Smart Education – Evolution in Digital World in Conditions of Internationalisation of Higher Education – Experts' Opinions

Maria Potes Barbas[1], Nataliia Morze[2], Halina Widła[3], Prudencia Gutierrez-Esteban[4], Ján Gunčaga[5], Miroslav Hrubý[6], Diana Bogdanova[7], Olga Yakovleva[8], Eugenia Smyrnova–Trybulska[3]

[1]Polytechnic Institute in Santarem, Portugal {mariapbarbas@gmail.com}

[2]Borys Grychenko Kyiv University, Ukraine {n.morze@kubg.edu.ua}

[3]University of Silesia, Poland {halina.widla@us.edu.pl}, {esmyrnova@us.edu.pl}

[4]University of Extremadura, Spain {pruden@unex.es}

[5]Faculty of Education, Comenius University in Bratislava, Slovakia {jan.guncaga@ku.sk}

[6]University of Defence in Brno, the Czech Republic {miroslav.hruby@unob.cz}

[7]Federal Research Center "Computer Science and Control" of the Russian Academy of Sciences, Russia {d.a.bogdanova@mail.ru}

[8]Herzen State Pedagogical University of Russia, St. Petersburg, Russia {o.yakovleva.home@gmail.com}

ABSTRACT

This article focuses on Smart Education – Evolution in Digital World in Conditions of Internationalisation of Higher Education as viewed by experts from different countries: the Czech Republic, Poland, Portugal, Slovakia, Spain, Russia and Ukraine. The article aims to provide opinions, views and reflections on important topics addressed by International scientific DLCC2018 conference participants (www.dlcc.us.edu.pl) o the topics: Smart Education – Evolution; Preparation of New Generation Specialists in and for Digital World; Internationalisation of Education – Trends; On-Line Courses Assessment; Ethical Issues Affecting the Implementation of E-Learning; E-Learning in Inclusive Education. The article aims to provide opinions, views and reflections on important topics by experts in the area of e-learning. Article additionally includes the background research and some conclusions.

KEYWORDS

Smart education, Internationalization, Competences, Higher education, Experts, Digital World

1   INTRODUCTION

"The development of communication channels and means of communication and information exchange leads to a new world of an „evolutionary spiral", transforming the information society into what is nowadays commonly referred to as a smart society. Such a policy, a strategy to be adopted at the international level, is now perceived as the only possible in the modern world." (Smyrnova–Trybulska: 2018: p. 440).

The debate, which was held in October 2018 within the framework of DLCC2018 conference, focuses on Smart Education – Evolution in Digital World in Conditions of Internationalisation of Higher Education consists of 6 topics as viewed by experts from several universities, located in Western, Central and Eastern Europe - Czech Republic, Poland, Portugal, Slovakia, Spain, Russia and Ukraine. The article aims to provide opinions, views and reflections on important topics by experts in the area of e-learning in particular:

1) Smart Education – Evolution,

2) Preparation of New Generation Specialists in and for Digital World,

3) Internationalisation of Education – Trends,

4) On-Line Courses Assessment,

5) Ethical Issues Affecting the Implementation of E-Learning,

6) E-Learning in Inclusive Education.

Article additionally includes the background research and some conclusions.

2   BACKGROUND RESEARCH

Researchers from different countries conducting comprehensive research and study on conception of the smart learning and teaching.

Some researchers consider the smart education as an elaborating educational service system for equal quality education and proposed a creation of educational service system model to improve the quality of high school education services based on Moodle system (Putra & Putro, 2019).

B. Gros (2016) proposed a comprehensive approach in the design of smart educational environments and "discusses the key characteristics of smart learning and the main challenges to be overcome when designing smart educational environments to support personalization" (Gros, 2016, p. 1). She analyzed also a several definitions and description of the smart educational environments and comments there. For example, "According to Hwang (2015) three key features define a smart learning environment:

1. Context-aware: the system must be able to provide learning support based on learners' online and real-world status;

2. Adaptive support: the system must offer instant and adaptive support to learners based on their individual needs from different perspectives (learning performance, learning behaviours, profiles, personal factors, etc.), as well as the online and real- world contexts in which they are situated;

3. Adaptive interface: the system must be able to adapt the interface to the user (ways of presenting information, learning preferences, learning performance, etc.) The user interface can be any mobile device (smartphones, tablet computers, etc.), wearable device (a digital wristwatch), or even ubiquitous computing systems embedded in everyday objects. (Hwang et al., 2015)" (Gros, 2016, p. 4)

As stressed other experts "Many principles of smart education are not explained now because of ambiguity of this concept. …. Educational projects, which represent the vast majority of key components of smart education, can be regarded as the parts of smart educational trend. Three of the most important components

– main dimensions of smart education - are identified and analyzed in this paper: educational outcomes, ICT, and organizational dimensions." (Tikhomirov et al., 2015, p.47)

The transformation of the traditional university into the Smart university is one of the contemporary trends of modernisation of higher education. The concept of Smart university (SMU) includes several main components:

- Students, lecturers, administration (e.g.: Blended or fully Online, Life-long learners (retirees) in open education);

- Smart pedagogy (e.g. Collaborative teaching-learning, Learning-by-doing, Adaptive teaching-learning, Flipped classroom);

- Smart Classroom (e.g. Smart classrooms with corresponding technologies. Software hardware systems. Smart pedagogy for smart education);

- Technologies (e.g.: cloud computing technology, 3D visualization technology);

- Software systems (e.g. Web-lecturing systems, Systems for seamless collaborative learning);

- Hardware/Equipment/devices (e.g., Panoramic video cameras, SMART boards and/or interactive white boards, etc.)

- Smart curricula (e.g. Adaptive programs of study, Adaptive courses (with various types of teaching form: face-to-face, blended, online), (Uskov, Howlett, Jain, 2015)

- Open Source publication (e.g., Repository, Digital Library, WIKI, MOOCs, etc.). (Smyrnova–Trybulska, 2018b)

3   SMART EDUCATION – EVOLUTION

The first topic concerns SMART education was his evolution. Some researchers stressed that "Evolution is not enough: Revolutionizing Current Learning Environments to Smart Learning Environments" and they "looks at these challenges with a view towards revolutionizing current learning environments to smart learning environments and provides new suggestions for technological solutions." (Kinshuk, Chen, Cheng, *et al.* 2016, p. 561). In particular they noted that "The future perspectives of smart learning environments are reviewed and shared, through examples of emerging innovations such as the flipped classroom, game based learning, gesture based learning, along with pedagogical shifts, such as life-long learning portfolio maintenance, team teaching, and separation of learning and competency assessment." (Kinshuk, Chen, Cheng, *et al.*, 2016, p. 561).

Professor Nataliia Morze from Borys Grychenko Kyiv University (BGKU), Ukraine noted that during the Smart Society formation the paradigm of education and educational technology is naturally changing. The tasks of training of the new format specialist, successful and competent to work in the Smart Society rely on new universities – Smart Universities where the integration of technological innovations and the Internet can provide a new quality of educational and scientific processes, the results of training, scientific, innovation, educational, social and other activities. Professor Nataliia Morze said that multiple remarkable changes could be seen every year. They have a serious impact on students' perspective on education and the learning outcomes and on SMART-education. They depend on numerous factors including available resources, options affordable for society at large and the changing needs or demands of present generation students.

She expressed hope that these changes would benefit the modern student and allow the educational institutions to make the best use of them for citizens in tomorrow's SMART-society."

Professor Prudencia Gutiérrez Esteban from University of Extremadura (UEx), Spain stressed that at present, the rapid transition from the knowledge society to the society of global competition is considerable, where the economy and educational systems both undergo changes inherent in this new global context. Thus, teaching in the classroom has been complemented with virtual spaces for the training offered by educational institutions, under the profusion of the different modalities of virtual training mainly through learning management systems (LMS). Over the years, learning trends have been growing and training modalities have been increasing with the appearance of new devices, objectives, scenarios and / or uses.

It is evident that without an innovative implementation and without notable methodological changes in the education system, it will not be possible to achieve the objectives proposed in the programs such as Europe2020. At the same time, the strategies and design of virtual training programs are not fully developed to enable the development of skills, especially digital and social competence, both of which are necessary to have control over the systematic use of digital technologies. The education of the next generations has as a challenge to progress, although it cannot anticipate what the needs of the future will be, providing tools that citizens can develop and learn in these changing environments, working to improve the future of everyone from the school.

At the same time, it is becoming increasingly necessary to influence the idea that students' informal learning models are moving at a different speed from that of the evolution of teacher teaching models. The introduction of the digital environment in daily learning reconfigures these learning processes. With growing awareness of this new scenario, informal learning facilitates the adoption of training models adapted to these changes, with organizational structures and teaching designs that make it possible. While the natural approach of virtual training models - which is based on needs and the adoption of new environments for the socialization of knowledge - is changing, educational policies do not do so.

However, *Professor Prudencia Gutiérrez Esteban* stressed that she was not talking about novel and unique phenomena throughout history, but already at other times, these changes also entailed difficulties and challenges that humanity had to face, which required a change of mentality, both in the type of support for the transmission of knowledge, as in the concept that was held until then of teaching and learning, after the implications of those changes.

In addition, the new educational models bring with them a renewal of the places of learning to give particular answers to the different teaching methodologies, approaches and theories of learning. In this way, a great diversity of approaches is found on the educational space in terms of the modality of learning. As for digital spaces, they give us the opportunity to extend the educational experience outside the classroom generating an "invisible learning" (Cobo & Moravec, 2010) that not only fuses the formal and informal learning environments, but also allows for bringing the outside world to class thanks to the smart schools, which, as Taleb and Hassanzadeh (2015) maintain, pursue learning according to the information and communication era. There are even those who already speak of smart learning environments (Kinshuk, Chen, Chen and Chew, 2016).

To finish, we intend to make evident the different choices in the initial teacher training, where the scenario in which learning takes place is not an irrelevant element. As Kühn (2017) finds, students are not always prepared to (re) design their Personal Learning Environment, since their behavior in digital spaces moves between resident and visitor profiles (White, 2016). Particularly for these reasons, the aid provided to students, should be based on a scaffolding structure that allows this redesign, as already postulated by Dodge (1995, cited by Wang & Hannafin, 2008) when referring to the design of the webquest during initial teacher training.

Professor Olga Yakovleva from Herzen State Pedagogical University of Russia, St. Petersburg (HSPU), Russia notes that the concept of "smart" technologies had evolved from aerospace technologies about 40 years ago. Technologies were considered to be "smart" when they could present a quick adaptation to the environment, and could respond to signals received by a set of system sensors. Smart education is understood as an educational system providing Internet-based interaction with the environment and the

process of training and education for citizens to acquire the necessary knowledge, skills, abilities and competencies.

The reasons for the development of smart education ideas include:

- Technological (Transformations of technologies)

- Social (new generations, digital society, new education, competences)

- Economical (digital economy)

The main principles of smart education are as follows:

- The most up-to-date information for educational programmes, its real-time update paradigm

- Organization of self-cognitive research, project activities of students

- Implementation of the learning process in a distributed learning environment.

- Student interaction with the professional community.

- Flexible educational trajectories, individualization of learning.

- Variety of educational activities

The concept "University 3.0" is also now widely used, implying a radical restructuring of the educational process - an active project activity of students, the creation of innovative enterprises along with training, internships.

At the end of our discussion and analysis of the first topic a conclusion can be drawn that the nowadays of the development of higher vocational education we could observe changing the concept of educational process to personalized and increased quality of learning and teaching via using, in particular, the elements of artificial intelligence, augmented reality, STEM and STEAM education, blockchain technology, SMART environment, formative assessment solution, professional development of teachers and comprehensive use of e-learning.

4 PREPARATION OF NEW GENERATION SPECIALISTS IN AND FOR DIGITAL WORLD

The topic of preparation of new generation specialists in and for digital world is in focus of the researchers around of the worlds.

Using some innovative methods, in particular, project-based learning in training of a new generation of specialists: a corporative analysis described in his research Beta (2018). Formation of principles of new generation educational standards analysed in their study Salov, Pismenkova (2012).

The experts from different countries discussed on the using of e-learning in the training of professionals in the knowledge society in (Smyrnova–Trybulska, (Ed.), 2010). The innovative MA Programme "E-learning in Cultural Diversity" was presented and detail analysed by Smyrnova-Trubulska and Morze (2019).

Professor Halina Widła from University of Silesia (US), Poland during discussion stressed that much is being said about the necessity of universal preparation of young people for living in the digital world. However, the question arises as to who is to prepare them for it. A generation of teachers who feel comfortable in the digital environment is constantly growing. Yet some problems remain. First of all, the academia poorly educates teachers in this regard. Secondly, teachers of the older generation would also like to benefit from opportunities to learn new skills. But universities do not sufficiently consider their needs in this area. The offer of postgraduate studies does not include such preparation. Fortunately, other entities are joining this race:

In Poland, the E-learning Academic Association (Stowarzyszenie E-learningu Akademickiego or SEA; http://www.sea.edu.pl) organizes two types of examinations every year: for e-teachers and e-methodologists. Participants must meet high requirements in accordance with standards developed by SEA specialists. A team of 27 people prepared a set of criteria which covers four areas: organization of the course, preparation of the course, conducting the course, evaluation of the course. The results of their work help to organize and consolidate knowledge of participants in the field of e-learning, through the prism of their own experience. In this way, SEA confirms their professional skills.

Professor Nataliia Morze, during the round table debate, presented some experience of BGKU. She explained that since 2017 in BGKU more than 10 new professional education master program had been opened. One of them is a master program "Management of e-learning in intercultural space. The purpose of this educational program is training of specialists in the field of designing and managing e-learning for multi-age groups in the governmental and non-governmental sectors, educational and scientific institutions.

Objects of study and activity are as follows:

- management of electronic learning in institutions and their subdivisions in the context of uncertainty of conditions and requirements;

- regularities of the modern development of the information society;

- theoretical and methodological approaches to the organization of e-learning, design and use of e-learning environment in educational activities;

- e-learning methods and technologies, learning tools that involve active use of ICT;

- information systems, e-resources and services used in educational activities, processes of their creation;

- processes of designing and creating e-learning environments;

- processes of designing and creating e-learning environments of educational institutions based on different models.

Learning goals and objectives are as follows:

- Formation of professional competencies in the area of designing and managing e-learning for different age groups among graduates of higher education, preparation of graduates for the implementation of educational process in the digital and educational environment with the use of e-learning technologies.

Theoretical content of the subject area includes:

- innovative concepts, technologies and systems of management and development management;

- theoretical and methodological principles of e-learning organization; designing, creating and using an e-learning environment;

- methodology of scientific research.

During two last years we have also opened such new master programs:

- Mathematical modelling,

- Information Systems Security,

- Social Computer Science".

Prof. Ján Gunčaga, from Faculty of Education, Comenius University in Bratislava, Slovakia noted that using ICT education has big potential for development in every school subject in every type of school. It has an influence on teacher training at universities. Future teachers need special subjects and courses oriented to the development of their digital competencies. ICT tools have the value of such supporting tools for education. They can help by the development of cognitive abilities of pupils. It is a typical trend in the school classes that in every class there is a group of talented pupils in the use of ICT. It brings the possibility for the teacher to organize collaborative project work for his pupils. Open source educational software is a very helpful tool for organizing this project work.

It is in Slovakian schools at every stage that ICT tools will be implemented in the way to develop mathematical and digital basic skills by pupils and students. It brings the possibility for an interdisciplinary approach, which uses topics from history of mathematics - Euclid, Mathematics and Billiard, place of mathematics in the society. Informatics education can support many programming skills through using programs Scratch, Python and others.

*Prof. Diana Bogdanova from the Russian Academy of Sciences, Russia p*resented her own opinion regarding preparation of new generation specialists in and for the digital world. She said that

It is proposed that learning management system should meet the following requirements:

- Interoperability: supporting integration between different components of the solution.

- Personalization: moving away from a one-size-fits-all approach common in education

- Analytics, advising, and learning assessment: essentially measuring performance and learning for actionable data.

- Collaboration: supporting working together across time and space.

- Accessibility and universal design: including everyone in educational opportunities.

As there is no single application that can provide all these requirements, a "Lego" approach is proposed as a solution. In this way, individuals and institutions will be able to use components to construct learning environments tailored to their goals and objectives. (Boganova, 2011); (Chiappe Laverde; Segovia Cifuentes; Rincon Rodriguez, 2007), (Pithamber R. Polsani, 2003)

Prof. Olga Yakovleva from HSPU, Russia reflected on this topic and noted that education should respond flexibly to new demands of an emerging digital society. The determinants of the current changes are global and local legislative trends: strategies for the development of the digital economy in Europe, USA and Asia. In Russia the program of development of the Digital (electronic) economy in the Russian Federation until 2035 was also developed to accompany the Strategy for the development of the information society in Russia (until 2030) and the State program "Development of Education" (until 2020), etc. Now the term "digitalization" is used for the demanded changes in teaching and learning activities.

In this respect, some current Russian research directions are interesting:

- A project is being implemented in Russia that brings together leading universities for the training for the digital economy – "Project 5-100".

- The Atlas of New Professions was developed that shows the new trends in professions that will appear up to 2025 (http://atlas100.ru/en/).

Miroslav Hrubý from University of Defence in Brno, the Czech Republic added his own point of view on this topic, saying that an enormous number of courses have been developed in the recent years. It is the right time to select the best ones in each field and to introduce them on a multi-language level. Adaptation of the chosen high-quality course, which was originally prepared for instance in English, should contain

not only translation into other languages but also enriching its content by a concrete national approach given by native speakers of each national language. An example of such a course is a course concept used in the Net-Trainers Course. This Online Distance Learning Course was aimed to equip tutors with the skills to teach online using modern online technologies. It was offered by the University of West Bohemia from 2005.

Prof. Nataliia Morze stressed that the participants of the debate presented, for example, their national and university initiatives and innovative MA programmes whose main aim, in particular, is to develop competence in the management of e-learning in multicultural environments. The E-learning Academic Association in Poland, as prof. Halina Widła said, organizes two types of examinations every year: for e-teachers and e-methodologists who work in various educational institutions in Poland and after taking their examinations and receiving certificates, they have knowledge, skills in e-learning implementation and formal confirmation of their competences. Prof. Diana Bogdanova emphasized that at the same time, individuals and institutions will be able to use components to construct learning environments tailored to their goals and objectives. Prof. Olga Yakovleva noted that education should respond flexibly to new demands of an emerging digital society. The Atlas of New Professions was developed that shows the new trends in professions that will be published up to 2025. Dr Miroslav Hruby mentioned a necessary adaptation of high-quality courses which are originally prepared for instance in English, into various national language for dissemination in good educational sources.

5   INTERNATIONALISATION OF EDUCATION – TRENDS

The topic of internationalization of education was on focuses the experts in different countries and continents. In particular, Haigh (2014) overviewed a multi-layered history from internationalisation to education for global citizenship. Rienties, Beausaert, Grohnert, Niemantsverdriet, Kommers (2012) study the understanding academic performance of international students and the role of ethnicity, academic and social integration. Smyrnova–Trybulska compare and described the internationalization of education in contemporary HEIs, in particular at the University of Silesia in her research (2018a). In Internet age the internationalization of education could be consider also as internationalization of education at home. Nechita, Cojocariu, Păcurari (2014) talked in their research about internationalization of higher education at home, e.g. an initiative for teaching informatics.

Prof. Halina Widła from US, Poland notes that the market for online platforms and services continues to evolve and grow. One reason of this phenomenon is knowledge sharing. Information, skills and expertise are being exchanged among people, communities or organizations from different language speaking zones.

She added that she would like to mention the project started in the Quebec Native Training Institute: *Thot Cursus*. Thoth was the Egyptian god of knowledge, inventions, speaking, wisdom, magic and the moon – an inventor of writing and patron of scribes (cf. for example Ancient History Encyclopedia, definition by Joshua J.Mark published on 26 July 2016, go to https://www.ancient.eu/Thoth/). According to Egyptian mythology, he divided time and space and established the standards of measurement which allow us to share the same reality and to agree; hence his role as an arbitrator, a healer, a historian. As Thoth represents knowledge beyond time and space, he was chosen as a symbol and protector of distance learning by French speaking researchers from the francophone project team.

Thot Cursus (available on the Internet site at https://cursus.edu/) is used by French speaking people in Québec, France, Cameroun, Belgium and Switzerland. Dedicated to promoting learning in all its forms, it has been online since 1996. Thot Cursus Inc. began its online activities in 1996 with "Curriculum - International Directory of Francophone Distance Learning", followed in 1997 by "Thot - News from Distance Education". The authors discuss the training and use of digital tools and resources for education and culture in all areas of human activity.

It is worth mentioning that 650 platforms are listed in the Thot Cursus directory. However, despite the degree of utility and usability reached by these platforms, the result of their evaluation shows that each has its own strengths and weaknesses.

Conclusion: it would be a good idea to draw up a list of similar websites discussing the training and use of digital tools and resources for education and culture in all areas of human activity in different speaking zones, with an analytical study of their activities.

Such a guide could be an extremely useful tool for people looking for good quality foreign language materials.

Prof. Nataliia Morze from BGKU, UA went on to say that Ukrainian HEIs face a number of challenges in their attempts to internationalize. Their efforts are restricted by a lack of funding and a lack of strategic vision from the government. In most cases, the process is driven by individuals participating in international activities. Moving forward, education programs set up as a result of international partnerships will need consolidation and innovation.

The internationalization of Ukrainian HEIs has been triggered by a number of national reforms, but the responsibility for implementation and quality assurance rests with the institutions. In order to adapt to changing local and global needs and strengthen the quality of research and teaching, Ukrainian universities must make a robust effort to promote internationalization.

Prof. Ján Gunčaga from Comenius University in Bratislava, Slovakia remarked that the Internet and many webpages allow for an exchange of educational experiences between teachers, school policy makers and practitioners. Many webpages were created through support of the projects of European Union and economic developed countries. Many aspects of internationalisation are written in the article https://qswownews.com/internationalisation-is-a-global-trend-of-higher-education/.

A good example for exchange of educational experiences in the broad range is the open source software GeoGebra (see https://www.geogebra.org/). The community of users built the network of the national and regional GeoGebra Institus, which organize schooling activities for teachers, workshops and conferences about using of this open source software. The advantage of this software is that it exists in more than 60 language versions.

On the webpage https://www.geogebra.org/materials it is possible to find teaching materials prepared by different users of GeoGebra around the world. These materials are free for downloading and everybody can use or change them for their educational purposes.

There are also many academic portals such www.academia.edu/, https://scholar.google.com/, https://www.researchgate.net/ and others, which allow for an exchange of research ideas of researchers, university teachers from papers, books and other materials. It helps the academic and research community to exchange educational trends in their countries and it supports the development of their common research activities in the field of implementing of new trends in education in every type of school.

Prof. Diana Bogdanova from RAN, RU joining the debate, stressed that the development of strategies and approaches to promote, enhance and manage international engagement varies significantly. Russia is enhancing the profile of its universities and supporting them to establish international partnerships to promote innovation and spread of modern methods in teaching and youth work. This effort is known as Project 5-100 (https://en.wikipedia.org/wiki/Project_5-100).

Prof. Olga Yakovleva from HSPU, Russia presented the main trends, which are:

- "Digitalization

- Opening new specialties, creating new professions

- E-learning, smart education

- Interdisciplinary learning content (STEM education)"

In summary, we conclude that internationalisation gives focus to the higher education policy development in the European countries. Through its Erasmus+ and Horizon 2020 programmes, the EU supports international exchanges for students, academic staff and researchers, as well as structured cooperation between higher education institutions and public authorities in different countries. (Internationalisation is a global trend of higher education). One of the good examples of the strengthening of international cooperation between European and non-European countries was the IRNet Project (www.irnet.us.edu.pl) in which more than 40 researchers from 10 universities form 9 countries participated.

6 ON-LINE COURSES ASSESSMENT

Assessment activities in massive open on-line courses and e-learning courses in the center of attention of experts, tutors, educators. Some important issues, e.g. state the different implications of the new MOOC paradigm in the assessment process, compare assessment activities in different MOOC platforms; analyze and give solutions for the design of assessment activities for MOOCs; analyze and give solutions about the execution of assessments in MOOCs comprehensive described in Muñoz-Merino, Ruipérez-Valiente, Moreno & Kloos (2015). Smyrnova–Trybulska (2016) analysed the e-learning courses assessment in framework of the comprehensive consideration of E-Learning and Open Education Quality – Some European and National Standards and Regulation.

Prof. Nataliia Morze, the expert from Ukraine noted that BGKU has introduced a system for evaluating e-learning courses. It involves the assessment of three groups of indicators: content, methodology and organizational indicators. Course content is estimated by experts from the department, whose specialists developed the course. Two other groups of indicators are evaluated by an independent panel of experts. According to the applicable University Regulations on the certification of electronic courses, each indicator is given a specific score. So, in the evaluation of electronic courses, a maximum score can be 100 points. In order to certify an electronic course and allow it to be used by students the course must receive at least 70 points.

Prof. Ján Gunčaga, from Comenius University in Bratislava, Slovakia continued the debate by stating that the key question which should be answered right now is whether learning is a private process.

It should be kept in mind that nowadays students are people of all age groups and their privacy is under protection of various law regulations. One of the latest contributions in this field is the General Data Protection Regulations (GDPR) in the E.U. The problem is that many educational institutions use Learning Managements Systems which enable "spying" on students' activities during their on-line learning without compliance with the contemporary law framework. Students often do not know that their personal data are collected, why this is done, who can access the collected data, how these data will be processed and used in the future."

Miroslav Hrubý from University of Defence in Brno, CZ emphasised that many texts have been written about on-line courses assessment. The main stress is almost always given on the question: "How many new facts were introduced by the course?" but the very important contribution of the course is also a possible new outlook on previous knowledge, new sorting of previous known facts. Moreover, it is necessary to distinguish between two views, an expert point of view and a student point of view. The results can be radically different but the voice of a consumer (a student) should not be hidden.

Prof. Olga Yakovleva from HSPU, Russia stated her own point of view and described Russian experience, explaining the Project "Modern Digital Educational Environment in the Russian Federation that includes a multi-stage quality assessment of the content of online courses.

The assessment procedure includes expertise from educational organizations, employers, independent public organizations. The major part of assessment is supposed to be done with the help of data mining and big data processing. In particular, the complexity of the tasks is taken into account: for how long and for

how many attempts the students were able to take verification tests; clarity of presentation: how much time the user spent on the development of individual sections of the online course, the number of repetitions of the material; involvement of students in the process: data on attendance of online courses, emotional reactions of students are taken into account. A separate and important indicator characterizing the quality and relevance of an online course is the number of students who successfully completed the training with it.

Next Russian expert *Prof. Diana Bogdanova RAN* commented briefly that organizations and course developers are often hesitant to spend money on course evaluation, not realizing that this is the only way to fully close the course development loop. If one finds a way to integrate evaluation procedures into the training process, they will see that the benefits are huge.

In conclusion, when discussing e-learning and distance learning we should remember, first of all, about the quality of education. As stressed by all the experts, the *on-line courses assessment* should be comprehensives, multistage, taking into account and evaluating various requirements and criteria. Assessment should not only be executed by experts in the area of e-learning and in subjects but also should supported by using, for example, data mining, big data processing and other contemporary IT tools.

7   ETHICAL ISSUES AFFECTING THE IMPLEMENTATION OF E-LEARNING

The some ethical issues affecting the implementation of e-learning in a cross-continental-euro-african university was described in study (Silva, Alvarez, Pinto, 2018). Another authors research the awareness of ethical issues when using an e-learning system (AL Mseiedein, Mahasneh, 2020). They study the issues on three ethical categories; Intellectual property rights, vandalism and Privacy and (AL Mseiedein, Mahasneh, 2020) and stressed on their research that "students should be fully knowledgeable about ethical issues to avoid unethical behavior while using of the e-learning system". (AL Mseiedein, Mahasneh, 2020, p.128)

Prof. Halina Widła emphasised that another question is how to organize the didactic process to prevent unethical strategies. In her opinion explaining the rules of intellectual property and teaching students the rules of citation, using materials protected by copyright and discussing consequences of unethical behavior is not efficient enough.

Tutors resort to different strategies to prevent plagiarism: they require photocopies of sources, abstracts for each step of work, specific bibliography containing both online and print sources, they organize exams at the school's headquarters etc.

In her view, the best option is to convince the students not to cheat, by explaining and proving that they simply don't need it in any university program: traditional or modern. And after one semester of well-conducted classes they can achieve success because they meet all necessary conditions – knowledge and skills to work independently. Lying to oneself is not very satisfying, which is why it is worse than cheating.

Prof. Ján Gunčaga from Comenius University in Bratislava, Slovakia stressed that the role of teachers has been definitely changed. The Internet enables information for all people. A self-study with a contemporary network support is not a problem. Teachers are not a central point of education and knowledge now. Teachers are now partners and guides of students. Modern education is a balance between usage of recommendations and individually chosen ways to the fulfilment of study goals.

Prof. Diana Bogdanova from RAN, RU, participating in remote mode via Adobe Connect, said that besides issues that have been known and dealt with such as quality assurance, copyright, students identification, there are new issues arising, such as capturing and use students' data. For example, where the data is stored, who owns the data, who has access, how the data is used.

Prof. Olga Yakovleva from HSPU, Russia listed some ethical issues:

- "Transformation of the traditional roles of teacher and student

- Change in the ratio of individual and collective

- Development of personal qualities - independence, responsibility

E-learning includes 3 components – technologies, process and people. So there are many issues beyond that. For example, one can name the problems of the surveillance of students (collecting big data and analyzing, who has access to all personal information, etc.); the problems of identity, confidentiality and anonymity.

It can be seen that all the experts stressed that upholding the significance of digital ethics and privacy is becoming very important in the present digital world in the educational process and electronic environments. Various methods, tools, means can be used, in particular: persuasion, teaching and explaining good ethical standards to students; formal requirements and real consequences of non-compliance; the use of special programs, applications, e.g. anti-plagiarism, to verify the originality of students' work. Actions should be comprehensive and consistent. This is the only way to expect visible positive results.

8   E-LEARNING IN INCLUSIVE EDUCATION

A researchers and experts from a lot of countries discussed on the issues about e-learning for societal needs in international study (Smyrnova–Trybulska, 2012). E-learning in higher inclusive education: needs, opportunities and limitations, and conditions for the development of e-learning in the inclusive education system in the universities described and analysed by researchers (Meskhi, Ponomareva, Ugnich, 2019). Another experience in using e-learning tools in inclusive educational space of higher school presenting in Alekseeva, Antonenko, Zhadan, Lyfenko (2018).

Experts from different countries presented their experience and reflection on this important topic during debate. *Prof. Maria Potes Barbas* presented her own rich experience and Portuguese experience. She first explained the state of the art, saying that the Instituto Politécnico de Santarém is an institution of public higher education that began its activity in 1979 and consists of the following five Higher Schools in different scientific areas (Agriculture Sciences; Education; Management and Technologies; Sports Sciences; Health) (http://portugalpolytechnics.com/en/polytechnic/instituto-politecnico-de-santarem/). It conducts its teaching courses of the 1st and 2nd cycle, as well as technological specialisation courses (1 year) and post degree courses. It has two halls of residence with laundry and kitchen facilities, wireless Internet access, bar and cafeteria in each school and sporting facilities on all the campuses.

The Higher School of Education (ESES) offers courses of teacher training, communication and multimedia, fine arts, social service and cultural animation, oriented mainly towards the practical and research components that promote reflection, conceptualisation and creation of theoretical frameworks. These are divided into three different categories: initial training (bachelor and master degrees and graduation), teacher's continual and specialised training, namely through post-graduation courses focused on teachers and non-teachers, especially on pedagogical supervision, curricular development and organisation, special education and multimedia education.

Internal System for quality insurance: In 2007, ESES created the Assessment Observatory, which constitutes an infrastructure of support in the field of assessment and evaluation of teaching and learning activities and environmental issues. The purpose of creating this office, at institutional level, comes from the identification of a set of needs, which have become visible through the organisation and systemisation of data for the School's assessment processes; the support for the permanent assessment activity; and the organisation of resources and strategies as a support for the employability and professional integration of students.

The Assessment Observatory's mission in terms of guaranteeing quality covers three main areas: as support for institutional assessment, the accompaniment of employability and professional integration of students in the job market, and the disclosure of complementary information and training in conjunction with ESES's partners and target public.

In order to comply with these objectives the following lines of action were outlined: (i) Scientific and pedagogic activity produced by the lecturers at the School; (ii) (ii) Assessment of the curricular units integrated in the study plans of the respective initial training courses; (iii) satisfaction provided by the services offered by the School; (iv) The ESES students' educational journeys and family contexts; (iv) ESES graduates' journeys of professional integration; Assessment of the employing entities on the training and integration of former students from the School; (v) Develop job-searching strategies in conjunction with ESES students; (vi) Establish a link/contact with ESES students and former students via strategies to disclose job offers and complementary information and training.

Those responsible for implementing the mechanisms for a guarantee of quality are the Pedagogic Council, the Coordinator for ESES Assessment Observatory and the Quality Assessment Commission for the Instituto Politécnico de Santarém. The technique used has essentially been a survey with a questionnaire, and as a complementary technique, documental analysis has been used as well. In parallel, ESES participates in the IPS Assessment and Quality Commission. This commission has developed a set of instruments, which allows the concretisation of the object of assessment, referred to in practice in the Regime Jurídico da Avaliação do Ensino Superior (RJAES), the Portuguese Legal Regime of Assessment in Higher Education.

The Starting Up – Accelerators of entrepreneurship 4 inclusion project is aimed at young people with intellectual and developmental difficulties (IDDs) with a degree of incapacity up to 60%; this group has not had opportunities to continue studies or to enter the labour market (http://startingup4inclusion.ipsantarem.pt/).

In 2018, the first Higher Education course for young people with IDDs (see https://siese.ipsantarem.pt/ese/cursos_geral.FormView?P_CUR_SIGLA=LDMT) started in Portugal (at the Higher School of Education – Polytechnic Institute of Santarém). It was an initiative that mobilized civil society, the business world and the police makers themselves for this problem, and which needs to be further developed, not only in Portugal but in all Europe. In other European countries, other courses and initiatives have been developed for this public, however with low expression in what concerns the insertion in the labour market.

The Portuguese Government recently approved and published a law (law no 4/2019) regarding minimum number of employees with disabilities in companies with more than 75 employees, this law actually comes into force in the month of this project submission (February 2019).

In this way, with non-formal methodologies, it is intended to develop competences in young people with IDDs disorders for insertion in the labour market, both as employees and as self-employed entrepreneurs with innovation and social concern.

This proposal is in line with the National and European challenges. In fact, the relevance of the project is that it matches OECD reports (e.g. OECD, 9 Feb. 2018), in which international experts insist that, while indispensable, the reinforcement of funds and the increased value of practitioners and institutions are not yet contributing consistently to innovation and productivity growth within the priority areas of social and labour inclusion.

In spite of this, some of the priority areas and sectors are still in need of a genuine and adequate analysis, being scarce or lacking in initiatives to include young participants with intellectual disabilities in the labour market.

The project will produce outputs that are innovative for its field, since it presents a unique training system that is specially adapted to students with IDDs and to the youth workers that work with them, a job network platform for enterprises and young graduates adapted to the needs of both employers and employees, and tools to help students to create and organize their CV, portfolios and other materials.

In terms of impact this project is expected to increase the awareness to this problematic and to increase the chances of these young students to enter the labour market. This is especially important, because it demonstrates the lack of attention being paid to young people with disabilities. Therefore, implementing this project will certainly raise the chances of them being more integrated in the society.

It is expected that the project will remain sustainable, assuring that the developed content stays available and accessible long after the funding. Also, by maintaining the job platform network we hope to constantly increase the network of stakeholders (e.g. associations, enterprises, schools) that will keep the project sustainable. Lastly, with this project it is hoped that policy makers will be influenced to create state programs to address this issue.

Impact: The pedagogical, scientific, societal, technological, policy and economic impacts expected at the local, regional and national scope would consist in the fulfilment of our target group needs, but also in a change of behaviours in society (including change of policies).

The project has a methodology that by changing what is close to us (locally and regionally) one could change what is far (nationally and at European level or internationally).

As said before, we aim to enhance the skills of these disadvantaged population and also the ones directly working with them (teachers, youth-workers, families). So the local and regional impact should be a high level of employment for this population that will be reflected in more social inclusion. The integration of a target group with disabilities in society and in the labour market as valued members will have a noticeable impact at all levels that will replicate nationally and at European level with the help of all partners and with a good dissemination and exploitation strategy. The project will be thus collaborating in the solution of one of the major problems and challenges of social inclusion that Europe is facing.

To enhance the various levels of impact, after the several activities execution, we will present to our national and foreign Governments the outcomes, and whenever needed, we will contribute to a shift/reform in policies regarding each country involved.

The project addresses the priorities identified in the Eurozone (e.g. European Parliament; European Commission) like the European Disability Strategy and the need for a more inclusive society. Therefore, this project aims at making a positive difference in the area of the support of young citizens with disabilities.

The exchange of information and good practices will not be restricted to the project partners. Namely in Portugal, the results reached will be used and implemented locally, regionally, and nationally by the coordinator (IPSantarem/ESE) and Portuguese associated partners, and a similar approach will be made by the other partners. Therefore, positive impacts are expected in local, regional and national economy both during the project and after its completion with employability of some of these citizens in the labour market (hopefully others will be employed in other regions and countries of the partners involved).

The action of this network will have a long-lasting impact because the educational contents will remain available and the partners (mainly non-profit organisations) will continue working on social inclusion of these citizens.

We expect National and European impact at various levels: 1. National and European level impacts include (A-D):

A. Pedagogical impact. The application and design of face to face, online and blended learning solutions for this target group - the expected impacts are:

- accurate information of the inclusive aspects that should be taken into account;

- proven models for blending formal and non-formal learning aspects;

- ideas for using ICTs in efficient inclusive learning; - new creative commons generated by network.

B. Scientific Impact. The contribution of research towards the overall aims will be carried according to:

- systematisation and enhancement of knowledge;

- literature review;

- enhancement of competences already developed and creation of new ones; - increased awareness of the disabilities issues;

- context and characteristics of the target group.

C. Societal impact. Through scientific exchanges and activities that will be initiated during the strategic collaboration - the expected impacts will be:

- knowledge and competence in the activation of effective non-formal learning solutions in inclusive contexts;

- long lasting positive effects for the families of the children that are successfully integrated in the labour market, and their local communities (better self-esteem for the elements of the target group; less pressure on their families in terms of worries about their children's future; and better interaction with the community since these young citizens become more autonomous and self-sufficient)

- social inclusion of the at-risk youth in society and future employment market.

D. Policy Impact. Through the previous impacts it is intended to promote necessary reforms and enhance progress in teaching and learning at a variety of institutions:

- Ministries of Education;

- School regulators;

- "Knowledge triangle" of the European Research Area: research, innovation and education.

E. Technological Impact. Through the integration and implementation of adapted and flexible digital platforms. Also in the creation of personalised e-contents, videos and online features like the social media strategy.

F. Economic Impact. Through the introduction of local entities and NGOs enhancing their visibility in the labour market. This will generate not only economic incomes abut also other relevant aspects like competition among other institutions.

Prof. Diana Bogdanova from RAN, adding her own comments concerning E-Learning in Inclusive Education, said that according to the UN convention on the rights of persons with disabilities, active participation of persons with disabilities in society is one of the basic human rights. Currently there are many examples of various projects that can be used as examples and inspirations for the new ideas. There is no doubt that it's time to start moving from single examples to everyday life teaching and learning.

It can be seen that the topic *E-Learning in Inclusive Education* is very important in the context of the development of sustainability society and its features. As stressed by prof. Maria Patos Barbas, one of the best experts in this area, a coordinator of several European projects and MA courses, in particular, for young people with IDDs, delivered in Portugal at the Higher School of Education – Polytechnic Institute of Santarém, pedagogical, scientific, societal, technological, policy and economic impacts at local, regional and national level can be expected. Prof. Diana Bogdanova agreed with this opinion and position.

9   CONCLUSIONS

"An intelligent society more accurately expresses the intention to improve all aspects of human life, using ICT in new industries. This policy has become a model for the United States - a leader in the online world, as well as for Korea, European countries, Japan and many other countries. An intelligent society is a new

quality of society in which properly serviced equipment, services provided and internet availability lead to qualitative changes in the interaction of the subjects, which allows achieving new effects - social, economic and other benefits. This is the next stage in the development of the so-called information society in which we live today" (Smyrnova–Trybulska, 2018, p. 440).

The debate shows and confirms that new technologies opens a wide opportunities for all learners and citizens in new global context and digitalization of the world. Simultaneously the role of universities is change. "Universities will rely less and less upon their reputation of 'centers of excellence'; universities will become laboratories / ateliers for developing youngsters' talents through special design- and problem-solving tasks, revealing real solutions for real problems. Master students will undertake assignments, experiments, designs and theses, compared to what PhD students achieve nowadays. PhD students will shift towards unique boundary-cutting research instead of performing research that has been prompted by the professor" (Kommers, Smyrnova–Trybulska, Morze, 2018, p. vi).

REFERENCES

AL Mseiedein, T. & Mahasneh, O. (2020). Awareness of Ethical Issues when using an e-Learning System. *International Journal of Advanced Computer Science and Applications.* Vol. 11, No. 1, 2020. 128-131. DOI: 10.14569/IJACSA.2020.0110116

Alekseeva, A., Antonenko, O., Zhadan, K. & Lyfenko, M. (2018). Experience In Using E-Learning Tools in Inclusive Educational Space of Higher School. *Physical and Mathematical Education*. 2018. Issue 4(18). P. 17-24. (In Ukrainian)

Beta, J. (2018). Project-Based Learning in Training of a New Generation of Specialists: A Corporative Analysis In Conference: NORDSCI Conference on Social Sciences DOI: 10.32008/NORDSCI2018/B1/V1/16

Bogdanova, D. A., (2015). O traktovke ponyatiy\otkrytaya i predstavitel'stvo" primenitel'no k informatsionno-obrazovatel'noy srede [On the open and representation' concepts interpretations with the reference to the information and educational environment]. *Information Technologies for the New School: 4th Conference (International)\Information Technologies for the New School.* Proceedings. 3:104-107. (In Russian).

Bogdanova, D. (2011). Otkrytye obrazovatelʹnye resursy: sovremennye tendencii, konferenciâ *„Informacionnye tehnologii v obrazovanii"* (ITO Samara, 2011) (In Russian).

Bogdanova, D.A., (2017). Blockchain and education. *Distance and virtual learning.* 2 (116). 65-74. (In Russian).

Cobo, C. & Moravec, J. (2010). *Invisible Learning*. Barcelona: Laboratori de Mitjans Interactius (Universitat de Barcelona).

Gros, B. (2016). The design of smart educational environments. In *Smart Learning Environments 3*:15 DOI 10.1186/s40561-016-0039-x.

Gwozdz-Lukawska, G., Janiga, R. & Guncaga, J. (2015). Supporting of simulation and visualisation in e-learning courses for STEM education. *Forth International Conference on e-Technologies and Networks for Development (ICeND)* pp. 1-6 IEEE

Haigh, M. (2014). From Internationalisation to Education for Global Citizenship: a Multi-Layered History 68(1) Special Issue: *Globalisation and Higher Education* https://doi.org/10.1111/hequ.12032

Hruby, M. & Huclová, M. (2014). Building required ICT profile and a connected research. *International Journal of Continuing Engineering Education and Life-Long Learning*, 24(3/4):269–285. DOI: 10.1504/IJCEELL.2014.063099

Hwang, G.J., (2014). Definition, framework and research issues of smart learning environments-a context-aware ubiquitous learning perspective. Smart Learn. Environ. 1(1), 1–14

Hwang, G.J., Chu, H.C. Yin & C. Ogata, H., (2015). Transforming the educational settings: innovative designs and applications of learning technologies and learning environments. *Interact. Learn. Environ.* 23(2), 127–129 (2015)

Chiappe Laverde, A., Segovia Cifuentes, Y., Rincon Rodriguez, H. Y. (2007). Toward an Instructional Design Model Based on Learning Objects. *Educational Technology Research and Development*, 55(6) 671-681. Dec 2007. Springer.

Kinshuk, Chen, N., Cheng, I. et al., (2016). Evolution is not enough: Revolutionizing Current Learning Environments to Smart Learning Environments. *International Journal of Artificial Intelligence in Education* 26, 561–581. https://doi.org/10.1007/s40593-016-0108-x

Kinshuk, Chen, N., Cheng, I., & Chew, S.W., (2016). Evolution is not enough: Revolutionizing Current Learning Environments to Smart Learning Environments. *International Journal of Artificial Intelligence in Education*, 26, 561-581. doi 10.1007/s40593-016-0108-x.

Kommers, P., Smyrnova–Trybulska, E.& Morze, N., (2018). Editorial. In E. Smyrnova–Trybulska, P. Kommers, P., N. Morze, J. Malach (Eds.). *Universities in the Networked Society. Cultural Diversity and Digital Competences in Learning Communities*. Springer. ISBN 978-3-030-05025-2 https://www.springer.com/gp/book/9783030050252

Kuhn, C. (2017). Are Students Ready to (re)-Design their Personal Learning Environment?. The Case of the E-Dynamic Space. *Journal of New Approaches in Educational Research*, 6(1), 11-19. doi: http://dx.doi.org/10.7821/naer.2017.1.185.

Loureiro, A., Messias, I. & Potes Barbas, M., (2012). Embracing Web 2.0 & 3.0 Tools to Support Lifelong Learning - Let Learners Connect 02/2012. *Procedia - Social and Behavioral Sciences*, 46:532-537 DOI: 10.1016/j.sbspro.2012.05.155

Meskhi, B., Ponomareva, S. & Ugnich, E., (2019). E-learning in higher inclusive education: needs, opportunities and limitations, *International Journal of Educational Management, 33*(3), 424-437, https://doi.org/10.1108/IJEM-09-2018-0282

Morze, N., Smyrnova–Trybulska, E. & Glazunova, O. (2017). Design of an University Learning Environment for SMART Education'. In: Smart Technology Applications in Business Environments. IGI Global ISBN13: 9781522524922; ISBN10: 1522524924; EISBN13: 9781522524939; Chapter 11. (pp.221-248). DOI: 10.4018/978-1-5225-2492-2.ch011

Muñoz-Merino, P. J., Ruipérez-Valiente, J. A., Moreno, J. L. S., & Kloos, C. D. (2015). Assessment activities in massive open on-line courses: Assessment activities in MOOCs. In *Furthering higher education possibilities through massive open online courses* (pp. 165-192). DOI: 10.4018/978-1-4666-8279-5.ch008 Retrieved 15 March 2020, from https://www.igi-global.com/chapter/assessment-activities-in-massive-open-on-line-courses/137321

Nechita, E., Cojocariu, V.-M. & Păcurari, D. (2014). Internationalization of Higher Education at Home. An Initiative for Teaching Informatics. *Procedia - Social and Behavioral Sciences.* 149(5) September 2014, Pages 624-628 https://doi.org/10.1016/j.sbspro.2014.08.238

Noskova T., Pavlova T. & Yakovleva O. (2019). Professional Training Challenges in the Digital Economy Context. In E. Smyrnova-Trybulska, P. Kommers., N. Morze., J. Malach (Eds) *Universities in the Networked Society. Cultural Diversity and Digital Competences in Learning Communities*. Springer, 2019. (pp. 39-48). ISBN 978-3-030-05026-9.

Noskova, T., Pavlova, T., Yakovleva, O., Kołodziejczak, D. & Roszak, M. (2018). Information Behaviour and Attitude to Lifelong Learning: a Comparative Study for Students of Person-Oriented Specialties. In

M.Turčáni et al. (Eds.). DIVAI 2018. *The 12th International Scientific Conference on Distance Learning in Applied Informatics. Conference Proceedings*, May 2018. Constantine the Philosopher University in Nitra, 139-151.

Noskova, T.N., Pavlova, T.B. & Yakovleva, O.V. (2018). ICT Tools of Professional Teacher Activity: A Comparative Analysis of Russian and European Experience. *Integratsiya obrazovaniya [Integration of Education]*, 22(1): 25-46. DOI: 10.15507/1991-9468.090.022.201801.025-044.

Pithamber R. Polsani (2003) Use and abuse of reusable learning objects. *Journal of Digital Information*, Texas Digital Library, 2003, 3(4), 10 p. ⟨hal-00699838⟩

Portugal Polytechnics web-site Retrieved 01 March 2020, from http://portugalpolytechnics.com/en/ polytechnic/instituto-politecnico-de-santarem/ (accessed on February 3 2020)

Putra, R. R. J., & Putro, B. L. (2019). Smart education: educational service system for equal quality education In J. Phys.: Conf. Ser. 1280 032029 MSCEIS 2018 Journal of Physics: Conference Series 1280 (2019) 032029 IOP Publishing doi:10.1088/1742-6596/1280/3/032029

QS Asia News Network (March 15, 2018). Internationalisation is a global trend of higher education. Online Retrieved 15 March 2020, from https://qswownews.com/internationalisation-is-a-global-trend-of-higher-education/

Rienties, B., Beausaert, S., Grohnert, T., Niemantsverdriet, S. & Kommers, P. (2012). Understanding academic performance of international students: The role of ethnicity, academic and social integration. Higher education, 63(6) 685-700 Springer Netherlands

Sagitova R. (2014) Students' Self-education: Learning to Learn Across the Lifespan. *Procedia - Social and Behavioral Sciences*, Volume 152, 7 October 2014, P. 272-277 https://doi.org/10.1016/j.sbspro.2014.09.194.

Salov, V.O. & Pismenkova, T.O. (2012) Formation of principles of new generation educational standards. *Naukovy Visnyk NGU,* 6, 130-136 (In Ukrainian) ISSN 2071-2227

Silva, N., Alvarez, I.M.B. & Pinto, P.J.G. (2018). A Case Study of Ethical Issues Affecting the Implementation of E-Learning In A Cross-Continental-Euro-African University In E.Smyrnova–Trybulska (ed.) *E-learning and Smart Learning Environment for the Preparation of New Generation Specialists.* Katowice - Cieszyn: Studio Noa for University of Silesia, (pp. 81-96).

Smyrnova–Trybulska, E. & Morze, N. (2019). *Innovative MA Programme "E-learning in Cultural Diversity* In: Smyrnova–Trybulska, E., Kommers, P., Morze, N., Malach, J. (Eds.). *Universities in the Networked Society. Cultural Diversity and Digital Competences in Learning Communities*. (pp. 8-26) Springer. ISBN 978-3-030-05025-2.

Smyrnova–Trybulska, E. (2016). E-Learning and Open Education Quality – Some European and National Standards and Regulation. In E. Smyrnova–Trybulska, E-learning Methodology - Implementation and Evaluation, E-learning series Vol. 8 (2016) (pp. 51-72) Katowice-Cieszyn: Studio NOA for University of Silesia

Smyrnova–Trybulska, E. (2018a). *Technologie informacyjno–komunikacyjne i e–learning we współczesnej edukacji. [Information and communication technologies and e-learning in contemporary education.]* Katowice: Wydawnictwo Uniwersytetu Śląskiego w Katowicach. [University of Silesia Publishing House in Katowice.]

Smyrnova–Trybulska, E. (2018b). Smart University in Smart Society – Some Trends In E. Smyrnova–Trybulska (ed.). *E-learning and Smart Learning Environment for the Preparation of New Generation Specialists*. Vol. 10 (2018). Katowice - Cieszyn: Studio Noa for University of Silesia, pp. 65-80, 664 p.

Smyrnova–Trybulska, E. (Ed.). (2010). Use of E-learning in the Training of Professionals in the Knowledge Society. Cieszyn: Studio Noa for University of Silesia, 2010, 344 p. ISBN 978-83-60071-30-4.

Smyrnova–Trybulska, E. (Ed.). (2012). E-learning for Societal Needs. Katowice: Studio Noa for University of Silesia, 2012, 557 p. ISBN 978-83-60071-59-5.

Smyrnova–Trybulska, E., McKay, E., Morze, N., Yakovleva, O., Issa, T. & Issa, T. (2019). Develop and Implement MOOCs Unit: a Pedagogical Instruction for Academics, Case Study In: E. Smyrnova–Trybulska, P. Kommers, N. Morze, J. Malach, (Eds.). *Universities in the Networked Society. Cultural Diversity and Digital Competences in Learning Communities*, (pp. 114-145). Springer. ISBN 978-3-030-05025-2.

Starting Up web-site http://startingup4inclusion.ipsantarem.pt/ (accessed on February 3 2020)

Taleb, Z. & Hassanzadeh, F. (2015). Toward Smart School. A Comparison between Smart School and Traditional School for Mathematics. *Learning Procedia-School. Procedia*, 171, 90-95.

Tikhomirov, V., Dneprovskaya, N. & Jankovskaja, E. (2015). Three Dimensions of Smart Education In book: Vladimir L. Uskov, Robert J. Howlett, Lakhmi C. Jain Smart Education and Smart e-Learning, (pp. 47-56) DOI: 10.1007/978-3-319-19875-0_5 Retrieved 05 March 2020, from https://www.researchgate.net/publication/ 300886155_Three_Dimensions_of_Smart_Education

Top 24 Educational Trends For 2020 *https://www.edsys.in/ educational-trends-for-2019* (accessed at 26.06.2019).

University of Silesia in Katowice — Development Strategy 2012-2020 http://bip.us.edu.pl/sites/ bip.us.edu.pl/files/strategia20130627eng.pdf

Uskov, V.L., Howlett, R.J., Jain, L.C. (Eds.) (2015). Smart Education and Smart e-Learning. Conference proceedings, *Part of the Smart Innovation, Systems and Technologies book series (SIST, volume 41).* Springer

Vivekananthamoorthy N., Sankar S., Siva R. & Sharmila, S. (2009). New paradigms for innovation in teaching and learning process. *7th International Conference on ICT and Knowledge Engineering*, Bangkok, 2009, pp. 94-99. doi: 10.1109/ICTKE.2009.5397338.

Wang, F., & Hannafin, M. J. (2008). Integrating WebQuests in preservice teacher education. *Educational Media International*, 45(1), 59-73. doi: 10.1080/09523980701847214.

Web-site of *5-100 Project* Retrieved 15 March 2020, from https://5top100.ru/en/

White, D. [UOC- Universitat Aberta de Catalunya]. (2016, Abril 26). Visitors and Residents: A look towards learners' activity [video file]. Retrieved 20 March 2020 from https://www.youtube.com/watch?v=eUH-FrPyBqc .

Widła. H., Półtorak, E. & Krajka, J. (2014). E-Learning in Culture Studies Instruction – Designing, Implementing and Evaluating a Study Programme. In E. Smyrnova–Trybulska (ed.) *E-learning and Intercultural Competences Development in Different Countries*. (pp.239-252). Katowice-Cieszyn: Studio NOA for University of Silesia.