

# The Role Of Individual Study In Professional Training In Higher Education In The Context Of Online Education

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## Abstract

The fast pace of change, has generated a new format of education, adjusted to the new realities and the online regime. In this context, we set out to investigate the professional training of university students and to discover new ways of completing higher education degrees. In order to better understand the specifics of online education, we asked students (N = 334) from the University POLITEHNICA of Bucharest to express their opinion on the importance of the skills acquired from university for their professional career and individual study methods that can improve and complete university studies. During the research, we applied a questionnaire and conducted interviews with students, in the period of time spanning from March to June 2021. Our analysis led us to the following finding: in the context of online learning, students must, on the one hand, have access to high quality university education, relevant to life, social integration and their affirmation on the labor market, and on the other hand, to and discover their potential and professional niche, which should be developed through individual study.

**Keywords:** individual study, online education, professional training, higher education

**JEL Classification:** I20, I21, I23

## 1. Changing the Professional Paradigm: from Professional Standardization to Professional Uniqueness

In order to improve the quality of life worldwide, most countries have recently invested heavily in the development and training of the professional skills of the population (CEDEFOP et al.,

2021). This approach meant continuous performance in a knowledge-based economy (Deaconu et al., 2014; Binkley et al., 2018; Sang et al., 2018) and required a change in the understanding of the concept of professional training.

The new requirements for specialists have shifted the emphasis from mass standardization to mass uniqueness (OECD, 2019) and have focused on learning through cooperation, exchange of experience, search for solutions and development of individualised paths. This change was supported by the learning format of the Covid-19 pandemic, which opened up the opportunities for all to:

- study online at top universities;
- receive guidance from the best specialists in the chosen field;
- follow an individualised educational and professional path (synchronous or asynchronous);
- complete academic studies with outside knowledge.

During this period, various educational formats and contents were made available to us through the internet, for group and individual learning; open educational resources, especially open online courses, tutorials, and open-access textbooks, have been perceived by students to be very useful (Cheung, S., 2021).

Therefore, in the conditions of continuous changes in the labour market and the need to maximise the professional potential of each person, the Covid-19 pandemic favoured openness to digital resources and individualized learning. Rethinking educational practices and advances in digital and distance learning have initiated opportunities for complementary and individualized pathways to vocational training and changed the perception of the provision of education in the future.

## **2. The Perspective of the Individualizing of Learning in the Context of the Covid-19 Pandemic**

The COVID-19 pandemic has profoundly changed the way courses are taught worldwide (McQuirter, 2020; Velichova, 2020; Santos et al., 2021), with universities developing non-classroom courses. Two types of courses have been developed: the online learning course, which

was created before the pandemic began, and remote teaching courses, created during this period, engineering students preferring re-mote teaching courses (Oblitas & Jorge, 2021).

In addition, university students and educators around the world have been pushed towards student-centred learning, in which the student's responsibilities and activities are emphasized compared to those of the instructor. In this context, the teacher's role is to provide meaningful guidance for the development of expert thinking and create scenarios for students to apply their skills for solving real-world problems. When courses are held online for a long period of time, students' self-regulation decreases and the longing for "togetherness" increases, making it difficult to keep the focus on the learner. (Lee, L., 2021). It warns us that in the conditions of online learning or remote teaching, maintaining attention and motivation for professional career development must be connected to the specific, unique, individualized potential.

In the online environment, the student's activity is based on capitalising on their ability to self-regulate learning to acquire knowledge and on taking responsibility for learning (Elsafi, A., 2021). The conscious choice of a career path and the self-regulation of learning according to individual potential makes it possible to achieve a successful professional career (Morosanova, V. & Sagiev, R, 1994; Zimmerman, 2000; Gambo & Shakir, 2021). Conscious self-regulation of learning, based on individual specificity is an indicator of personal and social maturity: it is important that the student not only imagines the desired future, but also makes every effort to achieve it, considering all opportunities and developing the individual roadmap. This means differentiating learning, career time management, motivation, and effort for individual study.

### **3. The Role of Individual Study in Vocational Training**

Currently, in the labour market, specialists are sought and appreciated according to their real (non-formal) skills and their personal values, being offered opportunities for maximum self-realisation in their workplace. In this context, on the one hand, employers are interested in specialists with new professional profiles (often non-existent on the market), on the other hand, there is an interest in forming specialists with future-proof skillsets who can stay competitive and assert themselves professionally. For people who promote the quality of vocational education, its new requirements are related to the idea that the education system should be an intermediary between the needs of the employer and the future employee. To do this, the education system

must act as an institution that trains specialists with personalised and lifelong learning skills (EHEA, 2020).

The new requirements for students, as future employees, assumes mastering all the necessary cognitive and non-cognitive skills and knowledge, which allow employees to quickly adapt to changing demands of employers and thus be under constant demand in the labour market. The economy and labour market of the future need a qualitatively different human resource than the present one: “in countries with high GDP per capita and innovative economies, the share of highly skilled workers is the highest in the world, ranging from 22% to 45%, with an average of 15% worldwide” (Boutenko, 2019, p.14).

In order to overcome all the challenges related to the new requirements of the labour market, countries and employers must adopt/develop a “person-centred approach to the training and management of the human capital, which includes the following principles: acquiring future-proof skills, a culture of continuous development, conscious independence in choosing a professional path, transparency of the labour market, skill mobility, inclusiveness of the labour market and respect for the values of employees” (Boutenko, 2019, p.8).

Students (as future employees) must consciously approach their own professional development in order to be able to choose and change different careers throughout life and to maximise their professional potential. Learning and training these skills plays a key role in career development, enabling them to adapt to competition and solve problems related to labour market uncertainty. This continuous individualised training would mean permanent employment opportunities, increased income, mobility and other facilities.

In order to increase the chances of a successful career, it is necessary for students to expand their professional development through individual study: complex and varied activities of independent learning, which aim at consolidating, deepening, acquiring new knowledge, training work skills, ability to take responsibilities, to make decisions and find constructive solutions in concrete situations.

Individual study forms the availability for self-education, conditions continuous training and the opportunity to improve one's skills; it is conditioned by the specifics of each student and requires a high level of self-awareness and reflection. It represents the superior form of self-education, of personal and professional improvement.

## 4. Research Design

### A. Study purpose

The idea of this research sprung from the overlap of two facts:

- we live in a world where there are continuous changes (technology development, globalisation, automation, and other global trends) that affect the labour market and require adjustments in the training system of specialists;
- the context of the COVID-19 pandemic has generated a specific pedagogy, which supports self-education and stimulates individual vocational training pathways.

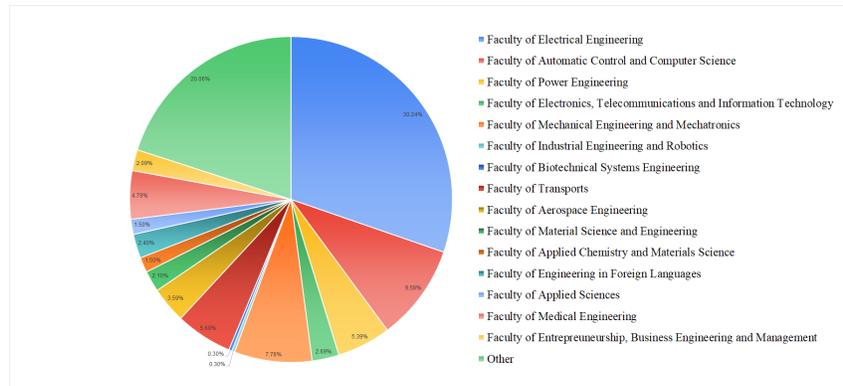
Therefore, we set out to investigate students' professional training in the university and to discover on-line methods that can aid the higher education studies necessary for the student to become a world-class specialist in the chosen field (STEM).

The research tested the following hypotheses:

- Hypothesis 1: In order to become professionally accomplished, higher education must be complemented with individually developed skills.
- Hypothesis 2: Individual online learning can complement higher education training.

### B. Sample

The participants in this study were students or former students (N = 334) in the field of engineering (STEM) from different faculties of the University POLITEHNICA of Bucharest. The research covered all the faculties within the university. The research period was March - June 2021.



**Diagram 1. Research population (faculty)**

### **C. Research Instruments**

The questionnaire applied in this research was based on interviews given by former students of the University POLITEHNICA of Bucharest who are currently employed in a field related to their degree (they presented a perspective on the knowledge acquired during the years of study and the applicability of this knowledge in the workplace). Based on the answers in the interviews, we designed a questionnaire consisting of questions with checkbox style answers, which we distributed to students and alumni of the University POLITEHNICA of Bucharest. The questions aimed to obtain data on the need to complement university studies with individual study in order to improve their professional training and individual study methods (including eLearning). This way of surveying allowed the analysis to present an overview of the role of individual study in higher education in the context of the Covid-19 pandemic/ online education.

## **5. Results and discussion**

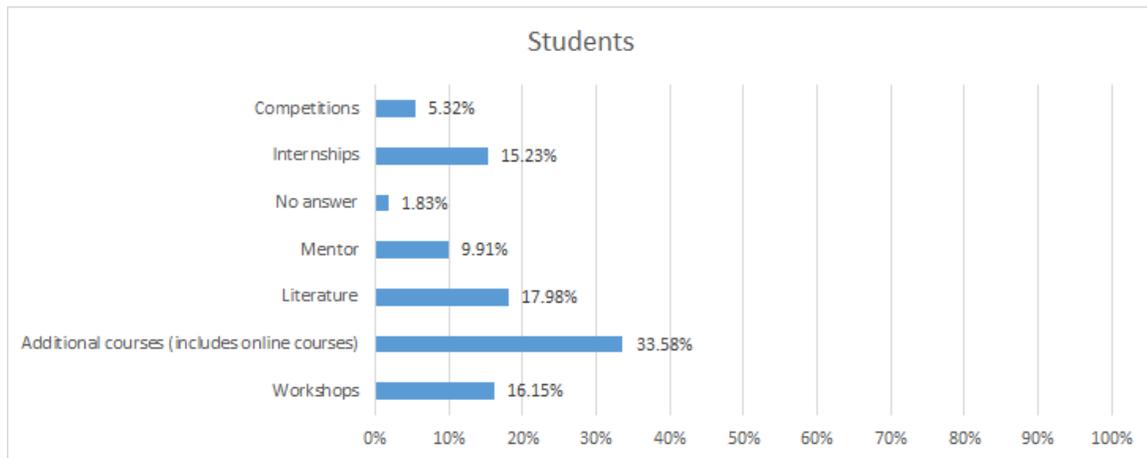
Following interviews with former students of University POLITEHNICA of Bucharest, we found that in order to achieve professional performance and a successful career, individual study is essential, but the knowledge and skills formed in higher education are also important. Participants in the interview argued that “Individual study is essential, but it is important to have followed academic studies” (employed with 13 years of experience in electrical design), that “Only you are responsible for what you want and what you do to get you results” (employee with 13 years of experience in industrial automation), etc. Based on these answers, a questionnaire was applied to the students to check their opinion on university studies and their complementation with individual studies. Students and alumni were invited to appreciate the importance of university studies and individual training on a scale from 0 to 10, where 10 is the maximum score. The distribution of the results of the questionnaire is included in the table below (Tab. 1). From this table, we notice that the respondents consider that the skills acquired during university are important (the result is above average). At the same time, we notice that individual study is given a higher score compared to university studies. However, all respondents (students and alumni) showed increased interest in graduating with a degree. Regarding individual study,

we notice that the employees focus a lot on the study of the professional field compared to the students, who practice self-education through individual study in several planes and directions.

Question	Average student response (out of 10)	Average employee response (out of 10)
How much do you consider the modules studied during university help you in your professional career?	6,94	5,69
How much do skills gained during university help you?	5,97	6,24
How useful and important do you consider individual study to be for your professional career?	8,74	8,14
How important do you consider a university degree (be it bachelor's, master's or Ph. D) to be towards your professional career?	8,36	7,8
How much of your free time do you allocate towards studying subjects within your domain of activity?	6,82	8,18
How much of your free time do you allocate towards studying subjects outside of your domain of activity?	5,79	3

**Table 1.** Opinions on university studies and their complementation with individual studies

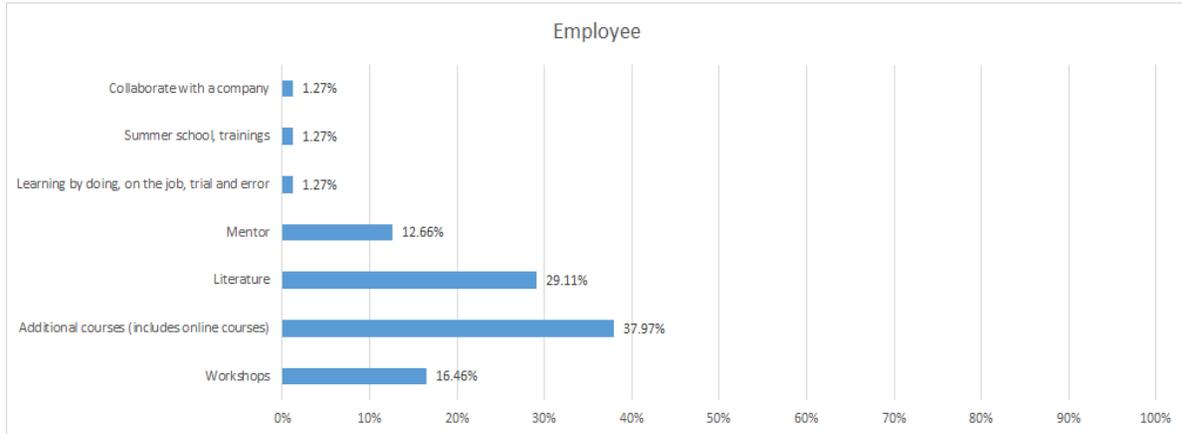
Related to hypothesis 1, the table shows that both students and people who have completed higher education studies in the field of STEM and are currently employed consider that both at university and individual study are important for their professional training. Another series of students' responses to the questionnaire showed the most frequently used methods of individual training for vocational training, complementary to university studies (Fig. 1 and Fig. 2).



**Fig. 1.** Students' preferred methods of individual training

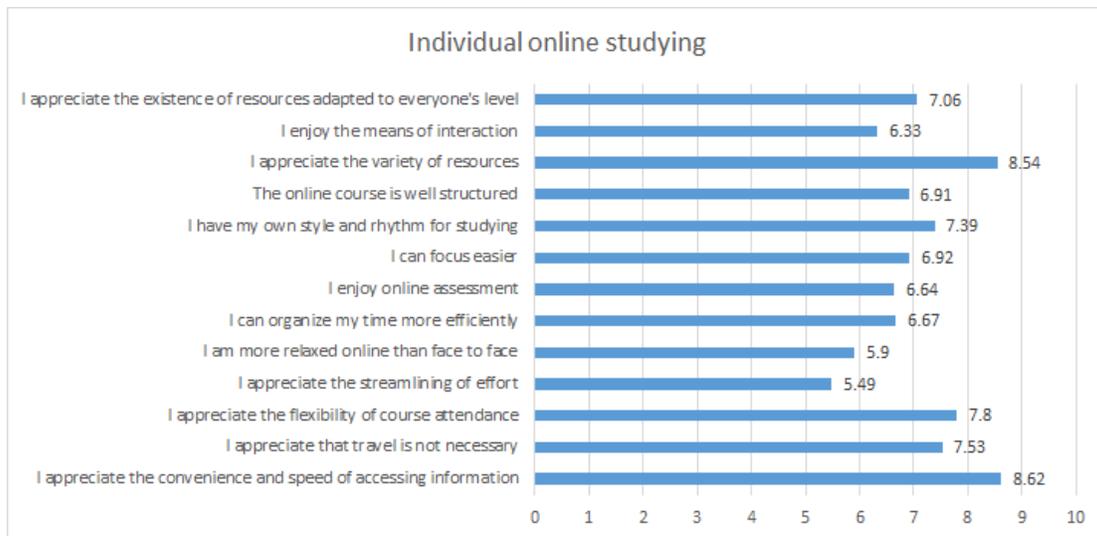
As can be seen, the most popular methods are supplementary courses (including on online platforms), studying specialized literature and workshops. Both students and alumni appreciate mentor/expert guidance. The students' choices regarding the individual study method were

focused on supplementary courses (1st place), specialised literature (2nd place), workshops (3rd place) and internships (4th place). Employees prefer the following methods: supplementary courses (1st place), studying the literature (2nd place) and workshops (3rd place) and mentoring (4th place). The respondents also gave personalized answers, such as collaborations and trainings.



**Fig. 2.** Employees' preferred methods of individual training

The present research also investigated students' views on individual study in the eLearning format (Fig. 3). From the answers, it can be noticed that for students the convenience, the rapidity of accessing the information, the flexibility, the diversity of the information, etc. is clearly important. In other words, students value eLearning as a form of individual study. Thus, regarding hypothesis 2, it can be stated that students support individual online learning.



**Fig. 3.** Students' responses on online methods of individual training

Because working online allows autonomy in planning and choosing topics, customizing the pace of learning, interactive multimedia solutions, the ability to self-evaluate, developing responsibility and a sense of freedom, individual eLearning can be a useful and necessary challenge for students.

## **6. Limitations**

The limits of this research consist in the relatively small number of participants and the interaction exclusively online with the group of respondents. The issues raised in the research need to be studied and deepened later, continuing the research on this topic. However, we believe that limits did not affect our goal and led to relevant results regarding individual study in the online environment.

## **7. Conclusions and recommendations**

The research allowed us to find that the knowledge, skills, and activities complementary to higher education can be supported by the online environment. That during the years of university (but also later) students can develop their professional skills through extracurricular activities / individual online study, which offers additional courses and workshops, information about competitions and internships, videos and specialty books, the opportunity to communicate with experts, etc. Thus, according to other recent research that suggests that “emerging technologies, such as mobile devices, represent unprecedented opportunities for students to be self-regulated learners, to work independently, and to capitalize on their ability to self-regulate learning and therefore take responsibility for their own learning” (Elsafi, 2021, p. 41), our research argues that online learning can be valued as a form of self-education complementary to university studies.

Research has shown that for better professional development, higher education must be complemented by individual study. Unfortunately, individual study choices are limited by several main forms of learning; in the STEM field, additional courses, specialised literature, workshops, and internships are preferred. Consequently, it is necessary to more actively develop other ways/forms dedicated to individual learning, such as collaborations, training courses, trainings etc.

We also want to mention that online learning offers the flexibility of being able to study at one's own pace, which is not provided by institutionalised education, however, online learning is only beneficial as long as the consumer of this type of learning is selective in terms of the study materials.

The results of our research support individualised learning in the online format, because “any one-dimensional approach to current education could be an attempt to appease the mind by setting forth a refurbished paradigm” (Chiappe, 2020, p. 536). However, we emphasize that there is a wide variety of information on the Internet that is not necessarily published by specialists, so this source must be carefully explored.

Our conclusion is that individual studies together with individual learning must be in a relationship of complementarity. For a fast and efficient integration in employers' organizations, for a statement as a specialist, a permanent access of the student to professional contents and experiences is necessary, and online learning allows an easy connection to the environment that supports the continuous development of the future specialists.

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