emerging global job market: Stakeholders' perception*. Proceedings of the 36th International Business Information Management Association (IBIMA), pp. 4578-4584. <https://acortar.link/yofXPg>
- Stewart, B., Khare, A., & Schatz, R. (2016). Volatility, uncertainty, complexity and ambiguity in higher education. In O. Mack, A. Khare, A. Krämer, & T. Burgartz (Eds.), *Managing in a VUCA World* (pp. 241-250). Springer, Cham. [https://doi.org/10.1007/978-3-319-16889-0\\_16](https://doi.org/10.1007/978-3-319-16889-0_16)
- Ter Beek, M., Wopereis, I., & Schildkamp, K. (2022). Don't wait, innovate! Preparing students and lecturers in higher education for the future labor market. *Education Sciences*, 12(9), 620. <https://doi.org/10.3390/educsci12090620>
- Tomlinson, M. (2021). Employers and Universities: Conceptual dimensions, research evidence and implications. *Higher Education Policy*, 34(1), 132-154. <https://doi.org/10.1057/s41307-018-0121-9>
- Tsirkas, K., Chytiri, A., & Bouranta, N. (2020). The gap in soft skills perceptions: A dyadic analysis. *Education + Training*, 62(4), 357-377. <https://psycnet.apa.org/doi/10.1108/ET-03-2019-0060>
- Tuononen, T., Parpala, A., & Lindblom-Ylänne, S. (2019). Graduates' evaluations of usefulness of university education, and early career success – a longitudinal study of the transition to working life. *Assessment & Evaluation in Higher Education*, 44(4), 581-595. <https://doi.org/10.1080/02602938.2018.1524000>
- UKCES. (2015). *Sector insights: skills and performance challenges in the digital and creative sector*. <https://acortar.link/kclG88>
- Universities UK and UKCES. (2014). *Forging Futures: building higher level skills through university and employer collaboration*. <https://acortar.link/tKpBwM>
- Van der Baan, N., Nuis, W., Beusaert, S., Gijssels, W., & Gast, I. (2024). Developing employability competences through career coaching in higher education: supporting students' learning process. *Studies in Higher Education*, 1-20. <https://doi.org/10.1080/03075079.2024.2307976>
- Vogler, J. S., Thompson, P., Davis, D. W., Mayfield, B. E., Finley, P. M., & Yasserli, D. (2017). The hard work of soft skills: augmenting the project-based learning experience with interdisciplinary teamwork. *Instr Sci*, 46(3), 457-488. <https://doi.org/10.1007/s11251-017-9438-9>
- Waller, R. E., Lemoine, P. A., Mense, E. G., Garretson, C. J., & Richardson, M. D. (2019). Global Higher Education in a VUCA World: Concerns and Projections. *Journal of Education and Development*, 3(2), 73-83. <https://doi.org/10.20849/jed.v3i2.613>



Zanchett, M. S., Bailey, A., Kolisnyk, O., Baku, L., Schwind, J., & Osino, E. (2017). Mentors' and mentees' intellectual partnership through the lens of the transformative learning theory. *Nurse Education Practice*, 25, 111-120.  
<https://doi.org/10.1016/j.nepr.2017.05.009>

## AUTHOR CONTRIBUTIONS, FINANCING AND ACKNOWLEDGMENTS

### Contributions from the authors:

**Conceptualization, Software, Validation, Formal analysis, Data curation, Original blot preparation, Revision and Editing, Visualization, Supervision, Project administration:** Varadinov, M., J. & Cardoso, L.

**All authors have read and accepted the published version of the manuscript:** Varadinov, M., J. & Cardoso, L.

**Funding:** Erasmus Plus programme Key Action 2 Cooperation partnerships in higher education. **Funding Agency:** European Union through the Foundation for the Development of the Education System – the Polish National Agency of the ERASMUS+ Programme.

No conflicts of interest.

### AUTHORS:

#### **Maria José Varadinov**

Polytechnic Institute of Portalegre, Portugal.

Associate Professor at the Portalegre Polytechnic University, holds a PhD in the field of Business Administration with the specialization in Reverse Logistics from the University of Extremadura (Badajoz, Spain). She teaches several units such Operations and Logistics, Introduction to Management, Economics, Management Accounting and Agricultural Economics. She was Director of the Foreign Relations Office for the Department of Enterprise Sciences and she is Peer reviewer at several international scientific journals; Member of the EUCLIDES Network- network of European Engineering and Technology Universities and Institutional Coordinator for several international projects in the field of pedagogical innovation, teaching and learning methodologies and also in Optimization and Decision Support System for the Supply Chain.

[mjvaradinov@ipportalegre.pt](mailto:mjvaradinov@ipportalegre.pt)

**Orcid ID:** <https://orcid.org/0000-0002-0308-2000>

#### **Luís Miguel Cardoso**

Polytechnic Institute of Portalegre, Portugal.

Luís Miguel Cardoso holds a PhD in Modern Languages and Literatures, in the speciality of Comparative Literature from the University of Coimbra, Portugal. He was Dean of the School of Education and Social Sciences of the Polytechnic Institute of Portalegre, Portugal (2010 – 2018) and President of ARIPESE, Association of Reflection and Intervention in the Educational Policy of Higher Education Schools in Portugal (2015 – 2018). Adjunct Professor at the Department of Language and Communication Sciences at the School of Education and Social

Sciences of the Polytechnic Institute of Portalegre, Portugal, is currently a researcher at the Centre for Comparative Studies at the University of Lisbon and CARE – Research Center on Health and Social Sciences, Portalegre.

[lmcardoso@ipportalegre.pt](mailto:lmcardoso@ipportalegre.pt)

Orcid ID: <https://orcid.org/0000-0003-3748-5593>