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DIGITAL FORMS OF EDUCATION AND OPPORTUNITIES FOR THEIR APPLICATION IN PUBLIC ADMINISTRATION

Analytical report

2020

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Analytical document

DIGITAL LEARNING FORMS AND OPPORTUNITIES FOR THEIR APPLICATION IN PUBLIC ADMINISTRATION

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1. Theoretical and methodological foundations of the study

1.1. Conceptual framework of the study

Over the last decade, eLearning as a phenomenon in its various forms and aspects has developed with exceptional dynamics in various educational institutions - universities and colleges, business organizations, centers for continuing professional and career development, including in public administration training institutions in a number of European countries. This trend is an expression of increasing interest in modernizing education to include modern digital forms of learning and the hopes and expectations of employers and society regarding the possibilities of achieving more flexible and effective learning. This calls for a refinement of terminology and clarification and definition of the main concepts in the field of eLearning, given that different researchers disagree on its conceptualization, and there is no agreement in defining its essence with a single concept. In the scientific literature, it is defined in different terms: "remote education", "online instruction", "hybrid education", "computer-based education", "web-based education", "virtual education", "tele-education", "cyber education", "internet-based education", etc., which in the pedagogical conceptual apparatus are often used as synonyms and are interchangeable. In recent years, the content of eLearning has been so enriched by the many global practices and theoretical studies that researchers often use different concepts to capture the diverse aspects of this phenomenon. For this study, it is essential to highlight its specificities and positive aspects, some possible limitations of traditional face-to-face training, and effective practices to develop an adequate pedagogical concept of its application in the specific context of work-based learning of civil servants. Defining eLearning is relevant to making informed decisions to optimize learning in public administration.

In defining the concept of electronic distance learning by differentiating it from traditional face-to-face learning, several authors focus on factors such as spatial distance between the instructor and the learners and organizational aspects of learning. For example, in terms of location, Finch and Jacobs (2012)[1] define it as "all forms of teaching and learning where the learner and teacher are separated in space and time". Closer to this definition is that of Moore and Kearsley (2012)[2], who define electronic distance learning as "planned learning where teaching usually takes place in a different location from learning, requiring communication through technology as well as a dedicated institutional organization". To overcome this remoteness, modern information and communication technologies (ICT) such as eLearning environments,

[1] Finch, D. & K. Jacobs (2012). Online education: Best practices to promote learning. – In: Proceedings of the Human Factors and Ergonomics, 56th Annual Meeting.
[2] Moore, M. & G. Kearsley. (2012). Distance education: A systems view of online learning (3rd ed.). Belmont, CA: Wadsworth.

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virtual classrooms, and a range of other synchronous and asynchronous communication technologies are used to mediate learning in all its components - teaching, learning, and pedagogical communication. A review of the many definitions of eLearning shows that it is most often perceived in its broad sense as "learning supported by the use of information and communication technologies" (Peycheva-Forsigth, 2009)[3], i.e., the term does not exclude learning in the traditional classroom, where a variety of technologies such as interactive whiteboards, educational software applications, multimedia, etc. can be used that are not networked. A relatively popular term is "online learning/training" which is a narrower definition of one of the many features of eLearning and describes learning via the Internet using an eLearning environment that "supports the performance of the basic pedagogical functions -teaching, learning, pedagogical communication, and assessment" (Peycheva-Forsight, 2012)[4]. In this sense, eLearning is referred to as a synonym of distance learning, as it allows remote learning but represents a superior form of learning.

Researchers and practitioners also impose another related concept to eLearning - blended learning, which is characterized by "building on, weaving, integrating a variety of information and communication technologies into a traditional educational context" as the blending of traditional face-to-face learning with online learning in a pedagogically sound way can be in different proportions. Based on the global experience studied, it is clear that e-courses based on the blended learning model are most commonly applied in business environments and HR training in organizations.

One relatively new variety is mobile learning, which involves mobile learning in an eLearning environment through the use of mobile technologies - mobile devices (tablets, smartphones, etc.) and wireless communication technologies. Thus, the learner can learn from any location and at any time.

In this analytical report, we will use the term eLearning in its narrow sense, namely as technology-mediated learning conducted in an eLearning environment.

1.2. Contemporary approaches to eLearning implementation

Contemporary approaches to eLearning are associated with introducing innovative ICT that provides new opportunities for teaching and learning, taking into account the individual needs of learners. A review of European policy reflected in key European Commission documents on the use of ICT in education and training shows

[3] Peycheva-Forsight, R. (2009). eLearning in Bulgaria - policies, practices, trends. Sofia: Daniela Ubenova.
[4] Peycheva-Forsight, R. (2012). On the quality of eLearning. - In: Fourth national conference with international participation in eLearning in higher education. Svishtov: Academic publishing house "Tsenov".

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that introducing diverse and innovative forms of eLearning is a priority. The European Commission's Digital Education Action Plan focuses specifically on the potential of emerging digital technologies to deliver high-quality education and training (European Commission, 2018). According to the EU Commissioner for Digital Economy and Society, Maria Gabriel, "the modernization of education is imperative" to respond to the changes in the digital society by acquiring digital skills to develop people's talent and potential"[5].

A prestigious studies series, Innovative Pedagogy 2019[6]; 2020[7], of The United Kingdom Open University featured a variety of digital technologies that are shaping the landscape of technological change in education across all levels and forms, including continuing learning.

- ***Artificial Intelligence.*** Using computers to perform tasks that would typically require human intelligence is now part of our lives in many contexts, including education. Artificial intelligence is a technology that has significant pedagogical potential and is particularly associated with approaches to personalizing the learning process. Although the development of learning support tools based on artificial intelligence has been the focus of research for more than thirty years, it is only recently that these tools have become available as commercial products. These are learning applications known as intelligent tutoring systems/guides. They present learners with information related to learning and practicing it and often include a test. After carefully analyzing the learner's interactions and responses, the system adapts the next set of information, exercises, and tests to the individual learner's capabilities. In other words, these types of intelligent tutorials simulate the tutor's role. Each learner proceeds step by step in their tutorial, automatically personalized to their achievements and capabilities. This personalized approach is assumed to be more effective than standard classroom/study room practices (in which students progress through the same material together and generally at the same pace).
  - ***Intelligent dialog-based tutorials*** - designed to engage the learner in conversation, written or sometimes verbal, using questions to guide them toward an understanding of the topic being studied.
  - ***Intelligent exploration-based tutorials*** - these are based on the constructivist paradigm, meaning they provide more open-ended opportunities for the learner to explore a topic and construct their meaning and understanding. Although inquiry-based learning can be

[5] https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_bg
[6] The Open University (2020) Innovating pedagogy 2019 - Exploring new forms of teaching, learning and assessment, to guide educators and policy makers. Institute of Educational Technology, The Open University, Centre for the Science of Learning & Technology (SLATE), University of Bergen
[7] The Open University (2020)п Innovating pedagogy 2020 - Exploring new forms of teaching, learning and assessment, to guide educators and policy makers. Institute of Educational Technology, The Open University, Centre for the Science of Learning & Technology (SLATE), University of Bergen

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very effective, it is usually not without the guidance of an instructor. In AI-enabled systems, its role is to provide appropriate guidance via automated feedback to the learner. Such applications are not yet commercially available.

- **Automated assessment** of a learner's writing (summative or formative) - another AI application that saves time for the tutor, but there is limited evidence of its objectivity. It also deprives the tutor of the opportunity to gain a thorough understanding of the strengths and weaknesses of their learners. From the learner's point of view, AI-based formative assessment can be very effective, as it provides feedback on the learner's writing (e.g., through advice on improving the structure or style of the text) so that the learner can improve it before sending it for final marking by the tutor.
- **Chatbots** - The latest example of the application of artificial intelligence in education is the so-called chatbot (a computer program designed to communicate with users in a conversational style). They are finding widespread use and support learners outside the classroom/learning room by providing real-time information about the learning schedule, reminding them about homework assignments, etc.

- ***Open Data Learning***

In many countries in the public domain, there is a wide range of interesting open-access datasets that allow their use and revision for learning purposes. An increasing number of global and regional organizations are now sharing the data they create and use in their work. Their main positive for learning purposes is their authenticity. Open data comes out of actual processes taking place in significant organizations. This encourages educators to use them for learning rather than including imaginary case studies, thus making education meaningful and relevant to real-world problems. Often data used in professional practice has a real impact on our lives and the world around us. Learners can identify problems through data relevant to regional or even global communities. The comprehensiveness of the open data sets available creates opportunities for learners to experience personal benefits, as they could find data about their area, compare their country or region with the rest of the world, or research an issue that interests them. The best open data services offer well-documented data and additional resources to promote learning with it. Some have helpful core data exploration tools built into their websites. However, many other open data resources require significant training before they can be used in educating people who do not have the necessary skills and experience in using datasets.

- ***Learning via computer animation***

The fact is that some topics are difficult to teach using text or static pictures, especially those that involve motion, procedures, specific steps to solve a problem,

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transformations, etc. Animations can reveal processes that happen too quickly for learners to follow or are too small to see. They can demonstrate how an expert tackles a challenging problem through a working example. When learning through animations, learners watch short animated videos illustrating these dynamic processes and can control the process by stopping, fast-forwarding, or rewinding the animation. A meta-analysis including 26 studies[8] exploring the possibilities of dynamic and static visualization showed some advantage (to a moderate degree) of animations over static images. The effect is even more significant for learners when animations are highly realistic. They have the potential to help learners more easily understand and make sense of abstract learning content, stimulate their interest and encourage their engagement. They can represent processes that are difficult to observe and can make abstract ideas more accessible. Everything said so far shows that computer animation can considerably increase the effectiveness of learning.

- ***Online network training***

Network-based learning through digital technologies fosters interconnections - learners to learners, learners to educators, and the learning community to the resources generated by learners.

- ***Virtual Laboratories***

Virtual laboratories offer rich opportunities for learners to access equipment and data remotely from anywhere in the world with a reliable internet connection. In many cases, this can prove more beneficial to learners than traveling to a physical lab. A virtual laboratory is an interactive environment for creating and conducting experiments. It can be accessed directly via the Internet or through a program running on the computer. Some online labs provide actual data as samples on pre-prepared microscope slides. Others take the learner on a virtual field trip (e.g., to collect and analyze geological samples). Learners can replicate experiments quickly and repeatedly, compare results, select equipment, and collect data via the Internet. They can conduct experiments remotely, including in environments that would be too expensive, dangerous, difficult, or time-consuming in real life. The labs provide learners with hands-on exploration and opportunities for direct observation and undeniably deliver authentic experiences.

- ***Educational electronic games***

They provide an ideal interactive learning environment, engaging learners in learning activities while influencing the emotional sphere. eLearning games (a.k.a. serious games) contain incentives embedded in the game structure that motivate

[8] Höffler,T. N., Leutner, D. (2007). 'Instructional animation versus static pictures: A meta-analysis', Learning and instruction, vol. 17(6), pp. 722–738, [Online]. Available at: https://bit.ly/2DbZIA4 (Accessed: 29/11/19).

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learners. They provide opportunities for socialization and teamwork and contain customizable features in their design, such as difficulty level customization, instant feedback that responds to player actions, etc. The advantage is that they allow learners to experiment, take risks, and learn from their mistakes in a safe learning environment. Research shows that games can motivate learners and support the development of skills such as collaboration, problem-solving, and creativity. Game-based learning is not just about games or using game elements to enhance learning. It is also about changes in how learners perceive learning and developing game values.

- ***Drone-based learning***

Drones are small technical devices incorporating multiple sensors and cameras to collect data, which are controlled remotely. They can be used in education for various purposes in diverse subject areas. They support fieldwork and research by enabling learners to explore the physical environment and allow data collection in a new and previously unknown way. Studies have shown that drones provide many benefits for the professional activities of employees in various fields such as surveyors, farmers, construction companies, reporters, filmmakers, police officers, etc., where they are used for daily tasks and research.

In education, they are used for specific purposes in field studies, enhancing the opportunities for learners to explore the physical environment and creating favorable conditions for data collection from different perspectives in spaces that would otherwise be inaccessible or dangerous. They stimulate reflection in research and data analysis. These new tools engage learners in the learning process, feed their curiosity to see hidden things, and have the potential to support mastery of abstract concepts by making learning more engaging for them.

- ***Multi-sensory learning***

Research has shown that stimulating sensory channels and presenting learning information simultaneously through different media is very beneficial for learners and significantly increases learning effectiveness, creating the conditions for deeper understanding and greater enjoyment in the learning process. Multi-sensory learning can undoubtedly improve communication, engagement, retention, and understanding of the material being learned, but it must be tailored to the cognitive needs of the learner. Otherwise, it can overload the cognitive system and lead to the opposite effect.

- ***Social media-based learning***

Social media plays a key role in the educational process. Many educational organizations around the world use their social networks to build a sense of community among those involved in the educational process, as they support the exchange of experiences, best practices and ideas, collaboration, communication, and sharing of resources, and this greatly increases the opportunities for shared and mutual learning.

- ***Learning through robots***

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The use of robots for educational purposes has a long history in education, but in recent years their use has increased significantly and rapidly. The integration of artificial intelligence into various robots has recently created a good potential for collaborative learning. One of their state-of-the-art applications is related to facilitating pedagogical communication, with the robot helping the learner to obtain the information of interest at any time. The advantage is that the learner is a partner in the conversation. They can also assist educators in routine activities by responding quickly to frequent queries or helping with learner assessment. In this way, tutors free up time for more substantive learning tasks and provide emotional support to learners.

- ***Inverted classroom***

This approach "reverses" the traditional classroom/auditorium mode of learning, with learners being introduced to and absorbing new learning material in advance at a time convenient to them outside the classroom/hall, e.g., at home through exposure to learning resources (text documents, video lectures, video tutorials, audio lectures, etc.). The students are encouraged to work at their own pace whilst the classroom/study time is devoted to more creative activities (critical and creative thinking, participation in discussions on the topics covered, etc.).

With minor exceptions (drones, robots, virtual laboratories under development), the modern digital technologies and pedagogical approaches based on them presented above would be extremely useful in the training of civil servants. Alongside these, we should add the following:

- ***Massive Open Online Courses (MOOCs)***

They exploit the potential of social networks by enabling anyone interested in a particular topic to learn informally through free access to learning materials, communication between learners, periodic self-assessment of the knowledge and skills acquired during the course, and the receipt of a certificate of completion under certain conditions. These courses can be used both for self-study and as a complement to traditional training and encourage lifelong learning for people regardless of age and career. There is good reason for the increased interest in them as they allow learners to combine work with education and to learn at their own pace at a time and place that suits them.

- ***Virtual and augmented reality***

Virtual Reality and its based prototypes and systems have been widely adopted in education in recent years, enabling the learner to step out of the physical world and interact virtually with a computer-generated reality with 3D images and, in most cases, with sound so that the real-world experience is complete. As an effective means of engaging learners, this simulated reality enables the acquisition of enduring knowledge and competencies in a new way. It is not a static three-dimensional picture but one where the learner can move around and explore. The main advantage of virtual reality

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is that it allows abstract and dangerous experimental situations to be simulated in a safe learning environment. The recreation of virtual reality-based projections enables the presentation of concepts and scenarios that can be tested and evaluated against various criteria[9]. It unquestionably creates a first-hand experience for learners in the learning process through the many visual and sound effects. Augmented reality is a technology that combines elements of the physical and virtual worlds, thus allowing users to see non-existent digital objects. A significant pedagogical effect is achieved by using audio-visual devices to overlay computer graphics and sound on top of what the learner sees and hears.

- ***eLearning platforms for distance learning***

eLearning platforms support the learning process by including tools for its organization, management, and overall administration, including the provision of learning materials, communication between participants, and various tools for tracking progress and assessing results. Furthermore, the rapid advancement of real-time online learning applications - videoconferencing systems, virtual classrooms, and study rooms - enables the combination of asynchronous and synchronous learning, thus significantly enhancing the learning process[10].

Featured modern approaches and technologies are also more often present in staff development courses around the world, creating favorable conditions for the implementation of various digital forms of learning. The next part of the analytical report focuses on the potential of eLearning for the professional development of employees in organizations, considering the specific context of work-based learning.

1.3. Specificity of eLearning in the context of professional training and career development of civil servants

Investment in staff's professional and career development is undoubtedly a key priority in the modernization process of public administration. In recent years, there has been a sustained trend across Europe to increase training activities for staff at all levels as part of the continuing professional development concept and in line with labor market requirements. eLearning in its various varieties (e-distance, blended, mobile, etc.) is a relatively new option for maintaining and improving professional competencies, which have recently become increasingly popular. It optimizes the conditions for access to continuing development for civil servants, given that employees can acquire and expand their professional knowledge, skills, and competencies without being detached from their work, personal and family commitments.

[9] Kirova, D., Aliev, S.(2018). Virtual, augmented and mixed reality - innovative practices in the learning process. - in: Second Varna Conference on eLearning and Knowledge Management, Varna, 2018.
[10] Dzhambazov, V. (2018) Information technology in practice. NBU Publishing House, Sofia, 2018.

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The recent proliferation of various forms of technology-assisted learning in organizations is changing several aspects of training, allowing it to be organized in a way that better meets the individual needs of today's learners. They, therefore, support the professional development of civil servants and are the basis for innovative lifelong learning. That is why more and more training organizations, faced with serious competition, are expanding the arsenal of educational services they offer, seeking to develop and improve various digital forms of learning.

The use of modern ICT is critical to creating innovative learning environments that can be easily adapted to the specific context of workplace learning so that learning is accessible and convenient for employees and can be best reconciled with their work commitments for mutual benefit. Public administration in Bulgaria, as is well known, is territorially dispersed, and employees have a real need for permanent specialized training. In this sense, eLearning creates favorable opportunities to overcome many limitations of traditional face-to-face training in logistics. In addition, by implementing it, organizations can save considerable financial resources invested in face-to-face training (for transport, travel, etc.), providing the opportunity to improve the professional competence of the people of the administrations concerned at any time and in any place.

Several strategic documents developed over the last few years, which aim to upgrade and modernize the system for professional and career development of human resources by using the potential of eLearning, testify to the relevance of the topic related to the modernization of the existing training practices of civil servants: *State Administration Development Strategy (2014-2020)*[11] *and Roadmap for the Implementation of the SADS (2015-2020).* One of the main priorities outlined in the Strategy is the efficiency and organization of training by introducing alternative forms of learning such as eLearning.

Several reputable studies have found that modern digital technologies also have multiple applications in the field of training and professional development of civil servants (Aspridis et al., 2013[12]; Guiney, 2015[13]; Wheeler, 2019[14]).

Faced with the challenges of a dynamic environment, more and more organizations are realizing the potential of eLearning to continually update and upgrade the knowledge of their employees. As Guiney (2015) argues, with this form of

[11]State Administration Development Strategy (2014-2020). <https://www.eufunds.bg/archive/documents/1434121594.pdf>

[12] Aspridis, G., Tsartsara, A., Karachalios, G., Blanas, N., Kyriakou, D. & Meleas, J. (2013). Assessment of eLearning methods in public administration. The case of the Greek national school of public administration and local government. – In: International Journal of Human Resource Management and Research (IJHRMR), ISSN(P): 2249-6874; ISSN(E): 2249-7986, Vol. 3, Issue 5, Dec 2013, 19-36.

[13] Guiney, P. (2015). eLearning in the workplace, 2015.

[14] Wheeler, S. (2019). Digital Learning in organizations. Help your workforce capitalize on technology, Kogan Page Limited, 2019.

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training, employees have unlimited access to knowledge at all times, which can lead to significant savings, on the one hand, in terms of travel and subsistence costs, and on the other, in regard on and off-the-job training time by simultaneously reaching a larger number of learners with reduced teaching staff and ensuring rapid dissemination of information and knowledge. According to Wheeler (2019), practices such as blended learning, mobile learning, e-game-based learning (gamification), inverted classrooms, MOOCs (multi-user open courses), online professional learning communities, and many others have the potential to fundamentally change the way organizations promote learning for their employees over the past few years.

In his book, Leading eLearning Trends for 2020, Pandey (2019)[15] reviews a variety of forms of workplace learning and identifies the following as the most effective and attractive to learners:

- ***Microlearning:*** Compact and focused learning delivered on the go to help learners achieve a specific goal whenever they need to. This approach can be used in formal training (multiple individual topics linked in the learning process) or as learning aids (performance support that is accessible within the learner's workflow and provides support when needed). Microlearning can be used to promote independent learning.
- ***Video-based training (video and interactive video clips):*** Video is a high-impact medium, and video-based learning can enhance the effectiveness of teaching and learning on many levels. It can be used in formal training as well as in the self-study process of learners. Interactive video brings powerful interactivity to pedagogical interactions and the assessment process. It is suitable for training aimed at leadership development, etc.
- ***Mobile learning apps:*** Suitable for topics that have ongoing updates.
- ***Gamification:*** Through eLearning games, learner engagement in learning activities is increased. It is defined by several authors as the application of game elements and game design principles in non-game contexts (as cited in Vitanova, 2019)[16]. It can be used in most corporate training, including induction training, soft skills, professional skills, sales training, etc.
- ***Scenario/case-based learning:*** This is an efficient pedagogical approach best used in corporate training (soft skills, simulations). It can also be applied to stimulate the correct behavior.

[15] Pandey, A. (2020). eLearning Trends In 2020: Featuring Tips On How You Can Leverage Them For Learning, Performance Gain, And Behavioral Change, 2020. < https://elearningindustry.com/free-ebooks/elearning-trends-in-2020>

[16] Vitanova, N. (2019). Gamification - one of the future education technologies. – In: SocioBrains, ISSUE 63, NOVEMBER 2019. <http://sociobrains.com/MANUAL_DIR/SocioBrains/Issue%2063,%20November%202019/4_%20Natalia%20Vitanova.pdf>

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- ***Story-based learning:*** Similar to scenario-based learning, stories are a great way to create a unique learning experience. This approach is universal and can be used for most corporate training. It is suitable for change management or awareness initiatives.
- ***Branching/complex decision-making simulations:*** As a step forward in scenario-based learning, complex decision-making scenarios can be created to assist learners in building decision-making skills. Through these, they can better understand the impact/consequences of their decisions. Branching scenarios are based on paths through the learning content, that depends on the actions taken by a learner at specific points in the decision-making process. This approach is beneficial in sales enablement training and leadership development.
- ***Personalization:*** The combination of eLearning and microlearning allows highly personalized learning approaches to be created. These can be built based on a specific role, available skills, or learner interests. This approach can generate much more effective training, as the learner gets access to tailored content relevant to their needs.
- ***Preparation and user-generated content:*** Giving learners access to repositories of relevant content prepared by subject matter experts is very useful for learning. This learning experience can also be personalized and contributes significantly to fostering a culture of continuous learning. It can enhance learner participation further by enabling them to contribute to the knowledge base.
- ***Augmented Reality/Virtual Reality/Mixed Reality:*** These technologies offer a highly immersive learning experience. However, their development requires robust financial and time resources. They can be used at specific stages of the learning process for a given educational purpose. This will increase the level of engagement for learners.

The question arises to what extent education centers and human resource development units are prepared to introduce innovative learning approaches in their organizations based on modern ICT. Recently, there has been a growing interest in online tools and technologies for inter-organizational communication. Large organizations are introducing eLearning management systems, centralized virtual repositories of learning content, and online spaces where employees can discuss diverse professional topics and create and share content.

However, to maximize the potential of eLearning and achieve positive personal and societal outcomes, educational organizations and educators must be guided by clear goals and strategies in its design and implementation. In this respect, it is now necessary to optimize the continuing education model for staff in the European Public Administration Institutes by increasing the share of alternative forms of eLearning

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alongside traditional face-to-face instruction to make it more flexible and accessible, in terms of both purely logistical and economic terms, while also addressing the needs of the learners. If eLearning is designed qualitatively, it undeniably creates conditions for active learning, greater autonomy, and learner independence.

The crucial factors for the effectiveness of eLearning often depend on the size of the organization and the potential resources (financial, physical, and human)[17]. The most commonly identified are:

- Organizations should have a clear strategy for eLearning capabilities that meet their particular training needs.
- Management support is essential for successful implementation.
- Ultimately, it is imperative to articulate a clear organizational vision of the value of eLearning and seek employee feedback on an ongoing basis to identify difficulties and overcome the reluctance of some to participate in eLearning courses. Overcoming resistance can be greatly assisted if the relevant authorities also recognize the benefits of eLearning as a form of training.
- Consider the necessary technical solutions to meet future needs and integrate seamlessly with existing systems to avoid additional and unforeseen costs.
- User feedback should be permanently received, and financial costs should be minimized.
- Collaboration with other similar organizations will create transferable common practices, standards, and skills.

1.3.1. Advantages and disadvantages of eLearning in the context of work-based learning

eLearning in a work-based learning context is a complex phenomenon with undeniable advantages yet several drawbacks/limitations accompanying its design and implementation. The most frequently discussed advantages in the academic literature focusing on continuing education for civil servants are complex and are expressed in the following:

- There is a greater degree of flexibility in the training process because, in practice, trainees are not separated from their work and personal commitments to improve their qualifications and knowledge. They determine the intensity and duration of learning according to their individual needs;
- Employers can train their employees without the learners having to be absent from work for long periods, which is beneficial for employers;
- Customization of training according to each learner's preferences and learning style;

[17] Guiney, P. (2015). eLearning in the workplace, 2015.

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- Unrestricted access to eLearning resources anywhere, anytime;
- Ability to expand forms of pedagogical communication for effective interaction with both the trainer and other learners;
- Expanded access to training for employees with temporary disabilities or special educational needs (such as motor, sensory, communication-speech disorders, etc.);
- Its proximity to the daily life of young employees whose living and working environment is saturated with various ICTs.

Undoubtedly, e-distance learning gives greater freedom to employees who cannot be physically present in the classroom and cannot engage in traditional forms of training due to pressing work and personal commitments. Performance of assigned tasks at work is, as is well known, of paramount importance to the worker, and it is not uncommon for them to take time away from intensive work activities to enhance their professional competence. eLearning removes spatial barriers, and learners can take e-courses in a virtual learning environment from a location of their choice. Undeniably, eLearning also brings significant economic benefits for the employer, as it eliminates the need to look for replacements for those employees who would like to participate in eLearning, as well as the need to spend financial resources on travel from the organization's budget.

One of the main reasons for the high interest in eLearning is that it can be customized and designed to suit the individual characteristics of each trainee. Modern technology offers a variety of approaches to allow better individualization of learning in terms of content, teaching methods, learning activities, and assessment compared to traditional classroom-based approaches.

Thanks to eLearning environments, which allow the integration of electronic resources in a variety of digital formats (multimedia presentations, audio and video lectures, video tutorials, podcasts, e-books and textbooks, scientific articles, online databases, electronic repositories, and many others), learners have remote access to them, which facilitates their professional training. They also expand the possibilities for self-study, allowing them to reuse them in the learning process at their convenience. Undeniably, eLearning also brings significant economic benefits for the employer, as it eliminates the need to look for replacements for those employees who would like to participate in eLearning, as well as the need to spend financial resources on travel from the organization's budget. One of the main reasons for the high interest in eLearning is that it can be customized and designed to suit the individual characteristics of each trainee. Modern technology offers a variety of approaches to allow better individualization of learning in terms of content, teaching methods, learning activities, and assessment compared to traditional classroom-based approaches.

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them, which facilitates their professional training. They also expand the possibilities for self-study, allowing them to reuse them in the learning process at their convenience.

To objectively consider eLearning for civil servants, it is required to point out its advantages and disadvantages/limitations to seek reasonable solutions for their prompt resolution. The following technological, organizational, and pedagogical circumstances are identified in the research literature as potential barriers and challenges to eLearning in organizations:

- General concerns about its validity and effectiveness;
- Problems related to the technical and technological provision of training (poor quality of the Internet connection, technical malfunction of the computer, need for additional equipment);
- Lack of a sufficiently good level of general digital literacy of trainees and trainers;
- Difficulty in using the tools of the eLearning environment for senior staff;
- Psycho-emotional problems when using ICT in training, so-called technostress in senior staff;
- Lack of or significantly reduced social interaction of learners compared to traditional face-to-face training;
- Time constraints, especially the challenge of balancing eLearning with daily work commitments;
- Possible decrease in employee motivation for the learning process especially, in the eLearning modules for self-learning, so-called microlearning, due to lack of direct contact with the lecturer and other learners;
- Lack of pedagogical experience of the teaching staff in the design and implementation of different forms of eLearning;
- Problems with the identification of learners.

Providing access to e-courses places significant demands on the technology infrastructure of training centers and organizations and requires access to technology for learners. According to Guiney (2015)[18], many learners have a negative attitude toward eLearning when e-courses are not well designed. Often, lack of sufficient time to focus and concentrate on eLearning, limitations of the working environment, and poor IT infrastructure hinder this type of learning. According to the author, eLearning forms have greater applicability for highly skilled employees. It should be relevant, accessible, and "user-friendly". Employees need to learn how to socialize and collaborate in virtual learning environments. It is imperative to look for solutions to overcome the potential feelings of isolation that some learners might develop. For senior staff, the lack of digital competence and difficulties in using the tools of the electronic platforms used for learning purposes (eLearning management environment, virtual online classroom/auditorium for synchronous learning) may increase feelings of

[18] Ibidem

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anxiety, which will negatively affect their willingness to participate in digital forms of learning. Therefore, stressors should be reduced by offering senior staff with limited digital skills ongoing, timely support from the lecturer/tutor or an authorized person. Alongside this, the pedagogical content of e-courses must be clear and well-designed.

The lack of methodological and technological knowledge of teachers/lecturers in the eLearning field is one major limitation of introducing digital forms of training in public administration. The heavy workload of pedagogical design (learning activities, resources, pedagogical communication, assessment) and lack of moral, financial, and technical support can seriously discourage them from working in this direction.

Particular attention should be paid to the possibilities of modern digital technologies and applications to personalize learning for employees in organizations. According to Wheeler (2019)[19], proponents of personalized learning argue that each person is an individual and should use various self-learning tools and approaches that go beyond the limitations of traditional pedagogical methods imposed by the organization's electronic learning management system. A tailored learning environment consists of tools, technologies, approaches, and resources that enable individuals to address their personal learning needs, which according to the author, should be seen as an equal alternative to traditional learning environments and pedagogical approaches. The research on the use of social networking for professional development has increased dramatically in recent years.

Undoubtedly, one of the key features of social media is the ability to personalize learning. Users can create their topics, express their opinions and build an online identity thanks to the multitude of social technologies available. Hence, as Wheeler argues, social media today can become one of the key aspects of personalizing learning. According to him, the digital environment today is well-developed enough to support partnership and free sharing of content, which inevitably promotes learning for each participant in the community of practice. Personal technology and social media can complement and extend these forms of social learning in the workplace and make them a reality no matter the scale of the organization. When professionals interact fruitfully, each builds social scaffolding for the others and receives support in return. The dialogue between individuals generates the building of intellectual capital.

[19] Wheeler, S. (2019). Digital Learning in organizations. Help your workforce capitalize on technology, Kogan Page Limited, 2019.

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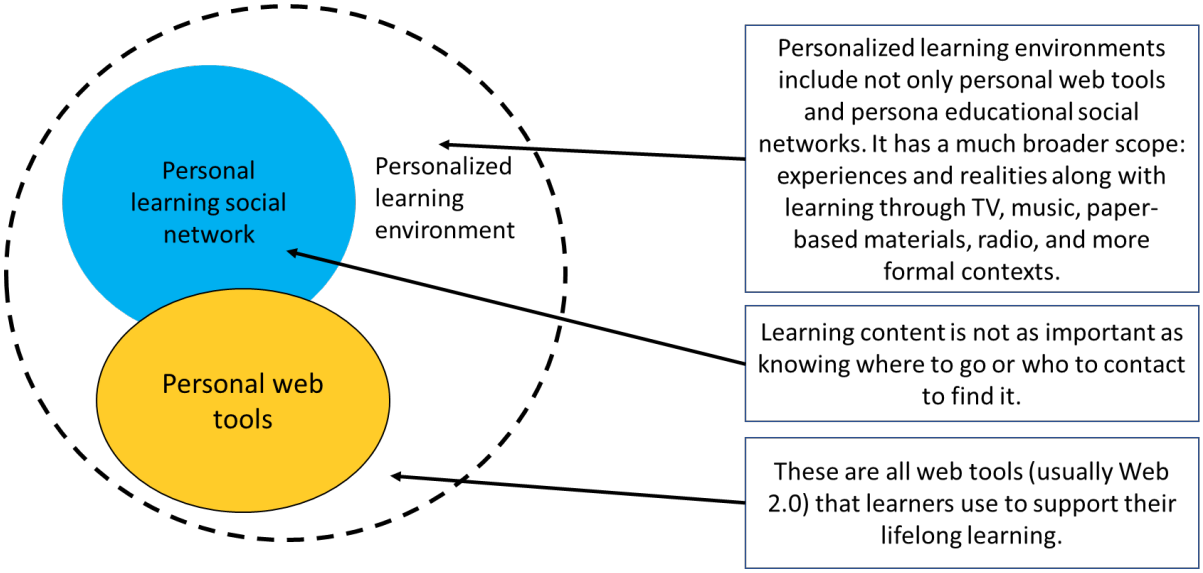

Figure 1. Personalized Learning Environment Model

Professional learning social networks consist of more than just tools and technologies but also people and other resources (Figure 1). Most professionals participate through various forms in a particular professional learning social network. This is a community of people who interact continuously and learn from each other through involvement in social media, with Twitter, Facebook, and LinkedIn having the largest number of users. Each individual can join their preferred social networking tools, meaning that the personalized learning environment will be different and yet unique. Twitter, according to the author, is such a powerful tool that enables contact and learning from professionals, experts, and enthusiasts in a specific professional field.

By creating a professional learning social network, employees can learn about new ideas, content, and events and participate in meaningful discussions with people worldwide who share similar interests, concerns, and experiences. The possibilities of social media tools are undoubtedly many, but the author points out five methods for building and growing a professional learning social network.

1. The first easy way to connect with people sharing similar interests is to follow the hashtags of the topics or events the learner is interested in. For example, those working in the corporate training sector might use hashtags such as: #LDInsight, #LearningLive, #DevLearn or #LT19UK.
2. Secondly, one can scan a list of Twitter followers and check whether certain ones are relevant to a particular user's professional field/topic.
3. Another way to find people with similar professional interests is by subscribing to a social bookmarking tool such as Diigo, Pinterest, or Flipboard. These tools enable users to curate and share web resources they find interesting. By searching and storing useful web page addresses, content can be made available by sharing a link with other interested

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people. The best bookmarking sites allow you to subscribe to those people's feeds and bookmark collections. Personal messages can also be sent to them.

4. Another way to build professional contacts is to visit LinkedIn's Slideshare to search for topics that interest the user. Rich sources of slide sets can be easily and quickly discovered and accessed, and shared with people with related interests. Subscriptions to their feeds can be made, and the user can receive a notification when new information of interest is shared.
5. Finally, numerous high-quality blogs cover different professional fields. These can be found through the Google search engine or similar.

Today's digital technologies create opportunities for new, previously unknown ways of communication, creating the conditions for hyper-connected professional communities. Thanks to screen-sharing technologies and mobile apps, physically remote employees can communicate "face-to-face" by seeing each other. The idea of document sharing is an innovation that creates new forms of creativity and expression in the workplace. But as Ranadive (2018) argues, organizations must initially invest in modern infrastructure to achieve such ubiquitous connectivity (cited in Wheeler, 2019)[20]. The most important thing is to invest in human potential, provide better opportunities for digital literacy development, and realize the possibilities of a hyper-connected community.

An interesting trend in recent years to promote employee learning in organizations globally is the TAKE YOUR OWN PERSONAL DEVICE initiative. Employees are encouraged to bring their personal devices (smartphones and tablets) into the workplace and facilitated by building the necessary technical infrastructure by their employers. Another similar initiative is CHOOSE YOUR OWN PERSONAL DEVICE - where organizations offer their employees a small arsenal of personal devices to choose from, each of which is fully supported and secured within the work environment. Employers are discovering that training productivity and effectiveness are enhanced if learners stay at their workstations or remain mobile while learning rather than being required to travel and expend time to get to the training location. The two initiatives - TAKE YOUR OWN PERSONAL DEVICE and CHOOSE YOUR OWN PERSONAL DEVICE, have the potential to support and promote personalized learning by enabling learners to study at their convenience at their workplace, according to the author.

1.4. Literature review of good practices and models of eLearning in IPA-related institutions

1.4.1. eLearning models described in the scientific literature

It is clear from the global experience studied that there are different models of eLearning, with individual varieties differentiated by the degree of integration of online

[20] Ibidem

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elements. For example, according to Garrison and Kanuka (2004), three main types of models can be distinguished:

- Enriched face-to-face learning (enhanced), in which face-to-face learning enriched with the application of the Internet is dominant;
- Blended learning, which combines online and traditional face-to-face learning in different proportions;
- Online learning (online), in which the predominant form of instruction is online or learning is done entirely remotely using various technologies (cited in Stoycheva, 2016)[21].

Based on an extensive theoretical and empirical study, Jara and Mohamad (2007)[22], analyzing the practice of several prestigious universities in the UK, identified seven models of eLearning (Table 1), all based on the use of an eLearning environment, but with each of them performing different functions:

- Courses with online administrative support in the electronic environment (blended learning);
- Courses with alternating online and face-to-face learning activities with the latter dominating (blended learning);
- Courses with a parallel structure: Learning activities are delivered alternately in face-to-face and online versions (blended learning);
- Courses, where only some events are in a traditional format and the primary learning activities occur online (e-distance learning).

MODEL NAME	Type	General description
B1 Online administrative support	Blended	The core learning activities and pedagogical support are in an attendance format. Administrative support (announcements, calendar, etc.), learning resources, learner assignment submission, and some support are online.
B2 Follow-up activities	Blended	The core learning activities and pedagogical support are in an attendance format. Online assignments or sessions are also included between attendance sessions to aid in learning and preparation for the following attendance session.
B3 Parallel	Blended	Learning activities run in parallel, with some sessions being face-to-face and others in an online format.

21 Stoycheva, M. (2016). A collaborative approach in remote education for building and developing a learning community in specialized foreign language education. Dissertation abstract. Sofia, 2016.
22 Jara, M., Mohamad, F. (2007). Pedagogical templates for eLearning, London, 2007.

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B4 Face-to-face events	Blended	The core learning activities and pedagogical support are in an online format. Attendance sessions are held to begin or end some of the topics.
D1 Remote online support	Remote	The main learning activities are paper-based learning materials (correspondence form). Learners get support and feedback online.
D2 Online-based recourses	Remote	The learning activities and pedagogical support are in an online format. They are based on the learner's work with multiple electronic learning resources in the learning process.
D3 Online-based discussions	Remote	Learning activities and pedagogical support take place online, organized mainly around discussions.

Table 1 eLearning models by Jara and Mohamed

Due to the possibilities of combining various elements of traditional and face-to-face training, the most commonly applied in business organizations is blended eLearning. But over the past few months, there has been sustained interest from educational organizations globally in fully online forms of learning due to the spread of COVID'19, declared a pandemic by the World Health Organization. In IPA's European counterparts, civil service training organizations are actively transforming face-to-face training into fully online training, using various electronic platforms and technologies to deliver it. One of the biggest challenges is the transformation of traditional face-to-face courses into an online format, changing the classical pedagogical approaches in a way that corresponds to the specifics of eLearning. For example, the Italian School of Public Administration, which has accumulated experience in this respect over the last few years, has implemented a model involving webinars and video lectures, using the Adobe Connect platforms, on the one hand, to provide synchronous learning (webinars) and Moodle on the other to upload the video lectures. The choice of these platforms is defined by the fact that they guarantee the security and privacy of employees. The trend is to reduce the number of participants in online courses (15-20 people). Timely support of lecturers through: (a) organized training sessions; (b) specific technical and methodological support from dedicated teams (eLearning Lab); and (c) peer learning. Most training is conducted online at the Institute of Public Administration of Spain. Only a minor part is held in face-to-face or blended format, using the Moodle eLearning platform for e-courses. The most significant transformation has been imposed on face-to-face induction courses for newly recruited staff. In this emergency, significant efforts have been made to adapt the learning content to an online format, with permanent support from a team of experts, technical support, and specific support for the lecturers teaching these courses. By organizing several

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videoconference meetings with them, their activity of adapting the learning content to the requirements of e-distance learning has been supported. Undoubtedly, the biggest challenge they have faced is redesigning the face-to-face courses in a fully online format, especially in adapting the content to the new online context. Another significant challenge relates to how to replicate the traditional classroom learning experience online to allow for interactive learning and emotional learning experiences that typically occur in face-to-face pedagogical interactions (group activities, collaborative development of materials by learners as a result of the learning activity, etc.). The scale of the challenge is even greater for some European institutes as they have no or rather limited experience in delivering online training to staff. For example, the Institute of Public Administration of Slovenia has no e-courses set up as of March this year, but the management plans to create some. Initially, they are focusing on webinars with employees on the MS Teams platform, working hard to launch several online courses, and preparing a manual with guidelines to support lecturers.

The eLearning aspect of sharing best practices of peer institutions should not be neglected to optimize eLearning for civil servants in the IPA, as it is a reliable approach to supporting professional qualification and development of employees in the specific context of the workplace. The following will present and systematize the electorinic distance learning models of the National Revenue Agency (NRA) and the National Institute of Justice (NIJ).

1.4.2. eLearning model of the National Revenue Agency

The National Revenue Agency (NRA) is a specialized authority under the Minister of Finance tasked with establishing, securing, and collecting public claims. The agency employs eight thousand civil servants and provides them with various types of professional and career development training. Since 2008, the NRA has had a specialized unit with expertise in planning, organizing, developing, and delivering training. In 2013, the first e-courses were developed by full-time trainers. The number of eLearning courses offered by the NRA gradually increased over the next few years thanks to the training of teams of full-time trainers in eLearning design and application. By 2020, trainer-led courses on 35 topics and self-paced courses on 25 topics have been developed. Today, e-courses are mainly created by part-time trainers with methodological and technological support and close interaction with full-time trainers from the Training Department.

The eLearning model applied in the NRA[23] is, to a large extent, subject to specific regulatory requirements and rules based on which the institution itself is built and operates: Compliance with obligatory established rules for network and

[23] Yankoba, P., Peycheva-Forsight, R. (2020). eLearning in the workplace - opportunities and limitations in the practice of the NRA. - In Proceedings of the 8th national conference on eLearning in higher education. University Press "St. Kliment Ohridski", Sofia, 2020.

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information security, handling classified information, and processing personal data, legal requirements for observance of official secrecy, work regime, etc. They create several limitations to the implementation and development of eLearning in the organization. Employees have limited access to their courses only from the corporate intranet via their personal stationery work computer or laptop, which limits learning to a great extent from a logistical point of view. The eLearning system is based on the popular open-source eLearning environment MOODLE, with version 3.5 installed since early 2019 and real-time synchronous learning functionality added - a virtual classroom.

The professional and career development of employees in electronic format is carried out through two main types of e-courses (Figure 2):

- online training courses;
- self-learning courses.

eCourses with an online trainer occupy an essential place in the eLearning model of the NRA, as they contribute to a high degree to maintaining and upgrading the professional qualifications of employees. They include multiple resources in various electronic formats and individual/group tasks (assignments, forums, self-check tests). Learners are fully supported in the learning process, and it is mandatory to receive feedback from the trainers on the results achieved in each learning activity. In case of an unsatisfactory result, they can improve their learning performance. A prerequisite for learning outcomes is active pedagogical communication between participants and online communication between them and the training team. In each of the courses, clear criteria for successful participation and completion are formulated in advance, upon fulfillment of which participants receive a certificate of successful completion. There are usually two criteria: participation in mandatory learning activities, e.g., submitting a solution to assignments and achieving a particular score on a final test to verify knowledge learned in the course.

Self-study courses are richly resourced, including text documents, video tutorials, examples to illustrate the theory, resources with accessible explanations, etc. They aim to enable employees to independently search for an answer to a specific question and increase their professional competence through rich content and comprehensive information on a specific topic. They are designed for the most motivated administrative staff who seek to maintain and upgrade their professional qualifications and show self-initiative to seek up-to-date information to solve their professional cases through active self-learning. Learning activities are limited. Usually, self-check tests are included after each or several theory units, through which the learner can independently and for their information check the extent to which they have understood and remembered certain factual material. Assignments and other individual or group learning activities are not used. Forums as a learning activity are underrepresented due to the absence of a trainer to moderate and assess discussion. They are used instead for feedback on technological, administrative, and pedagogical

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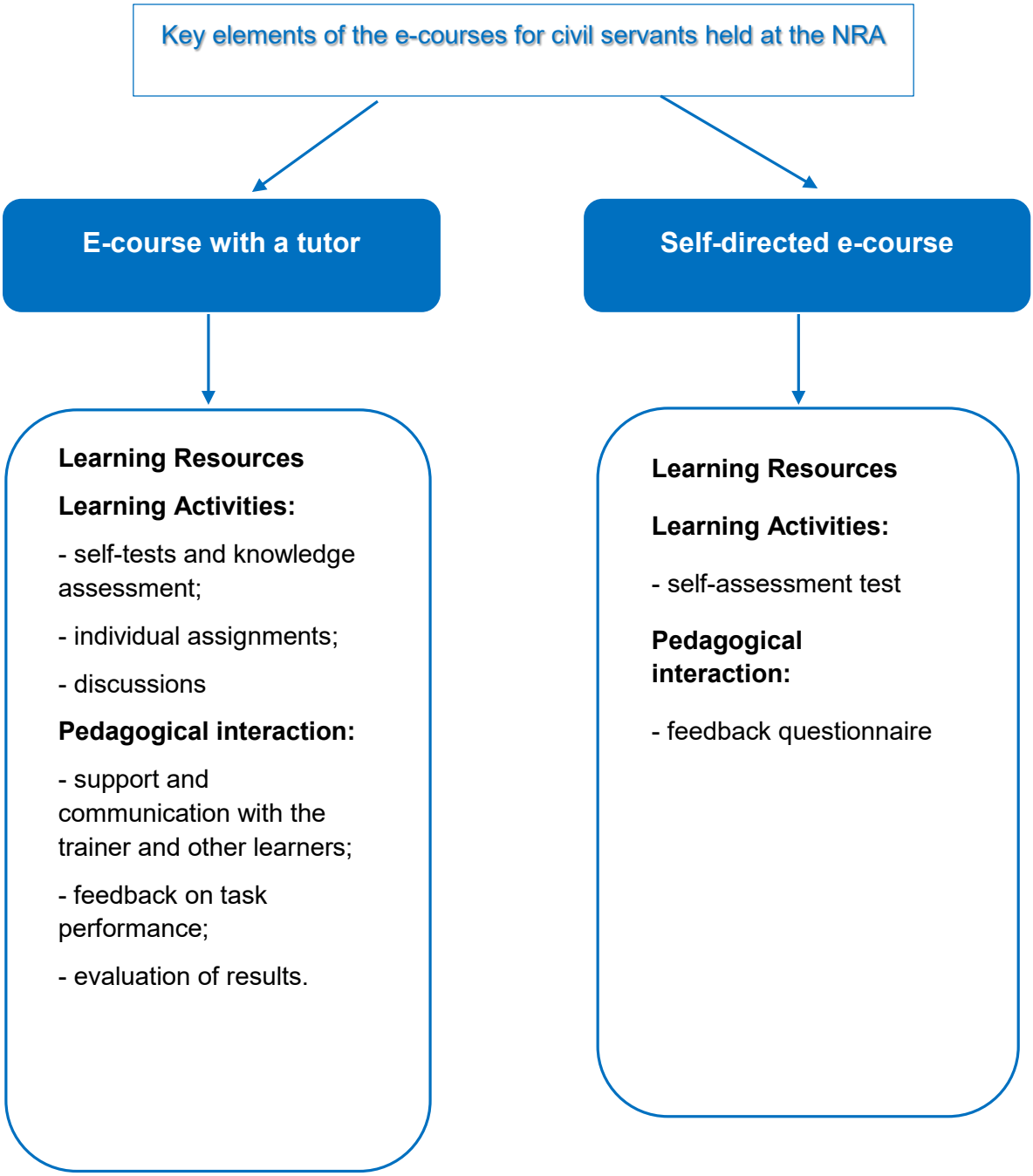
problems. Learners are necessarily subscribed to these forums and receive an email for each posting in them, providing support at the earliest opportunity. Access to these courses is open and there are no restrictions on enrollment.

Figure 2. Types of e-courses in the NRA

It is important to note that there are significant differences in two of the key components of the two types of e-courses: Learning Activities and Pedagogical Interaction. Activities in self-paced employee e-courses are limited and are mainly



limited to participants solving tests to self-check their knowledge compared to a wide

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variety of activities for course participants in e-courses with a tutor. In tutor-assisted courses, the presence of a tutor allows for active pedagogical communication and support for participants in the learning process, including organizational, technological, and substantive support. The tutor provides individual and group feedback on problem solutions, moderates discussions, and evaluates results. In self-paced training, communication between the trainer and trainees is very limited and consists of completing a feedback survey at the end of the course.

1.4.3. eLearning model at the National Institute of Justice

The National Institute of Justice (NIJ) was established in 2003 and is a national public institution for training judicial personnel. Its main objective is to improve the efficiency of the administration of justice through quality professional training and skills development, applying the principles adopted by the European Judicial Training Network. The NIJ carries out the overall activity of introductory training and subsequent qualification improvement of judges, prosecutors, investigators, juries, and all employees of the justice system in the Republic of Bulgaria, offering a variety of course formats (face-to-face, distance, mixed, on-the-job and/or self-paced)[24]. It should be noted that eLearning elements are present in all courses. The development of eLearning in the institution started in 2009 and is carried out by the Directorate for eLearning and Information Resources (ELEAR), where experts jointly develop a variety of training programs on relevant topics for the different target groups of the institute and contribute to the formation of virtual communities among Bulgarian magistrates and judicial officers. Since late 2017, the Institute has also introduced shorter forms of eLearning on topics related to various issues in administrative, civil, and criminal proceedings, which were developed under the project "Innovative products and services in training provided by the NIJ" funded under the Operational Program "Good Governance" co-financed by the European Union through the European Social Fund.

The selection of the participants in each course is tailored to the topic and the learning content, with constraints imposed by the specific objectives of the learning process, previous participation in the same activity, or in training for that year. Participation in the training courses shall be requested by submitting an electronic application on the official website of the NIJ within a specified period in consultation with the administrative head of the relevant judicial authority. Approved participants are enrolled by a training coordinator (an employee of the Directorate of eLearning and Information Resources) in the specific course and then receive access to pre-training resources - a list of all participants, general information about the training, a forum for preliminary questions to the trainer.

The e-courses are designed and delivered by judicial educators and experts in other fields after pre-selection using a detailed scoring system. Their development is

[24] http://www.nij.bg/Articles/Articles.aspx?lang=bg-BG&pageid=1628

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carried out by a team including a lecturer who defines the learning content and a coordinator from the EITI Directorate who assists the lecturer in the preparation of learning materials and activities - tests, assignments, discussion forums, as well as multimedia resources, simulations, case studies, etc. The aim is to use interactive training methods using a variety of technologies and tools: web-based forums, webinars, virtual classrooms, video lectures, video tutorials, work with databases, dictionaries, etc.

As the primary learning management platform, the NIJ uses a web-based eLearning portal developed on the Moodle platform (http://e-learning.nij.bg), which can be accessed only by registered users from the category of persons included in the provision of Article 249(1) of the Judiciary Act. The portal has developed e-courses on various topics for distance learning of magistrates and judicial officers. In addition, user support documents are published: general rules for using the portal, a guide to using the system, a guide to using the mobile application, and criteria for successful course completion. The rules for requesting, participating in, and completing a specific course are explained. To support learners in the eLearning environment, guidelines for working with the electronic materials and tools (e.g., book and virtual classroom) are included, as well as instructions for completing the most commonly used learning activities in the eLearning environment (self-study tests or final assessment, forums for discussing case law, individual assignments for solving specific cases).

The system uses e-certification, which enables each successful student of a specific e-course to receive a named certificate with a unique number generated automatically by the system. Successful completion of an online refresher course is linked to achieving specific criteria.

The Institute's strategy includes an obligation to organize and maintain an internal e-network with access for registered users to information on training activities, analytical and learning materials, self-learning resources, publications, and applied research. In addition to the e-courses themselves, it publishes information about the training offered and specific news about each training and provides the opportunity for direct communication between participants, the trainer, the administrator, and the Directorate staff.

In addition to the eCourses, magistrates and court staff have access to training materials in a purpose-built virtual reading room, which is available on the eLearning portal. All registered users can access training materials, publications, and articles, including e-books related to European law, for which the NIJ has acquired the right of use from their publishers. The virtual reading room also provides specially created resources such as manuals and handbooks supporting magistrates and court administration staff in developing competencies and skills. These were developed in 2019 under the projects: "Quality Professional Training to Increase the Efficiency of

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Justice" and "Innovative Products and Services in Training Provided by the NIJ" funded by the Operational Program "Good Governance" through the European Social Fund.

Among the main priorities of the Institute is the improvement of the competencies of the teaching staff. Since 2018, for the first time, an online community of NPI lecturers has been organized. As a result of the work of the community, training for trainers has been developed, aimed at the use of electronic tools in the courses organized by the Institute. Those involved in the community realize the need for a permanent forum for trainers to share teaching experiences and best practices. Communication between them ensures the possibility of continuous improvement of teaching and learning methodology, respectively eLearning.

Thematic online communities for other target groups are also organized, for example: a network of district court heads, a forum of doctoral students of law university faculties in Bulgaria, a forum of judges, prosecutors, and investigators - mentors, forums of candidates for junior judges, prosecutors, and investigators, and various working groups for research of judicial practice.

2. Exploring the context of eLearning implementation in the IPA, the experiences and attitudes of civil servants and lecturers towards eLearning

2.1. Methodology of the empirical study

With the increasing popularity of the introduction of modern practices in continuing education and professional development worldwide, oriented towards various forms of eLearning, the number of public administration employees opting for online learning is also growing significantly. Given this growth, it is important to permanently study the preferences and attitudes of learners, which will assist all stakeholders in developing and implementing modern models and forms of eLearning that meet the diverse needs of learners. Furthermore, given that the primary duty of civil servants is to participate fully in the work process, the question arises as to how best organizations can provide opportunities to enhance their professional knowledge, skills, and competencies at work in a way that optimally reconciles learning with work commitments. Last but not least, the attitudes and attitudes of the learners towards eLearning is a keyfactors as they significantly influence the outcome of their learning.

The research focus of the present empirical study is specifically aimed at exploring the potential of e-distance learning through the eyes of the two main groups of subjects - civil servants as IPA learners and their lecturers. The objective is to identify the experiences, attitudes, and preferences of the trainees and lecturers

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toward the possibilities of remote learning and the introduction of new digital forms of learning.

Study objectives:

- To establish the parameters and characteristics of the IT infrastructure for eLearning at IPA as one of the essential factors for quality eLearning;
- To analyze and systematize the design and delivery models of eLearning-based courses in IPA;
- To identify the level of digital competencies of civil servants and lecturers in IPA as a condition for conducting quality eLearning;
- To benchmark the experiences of civil servants and lecturers in the field of e-distance learning;
- To comparatively study the attitudes of civil servants and lecturers towards the implementation of modern e-distance learning in IPA;
- To ascertain the needs of lecturers towards enhancing their expertise in the design and implementation of e-distance learning;
- To identify the factors that influence the motivation of staff and lecturers to engage in eLearning courses in the context of continuing education;
- To identify the attitudes of the two groups of study subjects toward the advantages and disadvantages/limitations of eLearning;
- Formulate recommendations based on the survey data analysis to improve the existing models of eLearning-based courses at IPA by incorporating new digital forms of learning.

Empirical study Organization: To further explore the potential of eLearning in the specific context of teaching and learning for IPA employees, the study was conducted in three phases:

- A semi-structured interview with central-level training organizers in the IPA.
- An online survey with public administration staff who have received training at IPA.
- Online survey with IPA lecturers.

The survey was conducted from 17.06.2020 to 10.07.2020 using the online survey creation and analysis application Google Forms. Civil servants who had undergone training at IPA and lecturers conducting courses at the institute were invited to participate. It was held with the assistance of the Director of the Training, International activities and Projects Directorate - Aneta Tusheva, and staff in the same Directorate, with the link to the surveys sent through the IPA's electronic administrative system.

The data were analyzed using qualitative analysis (interview), quantitative methods - descriptive statistical processing of the survey data, and Pearson's $\chi 2$-square to test for relationships between key categories of variables. The assumed level of statistical significance was $p<0.05$.

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2.2. Profile of surveyed participants

A/ Learners (civil servants)

The online survey was completed by 1,428 employees who had received training at IPA. By gender, the distribution was dominated by women at 81% compared to men at 19% (Figure 3). By age, the group of trainees aged between 41 and 50 years dominated with 33%, followed by those aged between 31 and 40 years and those aged between 51 and 60 years - with an equal representation of 28% (Figure 4). These data lead us to believe that more than half of the respondents are middle-aged (about 60% - the total number of employees surveyed from 31 to 50 years). A very low proportion of respondents received their education at the time of technology penetration in school and university education (just over 30% - aged up to 40 years). They can be expected to have formed competencies to use technology in an educational context.

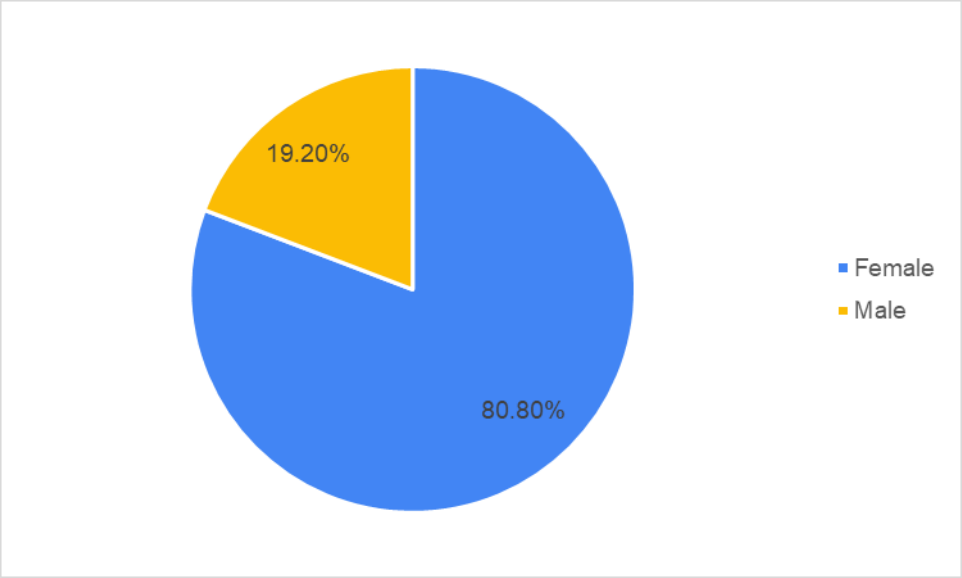

Figure 3. Distribution of respondents (learners) by gender

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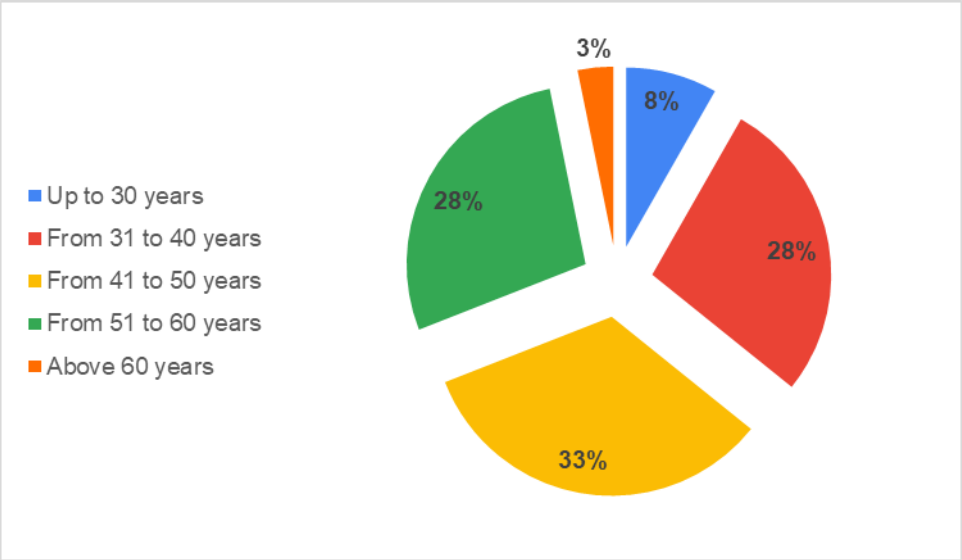

Figure 4. Distribution of respondents (learners) by age

The answers to questions 22 and 23 of the employee questionnaire, related to the professional profile of the respondents, show that employees working in the territorial administration (including municipal administration) have a predominance in terms of place of work - approximately 70%, at the expense of employees working in the central administration - 30% (Figure 5).

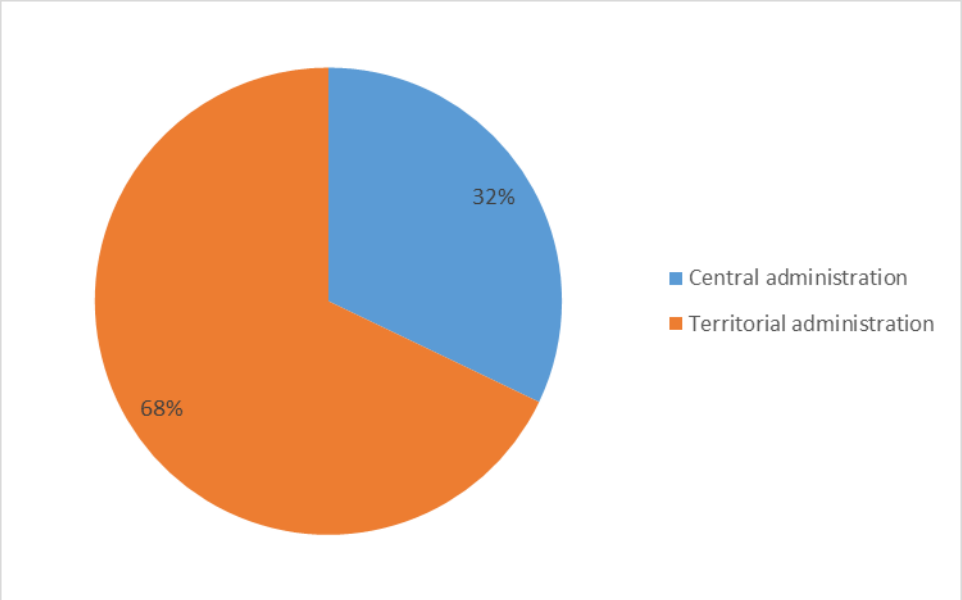

Figure 5. Distribution of respondents (trainees) by type of administration in which they work

As it is clear from the chart below (Figure 6), the majority of the respondents - 76% - hold an expert position, with a significantly lower share of civil servants in managerial positions - 24%.

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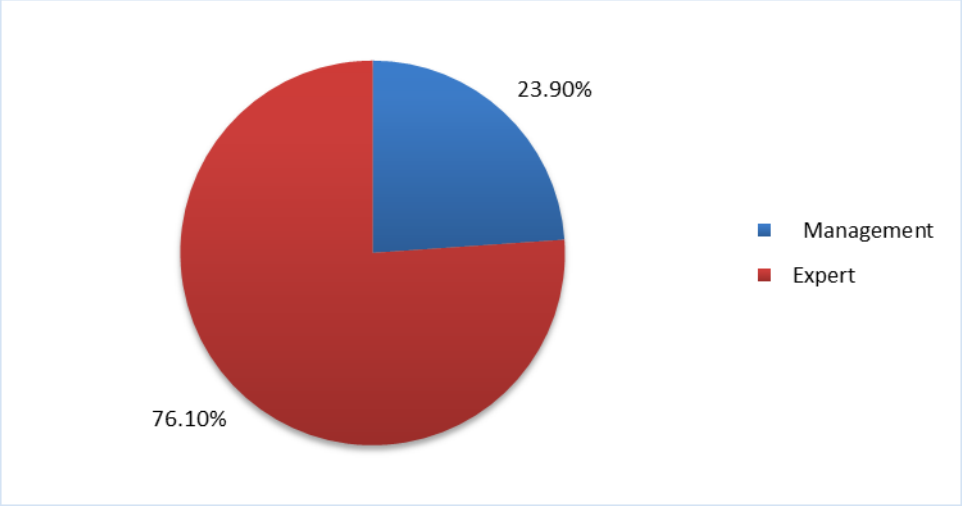

Figure 6. Distribution of respondents (trainees) by type of position held

B/ IPA Lecturers

Eighteen lecturers participated in the survey. Their distribution by age and gender are presented in Figures 7 and 8, respectively. As can be seen, the predominant age group in which the respondents fall is between 41 and 50 years (almost 40%), followed by lecturers aged 51 to 60 years and over 60 years with equal representation (28%). What is noteworthy is the insignificant proportion of respondents aged 31 to 40 (only 1 lecturer) and no lecturers under 30 years of age participated in the survey. Considering the age characteristics of the respondents, it can be assumed that the majority had completed their education before the advent of technology, which probably influenced their attitudes towards using ICT for learning purposes. The gender distribution was 56% to 44% in favor of males.

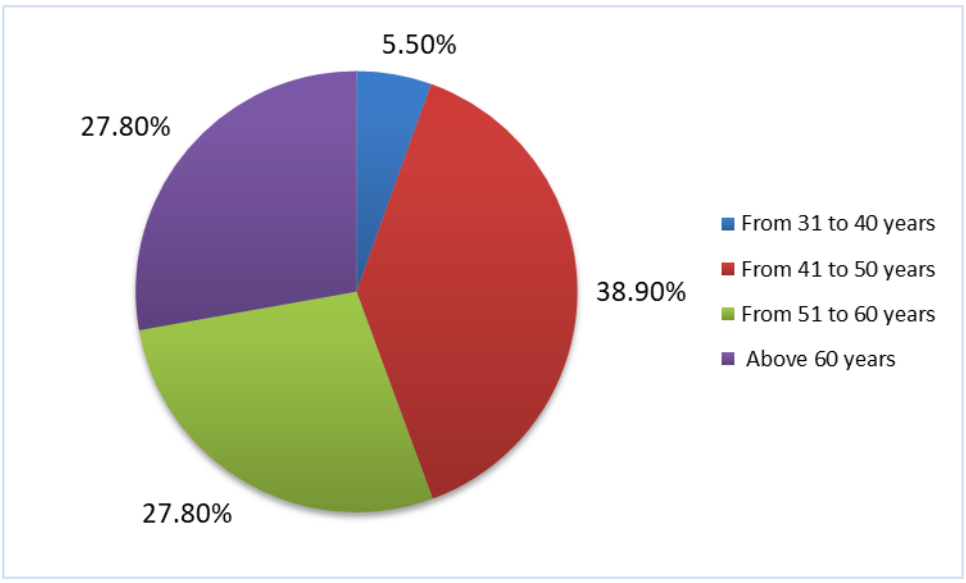

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Figure 7. Distribution of respondents (speakers) by age

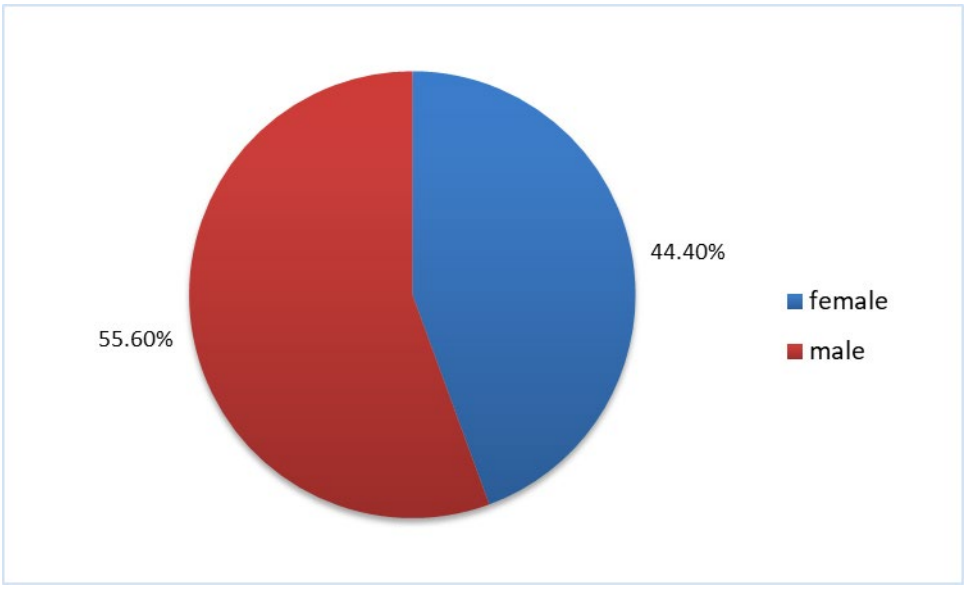

Figure 8. Distribution of respondents (speakers) by gender

The age range of respondents corresponds to their professional experience. Lecturers with more than 15 years of professional experience predominate (nearly 40%), followed by speakers with between 10 and 15 years of experience (1/3 of respondents) and the least number of lecturers with less than 5 years of experience (6%) (Figure 9).

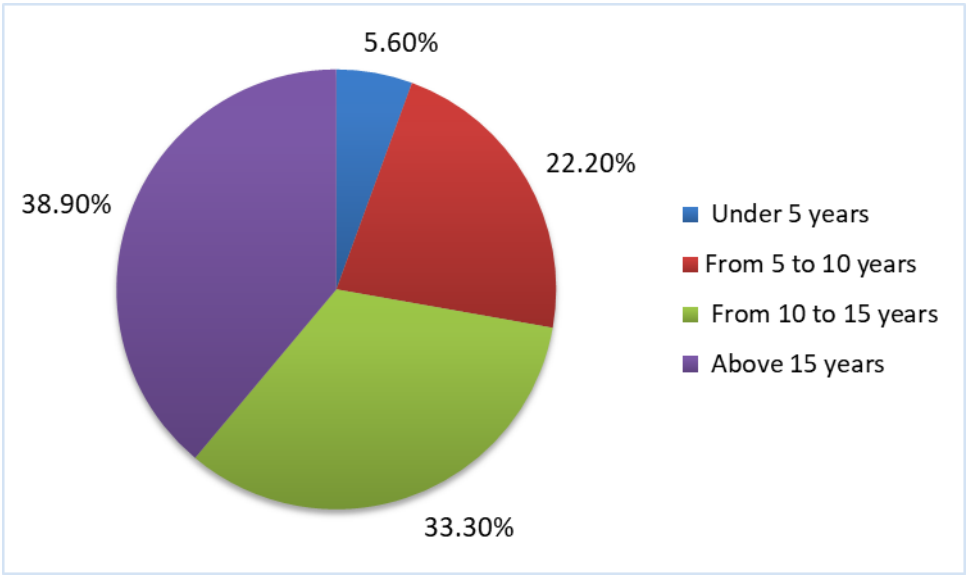

Figure 9. Distribution of respondents (lecturers) according to their teaching experience

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2.3. Research instruments - interview and questionnaire

The primary method of this study is survey research. Questionnaires were developed for the different groups of respondents - the civil servants and the lecturers. To achieve a comprehensive picture of the existing models of eLearning-based courses in IPA and the actual state of the facilities supporting eLearning, a semi-structured interview was previously developed and conducted with training organizers in IPA at the central level.

The questionnaires for the two target groups contained multiple-choice and open-ended questions. A list of possible answers is offered for each question and respondents are asked to indicate the answer they think is most appropriate or to indicate multiple choices when explicitly stated, the number of which is freely chosen. Several ranking questions are also included. In some cases, respondents are allowed to answer the questions freely. Some of the questions are similar for both groups of respondents. The questions are conventionally divided into the following 4 modules:

- Data about the respondent;
- General digital competence;
- eLearning experience;
- Attitudes towards using eLearning.

A/ Civil Servants Questionnaire (Appendix 1):

The survey conducted with civil servants aimed to identify their experiences, attitudes, and preferences toward eLearning opportunities. The questionnaire includes 25 questions aiming to identify:

- What is the self-assessment of civil servants regarding their digital competencies;
- eLearning experience;
- Motivation for engaging in eLearning courses;
- Difficulties in eLearning;
- Attitudes towards eLearning opportunities and limitations given the specific context of work-based learning;
- Summary assessment of eLearning models implemented in the IPA about the professional development of employees
- Employee attitudes towards engaging in eLearning at IPA.

B/ Questionnaire for lecturers (Appendix 2):

The lecturer's survey is significantly similar to the staff survey and aims to identify the experience and capacity of IPA teaching staff in designing and delivering eCourses to civil servants, and as a result, define their needs for enhancing their competencies in this area. It is designed to identify specific factors that could influence the opinions and attitudes of lecturers to implement various forms of eLearning in the area under consideration. The questionnaire includes 28 questions that aim to identify:

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- What is the self-assessment of lecturers regarding their digital competencies;
- Lecturers' digital competencies and experience in delivering eCourses (in IPA and other educational organizations);
- Motivation to design and deliver e-courses;
- Attitudes toward the possibilities and limitations of eLearning versus traditional face-to-face learning;
- Summary assessment of eLearning models implemented in the IPA about the professional development of employees
- Attitudes of lecturers toward the use of eLearning for civil servants;
- Lecturers need to increase their expertise in designing and implementing eLearning

C/ Semi-structured interview (Appendix 3):

The interview conducted with staff from the Training, International Activities and Projects Directorate aimed to outline the IT infrastructure for the implementation of remote eLearning at IPA and the current models of design and delivery of e-based courses.

3. Analysis of empirical research results

3.1. IT infrastructure for eLearning in IPA

Providing IT infrastructure is the basis for creating and implementing quality eLearning. In this respect, a dedicated eLearning platform for civil servants has been established at IPA under the project "Building IPA's capacity for research, training, and application of innovative European practices in good governance". Its multi-functionality, ease of administration, and training make it the preferred platform for trainees and lecturers. This is evidenced by the fact that since its creation in 2015 when a limited number of pilot courses were held, the number of training courses offered in different formats and thematic areas has increased manifold by 2020. The 2020 catalog includes more than eighty topics that are grouped into several programs: Governance and Personal Effectiveness, Public Policies, Lawmaking, and Law Enforcement, European Structural and Investment Funds, Digital Competence, Foreign Language Training, etc.

All training, including in various electronic forms, is organized and delivered by the Training, International Activities and Projects Directorate. Working entirely with external lecturers, the Institute has requirements for education, professional experience, and expertise - proposed topics and content are approved by a program board and an increasingly competitive approach to selection.

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Engagement of civil servants in training is mainly done through electronic requests in liaison between IPA and HRM units in each civil service, the latter providing lists of participants. A step forward in this respect is the possibility, as of the end of March 2020, for civil servants to individually submit their requests to participate in eLearning modules for self-learning in the IPA's eLearning system, which creates objective prerequisites for a greater number of civil servants to benefit from short e-courses for professional development[25].

The first step towards the successful implementation of eLearning is the selection of an appropriate eLearning environment. The Institute of Public Administration uses its eLearning platform, of the asynchronous type, with the recent addition of a web-based system for online training, webinars, and consultations - BigBlueButton, which compensates for many of the limitations of asynchronous learning. In addition, e-mail is used for pedagogical communication. Based on the best practices of similar environments in similar organizations, like the LMS (Learning Management System), as well as on the functionalities of one of the most widespread worldwide open source environments - Moodle. It includes the following main elements and functionalities[26]:

- Inclusion of electronic learning resources in different file formats (text files, images, video, audio, etc.);
- Intuitive text editor;
- Tools for pedagogical communication between eLearning participants: student-lecturer; student-student; lecturer-lecturer;
- Tools for individual and group work of students (quiz, individual assignment, forum);
- Calendar, where users can track course deadlines;
- A glossary in which the instructor defines terms in the subject area of the course, and the student can access and search for a specific term at any time during the course;
- Different options for assessing learners' performance (tests, assignments, surveys);
- Ability to track the individual progress of each student and send personal feedback in the form of a review, comment, etc.;
- Real-time online tutoring through an additional application - Big Blue Button, which is integrated into the electronic platform;
- Notifying users about the news;
- Providing feedback from users on the quality of the provided training;
- Access to a library of published up-to-date material on various subject areas.

[25]Institute of Public Administration. <https://mailchi.mp/c3681d265b9a/2019-2891385>
[26] Gerogieva, G. (2016). eLearning platform at the Institute of Public Administration - new learning and development opportunities. - In: Sixth National Conference on ELearning in Higher Education, 2-5 June, 2016, Kiten, University Press "St. Kliment Ochridski", Sofia, 2016.

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The platform has an easy user interface for the participants to use and can be accessed from any device (desktop, laptop, tablet, mobile phone). Using question 9 of the employee survey, we attempted to identify the device through which trainees access the selected e-course(s). The data is presented in the graph below (Figure 10). Overall, the percentage of those using computers (desktop or laptop) was the highest, with nearly 81% stating that they engage in eLearning via a desktop computer and almost half - using laptops. The number of employees stating that they use mobile devices for access is insignificant - only 14% indicated a mobile phone and only 3% a tablet.

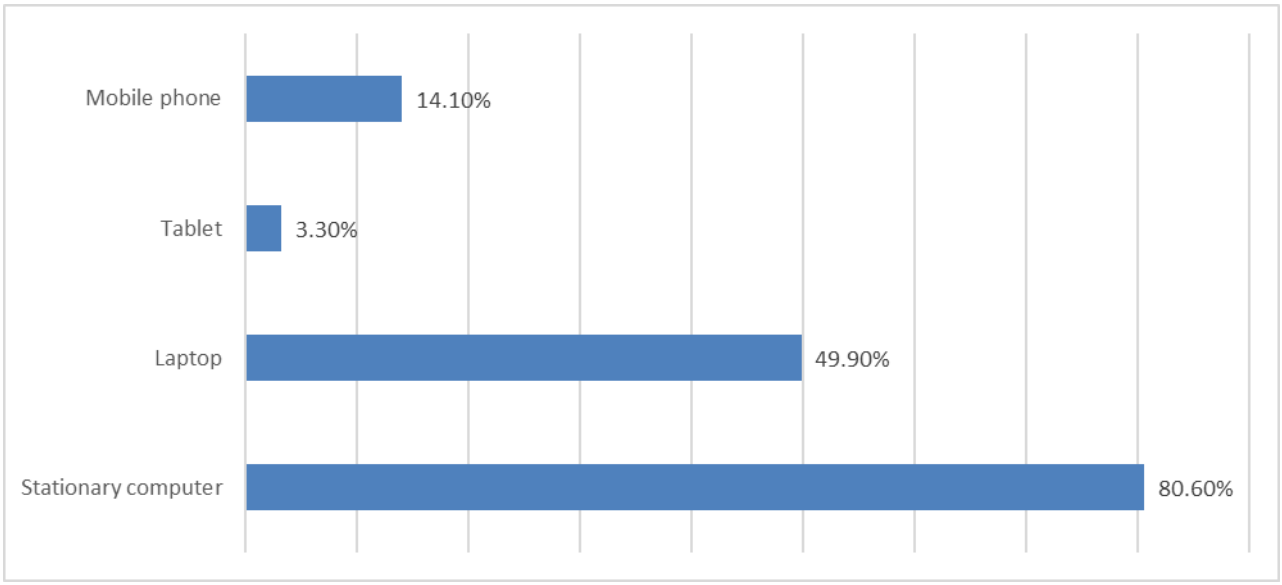

Figure 10. Means of access to e-courses by civil servants

Another important factor for the delivery of eLearning is the location from which civil servants access e-courses. Therefore, the survey asked them: "Where are you accessing the e-course(s) from?", and they were able to indicate more than one option. The overall distribution of responses in Figure 11 shows that the most common access point is the workplace for over half of employees (nearly 60%), and 40% indicated that they access the eLearning environment from home. The number of respondents who study in learning centers is negligible (0.3%).

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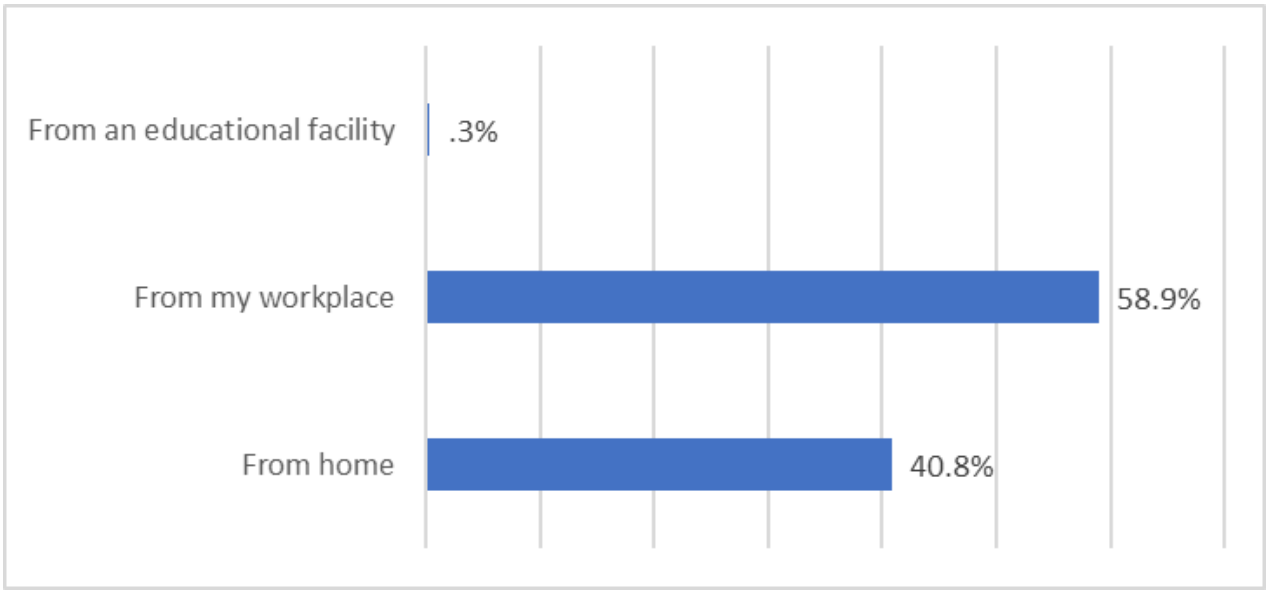

Figure 11. Location of access to e-courses by civil servants

The answers of the staff to these two essential questions related to the technical provision of the training fully overlap with those of the Director and experts from the Training, International Activities and Projects Directorate - training can be practically carried out without restrictions from any location and students most often use their work computer or personal computer/laptop.

The core function of all responsibilities for organizing and delivering training, including eLearning, is carried out by the Training, International Activities, and Projects Directorate. The Directorate has experts who specialize in the field of eLearning, as well as IT experts who assist the Institute's lecturers in designing their e-courses and creating eLearning content (multimedia learning resources, video lectures, video tutorials, e-tests, etc.). A helpdesk has recently been set up - a separate technical support unit for users, working with the IPA Information System (IS) - which provides feedback to users and facilitates the sharing of experiences and good practices[27].

The eLearning resources are developed following established "Quality Standards for eLearning at IPA", which define specific practical requirements for course design, learning content, resources and educational activities, pedagogical communication and assessment of participants' performance.

The presented analysis concludes that the IPA currently has a well-established IT infrastructure, including a proprietary electronic platform with embedded synchronous online learning software that is accessible from any location, technological and administrative support for students and lecturers, and standards for the development and implementation of eLearning, which is a significant prerequisite for implementing different varieties of eLearning for civil servants.

[27]Institute of Public Administration,< https://mailchi.mp/c3681d265b9a/2019-2891385>

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3.2. Models of design and delivery of eLearning based courses at IPA

The main function of the IPA, as a leading institution in conducting courses for the professional and career development of employees in Bulgarian public administration, is to offer quality training consistent with best European practices. It offers the following types of courses:

- Compulsory training for newly recruited employees in the administration and employees appointed for the first time to a managerial position.
- Optional professional development training for civil servants.

At the beginning of the year, administrations are obliged to prepare an annual training plan by collecting requests from employees - both from the IPA catalog and for other training courses, after which line managers in the administration decide on the most appropriate training courses for their employees, while also taking into account the available training budget. Enrollment in training is done through electronic requests by staff at specific times of the year in liaison between the IPA and the HRM units in each government administration, which provide lists of participants. The public administration from which the training participants are drawn usually issues a training order so that its staff has a reason to join the course during working hours. In most administrations, on average, 1-2 training sessions are held per person, for approximately 5 days per year. Training of approved staff is paid for by the administration concerned, including fees and travel expenses for in-person training.

A schematic representation of the types of courses according to the format offered and conducted at IPA is presented in Figure 12.

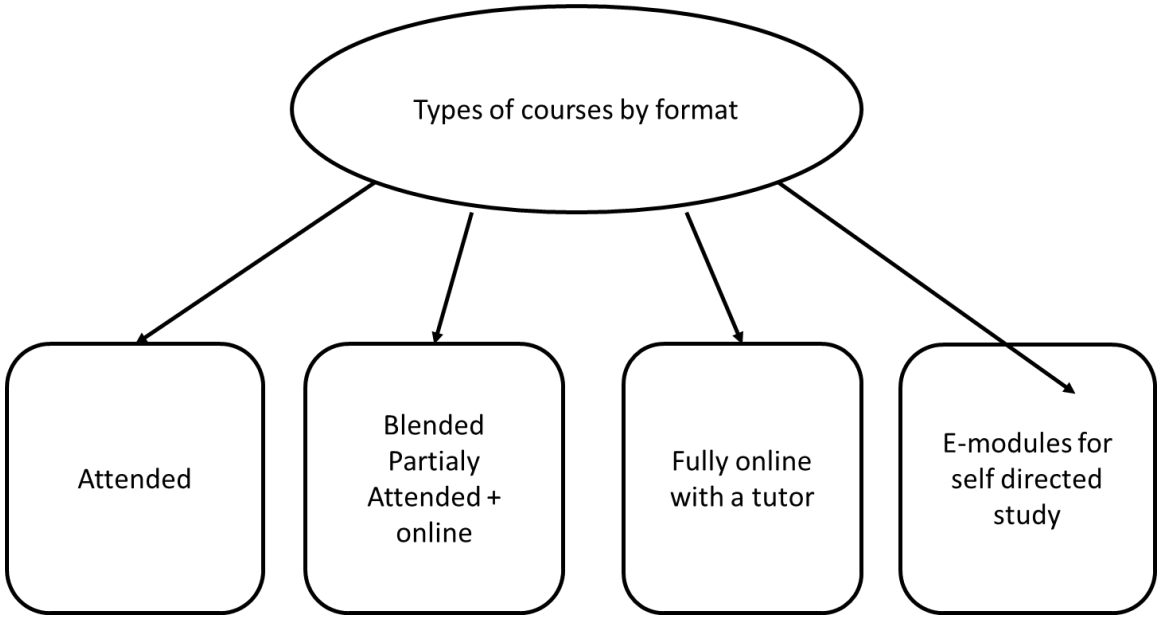

Figure 12. Types of courses at the IPA for training civil servants

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According to the latest statistics from 2019, the ratio between traditional face-to-face training and eLearning (fully online and blended format) is approximately 60% for face-to-face vs. 40% for eLearning. The number of learners in individual courses varies depending on their format. The smallest number of participants is in the face-to-face and blended courses - on average 25 people; in the eLearning courses with a lecturer, they are between 25-30 people, and the largest number is in the self-paced eLearning modules - on average 150-200, with some reaching up to 500 people. According to most (33.3%) of the lecturers who have experience in eLearning, the optimal number of students in eLearning courses can be up to 20 and even exceed 20 (Figure 13).

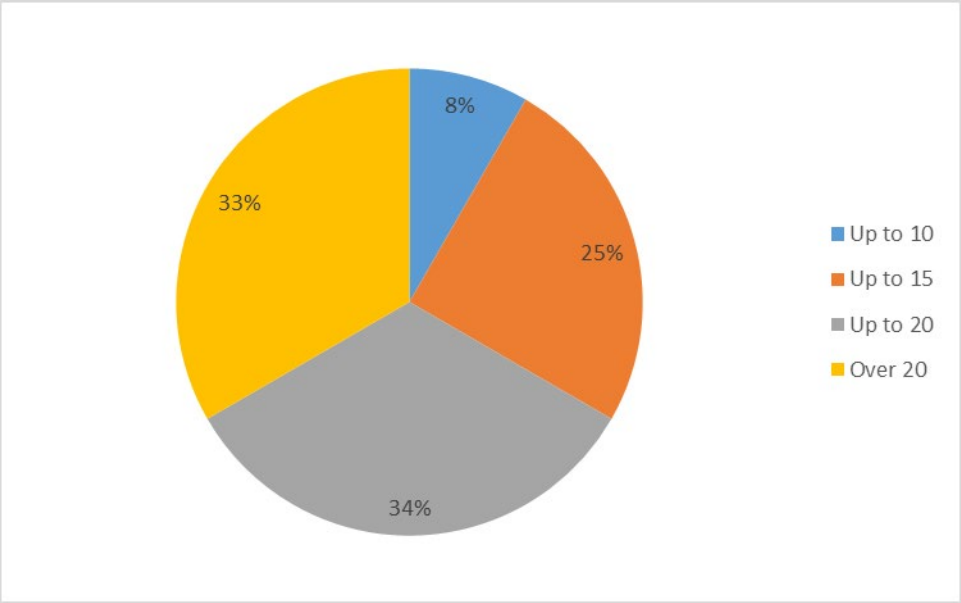

Figure 13. The optimal number of students in e-courses with a tutor according to the lecturer

The average duration of eLearning courses is less compared to face-to-face training - 10 learning hours for the lectured e-courses, 4 learning hours for the self-paced e-modules vs. 16 learning hours for the face-to-face training. The vast majority of e-courses (as well as all face-to-face courses) take place during staff working hours. The self-directed eLearning modules, some of the lectured e-courses, and some of the blended courses - can also be accessed from home during employees' non-working hours.

As to public servants' interest in the eCourses offered by IPA, it is clear from the answer to question 15 of the interview with experts that there has been an upward trend in the number of learners in eLearning courses on an annual basis over the last 5 years. In 2015 they were 134 (1% of total trainees); in 2016 they were 224 (3% of total trainees); in 2017 - 408 (4% of total trainees); in 2018 the number increased significantly - 11,986, which is 46% of total trainees and in 2019 they are 9345, which

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is 59% of total trainees. Therefore, IPA follows the leading trends by offering civil servants flexible training to enhance their skills through the capabilities of modern ICT.

B/ IPA eLearning courses according to learners' experience

To build an overall picture of the design and delivery patterns of e-courses at IPA, the following two analogous questions were asked of the two groups of respondents, staff, and lecturers: ***"How would you define e-courses you have participated in?", respectively "How would you define e-courses you have lectured in at IPA?".*** Respondents were able to choose more than one answer that matched their experience. The list includes the most popular types of eLearning: entirely online; blended learning; traditional face-to-face with elements of eLearning based on a variety of forms of synchronous and asynchronous learning and blending elements of traditional with online learning:

- The course is conducted entirely remotely in the IPA eLearning environment.
- The course is of a blended type (combining face-to-face training with distance learning in an eLearning environment).
- The course is based on electronic correspondence between the lecturer and learners.
- The course is conducted in a virtual classroom (e.g. Big Blue Button).
- The course combines synchronous (e.g. Big Blue Button, Skype, etc.) and asynchronous forms of learning (forum, quiz, individual assignment in an eLearning environment).
- The e-course is delivered with an online tutor.
- Short eLearning module for self-paced study.

As shown in Figure 14, employees indicated fully online remote learning was the top choice (nearly 70%). This result shows that the proportion of eLearning has increased by approximately 10% over the last 6-7 months compared to face-to-face training. A probable reason for this is the force majeure situation created by the COVID-19 pandemic when all educational institutions worldwide were forced to move quickly to entirely remote digital educational forms. The study was conducted between 28.05-18.06. The Institute of Public Administration in Prague, with 15 members of DISPA (Meeting of Directors of Institutes and Schools of Public Administration) and ENTO (European Network of Training Organizations for Regional and Local Authorities), shows that all of them have transformed their courses and moved to fully online training due to the circumstances, including organizations with little experience in this field. Another recent survey conducted by the Romanian Institute of Public Administration (http://ina.gov.ro/en-home/) among DISPA members shows that organizations similar to IPA, such as the German Institute and the Italian School of Public Administration, have discontinued all their face-to-face training and have developed their own eLearning models. A survey conducted by DISPA in September this year shows that the most used eLearning platform in IPA related institutions is Moodle. For

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synchronous online training, Zoom is the most popular platform, and Webex is also used in some institutions.

The transformation of some of the face-to-face training into webinars (Germany, Serbia, Albania) is highlighted as a successful practice. For example, in ASPA-Albania, 4 online sessions are conducted per day, using 3 different platforms simultaneously and applying different approaches based on the specificity of the course topic and target groups: webinars with about 100 participants (Go To Webinar); webinars with small closed groups of 20 people (Go To Meeting and Zoom); open webinars for all interested with more than 100 participants (Go To Webinar). The Dublin Institute of Public Administration has provided licenses and training to all associate trainers to enable them to offer training via MS Teams to clients anywhere in Ireland.

Other institutions such as VAB-Austria offer the same courses in two formats for clients to choose from: in-person or online.

The analysis of the responses allows for an internal differentiation of the different types of e-courses according to the use of diverse synchronous and asynchronous forms of learning and technologies for their implementation. Notice that the highest proportion of respondents participated in short online self-study courses (48%), i.e. the highest interest of employees is in e-courses created on a specific topic with a clear focus on learning content. Despite time constraints, this format is also desirable because of the up-to-date resources and focused learning activities offered, mainly for self-testing, aimed at achieving pre-defined learning objectives. This result is fully correlated with the results obtained from a large-scale survey by the National Institute of Statistics[28] in 2016 on adult education and training, according to which half of the Bulgarian population aged between 25 and 64 had participated in some form of self-directed learning. Electronic learning is the most common form, which is preferred by 70% of respondents in the same survey.

[28]NSI, Core results of the Adult Education and Training Survey (Third wave, 2016), <https://www.nsi.bg/sites/default/files/files/pressreleases/AES2016_UVASRDP.pdf>

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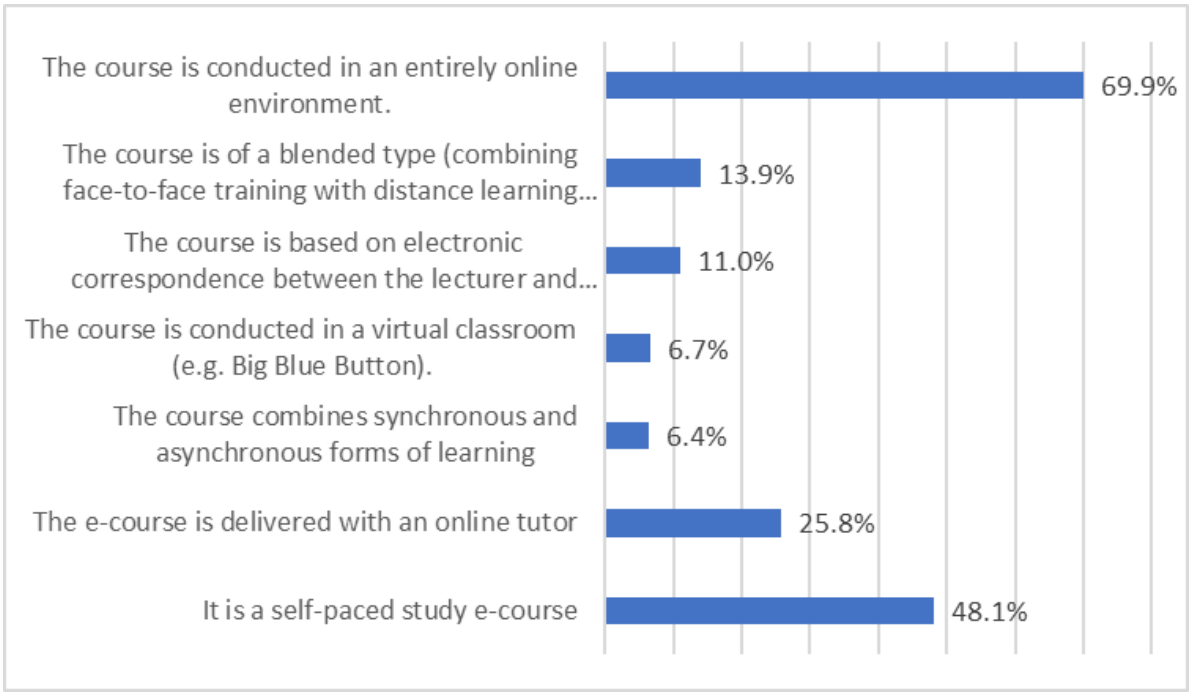

Figure 14. Employee participation in eLearning courses

Slightly more than ¼ of government employees characterized the training they attended as remote electronic education conducted with an online instructor. This result contrasts with data from the survey of NRA employees cited above, which found that e-courses with a tutor were significantly more popular and preferred by NRA employees (nearly 50% responded affirmatively) than by state employees taking IPA courses (26%).

Data show that a negligible proportion of those (14%) participated in blended learning (combining face-to-face sessions with distance learning in an eLearning environment). At the same time, research shows that blended learning is among the most effective forms of eLearning and is preferred, especially by large organizations, as it combines the positives of traditional face-to-face learning with the flexible distance learning capabilities of various synchronous and asynchronous communication technologies.

Only 11% responded that they had attended courses based on electronic correspondence between instructors and learners. Evidence shows that fully synchronous courses and courses combining synchronous with asynchronous elements are among the least familiar to employees. Only 7% of respondents defined the course(s) they attended as fully online synchronous learning conducted in a virtual classroom (e.g. BigBlueButton), and 6% - as a combination of synchronous online forms (e.g. BigBlueButton, Skype, etc.) with asynchronous forms of learning (e.g. forum, quiz, individual assignment in the eLearning environment). Such results are not surprising, given the specifics of learning at work, synchronous online learning

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contexts, time constraints, the need for additional technical and technological support, a quiet environment for the online session, etc. These forms of learning are difficult to balance with work commitments. The priority of employees is their work responsibilities, as we all know. Not every trainee can dedicate the necessary time in the process in a specific time range to join a webinar or synchronous online learning session in the virtual online platform due to various circumstances (urgent tasks, client work, an important meeting, participation in a mobile team, etc.). These results are similar to those of a recent study conducted in a similar organization to IPA, the NRA, which is also indicative of the marginal interest in synchronous learning via videoconferencing compared to employees' unquestioned preference for self-paced e-courses[29]. This is most likely because these remote options provide a great deal of flexibility for learners to engage without constraints in terms of time and physical location in other words, they provide an opportunity for individualization of learning in terms of intensity and self-paced content coverage.

B/ E-based courses in IPA according to instructors' experience

To determine how they define their courses and what their experience is in creating and delivering different types of eLearning, we asked lecturers with eLearning experience a similar question. Respondents were able to choose more than one answer that matched their experience. From the overall distribution of responses in the graph below (Figure 15), it is clear that their experience is similar to that of civil servants. For three quarters (9 out of 12 lecturers), the first thing they mentioned was the entirely remote training they conducted in IPA's eLearning environment, with short eLearning modules for self-study being the most popular (50%; 6 out of 12 lecturers). A third of the lecturers defined the courses they delivered as based on electronic correspondence between lecturer and learner and combining synchronous and asynchronous forms of learning (4 of 12 lecturers). Only 3 of the 12 lecturers indicated that they had the experience of delivering an e-course in a fully online synchronous format using a virtual online platform such as Big Blue Button and in blended courses (25%). Remarkably, an e-course with a tutor was indicated by only one lecturer. This surprisingly low result is disturbing as the effectiveness of eLearning is dependent to a large extent on pedagogical interaction, prompt and timely tutor support, and permanent feedback on learner performance. Perhaps lecturers have particular deficits associated with designing and implementing fully online learning in a synchronous format.

[29] Yankova, P. Peycheva-Forsight, R. (2020). eLearning in the workplace - opportunities and limitations in the practice of the NRA. - In: - In Proceedings of the 8th national conference on eLearning in higher education, UP “St. Kliment Ochridski”, Sofia, 2020.

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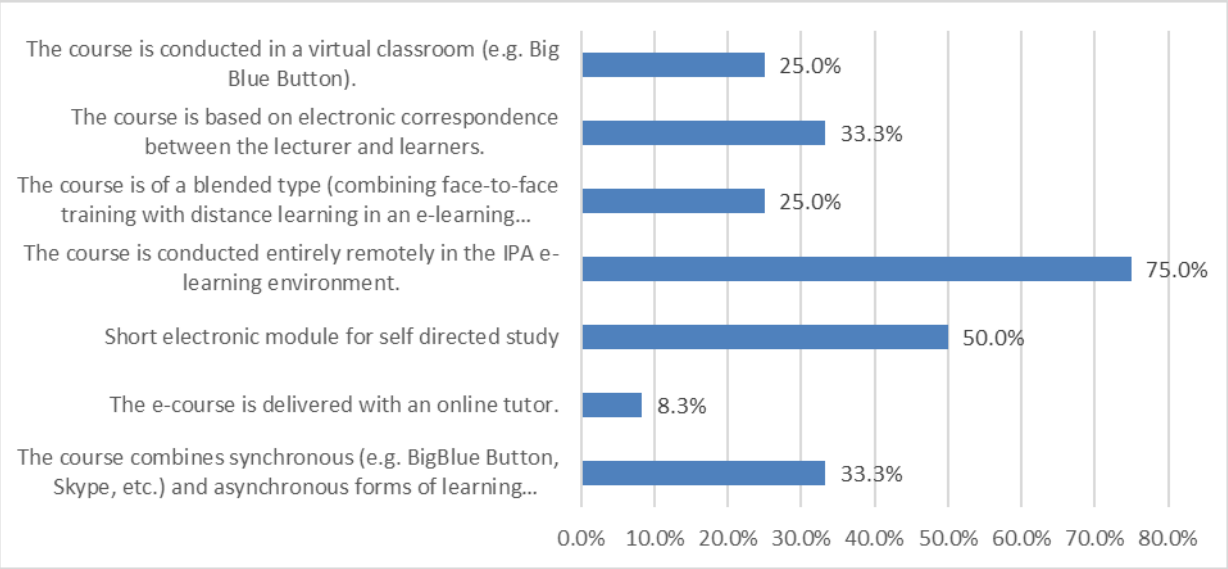

Figure 15. IPA lecturers' experience in e-courses

3.3. Level of digital competencies of civil servants and lecturers in IPA as a condition for conducting quality e-courses

The European Commission's priority objectives include the development of the general digital skills of civil servants and the digital competencies of teachers to use ICT in teaching. In addition, eLearning necessitates additional digital skills for learners and trainers to work with different software applications and products to ensure the effectiveness of teaching and learning. One of the factors that could improve the teaching and learning practices of civil servants in e-environments and, at the same time, seriously influence the attitudes and dispositions of trainees towards eLearning on the one hand, and of teaching staff towards the application of various digital forms of learning on the other hand, is precisely the level of digital competences of the two groups of research subjects. Lack of or inadequate knowledge of the functional capabilities of technology, including eLearning environments and virtual classrooms by lecturers to achieve specific educational goals, may lead to demotivation and reluctance to design and implement eLearning, and conversely, having good technical skills and confidence in working with a variety of technologies to create eLearning content, design learning activities, and communicate synchronously and asynchronously with learners could positively influence This statement also applies to civil servants because if they do not have the required level of digital literacy, they are likely to be reluctant to take eCourses. Therefore, within this study, we tried to obtain information about the level of digital competence of both groups of respondents by inviting them to self-assess themselves on a five-point scale of pre-formulated statements:

- I am an expert in working with various information and communication technologies (ICT).

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- I am confident in using new ICT.
- I use new technologies when provided with support and guidance.
- I only use some ICT and do not feel comfortable using new technologies.
- I do not feel comfortable working with technology.

In the following paragraphs, the results of the survey of civil servants and lecturers regarding their digital competencies will be presented and analyzed.

A/ Self-assessment of civil servants' digital competencies

The data show that a significant proportion of those surveyed (nearly 60%) have good digital skills, with almost half of the civil servants surveyed, 48%, describing themselves as very good at using the most popular technologies without considering themselves experts; and 9% consider themselves experts in this area (Figure 16). These results suggest very strong evidence for their involvement in remote electronic learning and blended learning. It is noteworthy that a not insignificant proportion of the respondents, nearly 40%, declared confidence in using some technologies, but with support and guidance provided. A minority of respondents said they were beginners in using ICT, 4%, with limited use of some technology but did not feel comfortable. Lack of sufficient technology skills in the latter two groups may create some barriers for them in eLearning. These employees with low levels of digital skills will need much more technological support when completing learning activities in an eLearning environment.

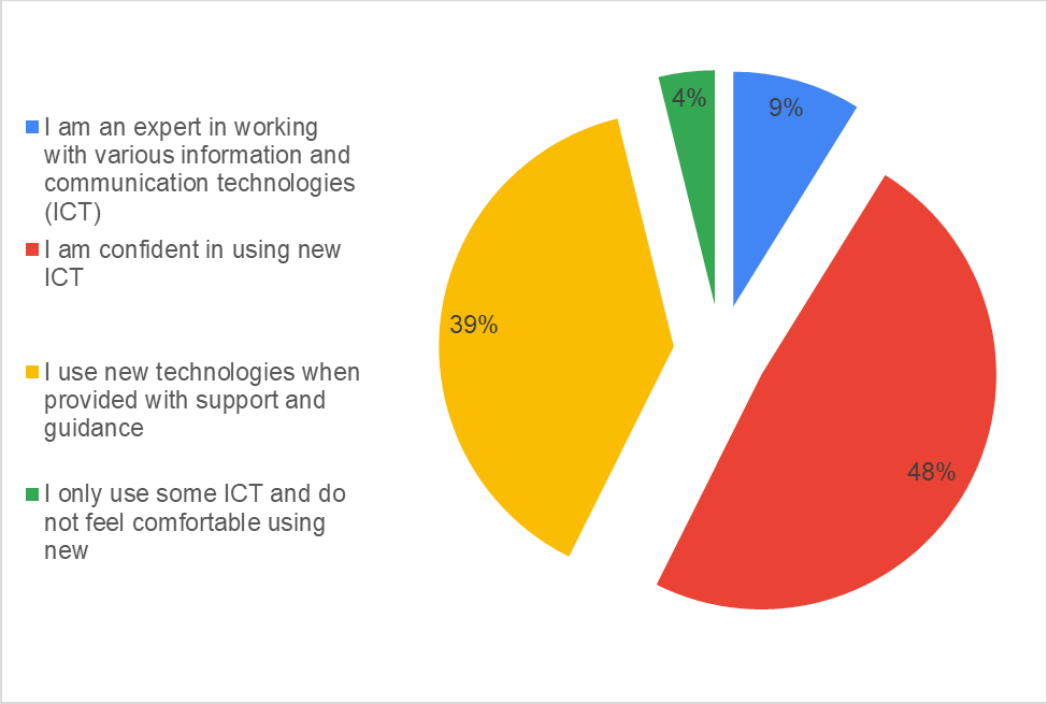

Figure 16. Self-assessment of civil servants on their level of digital competency

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The data were subjected to further analysis to examine whether there was a relationship between the age of civil servants and their level of digital competence using Pearson's Chi-squared test to check hypotheses about the presence of categorical variables. Results show that there is a statistical correlation (Chi-squared test, 1, N=1428, $p<0.001$), i.e. employees up to the age of thirty years prevail among respondents who form a high level of digital competence (defining themselves as experts and confident in using new ICT), as well as those between 31 and 40 years with equal representation (67%), i.e. the level of digital competence is predetermined by their age - the younger employees are, the more likely they are to work seamlessly with different ICTs.

A/ Self-assessment of civil servants' digital competencies

The productive integration of technology in learning, respectively eLearning, requires a high level of digital competence in lecturers. The self-assessment of the surveyed persons in this respect shows very good results. From the data obtained, presented in Figure 17, it is clear that 2/3 of the lecturers have high digital competence, with almost half of them (44%) considering themselves experts in working with different ICTs, and 22% saying that they are confident in using new technologies. This result indicates the good level of digital literacy of the majority of respondents and is a good basis for optimizing the training process of civil servants by applying new digital forms of learning in IPA. A third of respondents use new technologies when provided with support and guidance. It is noteworthy that the lecturers with experience in eLearning stated higher digital competence, which is quite logical. Of the 12 speakers in this group, 7 considered themselves experts, 3 said they were confident to use new ICTs, and only two needed support. In contrast, lecturers with no eLearning experience demonstrated a significantly lower level of digital skills, with 4 out of 6 lecturers indicating a need for support when using ICT. To achieve quality in the design and delivery of e-distance and blended learning, there is a need to provide this group of lecturers with targeted and systematic training based on identifying their needs in the field. The other two lecturers, who also have no experience in eLearning, indicated they have a high degree of digital skills but do not consider themselves experts. The lack of experience in eLearning is apparently due to other factors, such as learning content not being suitable for teaching in an online format.

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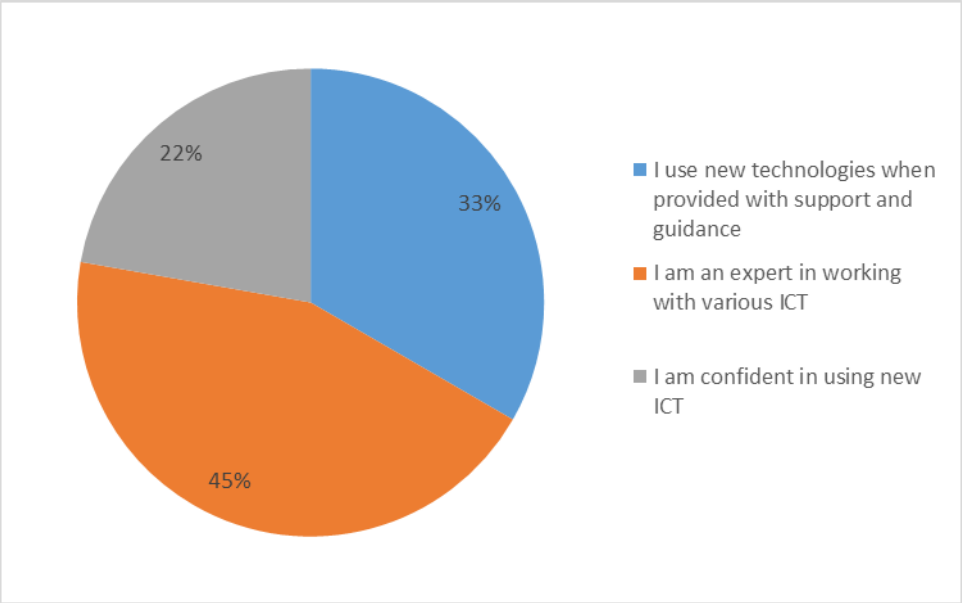

Figure 17. Self-assessment of lecturers on their level of digital competency

3.4. Experiences of civil servants and lecturers in eLearning - a comparative analysis

The following two questions were asked in order to ascertain employees' experience with eLearning: **A/"How many e-courses (of IPA and other organizations) have you participated in so far?"** (Question 2 of the staff survey) and **B/"Of these, how many are e-courses organized by IPA?"** (Question 3 of the staff survey). The answers are presented in the table below.

Number of courses attended	Participation of civil servants in e-courses of IPA and other organizations	Participation of civil servants in e-courses of IPA only
From 1 to 3 courses	57,9%	70,9%
Between 4 and 6 courses	25,2%	20,7%
More than 6 courses	16,9%	8,4%

Table 3: Participation of civil servants in e-courses of IPA and other organizations

The data shows that more than half of the surveyed individuals - 58% - have little experience, indicating that they have participated in 1 to 3 eLearning sessions. It is important to note that these were overwhelmingly delivered by IPA (71%). A quarter of staff had more experience in this regard, having participated in between 4 and 6

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courses, again almost all of which were delivered by IPA (21%). The proportion of respondents with significant eLearning experience appeared to be the lowest, with only 17% having participated in more than 6 eCourses, half of which were at IPAs. Consequently, civil servants have some experience in eLearning, much of it gained through their participation in IPA-organized e-courses. This suggests that most of the surveyed individuals are familiar with the IPA eLearning system, the design of e-courses, and the specifics of online learning.

The instructors were asked similar questions to explore their eLearning experience and to identify commonalities and differences with the surveyed civil servant learners. 2/3 of them responded they had practical experience with delivering digital courses, as shown below (Figure 18). When analyzing the data for the following questions regarding experiences and attitudes towards different components of eLearning, a filter was introduced only for lecturers who had experience in eLearning, which reduced the number of respondents to 12.

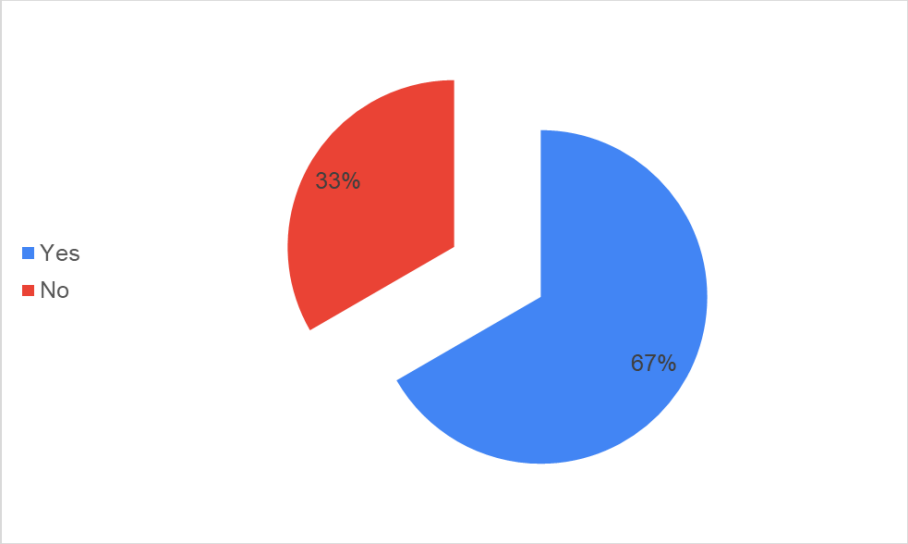

Figure 18. Speakers' experience in conducting eLearning at IPA and other organizations

In order to further outline the expertise of the IPA faculty regarding eLearning understood in a broader sense, we asked them the following question: ***"How many of the IPA courses you teach employ ICT?".*** As shown in the graph below (Figure 19), the majority (nearly 90%) make extensive use of a variety of technologies in their teaching - 61% in all courses and 28% in most of the courses in which they teach. A rather insignificant number of lecturers (two) use ICT in only 1 course. It is evident that most lecturers actively use technology for teaching and learning purposes. Presumably, the unforeseen circumstances created in recent months related to COVID-19, provoked institutions worldwide to incorporate alternative distance learning and are also among the reasons why IPA staff and lecturers have acquired and enriched their eLearning expertise.

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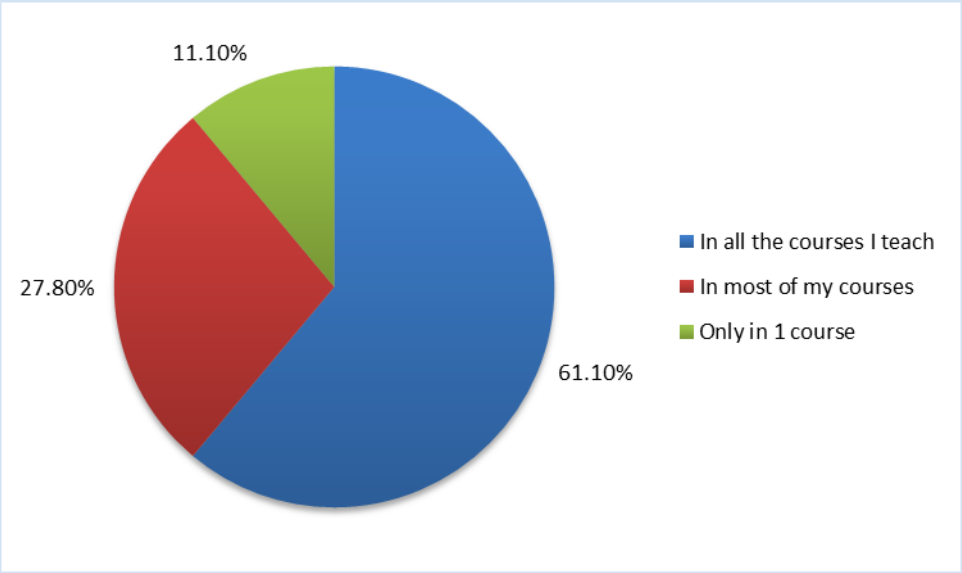

Figure 19. Lecturers' experience with ICT within IPA training programs

3.4.1. Experience of employees and instructors regarding important components of eLearning

In this part of the analytical report, we will trace the experiences of the two research groups in a comparative perspective concerning various essential elements of online learning design and delivery - eLearning resources, online support and communication, learning activities, and assessment. It was explored using several questions throughout the questionnaires.

A/ Use of digital educational resources in courses

The issue of eLearning information provision is of utmost importance for online learners. There is a need for qualitative and in-depth development of the material to be studied to maximize the effectiveness of the learners' independent work and learning activities. The presentation of learning content through a variety of electronic resources and formats largely determines the learning outcome. Therefore, to get a more comprehensive picture of the learning experience of civil servants who attended e-courses at IPA, we asked them a question related to the use of different types of eLearning resources: ***"Please indicate which of the following types of digital resources have you used in your IPA courses and with what frequency?".*** They were asked to indicate and identify the frequency of using a resource for learning purposes in the courses they attended. Following graphs represent the most frequently used eLearning resources by employees (Figures 20, 21, 22, 23, 24).

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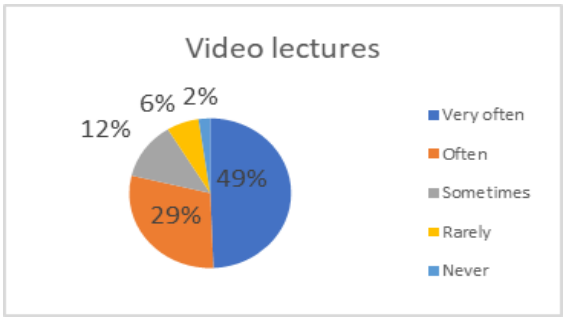

Figure 20. Video lecture use frequency

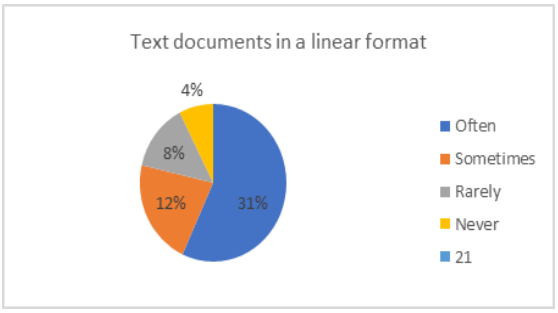

Figure 21. Linear format text documents usage frequency

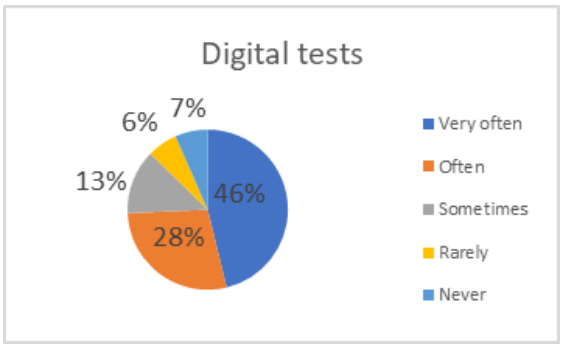

Figure 22. Digital tests usage frequency

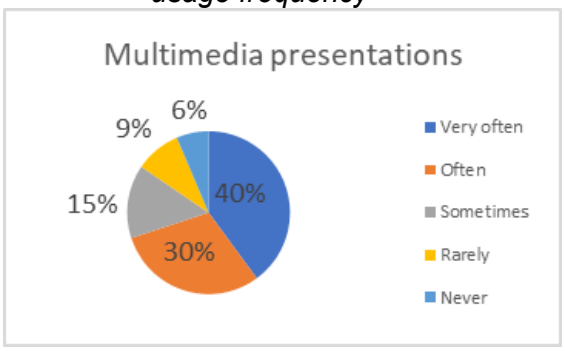

Figure 23. Digital tests usage frequency

Data analysis shows that respondents most intensively (very often and frequently) used video lectures, video tutorials, and self-study materials (nearly 80%), followed by text documents in linear format (WORD, PDF) - 76%; electronic tests (about 75%) and multimedia presentations - 70%. This result is quite understandable, given that worldwide in online learning, which requires a great deal of self-paced preparation, the most widely used technologies are video in the form of video lectures, video tutorials, video instructions, etc. They are enormously beneficial and motivating for learners. This is also the case for digital tests, identified as key tools for assessing learners' knowledge and skills and for self-evaluation. At the same time, PowerPoint and Microsoft Word are among the most used software products in modern education - and any lecturer can easily create learning materials for specific educational purposes or find them on the Internet. Many of the best examples of multimedia products have been created precisely for training purposes. Moreover, many of these types of resources are distributed on the Internet as free educational resources and every instructor could acquire them if they had the information skills to search the Web and critically evaluate their educational and technological value.

Nearly two-thirds of those surveyed actively use audio lectures and self-preparation materials - 36% very often and 27% - often. With this type of resource, learning can be highly personalized, learners are in control of the content, and they set their own pace of learning by repeatedly listening to fragments of the content.

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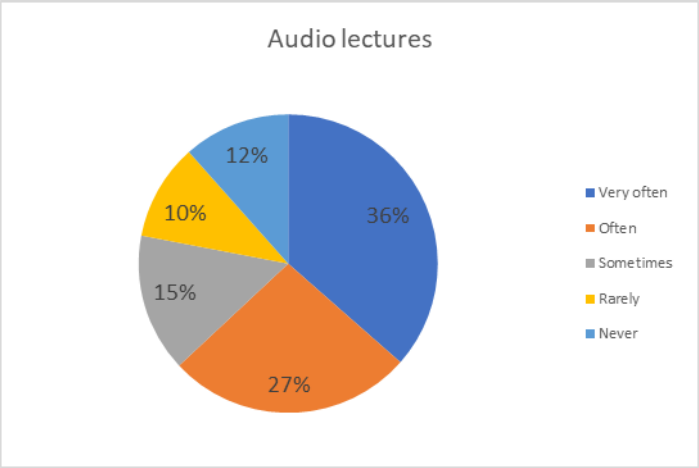

Figure 24. Audio lecture use frequency

Hypertext documents appeared to be among the eLearning resources least used in IPA practice as part of eCourses for employees. The data showed that half of the respondents thought they were used only to a limited extent (25% responded "rarely" and 25% -"sometimes") (Figure 25), and about ¼ of them had never used them. This fact is of some concern, as the non-linear presentation of learning content using hyperlinks can individualize learning and deepen understanding of the content while also facilitating the achievement of the intended learning objectives. Spreadsheets (Microsoft Excel) were used with similarly low intensity by the respondents - 24% said they used them "sometimes", and 21% "rarely". Again, ¼ indicated that they never used spreadsheets (Figure 26). At the same time, knowledge related to working with large databases and skills for their analysis and visualization are essential for performing work tasks effectively for most civil servants.

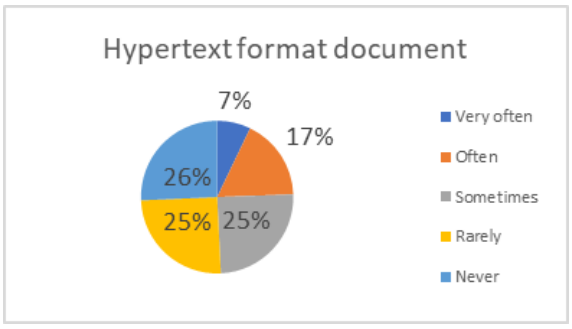

Figure 25. Hypertext format document usage frequency by employees

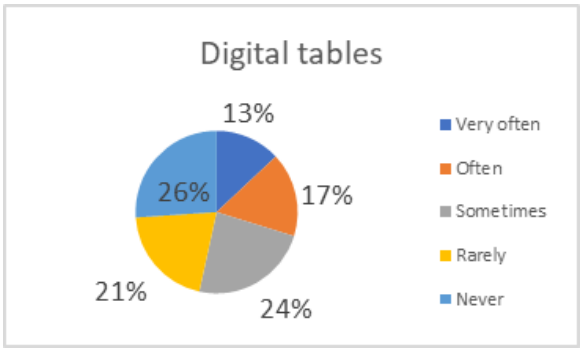

Figure 26. Digital tables usage frequency by employees

Social networking, which creates new opportunities for civil servants to share experiences and best practices in the learning process, is also little or not at all present

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in their practice, with just over 1/3 indicating rarely and 43% have no experience in this regard (Figure 27).

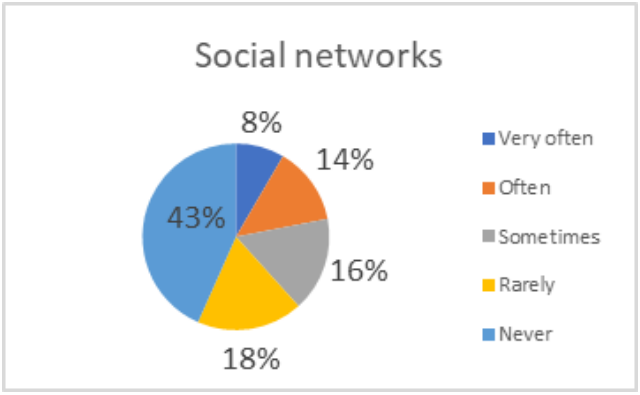

Figure 27. Social networks usage frequency

What is striking is that a large percentage of respondents (over 50%) have never used the learning resources listed below in their training:

- Computer games for learning purposes - nearly 70% (Figure 28);
- podcast - 64% (figure 29);
- computer simulations - 61% (figure 30);
- animation - 54% (figure 31).

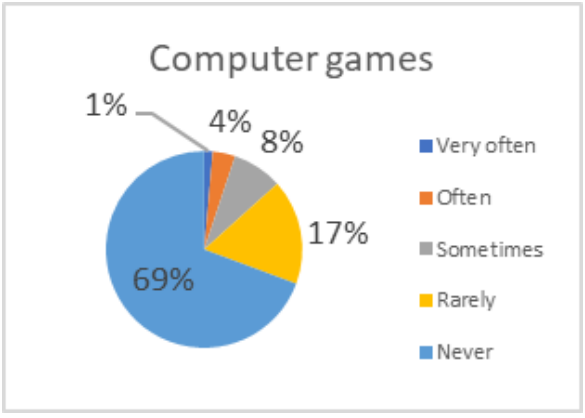

Figure 28. Computer games usage frequency by employees

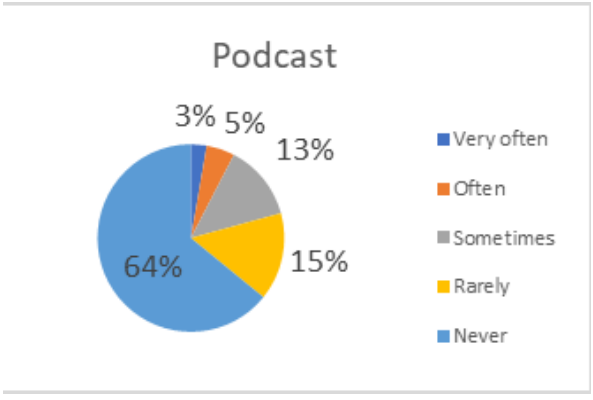

Figure 29. Podcast usage frequency by employees

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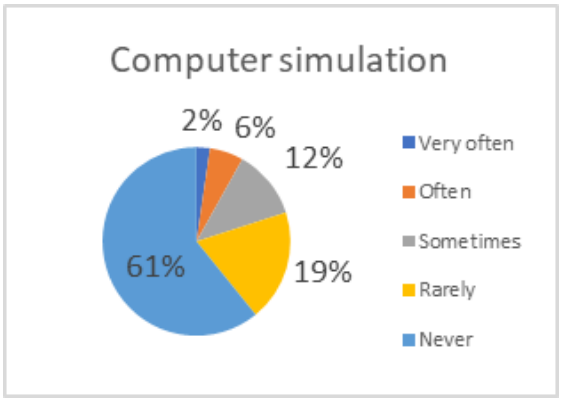

Figure 30. Frequency of Computer simulation usage by employees

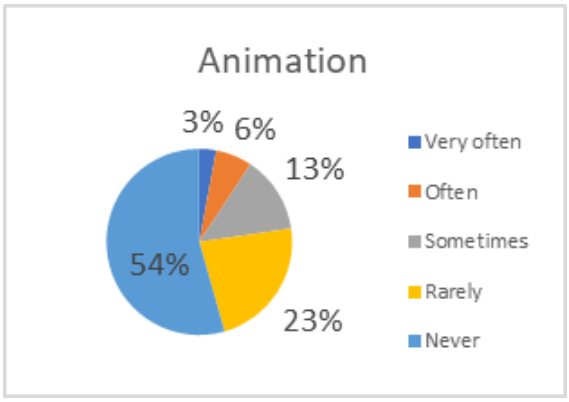

Figure 31. Animation usage frequency by employees

At the same time, these are instructional resources that have proven their educational potential in the learning process. They increase cognitive interest, motivate, engage, and activate the learner to participate in the learning process. For example, computer games and simulations promote learning by helping to develop creative and critical thinking. Gamification, including elements of competition, mutual aid, resources, time, rewards, points, levels, avatars, etc., and game-design techniques increase employee commitment to the company and help improve the learning process (Mushmov, 2017)[30]. Studies have shown that some eLearning environments (e.g. MOODLE) can further incorporate tools to create a pedagogical design based on gamification as an instructional strategy.[31]

The data from the survey of lecturers is broadly comparable to that of civil servants. The majority of respondents most frequently use the following eLearning resources in their teaching: Multimedia presentations (very often - 83% and often - 8%), (Figure 32); text documents in linear format (WORD, PDF) (very often - 67% and often - 17%), (Figure 33); video lectures (very often - 42% and often - 25%), (Figure 34) and electronic tests (very often - 42% and often - 17%), (Figure 35). This result demonstrates sufficient experience in both groups of respondents regarding the most common eLearning resources in teaching practice. It is noteworthy that video lectures and video tutorials are the most preferred electronic resources by learners, while the most common practice of lecturers is the use of multimedia presentations. Most likely, this is due to the more difficult and time-consuming process of developing video lectures and video tutorials, as well as lecturers' lack of sufficient skills in using specialized software for this purpose (e.g. Camtasia Studio). Moreover, as it became

[30] Mushmov, A. (2017) New trends in CRM marketing in the XXI century - gamification. - In: Book of Proceedings of the International Scientific and Practical Conference "The Economy of the XXI Century - Corporate, National and International", NBU, 2017. <http://eprints.nbu.bg/4175/1/ikonomikata-na-xxi-vek.pdf>, last visited on the 8/10/2020.

[31] INCOMMERCE Gamification Strategy: Methodology, description, specification. < http://www.inncommerce.eu/IO/2/O2-A1_Gamification%20Strategy_BG.pdf>, last visited on the 8/10/2020.

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clear from the interview with the Director of Training, International Activities, and Projects, IPA offers serious support to the lecturers by filming and editing the video lectures upon their request, but this is associated with additional financial resources. It would be more effective if the lecturers could independently film the videos needed for their courses, providing organized training in this area.

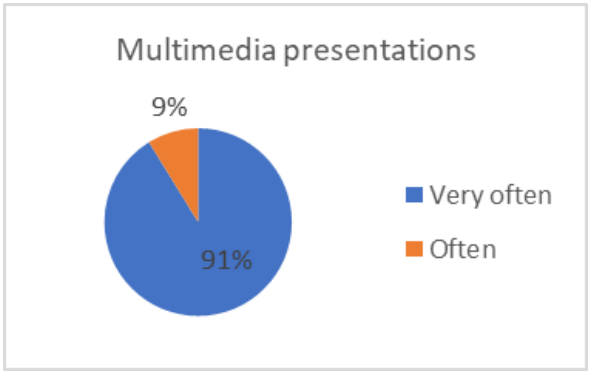

Figure 32. Multimedia presentations usage frequency by lecturers

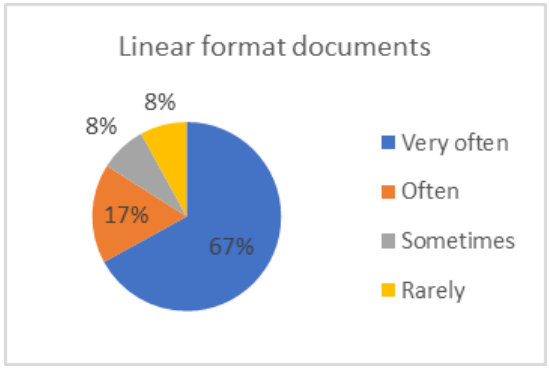

Figure 33. Linear format text documents usage frequency by lecturers

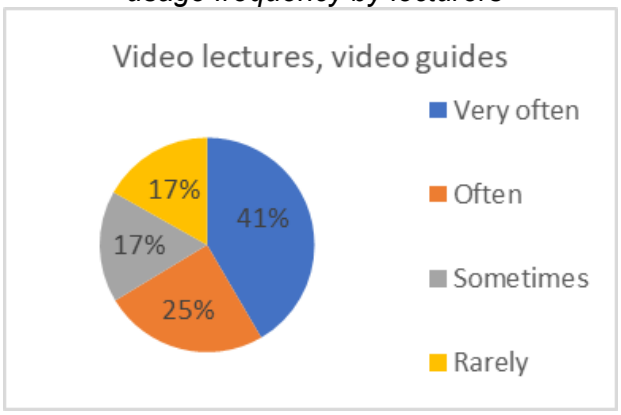

Figure 34. Frequency of Video lectures usage by lecturers

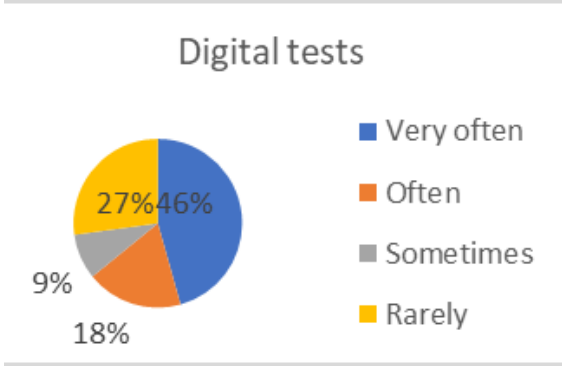

Figure 35. Digital tests usage frequency by lecturers

In terms of hypertext format documents (e-books, textbooks, dictionaries, etc.), there has been less interest from lecturers in integrating them across e-courses - half of them rarely use them for teaching purposes (Figure 36). There are likely no examples available for free on the Internet for the studied content.

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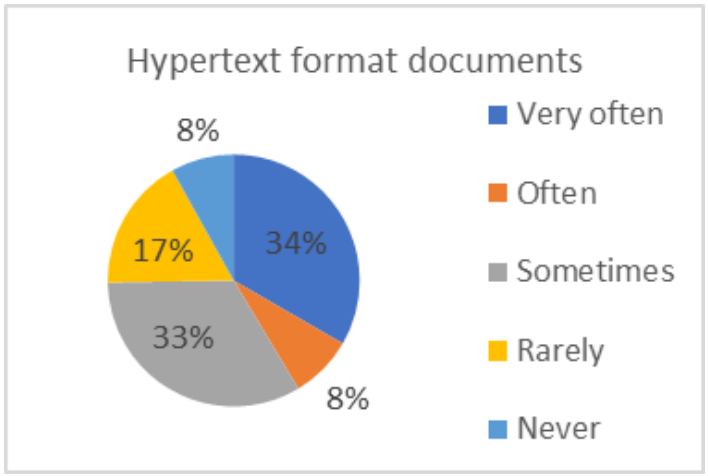

Figure 36. Hypertext format document usage frequency by lecturers

There were significant differences in the use of spreadsheets and audio lectures by the two subject groups. As can be seen in the graph in Figure 35, spreadsheets (Excel) are among the most frequently used in the practice of lecturers (33% answered very often and 42% often), while as already indicated earlier in the analysis, the vast majority of employees (71%) rarely or not at all use them. The reverse was observed for the preferences of the two groups of respondents regarding the use of audio lectures and self-study materials - employees' preferences dominated here, with 63% of them actively using audio lectures for training purposes, while they were less preferred by lecturers, with 84% of them relatively rarely including them in e-courses or being entirely unfamiliar with them.

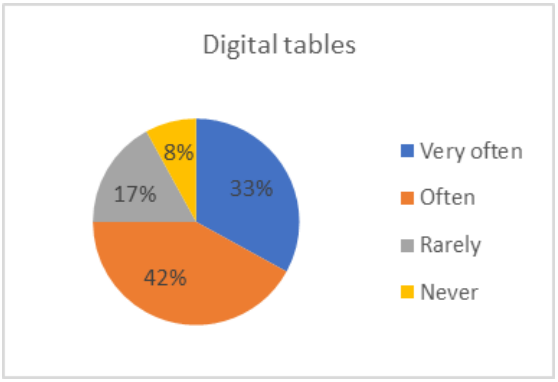

Figure 37. Digital tables usage frequency by lecturers

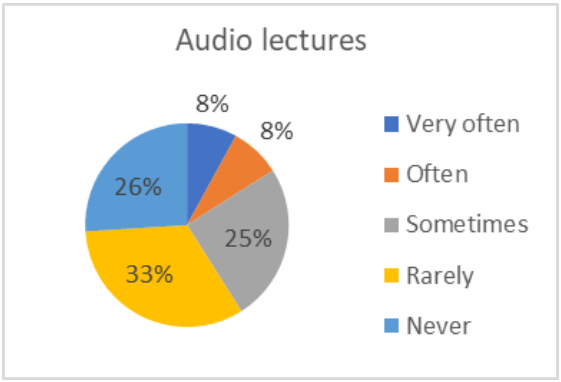

Figure 38. Frequency of Audio lectures usage by lecturers

Turns out that social media as a learning resource is not very popular with lecturers, not only with employees. As can be seen from the graph (Figure 39), nearly 45% of lecturers rarely use them and 44% indicated that they have never used them in the IPA e-courses in which they teach.

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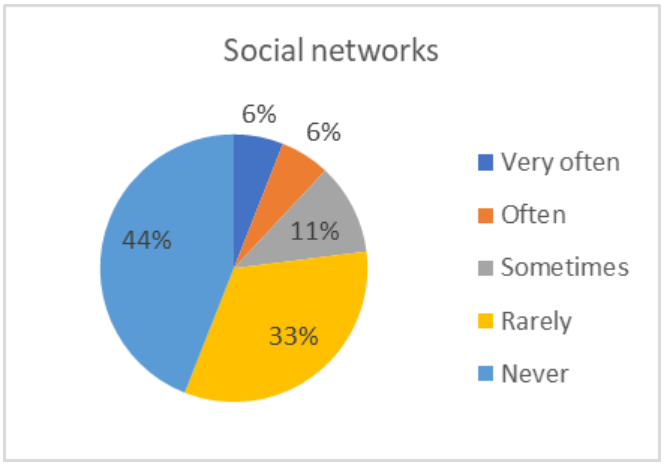

Figure 39. Frequency of use of social networks by speakers

The results indicated that both staff and lecturers appeared to lack experience in using the following learning resources: Computer games for learning purposes, podcasts, computer simulations, and animation. The data presented graphically in Figures 40, 41, 42, and 43 show that more than half of them have never used such tools in their teaching:

- computer games for educational purposes - 75%;
- podcast - 66%;
- animation - 50%;
- computer simulations - 50%;
- social networking (Web sites, blogs) - 44%.

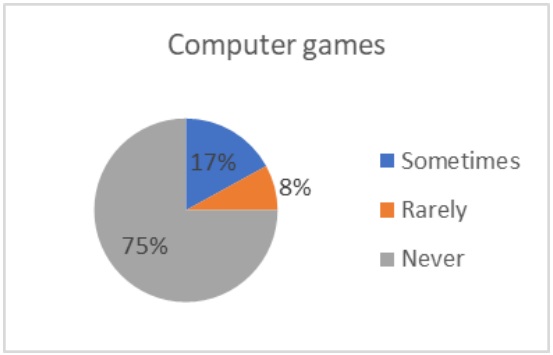

Figure 40. Frequency of use of computer games for educational purposes by lecturers

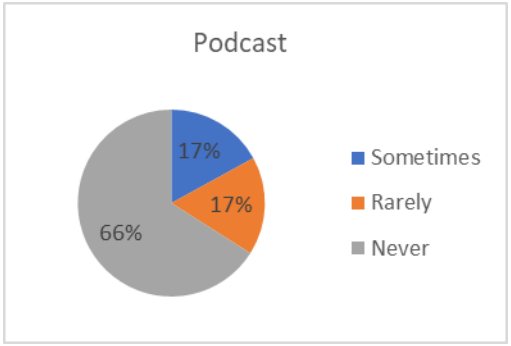

Figure 41. Frequency of podcast usage by speakers

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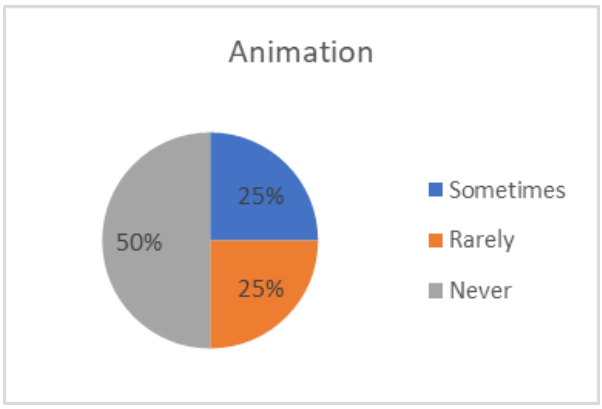

Figure 42. Frequency of Computer Animation usage by speakers

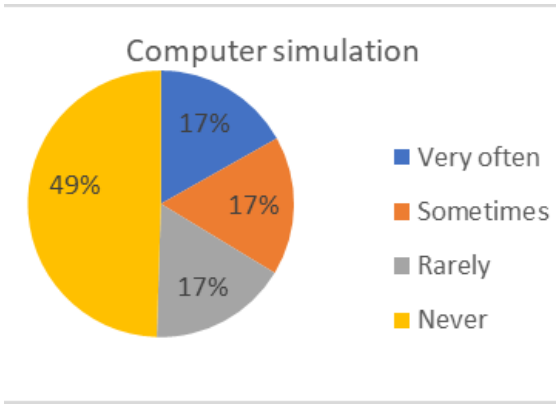

Figure 43. Frequency of Computer simulation usage by speakers

B/ Technologies in communication with students

The degree of interaction between participants in eLearning is an important factor in determining the effectiveness of the learning process. Therefore, it is imperative to provide favorable conditions for the students to interact with the instructor and other learners in both asynchronous and synchronous communication. Staff responses to the question: "What technologies did you use to communicate with the lecturer and other students during e-course training?" as presented in Figure 44 indicate that the asynchronous type of communication is the main form in IPA e-courses (56%), conducted during the training itself and implemented through the most popular technologies in this field - email, forum, etc. It is noteworthy that the use of technologies for asynchronous communication outside the training in order to carry out consultations, discussions, and other activities is significantly decreasing (30%). From the illustrated data, it is clear that for only a quarter of the respondents, the use of synchronous communication technologies such as video conferencing in a virtual classroom, Skype, chat, etc. is part of their experience in lectures and practical exercises. The use of these same technologies for consultations, discussions, etc. outside e-courses is too limited - a negligible number of staff indicated that they use them for these activities (9%).

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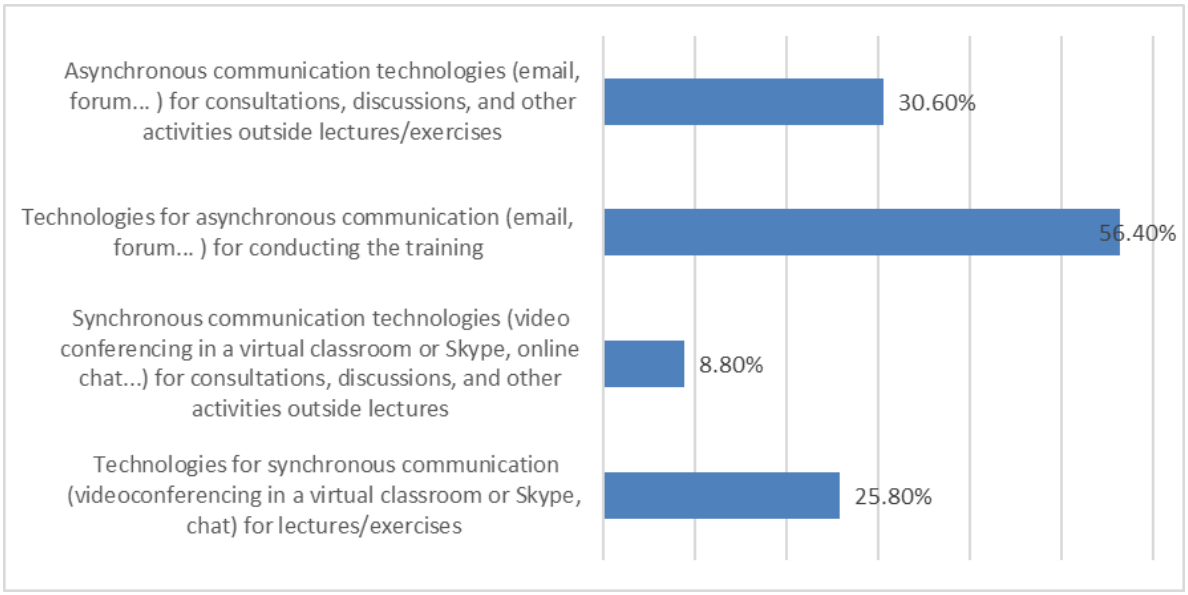

Figure 44. Technologies used by employees for communication with the lecturer and other students

When the lecturers communicate with their students, it is in an asynchronous format according to more than half of the respondents (Figure 45) i.e. here we find some similarities in the opinions of the two groups of respondents. However, it should immediately be noted that there are differences in terms of the use of technology for asynchronous communication and the educational context - according to the opinion of a majority of employees (56%), as already mentioned, they are mainly used for communication during the actual training, while, approximately the same percentage of lecturers (58%), claim that they use them in a non-learning context for consultations, discussions, and other activities. Nearly 28% fewer staff reported using technology for asynchronous communication in this context.

There were also differences in the opinions of the two groups of respondents regarding the use of synchronous communication technologies in practice. Again, significantly more lecturers said they use video conferencing in a virtual classroom, Skype, chat, etc. in both contexts - 42% of lecturers vs. 26% of staff responded that they use them for lectures/exercises; 33% of lecturers vs. 9% staff responded that they use them for online consultations, discussions, and other activities.

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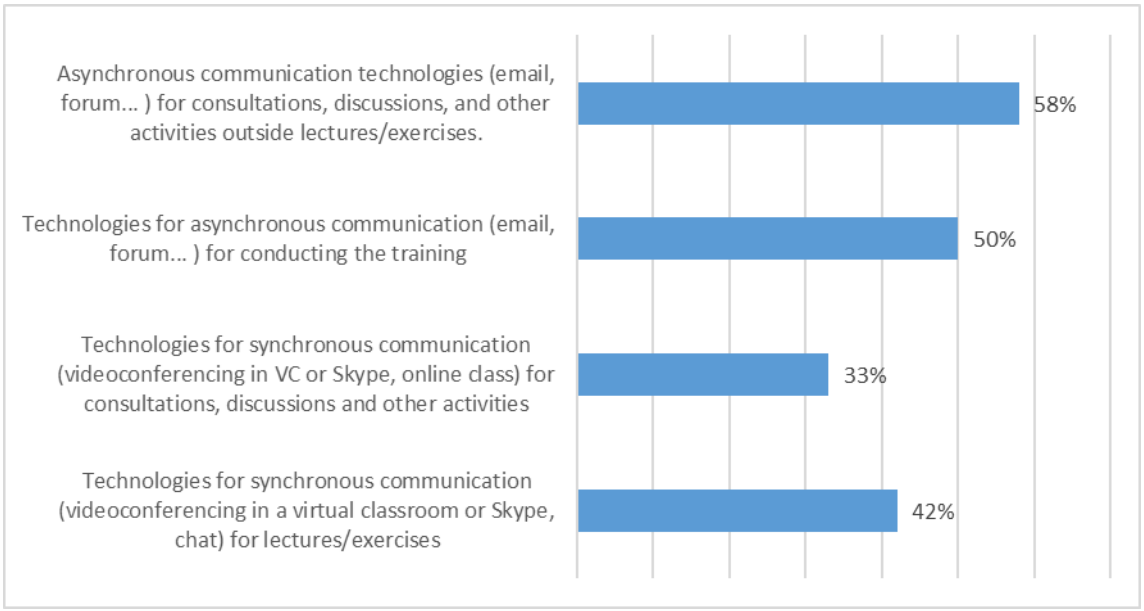

Figure 45. Technologies used by lecturers to communicate with students

Therefore, the conclusion is that the use of asynchronous communication technologies during the actual delivery of eLearning is dominant across the range of courses offered by IPA. Synchronous communication technologies are less frequently used both in and outside e-courses. Perhaps the constraints of the work environment do not allow for the active use of synchronous communication technologies that require employees to join in at a specific time for a video session, or some employees experience psychological discomfort from participating in synchronous-type learning in a virtual classroom. Most employees appear to primarily rely on widely known electronic communication methods and rarely resort to more advanced technologies. At the same time, best practices show that videoconferencing through different platforms provides immediate visual contact between learners, enabling the real-time sharing of knowledge, opinions, ideas, and achievements.

C/ Learning Activities

Figure 47 illustrates the responses of civil servants to learning activities held online. According to most respondents (nearly 82%), the most frequently implemented activity in the IPA e-courses is the online test. Their experience was secondly associated with solving individual problems (46%), followed by solving case studies (44%). Respondents' experience of completing group assignments remotely was not significant at 14%, and of conducting online discussions for learning purposes was also reported by 14%.

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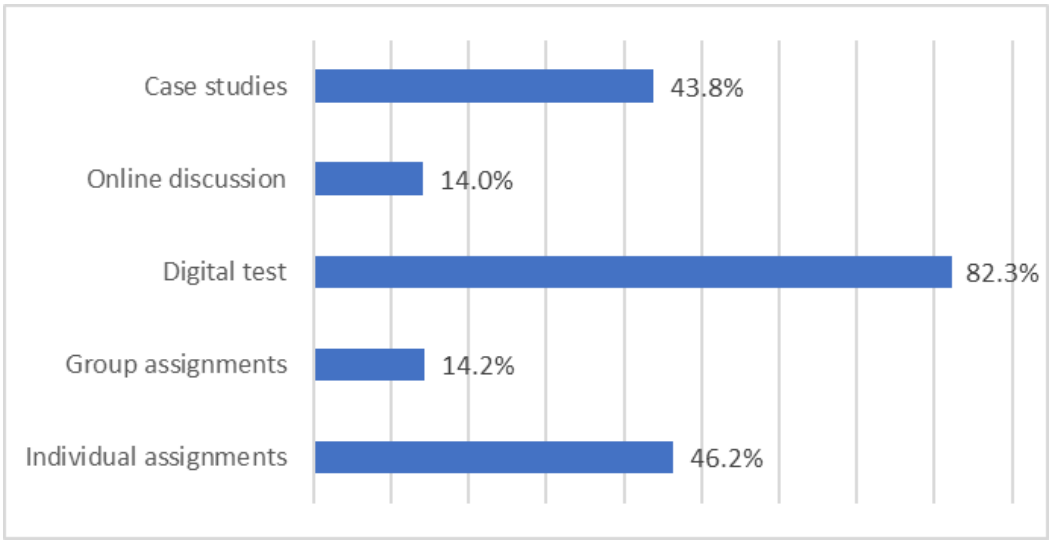

Figure 47. Learning activities implemented by staff in e-courses

The data from the lecturer survey on the learning activities they design in their e-courses are presented in the following graph (Figure 48).

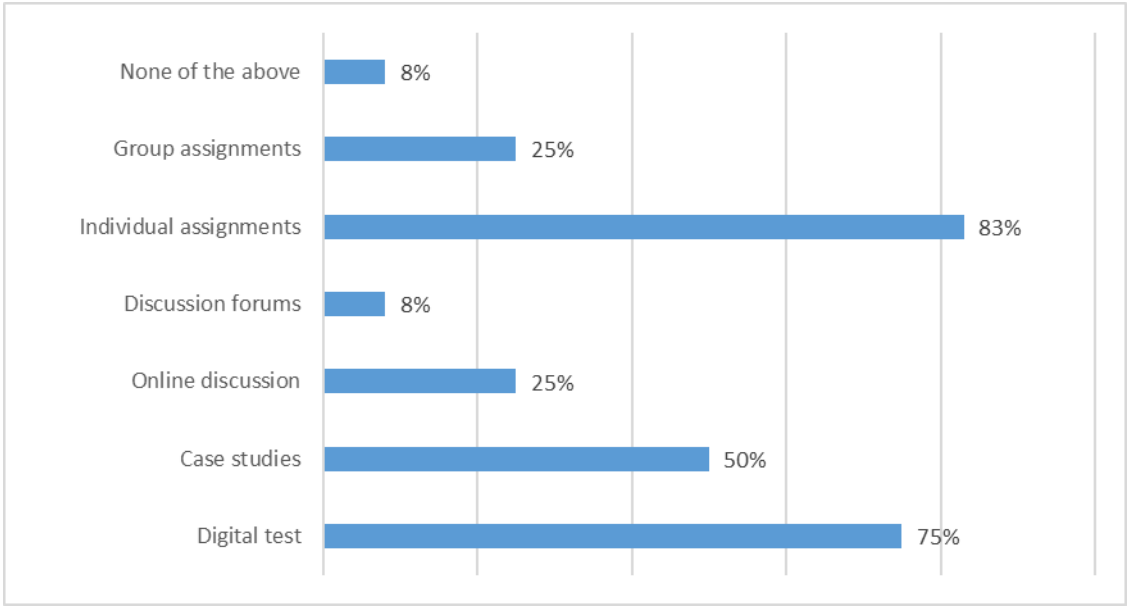

Figure 48. Learning activities implemented by lecturers in e-courses

Once again we find some similarities with the opinions of the trainees. Lecturers most frequently plan to carry out activities such as e-tests (75%) and case studies (50%). Among the least popular activities in e-courses are: Group assignments (25%), synchronous online discussions (25%), and asynchronous discussion forums (8%). Likely, lecturers do not have the necessary competencies to plan pedagogical design and implement online group activities and discussions. There is a difference of opinion

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between the two survey groups regarding individual assignments - 83% according to lecturer responses versus 46.2% according to staff. A large number of them are clearly not performed by the trainees. Only 1 of the lecturers indicated that he did not design any of the types of learning activities previously specified in the questionnaire.

In other words, the e-courses are dominated by individual learning activities related to testing or self-testing of the learners' acquired knowledge and skills, as well as independent case study tasks. Interactive activities involving various forms of collaboration and cooperation between learners in the learning process have a relatively low share. At the same time, several significant studies confirm the pedagogical effectiveness of collaborative learning due to the opportunity for the complementarity of learners' knowledge and skills and interdependence in the learning process. As Henry and Cayrol argue, collaborative learning is an active process that aims at the progressive construction of knowledge using the group as a source of information, a means of mutual help and support with a strong motivational charge for learners.[32] This makes it extremely valuable as an approach to training civil servants and ways should be explored to incorporate more activities focused on group online interactions between learners in solving a variety of practical tasks.

D/ Assessment

Of particular interest is the experience of the subjects in both groups with regard to one of the most essential components of eLearning - e-assessment. In the opinion of the majority of staff (nearly 70%), the most commonly used form of assessment for tracking learner progress and self-assessment in eCourses is online testing, with 45% indicating that it is used primarily for assessment and significantly less frequently for self-assessment (25%) (Figure 49). According to the student's opinion, the following methods are hardly present in the assessment practice: assignment submission via the eLearning environment (14%); emailing assignments to the instructor (8%); discussions in forums within the eLearning environment (4%); online discussions in a virtual classroom (3%); and peer assessment activities (2%).

[32] Cited in Stoycheva, M. (2012). Remote learning of a dedicated foreign language based on a collaborative approach. - In: Fourth National Conference with International Participation on ELearning in Higher Education, Academic Publishing House "Tsenov", Svishtov, 2012.

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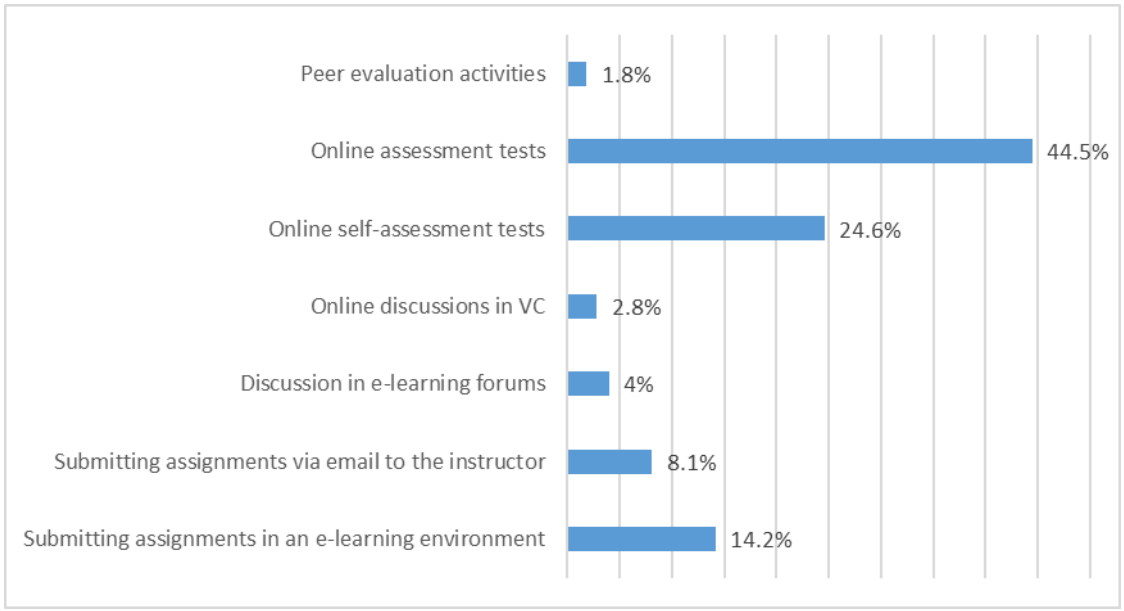

Figure 49. Assessment methods in e-courses according to learners

It became clear from the interview conducted with experts from the Directorate of Training, International Activities and Projects that each student completes their chosen e-course under the following conditions:

- A minimum number of points from practical assignments - for example, a minimum of 60 out of 100 points;
- Solved a final test with a minimum of 70% correct answers.

From the graph below (Figure 50), where the lecturers' answers about the methods used by them to assess the student's achievements are illustrated, it is clear that the majority of them (75%) design and implement as their main activity in this regard the submission of the assessment papers in the eLearning environment (e.g. solving a case study, sharing an opinion on a certain topic, etc.). There is a serious mismatch between the learning experiences of employees - 60.8% fewer respondents than lecturers reported using the system's work submission features. A difference in opinion between the two groups of respondents also emerged in using email technology - 50% of lecturers responded positively against a negligible 8% of responding employees. This shows that a significant number of lecturers, along with the possibility of submitting and assessing work through the eLearning environment, use the very conservative approach, which is sometimes uncertain and more time-consuming for the lecturer. In terms of utilizing synchronous communication technologies in the assessment process - the learners' experience is significantly more limited - only 3% of them said that they have such experience compared to the lecturers - 33.3%. One possible reason for this is workplace constraints.

The results show that lecturers' experience is almost similar to that of trainees when using online tests (50%), and lecturers also use them more often for assessing

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trainees' performance than for self-assessment. What is striking is that both lecturers and learners make very limited use of asynchronous virtual classroom discussions as a method of assessment - as already mentioned only 4% of staff and only 1 out of 12 lecturers chose the answer "discussions in eLearning forums". Although a significant number of lecturers have experience developing asynchronous-type courses in the IPA eLearning environment (60%), it appears that this activity is among the least preferred.

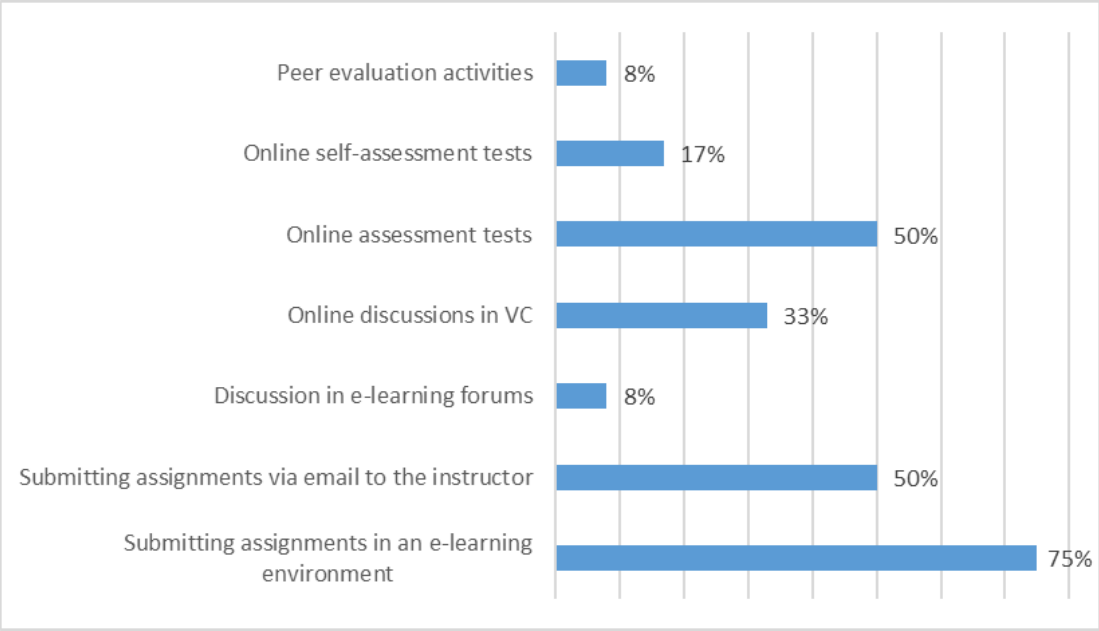

Figure 50. Assessment methods in e-courses according to lecturers

It is recommended to include other methods and forms of assessment. The intensive use of e-tests may prove discouraging to learners at some point. There are various assessment tools available in eLearning which, if used appropriately when checking and assessing learners' performance, would make learning more motivating and effective.

E/ Support

The quality of eLearning is also highly dependent on another important component of eLearning - the support and quality of feedback that learners receive from the lecturer and other learners in the learning process in terms of its timeliness, clarity, content, and the opportunities provided to them to successfully master the material. To the question: **"What type of support did you usually receive in courses with an online tutor?"** respondents were able to select more than one of the suggested options. The distribution of their responses presented in Figure 51 shows that 36% of respondents had never received support. They probably have enough experience as online learners and are coping without needing support. One-third reported that they received instructor feedback on the correctness of e-course

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assignments, 21% received a timely response to their electronic learning questions, only 13% received technical support, and only 12% received assistance when they had difficulty with a particular assignment. The number of respondents who stated that the support was related to extending deadlines for current assignments was insignificant - 9%.

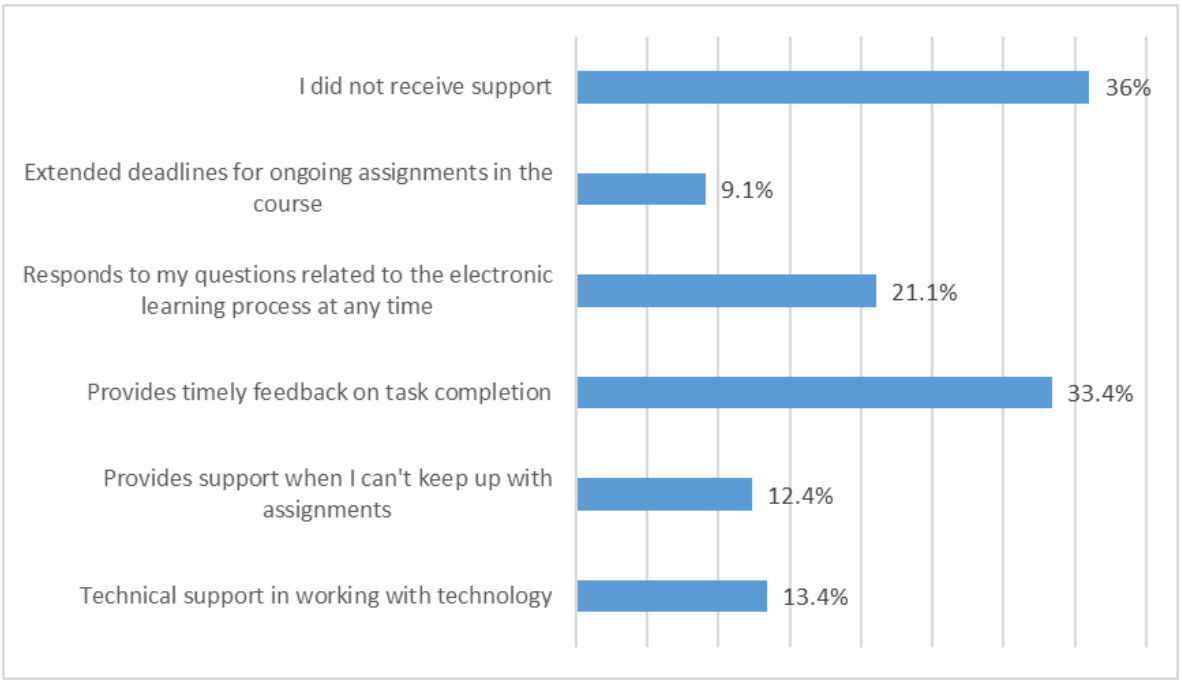

Figure 51. Support received by e-course personnel.

It should be noted in addition that the interview data with experts from the Directorate for Training, International Activities, and Projects show that all trainees receive technical support for working with the IPA e-platform, and at the beginning of each e-course instruction is published for working with the tools of the eLearning environment. If difficulties arise, participants also receive support from designated eLearning experts.

As the graph below in Figure 52 shows, almost all of the lecturers surveyed (83%) indicated that they offer support to their students by responding promptly to their questions electronically. And two-thirds claimed that they provide them with immediate feedback on their assignments, i.e. there are forms of formative assessment. The same number also report that lecturers provide students with additional guidance and support when they struggle with assignments.

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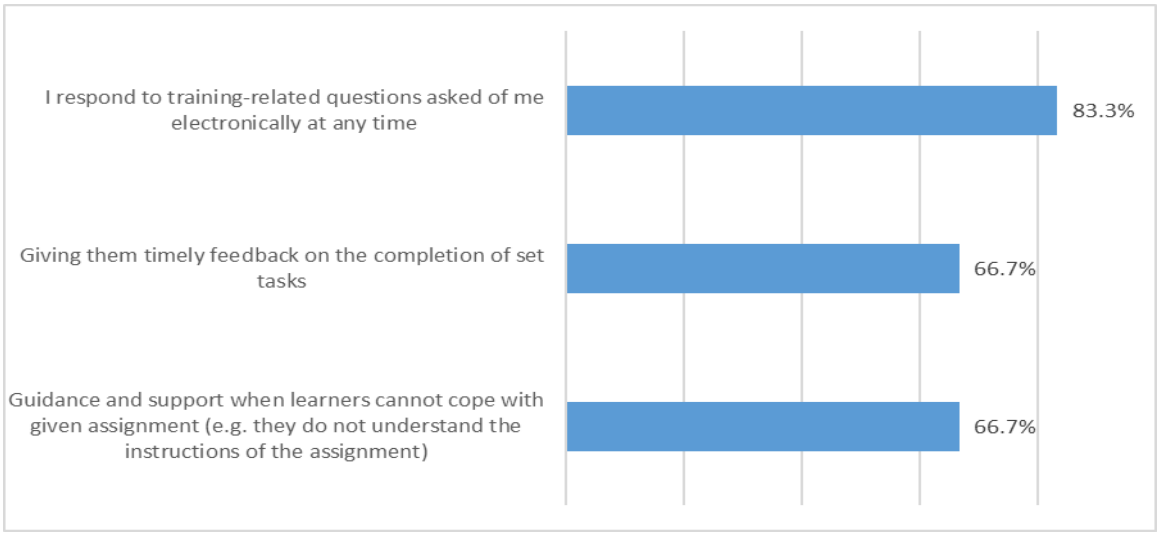

Figure 52. Support provided by lecturers to employees in e-courses

3.5. Attitudes of civil servants and lecturers towards the use of electronic forms of distance learning in IPA - a comparative analysis

The effectiveness of workplace-based eLearning depends significantly on training organization and learners' attitudes towards the individual components of the e-course. Respondents' attitudes and willingness to engage in various forms of eLearning were explored using several survey questions relating to judgments about the usefulness of different modes of learning in terms of compatibility between work and personal commitments with eLearning, preferences for modes of electronic pedagogical communication, and eLearning resources.

3.5.1. Respondents' attitudes toward different forms of eLearning - survey

Answers to question: **"Which of the following modes of learning do you rate as most useful to you?"** show that student respondents prefer eLearning 61% (fully online 31% and blended 30%) to traditional face-to-face learning 14% (Figure 53). Perhaps due to the undeniable advantages of this relatively new form of training in the context of work-based learning - flexibility and adaptability to the needs of each student, as already pointed out in the literature review. A small proportion of them rated the following forms of learning as beneficial for themselves: Collaborative learning mentoring/coaching (7%); Searching and using internet resources (5%); Participation in professional communities (4%) and Learning through trial and error (2%), i.e. these are among the least preferred forms of learning for enhancing the professional knowledge, skills, and competencies of civil servants.

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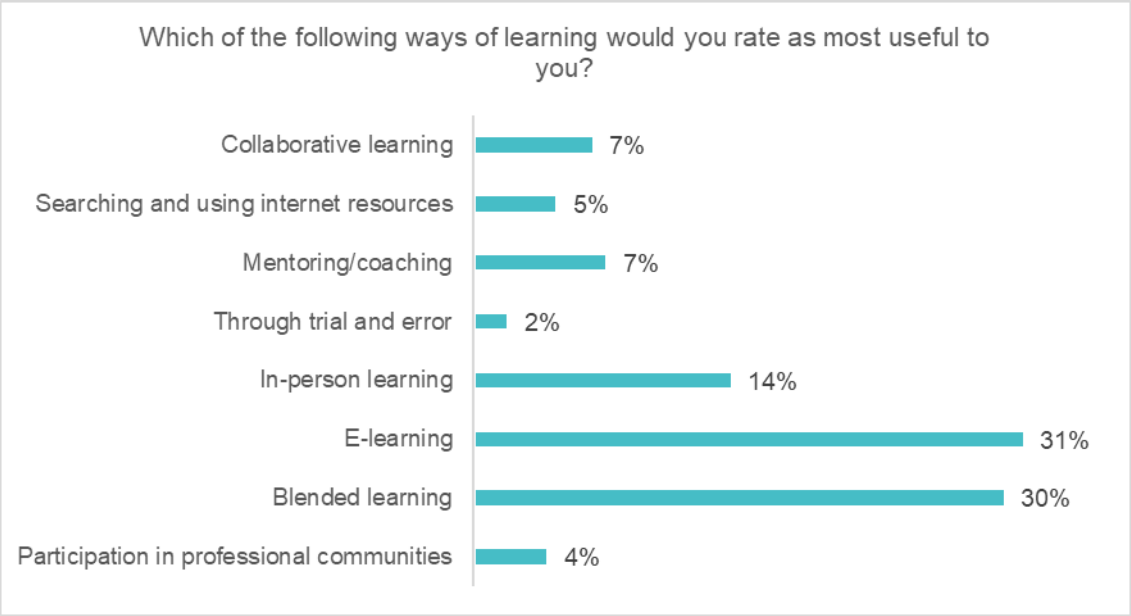

Figure 53. Assessing the usefulness of different forms of learning according to employees

An interesting result was obtained when analyzing the relationship between civil servants' experiences as students in eCourses and their learning preferences. The results of the Chi-square test conducted to establish a relationship between these two variables showed that there was a statistically significant relationship (Chi-square test, 1, No = 1428; $p < 0.001$), i.e. among the respondents who rated eLearning and blended learning as the most useful for them, they had previous experience in this field and demonstrated a high degree of confidence, while the employees with no experience stated their preference for the face-to-face form of learning.

Using the question: "Given your workload and professional and personal commitments, which of the following eLearning forms is most suitable for you?" respondents had the opportunity to rank their preferences. Table 5 shows the ranking of all respondents' results in ascending order (from most preferred to least preferred form). Preference for a fully online form of lecturer-led learning dominated (32%), as can be seen. Although these courses have longer duration (16 learning hours) compared to self-paced eLearning modules and require more effort from learners, they are ranked first by respondents. Their second preference was for participation in short self-paced eLearning modules incorporating a variety of learning resources and self-assessment learning activities (29%) and third was a blended learning format combining face-to-face sessions with online learning (28%), with minimal differences reported between the three modalities. Less preferred learning forms include: webinars, informal learning through MOOCs (open multi-user courses) (10%), and online professional learning communities (9%). A likely reason for this is their rather limited experience in engaging in such electronic forms. However, about the latter two,

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as highlighted in the theoretical review, the opportunities for informal learning and sharing of professional experiences are extremely good. According to proponents of personalized learning, each person is an individual and should use various self-learning tools and approaches that go beyond the limitations of traditional pedagogical methods imposed by the organization's electronic learning management system.[33]

No.	Forms of learning	Yes
1.	• Fully online with a tutor	32%
2.	• Short self-paced eLearning modules with a variety of learning resources and free access	29%
3.	• Blended learning- combination of face-to-face and online learning	28%
4.	• Webinars (Online sessions/virtual classrooms) • MOOC	10% 10%
5.	• Professional online learning communities	9%

Table 5. Civil servants' attitudes towards using electronic forms of training

Civil servants' experience over the past few years participating in the most widespread forms of eLearning offered by IPA has clearly had a significant impact on their choice to continue to develop their professional skills and competencies through eLearning. E-courses conducted entirely online with the participation of a lecturer and short focused eLearning modules for self-directed study have their place in the IPA model. But it is striking that the interest in e-courses for self-learning is more limited compared to the experience of respondents, as already indicated earlier in the analysis half of them participated in such a format. It is likely that the lack of continuous contact with the trainer, the lack of his guidance and feedback on the achievements of civil servants may prove problematic for training. At the same time, there has been an increase in employee interest in blended learning. As stated earlier in the analytical report, only about 14% have experience in this area, i.e., the number of those willing to engage in this course format has doubled. There is also a slightly higher number of employees who would prefer fully online training in an eLearning environment with a lecturer (26% have experience in this format and 32% would engage). The human factor in the learning process is probably more significant for employees compared to learning professional knowledge, skills and competencies on their own.

A similar question, related to the study of attitudes towards the use of different forms of eLearning by civil servants with a focus on the specifics of work-based learning, was asked to the lecturers teaching at IPA. For ease of analysis and given

[33] Wheeler, S. (2019). Digital Learning in organizations. Help your workforce capitalize on technology, Kogan Page Limited, 2019.

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the small number of respondents, 4 of the categories of question 20 were combined into 2 groups:

- to a minor extent - "completely impossible" and " to a small extent";
- to a significant extent - "to a high extent" and "to some extent".

The category expressing hesitation - "cannot judge" - has been retained.

From the data presented in Table 6, it is evident that lecturers are most convinced of the pedagogical feasibility of blended learning - 67% indicated that it would be effective to a considerable extent in future staff training.

	Insignificant	*Significant*	*Cannot judge*
Fully digital remote learning in an eLearning environment with a lecturer	49,9% (6 lecturers)	41,6% (5 lecturers)	8,3% (1 lecturer)
Blended learning (combination of face-to-face and online learning)	16,6% (2 lecturers)	66,6% (8 lecturers)	16,6% (2 lecturers)
eLearning module for self-paced learning	33,3% (4 lecturers)	58,2% (7 lecturers)	8,3% (1 lecturer)
Webinar/video conference in a virtual classroom	33,2% (4 lecturers)	58,2% (7 lecturers)	8,3% (1 lecturer)
Mobile training	49,9% (6 lecturers)	33,2% (4 lecturers)	16,6% (2 lecturers)

Table 6. Lecturers' attitudes towards using electronic forms of training

An interesting point to note is that more than half of the individuals surveyed (58%) considered webinar/video conferencing in a virtual classroom to be an effective form of learning in the context of the future workplace. Only 1 lecturer was hesitant to answer this question. Given the limited experience of most lecturers in this area, this result is surprising. Clearly, they understand the pedagogical potential of technology-mediated synchronous learning because of the opportunities for active interaction with students in real time. Here, however, their attitudes differ from those of civil servants, for whom it has already become clear that this is one of the least preferred forms.

The same number of lecturers expressed positive attitudes towards short eLearning modules for self-study - 58% and considered that they would be significantly useful for the professional development of employees. One expressed hesitation in his assessment. However, it turned out that half of the respondents thought that e-courses conducted entirely online in an eLearning environment with a lecturer would do little to support employees' professional development. Again, one lecturer had hesitations. Apparently, unlike civil servants, for whom this appeared to be the most preferred form, lecturers were not as convinced of its pedagogical value. According to the majority of lecturers, the one with the lowest degree of relevance in the context of work-based

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learning is mobile learning - for nearly a half, it could marginally support civil servants to combine learning with their work commitments, and 2 lecturers show hesitation in their answer by choosing the option "can't judge". At the same time, mobile learning has emerged as one of the top three continuing education trends for 2020 and an increasingly preferred form of learning by organizations and businesses as it allows flexible learning regardless of location.[34] The survey conducted by the Institute of Public Administration in Prague between 28.05-18.06.2020 with 15 DISPA and ENTO member institutions shows that respondents rank mobile learning as one of the most effective forms of distance learning.

3.5.2. Exploring employee attitudes towards key eLearning components

Directly related to the attitudes of the employees surveyed are their preferences for pedagogical communication in e-courses. To find out their attitudes in this respect we asked them the following question: **"What kind of communication with the lecturer and other students would you prefer in an e-course?".** The distribution of responses presented in Figure 54 clearly shows that the preference for combining synchronous with asynchronous communication dominates, with just over half of the respondents (53%) indicating this response. Respondents are aware of the learning benefits of combining asynchronous dialogue with real-time pedagogical communication. Just over a third indicated a preference for asynchronous types of pedagogical communication, which is most often accomplished through forums in the eLearning environment and e-mail. A minor proportion of respondents (10.6%) whose attitudes are related to using only synchronous communication via video or real-time chat with the lecturer. We should stress again that, on the one hand, the most likely reason for this is the constraints of the working environment in most public administrations, which prevents most employees from joining the pre-fixed time by the lecturer for the online session due to workload. On the other hand, civil servants' marginal experience in using synchronous communication technologies both in and outside the training process for consultation, solving organizational and administrative problems, etc. influences their opinion in this regard.

[34] Pandey, A. (2020). eLearning Trends In 2020: Featuring Tips On How You Can Leverage Them For Learning, Performance Gain, And Behavioral Change, 2020. < https://elearningindustry.com/free-ebooks/elearning-trends-in-2020>

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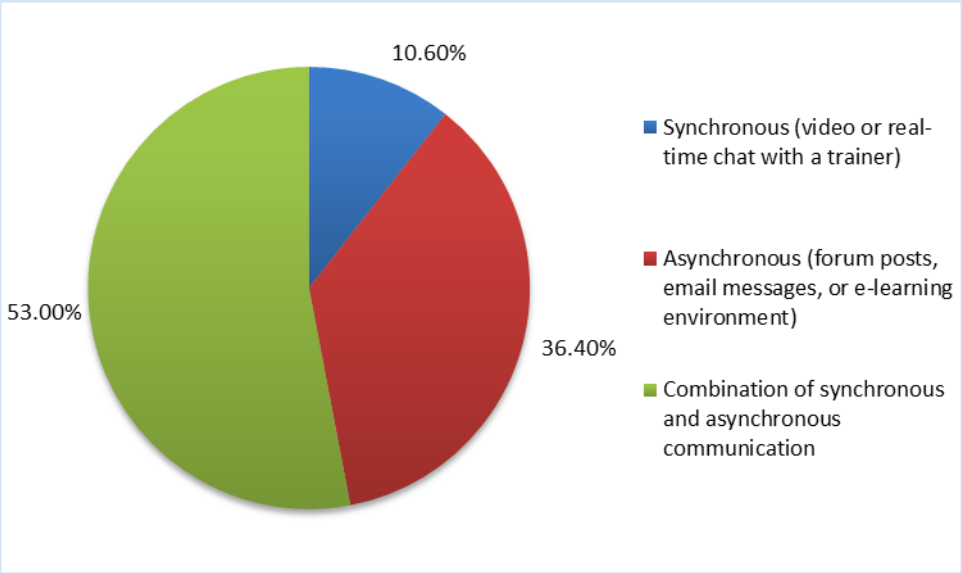

Figure 54. Employee attitudes towards pedagogical communication in e-courses

Another significant aspect related to the attitudes of civil servants towards eLearning is their preferences regarding the use of eLearning resources. For the question: "Which of the following learning resources would you like to use in future e-courses?" respondents were allowed to mark one or more e-resources from a pre-suggested list. The summary results of their responses are presented in Figure 55. The following eLearning resources emerged as the most preferred, indicated by over half of the respondents: Multimedia presentations (69%), video lectures and video tutorials (65%), linear text documents (61%), and electronic quizzes (57%). A minority of civil servants would also use audio lectures in their training (48%), and just over 1/3 would like to see spreadsheets and hypertext documents included in future e-courses. It is noteworthy, however, that among the least preferred e-resources are the following:

- Podcast (7%);
- Virtual reality (12%)
- Social networks (13%)
- Animation (14%);
- Computer games (19%)
- Computer simulations (23%)

The low interest in such eLearning resources is probably due to most employees lacking or having limited experience using them for learning purposes, as already identified earlier in the study.

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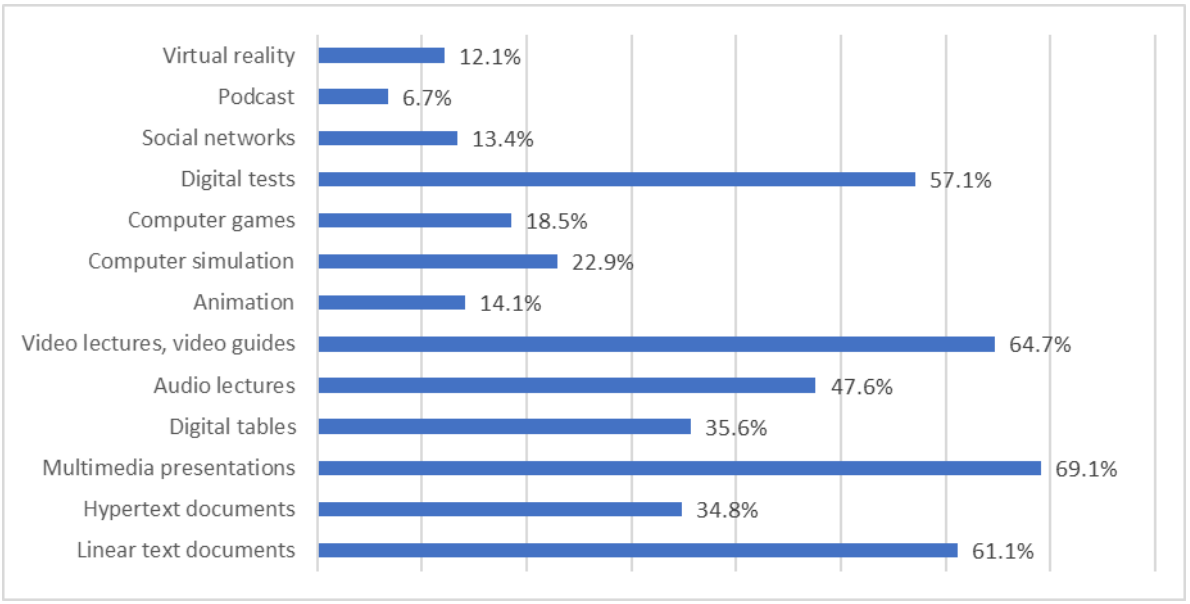

Figure 55. Employee attitudes towards digital learning recourses in e-courses

3.6. Lecturers need to increase their expertise in designing and implementing eLearning

It is a fact that the quality of eLearning depends to a high degree on the expertise of teachers in this field. As previously mentioned, the lecturers at IPA have certain deficits in their methodological and technological training with regard to eLearning. Therefore, one of the objectives of the survey was to identify the needs of lecturers from both groups - those with experience in eLearning and those who do not have it - to acquire and enhance their knowledge and competencies in the design and implementation of various forms of eLearning.

A/ Lecturers with eLearning experience

Using the question: "Have you ever participated in an organized training on the use of ICT in teaching and learning?" we found that the majority of the lecturers had acquired their expertise formally through participation in organized training (67%), only 4 out of 12 said that they had not participated in such training, i.e. they had acquired their competences informally (Figure 56). Five lecturers stated a need for additional training related to the development and delivery of e-courses at IPA. Four expressed that they would not be willing to engage in such training and three were hesitant in their response, indicating the option "cannot decide". Four expressed they would not be willing to engage in such training, and three were hesitant in their response, indicating the "can't judge" option.

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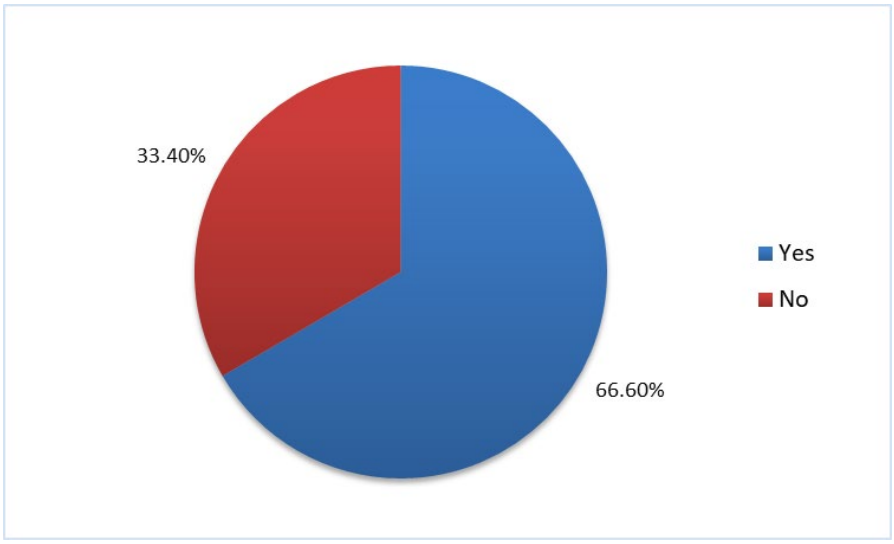

Figure 56. Participation of lecturers with eLearning experience in organized training on the use of ICT in educational contexts

The answers to question: ***In which of the following areas do you need additional training?*** identify the needs of the lecturers in the following three areas:

- Methodological and technological knowledge and skills for working with video conferencing platforms (e.g. BigBlueButton, MS Teams, Zoom, Google Meet, LiveWebinar, Go to Meeting, etc.) - 3 lecturers;
- Technological literacy related to mastering software for creating video lectures and tutorials (e.g. Camtasia Studio) - 2 lecturers;
- Methodological requirements related to the development and selection of electronic resources - 1 lecturer.

A/ Lecturers without eLearning experience

For the purposes of the study, it was important to establish whether lecturers with no eLearning experience were willing to form knowledge and competencies in this area in the future. From the answers to question 3 it is clear that 5 of them are motivated, for 4 of the lecturers it is important as professionals to "keep up to date with current trends in teaching"; for one eLearning enables greater mobility in teaching. Only one lecturer does not seem to have the motivation to develop in this area, as he considers that the training he is delivering is almost impossible to deliver remotely. The individuals surveyed have a need to gain expertise in the following areas:

- Pedagogical design and application of e-distance learning - 2 lecturers;
- Methodological requirements related to the development and selection of eLearning resources - 1 lecturer;
- Technological knowledge and skills for working with IPA eLearning environment - 1 lecturer;
- In more than one area - 1 lecturer.

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3.7. Factors influencing the motivation of employees and lecturers to engage in eLearning courses in the context of continuing professional development

The research on civil servants' and lecturers' motivation towards eLearning is an important aspect directly affecting the training efficiency on the one hand and informed decision-making at the institutional level when introducing new digital forms of learning.

A/ Civil servants

Using the question: Which of the following options motivate you to learn online?", employees' opinions were surveyed on the factors with the strongest influence on motivation when choosing e-courses.

The data analysis of the graph (Figure 57) concludes that the highest proportion of respondents (42%) indicate the possibility of flexible learning as an important motivational factor, resulting from being able to study at a time convenient for the employee, followed by nearly 1/3 who indicated their personal needs and interests (31%). Respondents ranked career development opportunities (14%) and the desire to use modern technologies in their learning process (12%) among the factors with the least motivating effect in choosing eLearning over traditional face-to-face learning.

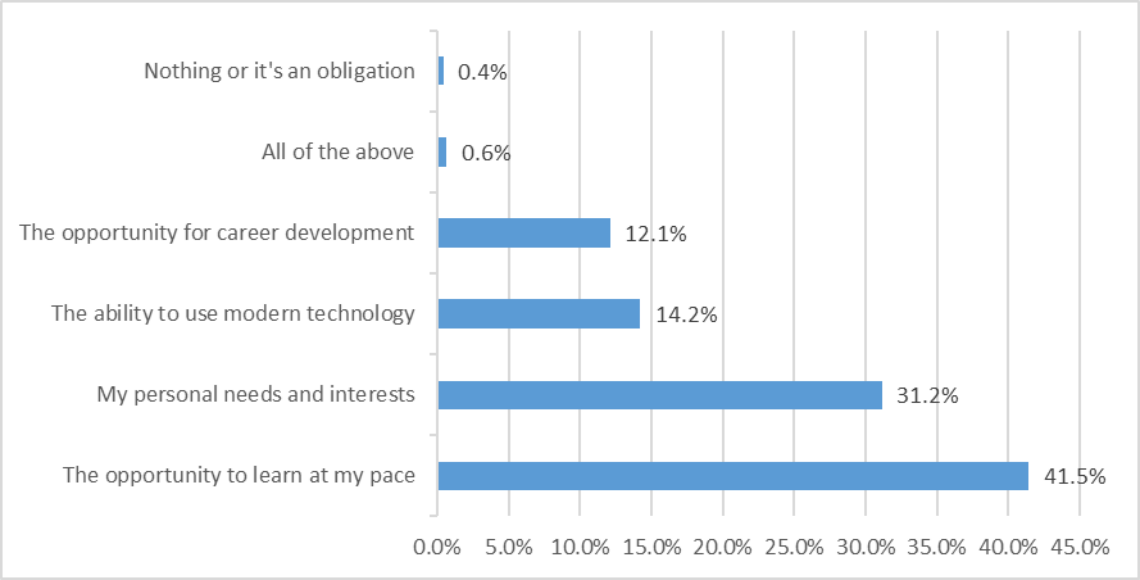

Figure 57. Motivating civil servants to study online

Therefore, taking into account the specificity of the educational context of work-based learning, it should be summarized that providing good conditions for personalized learning, tailored to the personal interests and needs of civil servants and providing them with opportunities to follow their own pace in mastering knowledge, skills, and competences in a specific professional subject area can play a significant

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role in motivating them to engage in a variety of electronic remote courses. The commented results correspond with obtained data from a similar study conducted in 2015 with 132 employees who had received online training at a similar institution to IPA, the National Institute of Justice.[35] It also shows that, according to the subjects, the opportunities that online distance learning provides for the learner to study at a convenient time is a much stronger motivating factor in comparison to employee career advancement.

B/ Lecturers

Given the fact that designing and implementing eLearning is a labor-intensive task for the trainer, requiring time resources, and specific technological and methodological knowledge, we asked a similar question to the IPA lecturers: ***"What motivates you to design and deliver eLearning?".*** It aimed to find out what specific factors motivate and stimulate the research participants to implement various forms of eLearning in the courses they run. It is clear from the graph below that the opportunity to facilitate their teaching emerges as the strongest motivating factor for lecturers with eLearning experience - this response was cited by nearly 60% of those surveyed (the response was cited by 7 out of 12 lecturers) (Figure 58). This indicates their belief in the educational possibilities of new digital technologies. Secondly, the following two factors were equally important for half of the respondents (6 lecturers): the ability to use innovative ICT-based teaching methods, i.e. to be "up-to-date" with current trends in education, and their satisfaction in integrating technology into the learning process. This result shows the great role of each lecturer's attitude toward ICT integration in learning and is a guideline for improving the existing IPA model.

For nearly 42% (5 out of 12 lecturers), getting professional satisfaction is an important factor in their motivation to develop and deliver eLearning. However, it is clear that for two-thirds of the respondents (8 out of 12 lecturers), the remuneration of their work for conducting eLearning is not an essential condition for their motivation to work in this field (67%). It is also noteworthy that for almost all lecturers career development is not a determining factor in their choice to develop and deliver eLearning (83%, 10 out of 12 lecturers).

[35] Andreeva-Alexandrova, Y. (2016). Motivating factors for the participation of adult learners in online qualification courses, Master's thesis, St. Kliment Ochridski", Sofia, 2016.

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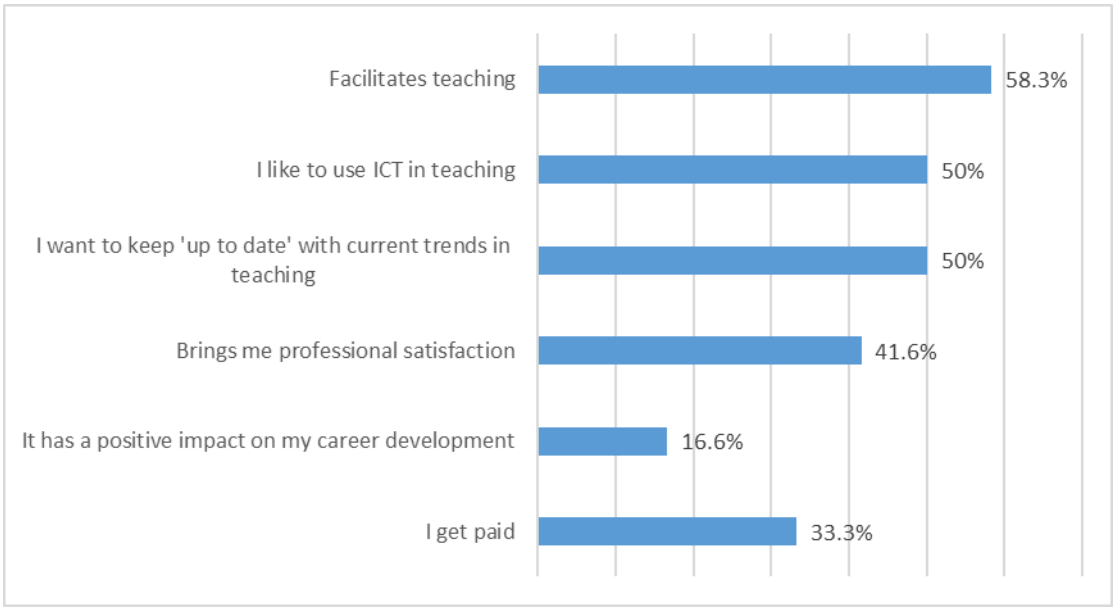

Figure 58. Motivation of lecturers to teach online

The data analysis of the two groups of respondents from a comparative perspective leads to the conclusion that the factors related to the pedagogical characteristics of eLearning are leading to the decision of civil servants and lecturers to participate in, respectively to conduct e-courses. It is no coincidence that employees highly value the opportunities that e-distance learning offers to personalize learning according to the individual learning pace of each learner, which is an important condition given the specific context of workplace learning. For lecturers, it is a good opportunity to support their teaching activities.

There is some similarity in the opinions of respondents regarding the career and professional development factor - according to the data, their interest in eLearning is hardly influenced by their desire for career advancement and expanding career opportunities. Perhaps the lack of sufficient material and external moral incentives lowers their motivation. This result points to the search for ways at the institutional level to certify the knowledge and competencies of employees acquired as a result of training in e-courses and additional material incentives for both employees and lecturers.

Comparing the data cited above also leads to another important conclusion, namely, a divergence in the opinions of the two groups of respondents regarding their motivation to use modern technologies for educational purposes reported. The number of lecturers is significantly higher than that of employees who stated their willingness to use ICT in an educational context (by nearly 36%). There are two possible reasons for these differences, namely: Firstly, the lower level of digital competencies of the learners (as already mentioned, more than 40% of them find it difficult to work with new technologies and need support); and those dictated by the relatively limited experience of the majority of them in eLearning (as already mentioned, about 58% have

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participated in between 1 and 3 eLearning courses). Lecturers are aware of the need to change the context of training for civil servants according to the specifics of the workplace and understand the benefits of introducing new digital forms of learning based on modern ICTs. Undoubtedly, eLearning conducted by motivated teachers with a clear vision of its pedagogical possibilities will optimize training in public administration.

Having already established that the design and implementation of eLearning is a labor-intensive and time-consuming activity, the next question seeks to establish the existence of what specific conditions and factors would motivate lecturers to use e-forms in the training of civil servants. From Table 7 it can be seen that the respondents identified the most important condition as receiving additional material incentives for developing e-courses (42%, 5 out of 12 lecturers). Four indicated the availability of more time as a prerequisite in this respect. The number of lecturers identifying the availability of clear standards for designing and delivering eLearning as an important prerequisite (2 lecturers) and more practice (only 1 lecturer) was not significant.

Factors:	Share/number of lecturers indicating the option (N=12]
Additional material incentive for e-course development	41,6% (5 lecturers)
More available time	33,2% (4 lecturers)
Clear standards for eLearning design and delivery	16,6% (2 lecturers)
More practice	8,3% (1 lecturer)

Table 7. Factors motivating lecturers to use electronic forms of training

One of the significant aspects related to the experience, attitudes, and motivation of both research groups towards electronic distance learning is the degree of confidence in e-course participation and e-course design and delivery, respectively. Therefore, civil servants were asked the following question: **"How would you define your experience as a learner in e-distance courses?"** with a focus on their degree of confidence. Lecturers were asked a similar question: **"To what extent do you feel confident in the following:**

- Incorporating eLearning elements into traditional courses
- Developing and selecting eLearning resources
- Pedagogical design and delivery of learning activities in an eLearning environment
- Electronic assessment
- Leading an online discussion in a virtual classroom".

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An analysis of the survey data with civil servants shows that over half of the respondents, 61%, expressed a high degree of confidence in their eLearning courses, and about a third experienced some difficulty (31%) but found it to be minor (Figure 59). It is worth noting that very few civil servants expressed their uncertainty about learning in an online format (3%). And only 5% of respondents did not have the necessary adequate judgment, which is why they chose the "Cannot judge" option. This is most likely due to their limited experience as online learners. Therefore, the majority of respondents felt confident, which is an important condition for their choice to engage in new digital forms of learning.

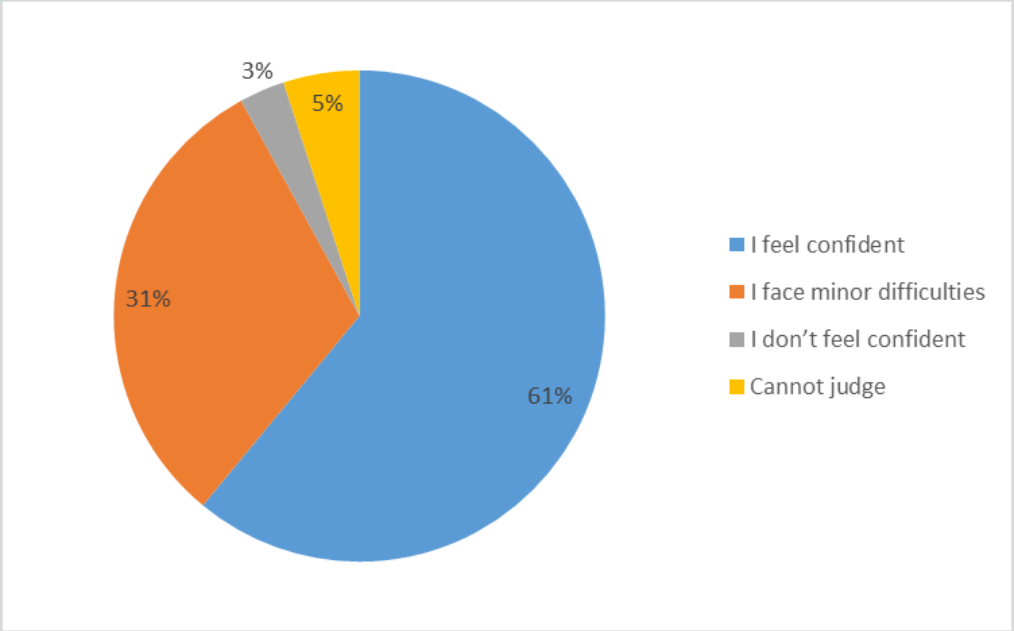

Figure 59. Confidence of civil servants in their capacity as trainees according to their judgment

As already mentioned, an important indicator of lecturers' motivation towards eLearning is the degree of confidence in designing the key elements of the e-course and its delivery. From the data presented in Table 8, it is evident that over half of the respondents reported the highest confidence in incorporating eLearning elements into the traditional courses they deliver (58%), and in e-assessment (50%). Nearly 42% feel highly confident in developing and selecting eLearning resources. However, they are not as confident in their ability to develop the pedagogical design of learning activities in an eLearning environment and their delivery (42% gave a 'to some extent' response and 17% a 'somewhat' response). The survey showed the lowest level of confidence in lecturers in moderating an online discussion in a virtual classroom, with 67% having some skills in this area but indicating the response 'to some extent'.

The above leads to the conclusion that at this stage the majority of lecturers have the necessary competencies to use ICT, but rather within the traditional face-to-

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face model of learning. There are certain deficits in the knowledge and experience of a significant number of them in terms of: a/ the technological aspects of working with an eLearning environment (difficulties and lack of familiarity with the tools of the specialized eLearning environment of IPA and their functionalities); b/ methodological aspects related to pedagogically appropriate design and implementation of asynchronous learning; c/ methodological aspects related to the specifics of conducting synchronous online discussions. This can be a hindrance when introducing fully online and blended forms of learning, where the methodological and technological skills of the lecturer in the listed areas are key to enhancing learning effectiveness. A survey conducted by DISPA in September 2020 shows that one of the main difficulties for lecturers during training in the current emergency situation in similar to IPA institutions emerges precisely in redesigning traditional face-to-face courses of longer duration to electronic format. For the most part, the efforts of the training experts are focused on organizing online training for internal and external lecturers (Croatia, ReSPA), guidelines and short videos have been created in some institutions to support the trainers. In others, expert help is offered by creating videos based on pre-designed scenarios (ENA). The need for guidance on the use of eLearning tools is recognized, not only in purely technical terms but also in terms of methodological and soft skills.

Components of eLearning	**Level of confidence**			
	Not at all	**Not much**	**Somewhat**	**A lot**
Incorporating eLearning elements into traditional courses	0%	16,7%	25%	58,3%
Developing and selecting eLearning resources	8,3%	0%	50%	41,7%
Pedagogical design and delivery of learning activities in an eLearning environment	8,3%	16,7%	41,7%	33,3%
Electronic assessment	0%	16,7%	33,3%	50%
Leading an online discussion in a virtual classroom	8,3%	0%	66,7%	25%

Table 8. Lecturers' confidence in designing and delivering eLearning

The identification of possible difficulties/obstacles faced by civil servants in online learning is an important indicator to optimize the IPA learning model. Therefore, we asked them an additional question to determine to what extent their experience as online learners influenced their interest and motivation toward e-distance learning. The data clearly showed that almost half of the civil servants (49%) cited difficulties associated with work-based learning in the first place. Since combining work and learning is not an easy task and requires proper organization, this result is entirely

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expected (Table 9). This problem can seriously disrupt students' learning and lead to significant gaps in their knowledge. Nearly one-third of the respondents stated that lack of time is a major obstacle in eLearning.

Difficulties related to eLearning	Share of employees (N=1428]
Difficulties related to learning on the job (e.g. difficulty concentrating while learning due to urgent and pressing work commitments, noise, dealing with clients, etc.)	48,7%
Lack of time	32,9%
Boring instructional content	6,3%
Difficulties related to the use of technology (e.g. when working with the distance eLearning system, its tools and resources)	5,2%
Difficulties associated with learning in an eLearning environment (e.g. discomfort with learning alone in front of a computer screen)	4,6%
Difficulties related to course design (e.g. navigating the purpose and structure of the course, unclear instructions of learning tasks, etc.)	2,4%

Table 9. Difficulties in eLearning according to employees' opinion

The result is similar to the results of a previous IPA survey [36]conducted in 2016 with a total of 149 representatives of all types of administrative structures at the central and territorial levels of the state administration. It highlights precisely the lack of sufficient time for employees to learn as one of the main obstacles to a wider implementation of alternatives to formal training, respectively eLearning. The result is similar to another significant international benchmarking study in this area, conducted by Towards Maturity in 2019 with 10,000 participants, which also identified lack of time as a major barrier to employees taking online courses (according to 55% of those surveyed).[37] An almost insignificant percentage of respondents identified the following difficulties/limitations to eLearning: boring presentation of learning content (6%), obstacles of a purely technological nature (5%), difficulties arising from the specificities of learning in an eLearning environment (5%) and the pedagogical design of the course (2%). These results show that in practice, the difficulties related to the technical and technological environment are minor, and the problems are mainly due to the parallel performance of duties and learning tasks.

[36] Tusheva, A., Koleva, G., Georgieva, G. Alternatives to Formal Training in Public Administration (Study of the Institute of Public Administration), https://www.ipa.government.bg/sites/default/files/alternatives_of_formal_training_in_the_state_administration_final.pdf

[37] Towards Maturity CIC (2019). The transformation journey. Today's learning strategy for tomorrow's business success, London, 2019.

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A similar conclusion was reached in the employee survey of another similar to IPA organization, the National Revenue Agency, cited above, aimed at identifying their attitudes towards the existing eLearning model. It also clearly demonstrates that combining training with work commitments creates difficulties for half of the employees, as they have to compromise in postponing tasks or overload themselves on training days.[38] Respondents identified the following difficulties as the most significant: Interruption of training due to the occurrence of urgent work tasks; interruption of course participation due to urgent telephone calls and work communication with colleagues, superiors, etc.; noise at work that makes it difficult to concentrate, etc.

The analysis of the free responses of the employees gives us reason to specify that the technological problems, although rare, are mainly caused by the poor sound of some of the video lectures, which makes it difficult for the trainees to fully understand what the lecturer is saying (9 responses). Another barrier cited by one respondent was severe restrictions due to information security at the workplace on company computers. The occurrence of technical problems in online synchronous communication was also identified as a barrier to effective learning in a synchronous format. Two identified the lack of direct (physical) interaction between lecturer and learners as a learning difficulty, which affected the performance of some of the tasks due to ambiguities that arose. Therefore, if there is to be no decline in the interest and confidence of civil servants in eLearning courses, specific measures need to be taken to reduce the identified difficulties in work-based learning.

From the evidence presented, it can be concluded that the capacity of administrations and the IPA to provide an enabling work-based learning environment tailored to the specific characteristics of users should be enhanced. In this regard, it is advisable to look for opportunities to provide suitable eLearning venues, including those from different locations. Optimizing the organization and delivery of eLearning is essential to reduce the identified difficulties and achieve an optimal match between professional commitments and learning opportunities (appropriate format, technology, provision of sufficient learning time, etc.). Only by doing so will the willingness and interest of civil servants to engage in various forms of digital learning be stimulated. Otherwise, the reputation of e-courses is likely to diminish.

3.8. Employees' and lecturers' views on the advantages and disadvantages of eLearning

An essential aspect of this study is the opinion of the two groups of respondents on the relevance of eLearning to the needs of civil servants - both in terms of its

[38] Yankova, P.,.Peycheva-Forsight, R. (2020). eLearning in the workplace - opportunities and limitations in the practice of the NRA. - In: Proceedings of the 8th national conference on eLearning in higher education facilities. UP “St. Kliment Ochridski", Sofia, 2020.

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advantages and some limitations. To the question: **"What advantages do you find in electronic distance learning compared to face-to-face education?"** respondents were able to indicate more than one answer.

As evidenced by the staff responses (Table 10), they reported a number of advantages of eLearning compared to traditional face-to-face training, and for the majority of them these were mostly logistical in nature. Firstly, they place the ability to study at a time convenient to them, combining training with professional and personal commitments (81%), followed by being able to access e-courses from anywhere (52%). For more than half of the respondents, the benefits associated with learning are serious: Greater flexibility and the ability to follow one's own pace in learning (64%), access to resources at any time, which gives greater psychological comfort to learners (64%), the ability to repeatedly return to learning resources at any time for revision (nearly 58%), which contributes to optimizing learning by improving the processes of perception and mastery of learning content. The benefits of eLearning identified by employees are largely similar to most research in this area.[39]

Benefits of eLearning	Share of employees indicating the option (N=1428]
It allows me to train at a time that suits me, combining training with professional and personal commitments.	81%
I can study at my own pace within the e-course.	64,1%
I have access to resources anytime and from anywhere	63,7%
I can repeatedly return to the resources for revision.	57,9%
I can study from anywhere	52,2%
Participating in eLearning from the workplace makes it easier for me as it saves travel time for face-to-face training.	43,8%
Saves transportation costs.	29,3%
Offers better resources (texts, video lectures, video tutorials, video films, audio lectures, presentations, spreadsheets, etc.).	27,4%
Gives better opportunities for self-paced learning.	26,2%
If necessary, I receive timely support from the lecturer.	7,9%
Adapting to the needs of individual learners.	6,7%
I find no advantages.	3,8%

Table 10. Advantages of eLearning through employees' eyes

The table below, illustrating the responses of the lecturers to the same question, shows that they also generally identify and rate the advantages of eLearning similarly.

[39] Guiney, P. (2015). 2015 eLearning in the workplace: An annotated bibliography. Tertiary Sector Performance Analysis, Ministry of Education, 2015, <https://www.educationcounts.govt.nz/publications/e-Learning/e-learning-in-the-workplace>

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For most of them, these relate mainly to space and time, with 83% believing that learners can study at a convenient time, combining learning with work and personal commitments. The views of the two groups of respondents are similar about some of the pedagogical benefits of eLearning over traditional face-to-face learning. The majority of lecturers also reported the ability to revise learning resources multiple times at any time, learning at their own pace (75%), and unlimited access to learning resources at any time (67%) as positive. The results in these aspects are reasonably convincing, although the figures for lecturers are slightly inflated.

In contrast to students, a sizable number of lecturers see other important advantages, such as saving travel time (67%) and financial costs for transport (50%) (Table 11). Only 1 lecturer out of 12 indicated that they found no advantages in eLearning over traditional face-to-face training. It is noteworthy that according to the views of the majority of the surveyed persons from both groups, the possibility of self-learning through eLearning is not among the significant advantages (according to 74% of the employees and 67% of the lecturers). These results suggest that it is imperative to take steps to change the existing IPA eLearning model in the direction of reducing the proportion of self-paced eLearning courses and increasing those with a lecturer in a fully online or blended format.

Benefits of eLearning	Share of employees indicating the option (N=12]
Learners can study at a time that suits them, balancing their studies with professional and personal commitments.	83,3%
Can repeatedly return to the resources for revision.	75%
Learners can study at their own pace within the e-course.	75%
Participating in eLearning from the workplace makes it easier for learners than face-to-face learning, as it saves travel time.	66,6%
Have access to resources anytime and from anywhere.	66,6%
Saves financial costs for transportation.	50%
Offers better resources (texts, video lectures, video tutorials, video films, audio lectures, presentations, spreadsheets, etc.).	41,6%
Gives better opportunities for self-paced learning.	33,3%

Table 11. Advantages of eLearning through the eyes of lecturers

Respondents also identified some negative aspects of eLearning. Employees' responses are presented in Table 12 and those of lecturers in Table 13. As a significant

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disadvantage, both groups of respondents identify mainly the lack of direct communication between the trainees - the answer is indicated by almost all lecturers - 92% (11 out of 12 lecturers), as well as by almost 50% of employees. Among the limitations of distance learning, in the opinion of nearly 60% of lecturers, there are also emerging technical problems, mostly related to access to the electronic environment or virtual classroom. But it should be noted that for a very small number of employees technical problems are a serious drawback - 17%. This shows that they are most likely to receive timely technical support when needed.

The respondents' opinions also differ to some extent regarding some limitations related to the technological and pedagogical aspects of eLearning. According to some of the employees, other limitations emerged, such as: The requirement to have additional technology (according to nearly ¼); is related to more effort to learn compared to traditional face-to-face training (12%), and it takes more time to complete tasks (10%) (Table 12). Two-thirds of the lecturers (8 out of 12 lecturers) also see some other limitations directly related to their teaching activity - putting significantly more effort into designing and implementing eLearning than is required for face-to-face teaching. It should be noted that 1/3 of the lecturers and nearly 30% of the employees have a positive attitude towards eLearning and do not find any disadvantages.

Disadvantages of eLearning	Share of employees indicating the option (N=1428]
Lack of live contact with the lecturer and other students.	47,4%
I find no disadvantages.	28,8%
May require additional technology.	24,9%
Technical access problems in the eLearning environment or virtual classroom.	16,7%
It requires more effort to learn than face-to-face learning.	12,2%
Takes longer to complete tasks.	9,5%

Table 12. Disadvantages of eLearning through the eyes of employees

Disadvantages of eLearning	Share of lecturers indicating the option (N=12]
Lack of live contact with the students	91,6%
It requires more effort on the part of the lecturer to design and implement than face-to-face training.	

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	66,6%
Technical problems over which the lecturer has no control - bad internet connection, problem with the eLearning environment or virtual classroom, device malfunction, etc.	58,3%
Lack of feedback on learner progress in self-study modules.	33,3%

Table 13. Disadvantages of eLearning through the eyes of lecturers

Overall, respondents from both groups saw many more advantages of eLearning in the context of on-the-job training for civil servants than disadvantages/limitations. These are similar to most research around the world on this topic.[40] In a previously cited study recently conducted by the Institute of Public Administration in Prague, the majority of respondents were positive about distance learning, despite the initial distrust of some trainees at the sudden widespread switch to this form of training due to the COVID'19 crisis. To a lesser extent, concerns also emerged from some lecturers who had no experience with online teaching. Identified barriers to distance learning are associated with a lack of sufficient technical equipment, poor internet connectivity, varying levels of digital competence, resistance, and reluctance to change. Problems are also likely to arise from employers not allowing distance learning during working hours but the most serious barrier appears to be the lack of sufficient time for distance learning during working hours.

eLearning, on the one hand, gives civil servants more variability and flexibility, individualization of the pace at which they acquire knowledge, skills, and competencies, and better opportunities to balance work, study, and personal commitments, while, on the other hand, its design and implementation lead to greater engagement for lecturers. To reduce the negatives of the lack of direct contact between the lecturer and the learners, as well as between the learners themselves, it is imperative to incorporate more synchronous communication technologies in e-courses, which, as already mentioned, are used very limited in the eLearning model implemented by the IPA.

The respondents' - staff and lecturers - assessment of the existing eLearning model of the IPA in terms of its effectiveness is of interest in the context of the overall study. Figure 60 graphically presents the civil servants' responses to the question: ***"Do you think that eLearning at IPA meets your needs for professional development?".*** As can be seen, the results show the positive attitude of the majority of respondents (94%). Negative evaluations are only 4%, and a small number hesitate in their judgment - 3%.

[40] Guiney, P. (2015). 2015 eLearning in the workplace: An annotated bibliography. Tertiary Sector Performance Analysis, Ministry of Education, 2015, https://www.educationcounts.govt.nz/publications/e-Learning/e-learning-in-the-workplace

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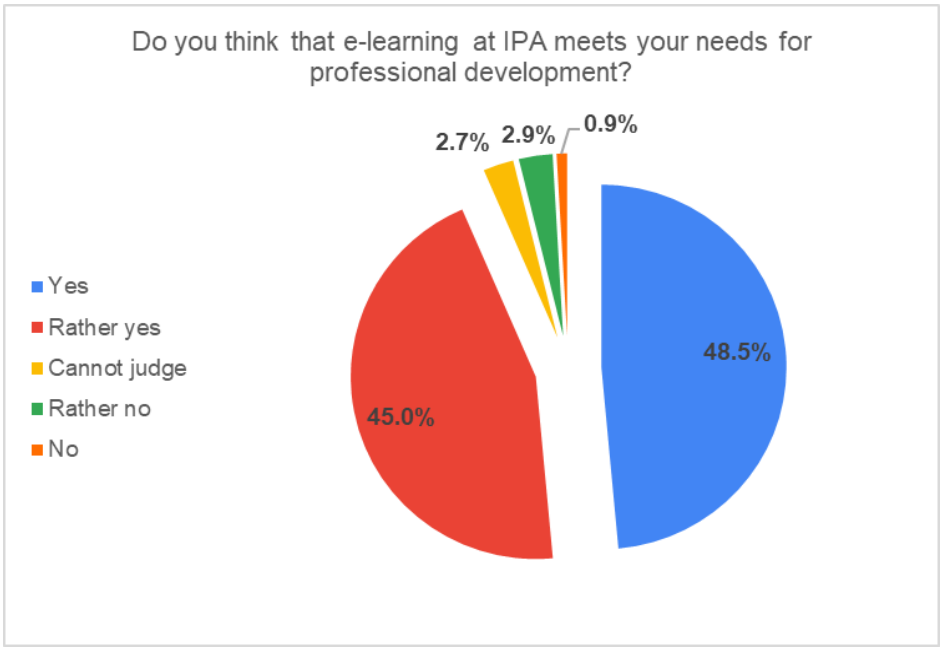

Figure 60. Evaluation of the IPA eLearning model by employees

We asked the lecturers a similar question about the evaluation of the model: "Do you think that eLearning in IPA meets the needs of the administration employees in Bulgaria to improve their professional qualifications?".

From the responses presented in Figure 61, it is clear that they convincingly rate the eLearning conducted at IPA equally high (92%), with 25% indicating "Yes" and 67% indicating "Somewhat Yes". Only one out of 12 lecturers indicated a "Rather No" response. This positive result is quite logical given the professional and personal commitment of the lecturers in designing and implementing eLearning.

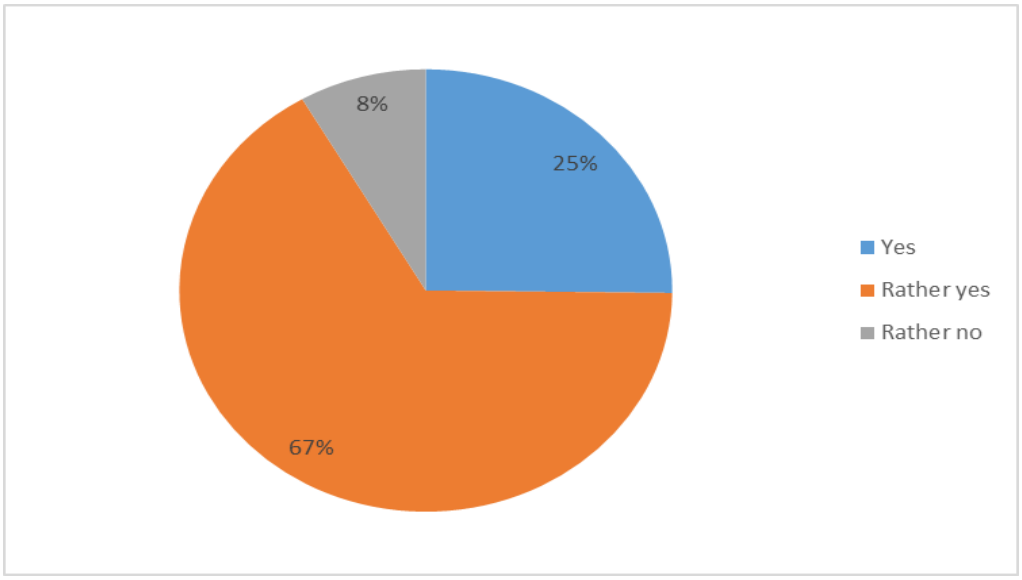

Figure 61. Evaluation of the IPA eLearning model by lectures

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4. Conclusions and recommendations for improving the eLearning model in the IPA to adapt it to the specific context and needs of civil servants.

In conclusion, based on the theoretical study and empirical research conducted, it should be summarized that eLearning occupies an important part of the contemporary continuing education of civil servants in Bulgaria. Achieving quality professional training of human resources is possible through the use of a wide range of ICT and ICT-based educational innovations that promote the development of staff in the context of the concept of lifelong learning. Based on the results of the analysis, specific conclusions, and recommendations for future improvement of the eLearning model in IPA as a leading organization training the public administration are formulated.

First of all, it should be noted that IPA has a good IT infrastructure to support the design and implementation of eLearning for civil servants. Currently, a dedicated e-platform has been developed which provides a range of tools for creating and publishing e-resources, opportunities for different types of learning activities and assessment of student's achievements, electronic submission of assignments by students, online communication, etc. The e-courses offered undoubtedly contribute to broadening access to training for employees in all regions of the country. On the positive side, the trainees can access their e-courses from any physical location, including home, and the convenience of accessing them from any mobile device - not only from their work computer but also from a personal laptop, tablet, or mobile phone, unlike trainees in IPA's sister organization, the NRA, where trainees can only access courses from the corporate network, and this creates several limitations. Unfortunately, very few employees use their mobile phones for learning purposes, which would make it difficult to introduce mobile learning. The conditions created are a solid basis for developing further new forms of digital learning.

Secondly, the data from the two surveys and their analysis suggest that the most preferred and widespread form of eLearning at IPA is short focused eLearning modules for self-directed learning without a trainer or so-called microlearning, i.e. employees prefer self-paced learning on the job in an eLearning environment where they can update their knowledge and skills in a specific professional area relatively quickly and easily, without taking much time out of their busy schedules. This form has its advantages and disadvantages. The advantage for users is that they have the opportunity for flexible self-directed study using their free time during the day. They are available for up to 6 months after opening, which ensures repeated review of learning resources and self-assessment of the acquired knowledge. At the same time, the main disadvantage is the lack of a trainer, which deprives civil servants of the opportunity for permanent pedagogical communication, timely support and guidance in the learning process, and active acquisition of knowledge and skills together with other

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learners. Important to note is that the IPA model has very poor coverage of blended courses. Good practice suggests that combining different forms of face-to-face and eLearning is more pedagogically effective because of the opportunities for classroom sessions to be supported by remote access to multiple eLearning resources, individual and group activities in the eLearning environment, and personalized feedback on each student's progress from the lecturer. The use of eLearning with a lecturer is very limited, as is the use of synchronous learning technologies such as a virtual classroom. At this stage, IPA is making its first attempts to incorporate BigBlueButton into some of the e-courses with a lecturer for webinars and real-time distance learning, but it is imperative to increase the proportion of synchronous forms of work-based learning when the right conditions are arranged. Undoubtedly, synchronous communication technologies (virtual online platforms) have a significant potential for enhancing pedagogical communication and active collaboration and interaction between learners, as well as between learners and the lecturer(s) participating in the training from different locations but at the same time.

To enable civil servants to make the most of eLearning, it is advisable to optimize IPA's eLearning model by increasing the provision of other forms of digital learning such as: e-courses with a tutor, blended learning, synchronous online learning, etc. On the other hand, investment in the design of various forms of eLearning is expected to have a significant economic impact on individual public administrations whose employees are distance learners. As is well known, one of the positives of eLearning is precisely financial savings in travel and per diem costs for learners.

Thirdly, the majority of employees surveyed have good digital skills (in their judgment), with nearly half of the trainees (48%) reporting that they work confidently with the most popular technologies and 9% consider themselves experts in this area. Younger staff are also more confident in using ICT, i.e. they should have no technological difficulties with eLearning and are expected to be more likely to engage in new digital forms of learning than more senior ones. It is advisable to ascertain the level of digital competence of staff before the start of the course and to provide additional timely support for those who have difficulty navigating and learning in the digital learning environment. Two-thirds of the lecturers reported a high level of digital competence, with almost half (44%) considering themselves experts in using a variety of digital technologies and 22% confident in using new technologies without considering themselves, experts. The study found that lecturers without eLearning experience had lower digital skills, which would affect their ability to design and deliver eLearning. Therefore, the need for their ongoing support in the process of initial e-course development and implementation was identified.

Fourthly, some important findings can be made regarding the eLearning experiences of both the surveyed groups - employees and lecturers. The result analysis of the two surveys in terms of IT support leads to the conclusion that at this stage the most popular eLearning digital resources are used in IPA e-courses:

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multimedia presentations, linear text documents, video lectures, and e-tests. There is a low provision of eLearning resources such as: spreadsheets, social networks, computer simulations, electronic games for learning purposes, dynamic visualizations, and podcasts. There is a definite deficit in the experience across both subject groups concerning the use of these eLearning resources, which have proven pedagogical potential in teaching adult learners. The reasons for their limited use can be assumed to be due to the lack of confidence and methodological knowledge of lecturers in their application in the learning process, the high cost of most of them, the limitations of on-the-job learning, and the need for special equipment. In addition, the short instructional time of the majority of e-courses does not allow their integration into training. At the same time, these e-resources provide good opportunities to enrich the learning content and to promote students' activity. **It is recommended** to seek ways and funding to integrate them into the training of civil servants. It is appropriate to include elements of gamification in e-courses, which will inevitably increase the motivation of the students and will support the formation and development of valuable professional qualities, especially in younger ones. As stated in the theoretical analysis, gamification assists in building leadership qualities, teamwork skills, communication, time management skills, etc.

In terms of pedagogical communication, it appeared that asynchronous forms of communication predominate - according to just over half of the students (56%), the most popular asynchronous communication technologies such as email, forum, etc. are used primarily in the training process and less frequently outside of training for consultation, discussion and other activities (31%). The experience of lecturers in this respect is similar. It is noteworthy that there is limited use of synchronous communication in e-courses, with only ¼ of the staff having experience in using synchronous communication technologies such as video conferencing in a virtual classroom, Skype, chat, etc., and again within the e-course.

It is recommended to increase the share of synchronous communication in e-courses through video or chat, which will create a real opportunity to overcome some of the disadvantages/limitations of the asynchronous type of eLearning, such as isolation, anonymity, while at the same time, the students will be stimulated to actively participate in the learning process by engaging in discussions, sharing opinions and ideas, respectively, will increase learning efficiency. Considering the constraints of the specific learning context and the difficulties of reconciling the work process with online learning in a specific period, proper organization is needed. A good solution is to equip rooms in large administrations with computers, interactive presentation systems, and videoconferencing systems for remote learning sessions, both in real-time and at any time convenient for employees. If the trainee has the opportunity to be temporarily physically separated from his/her workplace while training, he/she will achieve better concentration and activity and will probably cope more quickly and easily with the training activities and will also have time for some urgent work tasks.

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Analysis of staff and lecturers' responses logically leads to the conclusion that the most widely used eLearning activities are e-tests, individual assignments, and case studies, in contrast to the significantly less frequent use of group activities and online discussions for learning purposes, which hinders the opportunity for students to benefit from a particular social and professional context. However, contemporary theories emphasize the process of collaborative knowledge-building and the exchange of ideas. Therefore, it is necessary to create conditions in e-courses for civil servants to actively construct knowledge, skills, and competencies in the relevant professional field, and to actively participate in the learning process by exchanging ideas, opinions, and experiences with each other. In this context, an effective selection of appropriate learning activities that enable the active involvement of employees in the learning process is required. The obtained results suggest the conclusion that it is necessary to plan changes in the pedagogical design/redesign of IPA e-courses in the direction of including more group activities in the eLearning environment to put the acquired knowledge into practice, which will inevitably help to increase the activity and motivation of employees, respectively the effectiveness of training. Electronic tests undoubtedly have their place in the pedagogical design of e-courses, but they are aimed at assessing and self-assessing mainly factual knowledge. **It is recommended** to create conditions for collaborative learning by including more online group learning activities, online discussions on the studied material topics, problem-solving and collaborative production, and artifact creation as a result of the study activity. This will contribute to building online learning communities, which are extremely valuable for the exchange of experiences, ideas, values, and best practices between employees in a professional context and will inevitably increase their motivation to learn.

The assessment methods and the support that learners receive in eLearning are crucial for the success of civil servant training. In the model at the current stage, assessment is mostly done through e-tests according to the majority of the employees, and according to almost all lecturers through assignments submitted via the eLearning environment. The focus of performance assessment should shift from assessment and self-assessment of factual knowledge to understanding and applying what has been learned, i.e. incorporating more diverse assessment activities, including self-reflection and group reflection. **It is recommended** that the training focuses on active learning and interaction between the trainees themselves and between them and the lecturer, rather than on learning the content individually. An example of good interactivity in assessment could be the use of synchronous online communication technologies, e.g. the sharing of a screen by learners in the virtual classroom to display on the screen the results of a specific individual or group learning activity and then receive feedback on the result not only from the lecturer but also from the other students.

In the fifth place, the students expressed positive attitudes towards the most common forms of eLearning in the context of continuing professional development of civil servants: fully online, lecturer-led training; short, self-paced eLearning modules

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with a variety of learning resources and open access; blended learning - a combination of face-to-face sessions and online learning, and these are far preferable to traditional face-to-face training. In other words, their preference is driven by the opportunity to learn anytime, anywhere, with the best possible blend of study and work, and the ability to receive personalized support from the lecturer. Respondents' preferences should be taken into account, and the IPA model has increased the proportion of subject areas offered through blended e-courses combining face-to-face classes with an eLearning component, as well as e-courses with a lecturer, alongside short focused eLearning modules (which are predominant at this stage). Given that civil servants are a heterogeneous group, working under different conditions in different public administrations, it is imperative to apply a differentiated approach to training, giving them the choice of which course format to participate in according to their needs. It is recommended to take concrete steps to increase the effectiveness of the model by providing greater flexibility in learning for civil servants and different solutions for different administrative target groups. Despite the low interest of employees in learning by joining online professional learning communities, it is imperative to encourage them also to engage in this form of learning by creating the necessary conditions. As evident from the literature review, it is one of the top eLearning trends for organizations in 2020. It would be extremely useful for the professional continuing education of young civil servants with leadership potential, who, after going through the organized training in the summer academy for 6 days, could continue to exchange innovative ideas and experiences online. It is recommended to build a closed online space within the eLearning environment with forums for communication between participants.

The analysis of staff attitudes towards key components of eLearning leads to the conclusion that, in terms of course information resources, the majority of staff prefer the resources they are already familiar with and have been trained with: Multimedia presentations (69.1%), video lectures and video tutorials (64.7%), linear text documents (61.1%), and electronic quizzes (57.1%). At the same time, eLearning resources with proven pedagogical potential in practice such as: hypertext documents, podcasts, virtual reality, social networks, animation, computer games, and simulations are among the least popular and least preferred probably due to their unfamiliarity and lack of experience working with them. It is advisable to gradually start their pedagogically targeted integration in e-courses, as they will enrich the learning experience of the students and create the prerequisites for better personalization of learning. Combining synchronous with asynchronous communication emerged as the most preferred form of pedagogical communication according to more than half of the respondents, which calls for the implementation of more technologies for real-time pedagogical interaction in e-courses, as it became clear that their use is too limited at the current stage.

In sixth place, it is important to take into account the factors that motivate the two survey groups - employees and lecturers. Motivation is key to effective learning for

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civil servants, and not only at the outset when choosing a particular e-course, but it needs to be maintained throughout the learning process. If learners are not sufficiently motivated it is likely that they will not complete the chosen e-course. It is therefore imperative to look for specific mechanisms to retain motivation to complete the online training. It was found that the strongest motivating factor for them was the convenience of combining study and work due to the greater flexibility and accessibility of eLearning compared to face-to-face learning. It is, however, clear that for the majority, the choice to engage in eLearning has little to do with career development and the desire to use modern technology for learning purposes. To stimulate their motivation in this direction, ways should be sought to link the positive results achieved in e-courses to career development, for example, to have a bearing on the criteria for the annual appraisal of civil servants and career progression. For lecturers, eLearning has the strongest motivating effect through the opportunities that technology offers to support their teaching.

Seventh, the survey found that IPA lecturers are aware of gaps in their eLearning qualifications and would like to fill them. They are most unconfident in pedagogical design and delivery of eLearning in an eLearning environment, and in moderating discussions in a real-time virtual classroom. Their preference is to engage in organized training mostly aimed at mastering knowledge and skills and improving competencies in the following areas:

- Methodological and technological requirements related to designing eLearning in an IPA eLearning environment;
- Methodological and technological knowledge and skills for working with video conferencing platforms (e.g. BigBlueButton, MS Teams, Zoom, Google Meet, LiveWebinar, Go to Meeting, etc.);
- Methodological requirements related to the development and selection of electronic resources and especially technological skills to work with software for creating video lectures and tutorials (e.g. Camtasia Studio).

All this gives reason to initiate organized training and support for IPA lecturers in the field of eLearning.

In conclusion, we can summarize that eLearning in its different varieties is gradually entering the continuing education of civil servants in Bulgaria. Thanks to the opportunities it provides for flexible and personalized learning and reconciliation of work and personal commitments with the learning process, it will find more and more widespread use in the future for improving the professional qualification of employees. This poses new challenges for the IPA as the leading institution for training civil servants, which must respond adequately to the needs of its trainees. Despite the highly positive evaluation given by the respondents to the current eLearning model, the survey found that the potential of technology is not being fully exploited. Future optimization should focus on introducing new digital forms of learning and developing existing ones.

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ANNEX 1:

Questionnaire for civil servants who participated in IPA training

Dear students,

This survey is aimed at exploring the experiences, attitudes and preferences of civil servants towards eLearning opportunities. It will contribute to the development of flexible training models based on modern digital technologies, adapted to the needs and opportunities for learning and professional development of administrative employees in Bulgaria.

The study is anonymous and its results will be used for research purposes only. It is carried out under IPA Project BG05SFOP001-2.017-0001/28.11.2019 "Digital Transformation in Learning - Digital Competence and Learning", funded by the Operational Program "Good Governance", co-financed by the European Union through the European Social Fund.

The questionnaire takes no more than 10 minutes to complete.

Thank you for your cooperation and willingness to collaborate!

I. Students' digital competences

1. How would you describe your level of digital literacy?
   - I am an expert in working with various information and communication technologies (ICT).
   - I am confident in using new ICT.
   - I use new technologies when provided with support and guidance.
   - I only use some ICT and do not feel comfortable using new technologies.
   - I do not feel comfortable working with technology.
   - Other (please explain)

II. ELearning experience

2. How many e-courses (of IPA and other organizations) have you participated in so far?
   - From 1 to 3 courses
   - Between 4 and 6 courses
   - More than 6 courses

3. Of these, how many are e-courses organized by IPA?
   - From 1 to 3 courses

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- Between 4 and 6 courses
- More than 6 courses

4. How would you describe the eLearning courses you have participated in at IPA? (you can select more than one answer)
   - The course is conducted in an entirely online environment.
   - The course is of a blended type (combining face-to-face training with distance learning in an eLearning environment).
   - The course is based on electronic correspondence between the lecturer and learners.
   - The course is conducted in a virtual classroom (e.g. Big Blue Button)
   - The course combines synchronous (e.g. Big Blue Button, Skype, etc.) and asynchronous forms of learning (forum, quiz, individual assignment in an eLearning environment).
   - The e-course is delivered with an online tutor.
   - It is a self-paced study e-course.

5. **How would you define your experience as a learner in distance e-courses?**
   - I feel confident.
   - I face minor difficulties.
   - I don't feel confident.
   - Cannot judge
6. Which of the following motivates you to study?
   - The opportunity to learn at my pace.
   - My personal needs and interests.
   - The opportunity to use modern technology.
   - Career development opportunities.
   - The opportunity to gain up-to-date knowledge.
   - Advancing my knowledge.
   - All of the above
   - Other (specify what)

7. What difficulties do you face with eLearning? (you can select more than one answer)
   - Difficulties related to the use of technology (when working with the distance eLearning system, its tools, and resources).
   - Difficulties related to the course design (difficult to navigate the course purpose and structure, unclear instructions of learning tasks).
   - Difficulties associated with learning in an eLearning environment (e.g. you feel uncomfortable learning alone in front of a computer screen).

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- Difficulties related to learning on the job (e.g. you find it difficult to concentrate on your studies when you are at work due to urgent and pressing work commitments, noise, dealing with clients, etc.).
- Boring instructional content.
- Lack of time.
- Other (please explain)

8. Where do you access the e-course(s) from? (you can select more than one answer)

- From home
- From my workplace
- From an educational facility
- Other (please explain)

9. What device do you use to access the e-course?
(you can select more than one answer)

- Stationary computer
- Laptop
- Tablet
- Mobile phone
- Other (please explain)

10. Please indicate which of the following types of digital resources have you used in your IPA courses and with what frequency?

	Very often	Often	Sometimes	Rarely	Never
Text documents in a linear format (WORD, PDF)					
Hypertext format documents (e-books, textbooks, dictionaries, etc.)					
Multimedia presentations					
Digital tables (EXCEL)					
Audio lectures and self-paced study materials					
Video lectures and self-paced					

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study video materials					
Animation					
Computer simulation					
Computer games (for educational purposes)					
Digital tests					
Social networking (Web sites, blogs)					
Podcast					

11. Please indicate the communication technologies you used with the lecturer and other students during the distance courses: (you can select more than one answer)
    - Technologies for synchronous communication (videoconferencing in a virtual classroom or Skype, chat) for lectures/exercises
    - Synchronous communication technologies (video conferencing in a virtual classroom or Skype, online chat...) for consultations, discussions, and other activities outside lectures
    - Technologies for asynchronous communication (email, forum...) for conducting the training
    - Asynchronous communication technologies (email, forum...) for consultations, discussions, and other activities outside lectures/exercises
12. Please indicate what eLearning activities you have performed: (you can select more than one answer)
    - Individual assignments
    - Group assignments
    - Digital test
    - Online discussion
    - Case studies
    - Other (please explain)
13. Please indicate the assessment methods used in the courses you have attended: (you can select more than one answer)
    - Submitting assignments to the eLearning platform (e.g. solving a case study, sharing an opinion on a topic, etc.).
    - Sending assignments by email to the teacher.

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- Discussions in forums on the eLearning platform.
- Online discussions in a virtual classroom (e.g. Big Blue Button).
- Online self-assessment tests.
- Online assessment tests.
- Peer assessment activities (e.g. forums, workshops, etc.).
- Other (please explain).

14. What type of support did you typically receive in the courses with an online tutor? (you can select more than one answer)
    - Technical support in working with technology (e.g., using the eLearning environment, Big Blue Button virtual classroom).
    - Provides support when I can't keep up with assignments.
    - Provides timely feedback on task completion.
    - Responds to training-related questions asked of me electronically at any time.
    - Extended deadlines for ongoing assignments in the course.
    - I did not receive support.

15. What advantages do you find in eLearning courses compared to face-to-face courses? (you can select more than one answer)
    - It allows me to train at a time that suits me, combining training with professional and personal commitments.
    - Participating in eLearning from the workplace makes it easier for me as it saves travel time for face-to-face training.
    - I can study at my own pace within the e-course.
        - Offers better resources (texts, video lectures, video tutorials, video films, audio lectures, presentations, spreadsheets, etc.).
        - I have access to resources anytime and from anywhere
        - I can repeatedly return to the resources for revision.
        - I can study from anywhere.
        - Adapting to the needs of individual learners.
        - Saves transportation costs.
        - If necessary, I receive timely support from the lecturer.
        - Gives better opportunities for self-paced learning.
        - I find no advantages.
        - Other (please explain).

16. What disadvantages do you find in eLearning courses compared to face-to-face courses? (you can select more than one answer)
    - It requires more effort to learn than face-to-face learning.
    - Takes longer to complete tasks.

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- Sometimes it requires the use of software that I don't have on my work computer.
- May require the use of additional technology (e.g. webcam or microphone for virtual classroom training).
- Requires time to learn new technologies.
- Technical access problems in the eLearning environment or virtual classroom.
- Lack of live contact with the lecturer and other students.
- Lack of feedback by the tutor on learners' progress in self-study modules.
- I find no disadvantages.
- Other (please explain).

17. Do you think that eLearning at IPA meets your needs for professional development?

- Yes
- Rather yes
- No
- Rather no
- Cannot judge

III. Students' attitudes towards using electronic forms of training

18. Which of the following ways of learning would you rate as most useful to you?
    - Collaborative learning (through interaction with other students).
    - Searching and using resources from the Internet.
    - Mentoring/coaching (professional support from a more experienced colleague).
    - Through trial and error.
    - In-person learning
    - eLearning.
    - Blended learning
    - Participation in professional communities.
    -
19. Given your workload and professional and personal commitments, which of the following eLearning forms is most suitable for you? Please rank your preferences in ascending order from 1st to 6th place:
    - Fully online with a tutor.
    - Blended learning- combination of face-to-face and online learning.
    - Short self-paced eLearning modules with a variety of learning resources and free access.
    - Webinars (Online sessions/virtual classrooms).
    - Online professional learning communities (informal learning).

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- MOOCs (multi-user open courses).

20. **What kind of communication with the lecturer and other students would you prefer in an e-course?**
    - Synchronous (video or real-time chat with a trainer).
    - Asynchronous (forum posts, email messages, or eLearning environment).
    - Combination of synchronous and asynchronous communication.

21. Which of the following learning resources would you like to use in future e-courses? (you can select more than one answer)
    - Linear text documents (WORD, PDF)
    - Hypertext documents (e-books, textbooks, dictionaries, etc.)
    - Multimedia presentations
    - Digital tables (EXCEL)
    - Audio lectures and self-paced study materials
    - Video lectures and self-paced study video materials
    - Animation
    - Computer simulation
    - Computer games (for educational purposes)
    - Digital tests
    - Social networks (Web sites, blogs,)
    - Podcast
    - Virtual and augmented reality

IV. Demographic questions

22. Please indicate the type of administration you work for:
    - Central administration
    - Territorial administration, including municipalities
23. Your current position:
    - Management
    - Expert
24. Please indicate the age group you belong to:
    - Up to 30 years
    - From 31 to 40 years
    - From 41 to 50 years
    - From 51 to 60 years
    - Above 60 years
25. Please indicate your gender:
    - Female
    - Male

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ANNEX 2:

Questionnaire for IPA lecturers

Dear lecturers,

This survey is aimed at exploring the experiences and attitudes of lecturers at IPA toward the possibilities of eLearning. It will contribute to the development of flexible training models based on modern digital technologies, adapted to the needs and opportunities for learning and professional development of administrative employees in Bulgaria.

The study is anonymous and its results will be used for research purposes only. It is carried out under IPA Project BG05SFOP001-2.017-0001/28.11.2019 "Digital Transformation in Learning - Digital Competence and Learning", funded by the Operational Program "Good Governance", co-financed by the European Union through the European Social Fund.

The questionnaire takes **no more than 10 minutes** to complete.

Thank you for your cooperation and willingness to collaborate!

I. Lecturers' digital competences

1. How would you describe your level of digital literacy?
   - I am an expert in working with various information and communication technologies (ICT).
   - I am confident in using new ICT.
   - I use new technologies when provided with support and guidance.
   - I only use some ICT and do not feel comfortable using new technologies.
   - I do not feel comfortable working with technology.

II. Lecturers' eLearning experience

2. Are you experienced with eLearning courses (within IPA or other educational organizations):
   - Yes (if YES, go to question 6)
   - No (if the answer is NO, go to question 3)

Questions 3, 4, 5 apply only to lecturers who have no experience in delivering eLearning.

3. What would motivate you to engage in training to acquire the knowledge, skills, and competencies to teach using modern ICT:
   - My belief that eLearning has a number of advantages for learners compared to face-to-face.

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- My belief that eLearning has a number of advantages for lecturers over face-to-face.
- The better pay for courses in electronic format.
- The ability to be more mobile as a tutor.
- Being 'up to date' with current trends in teaching.
- Nothing would motivate me.

4. In which of the following areas would you like to increase your knowledge and competencies?
   - Basic computer literacy (word processing, spreadsheets, multimedia presentations)
   - Methodological requirements related to the development and selection of eLearning resources
   - Technological literacy related to mastering software for creating video lectures and tutorials (e.g. Camtasia Studio)
   - Technological literacy related to mastering the use of specialized software in your professional field
   - Pedagogical design and application of eLearning
   - Technological knowledge and skills for working with an eLearning environment (e.g. the IPA eLearning environment)
   - Technological knowledge and skills for working with non-IPA eLearning environments (e.g. Big Blue Button, Google Classroom, MS Teams)
   - Technological knowledge and skills to work with video conferencing applications (e.g. Zoom, Skype, 8x8, etc.)
   - Technology skills to work with cloud technologies to share learning resources and activities (e.g. Google apps)
   - Other (please explain)

5. Given your workload and professional and personal commitments, which of the following eLearning forms is most suitable for you? Please rank your preferences in ascending order from 1st to 9th place:
   - Attended short training sessions with a speaker
   - All-day face-to-face training sessions with a speaker
   - Fully online with a speaker
   - Blended learning- alternating short in-person sessions followed by online training
   - Short self-directed training (guides/tutorials)
   - Webinar
   - Mentoring/coaching (professional support from a more experienced colleague)
   - Participation in professional communities (informal learning)

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- Internet resources for self-directed learning
- Other (please explain).

6. How many of the IPA courses you teach employ ICT?

- In all the courses I teach
- In most of my courses
- In a few courses
- Only in 1 course

7. Please indicate, what motivates you to design and deliver eLearning? (you can select more than one answer).

- I get paid
- It has a positive impact on my career development
- Brings me professional satisfaction
- I want to keep 'up to date' with current trends in training
- I like to use ICT in teaching
- Facilitates teaching
- Other (please explain)

8. How would you describe the IPA electronic courses you have been a lecturer in? (you can select more than one answer).

- The course is conducted entirely remotely in the IPA eLearning environment.
- The course is of a blended type (combining face-to-face training with distance learning in an eLearning environment).
- The course is based on electronic correspondence between the lecturer and learners.
- The course is conducted in a virtual classroom (e.g. Big Blue Button).
- The course combines synchronous (e.g. Big Blue Button, Skype, etc.) and asynchronous forms of learning (forum, quiz, individual assignment in an eLearning environment).
- The e-course is delivered with an online tutor.
- Short eLearning module for self-paced study.

9. Please indicate the optimal number of students you can work with at IPA in an e-course?

- Up to 10
- Up to 15
- Up to 20
- Over 20

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10. Do you think that eLearning in IPA meets the needs of the administration employees in Bulgaria to improve their professional qualifications?
    - Yes
    - Rather yes
    - No
    - Rather no
    - Cannot judge

11. **To what extent do you feel confident in the following:**

	Not at all	Not much	Somewhat	A lot
Incorporating eLearning elements into traditional courses				
Developing and selecting eLearning resources				
Pedagogical design and delivery of learning activities in an eLearning environment				
Electronic assessment				
Leading an online discussion in a virtual classroom				

12. Please indicate which of the following types of eLearning resources have you used in the courses you teach at IPA and with what frequency?

	Very often	Often	Sometimes	Rarely	Never
Text documents in a linear format(WORD, PDF)					
Hypertext format documents (e-books, textbooks, dictionaries, etc.)					
Multimedia presentations					
Digital tables (EXCEL)					
Audio lectures and self-paced study materials					

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Video lectures and self-paced study video materials					
Animation					
Computer simulation					
Computer games (for educational purposes)					
Digital tests					
Social networks (Web sites, blogs)					
Podcast					

13. If you have used or are using a type of learning resource that is not listed in the question above, please list them and indicate the frequency with which you use them.
14. Please indicate what technologies you have used to communicate with your students during courses: (you can select more than one answer)
    - Technologies for synchronous communication (videoconferencing in a virtual classroom or Skype, chat) for lectures/exercises
    - Synchronous communication technologies (video conferencing in a virtual classroom or Skype, online chat...) for consultations, discussions, and other activities outside lectures
    - Technologies for asynchronous communication (email, forum...) for conducting the training
    - Asynchronous communication technologies (email, forum...) for consultations, discussions, and other activities outside lectures/exercises

15. In your e-courses, please indicate what type of learning tasks and activities you have designed for your learners:
    (you can select more than one answer)
    - Individual assignments
    - Group assignments
    - Digital test
    - Online discussion
    - Case studies
    - Discussion forums
    - None of the above
    - Other (please explain)

16. Please indicate how you assess students in your eLearning courses: (you can select more than one answer)
    - Submitting assignments to the eLearning platform (e.g. solving a case study, sharing an opinion on a topic, etc.)

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- Sending assignments by email to the teacher
- Discussions in forums on the eLearning platform
- Online discussions in a virtual classroom (e.g. Big Blue Button
- Online self-assessment tests
- Online assessment tests
- Peer assessment activities (e.g. forums, workshops, etc.
- Other (please explain)

17. What type of support do you typically provide to your e-learners? (you can select more than one answer).
    - Technical support in working with technology (e.g., using the eLearning environment, Big Blue Button virtual classroom).
    - Guidance and support when learners cannot cope with given assignment (e.g. they do not understand the instructions of the assignment).
    - Giving them timely feedback on the completion of set tasks.
    - I respond to training-related questions asked of me electronically at any time.
    - Extended deadlines for ongoing assignments in the course.
    - Other (please explain).

18. What advantages do you find in eLearning courses compared to face-to-face courses? (you can select more than one answer).
    - Learners can study at a time that suits them, balancing their studies with professional and personal commitments.
    - Participating in eLearning from the workplace makes it easier for learners than face-to-face learning, as it saves travel time.
    - Learners can study at their own pace within the e-course.
    - Offers better resources (texts, video lectures, video tutorials, video films, audio lectures, presentations, spreadsheets, etc.).
    - Learners have access to resources anytime and from anywhere.
    - Learners can repeatedly return to the resources for revision.
    - Adapting to the needs of individual learners.
    - Saves transportation costs.
    - Interaction with the lecturer is more effective.
    - Gives better opportunities for self-paced learning.
    - Stimulates student interest and active participation.
    - Facilitates easier understanding of the subject material.
    - Improves the quality of learning.
    - I find no advantages.
    - Other (please explain).

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19. What disadvantages do you find in eLearning courses compared to face-to-face courses? (you can select more than one answer).
    - It requires more effort on the part of the lecturer to design and implement than face-to-face training.
    - Lecturer's difficulties in creating eLearning content (technological and methodological).
    - Technical problems over which the lecturer has no control - bad internet connection, problem with the eLearning environment or virtual classroom, device malfunction, etc.
    - The need for good methodological preparation of the lecturer for online teaching, which takes time and resources.
    - It takes more time for the students to complete assignments.
    - Sometimes it requires the use of software that I don't have on my work computer.
    - May require the use of additional technology (e.g. webcam or microphone for virtual classroom training).
  - Requires time to learn new technologies.
  - Lack of live contact with the students.
  - Lack of feedback on learner progress in self-study modules.
  - There are curriculum topics that cannot be studied remotely in electronic format.
  - Lowers the quality of learning.
  - I find no disadvantages.
  - Other (please explain).

III. Lecturers' attitudes towards using electronic forms of training

20. Please indicate the extent to which the forms of eLearning listed below would be effective in the future for IPA learners, given that they combine it with workflow.

	Completely impossible	To a small extent	To some extent	Highly likely	Cannot judge
Fully digital remote learning in an eLearning environment with a lecturer					
Blended learning (combination of face-to-face and online learning)					

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eLearning module for self-paced learning					
Webinar/video conference in a virtual classroom					
Mobile training					

21. What would motivate you to use electronic forms in the training of civil servants?

- Availability of more training resources
- More available time
- If I'm offered adequate training in this area
- Clear standards for eLearning design and delivery
- If I have more support from experts in the eLearning sector
- If I have more support from the institution
- Availability of appropriate technology equipment (software and hardware)
- More practice
- Additional material incentive for e-course development
- Other (please explain).

22. Have you ever participated in organized training on the use of ICT in teaching and learning?
    - Yes
    - No
23. Do you feel you need additional training related to developing and delivering e-courses at IPA?
    - Yes (going to question 22)
    - No (go to question 24)
    - Cannot judge (moving on to question 24)

24. In which of the following areas do you need additional training?
    - Upgrade knowledge and skills in Microsoft Office (Word, Excel, PowerPoint)
    - Methodological requirements related to the development and selection of electronic resources
    - Technological literacy related to mastering software for creating video lectures and tutorials (e.g. Camtasia Studio)
    - Methodological and technological knowledge and skills for working in an eLearning environment

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- Methodological and technological knowledge and skills to work with video conferencing platforms (e.g. Big Blue Button, MS Teams, Zoom, Google Meet, LiveWebinar, Go to Meeting, etc.)
- Technology skills to work with cloud technologies to share learning resources and activities (e.g. Google apps)
- Other (please explain).

25. Given your workload and professional and personal commitments, which of the following eLearning forms is most suitable for you? Please rank your preferences in ascending order from 1st to 9th place:
    - Attended short training sessions with a speaker
    - All-day face-to-face training sessions with a speaker
    - Fully online with a speaker
    - Blended learning- alternating short in-person sessions followed by online training
    - Short self-directed training (guides/tutorials)
    - Webinar
    - Mentoring/coaching (professional support from a more experienced colleague)
    - Participation in professional communities (informal learning)
    - Internet resources for self-directed learning
    - Other (please explain).

IV. Demographic questions

26. Please indicate the age group you belong to:
    - Up to 30 years
    - From 31 to 40 years
    - From 41 to 50 years
    - From 51 to 60 years
    - Above 60 years
27. Please indicate your gender:
    - Female
    - Male
28. Your teaching experience is:
    - Under 5 years
    - From 5 to 10 years
    - From 10 to 15 years
    - Above 15 years

Thank you for your participation!

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ANNEX 3:
Semi-structured interview with IPA experts

I. General information

1. How many civil servants are trained annually at IPA?
2. What is the time duration of the training you conduct?
   - One-day
   - Two-day
   - One week
   - More than two weeks
   - Other (please explain)
3. How many training hours does an average training session include?
   - 4 hours
   - 8 hours
   - 16 hours
   - 20 hours
   - More than 20 hours
4. Is training mandatory or optional for the employee?

5. What is the ratio between:
fully face-to-face courses - fully distance eLearning courses - blended courses
6. When are training sessions held:
A) Face-to-face
   - during employees' working hours
   - outside employees' working hours
   - part of the training takes place during working hours and part during non-working hours

(B) electronic
   - during employees' working hours
   - outside employees' working hours
   - part of the training takes place during working hours and part during non-working hours

7. Could you please identify in percentage terms where the following types of training take place:

	Fully attended courses	Fully distance eLearning courses	Mixed courses
- On-the-job training			

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- Fully offsite training on weekdays			
- Partially offsite			
-Self-paced training			
- Other (please explain)			

8. How would you define the e-courses you offer to your employees and how proportionally are they represented within a year? Please put a percentage against each type of course that occurs in your annual training program, with the percentage of all courses being 100%.
   - eLearning course based on resources with self-assessment tests
   - Availability of electronic resources and learning tasks for learners to work independently in the eLearning environment (ELE)
   - Availability of learning resources, independent and group assignments in ELE
   - Blended course including face-to-face learning and access to electronic resources in the eLearning environment
   - Availability of self-study resources and opportunities to receive feedback from an online tutor.
   - Webinars
   - Other (please explain)

9. How is the selection of trainees done?

10. On average, how many courses do you run per year?

11. How many trainees per course?
12. How many courses can an employee attend?
13. What incentives does your organization use for the inclusion and successful completion of training by its employees?
14. Who pays for your employees' training?

II. Information on courses that are delivered electronically via distance learning or in a blended format (combination of electronic and face-to-face)

15. How many learners have been in eLearning courses in the last 4-5 years on an annual basis?

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16. Do you offer training to introduce your employees to the specifics of eLearning?
17. Are you requiring your faculty to be able to teach online? And to the level of their digital competencies?
18. Who does the pedagogical design of e-courses?
    - The teacher/lecturer
    - the teacher/lecturer with the help of a member of staff from the Training Directorate
    - only a member of staff from the Training Directorate

19. Who does the pedagogical design of e-courses?
    - he teacher/lecturer
    - the teacher/lecturer with the help of a member of staff from the Training Directorate
    - only a member of staff from the Training Directorate

20. Does the IPA offer training for teachers/lecturers in eLearning and if so what does it include?
21. Where do trainees access the eLearning course?
    - From any location
    - From the workplace only
    - From IPA classrooms only
    - Other (please explain)

22. Using what technologies do students access the course?
    - Office computer/laptop
    - Personal computer/laptop
    - Tablet
    - Mobile phone
    - Other (please explain)

23. What technologies do you use to deliver the e-courses?
    - The IPA eLearning environment
    - Virtual classroom (Big Blue Button, Google Classroom, MS Teams)
    - Video conferencing applications (e.g. Zoom, Skype, 8x8, etc.)
    - Email
    - Combinations of all the above technologies in one course:
    - Other (please explain)
24. Are e-courses closed after they are completed or can students return to the course after it is completed - to re-read the resources, re-watch the video lectures, video guides, etc.?

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25. Name a few of the most typical learning activities in your courses? (e.g. individual assignments, quizzes, discussions, etc.)
26. What forms of assessment do you use? (ongoing, formative, self-assessment, peer assessment, etc.)

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