

# Digital Reality and e-Transformations in the Educational Process

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**Abstract** — The article focuses on the transformations that occur during the learning process in a digital environment. The advantages and disadvantages of teaching and learning in an electronic environment are noted, which are illustrated with examples from our practice in online Bulgarian as a foreign language lessons. Classical pedagogical and methodological issues in a new reality are brought up, such as the network. The emphasis is placed on the opportunities offered by the digital sphere and how these opportunities can be implemented in foreign language teaching for achieving good results in language mastering.

**Index Terms** – foreign language learning, digital environment, advantages and disadvantages of online learning in an e-environment

## I. INTRODUCTION

The dynamics of today's world and the digitalization of ever more spheres of life have affected the various forms of teaching and education in general: "As a result of the countless worldwide practices and theoretical researches in recent years, the content of the notion of e-learning has expanded to an extent that scientists often avail of different concepts in their attempts to cover the different aspects of this phenomenon." [1]. The roaring professional and personal everyday lifestyles are largely driven by the rapid developments of techniques and technologies which are overturning our ideas about the world and one's place in it. In recent years, almost every new technology has been implemented, or at least tested in education, such as artificial intelligence, chatbot, open data learning, computer animation learning, online networking, virtual labs, e-learning games, drone-based learning, multisensory learning, social media-based learning, robot learning, inverted/ flipped classrooms, online courses for multiple users, virtual and augmented reality, electronic distance learning platforms, etc. [2]. Of course, all of these would be difficult to be used successfully at the same time together. Training and practice are needed for their adequate introduction, both on the part of the tutors and learners. However, the theoretical understanding of and attempts to apply the cited forms is already a serious call for their future application. Only time will show which of the listed formats will be most applicable, and that is probably not too far away.

What is actually happening to learning and education when transposed into a digital environment? Obviously, the process becomes complicated and dependent on factors, which otherwise would not have been relevant in a real environment, or would have had little effect on the attended classes. If/While for decades the methodological theories

had accented on the learner during the educational process, the transition to an electronic environment shifted the focus to a large extent onto technology and technique, which are acquiring a key significance. The need for technological resources and technical competence in practice make the implementation of the process impossible. The main elements of each act of learning are: learning content (resources) - tutor (mediator) - learner (recipient and active participant) – act of learning, where the area of perception and implementation of the interactive process is namely the act of learning.

These invariable constituents of digitalization have been complemented and so the design now is as follows: teaching content (resources) – technological tools - digitalization - digital environment - technological means (tool), software (media) - tutor (technically prepared mediator / moderator) - learner (technologically respective recipient and par participant) – learning process in an online environment. Technology has become a kind of seat of the process and the remaining, invariable elements must be adapted to and implemented in this new "digitalized" process - the tutor must prepare himself/herself "technologically" - to study, test, learn and apply the respective technology, the teaching resource must be digitalized, adapted to the digital environment and the learner, in turn, must synchronize his/her own technical knowledge and skills (most often they are at a higher level than those of the tutor, due to purely generational characteristics of the learners born after 2000) with the corresponding digital interaction (Fig. 1).

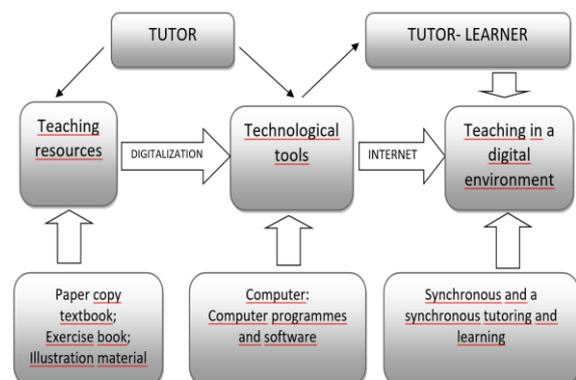


Fig. 1. Digital interaction

Undoubtedly, technology has become the "religion" of the 21st century and has found its role in education, albeit by force / forcibly / in a state of emergency./ However, the new reality has indicated that the lack of technical support and internet access by either of the sides - tutor or learner,

renders tuition impossible. We are no longer discussing e-distance learning, but distance face-to-face (synchronous) learning in an e-environment. Until before the pandemic and the emergence of the new realities, dressed in English terms such as lockdown, home office, etc., distance learning was primarily considered a hybrid – set apart between classroom activities and learning in an electronic environment, distance, asynchronous, using electronic resources. The classical understanding of distance learning is using all forms of teaching and learning, where the learner and the tutor are separated in space and time, and where learning is planned, technology-based communication is required, as well as special institutional organization. All this, of course, remains in force, but under the new conditions where the educational process is in an electronic environment it should be considered how best to bring it as close as possible to the classroom form and on the agenda emerged video conferencing platforms, which became an integral part of conducting the lesson for the implementation of synchronous face-to-face training, as far as possible.

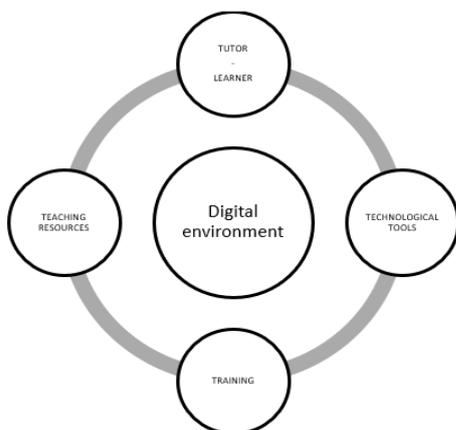


Fig. 2. Shifting the focus to the digital environment in the pedagogical process

The desire to implement technology in the work processes is in fact deeply rooted in the genome of mankind – from primitive labour tools up to the complex robotised production systems of modern day. At the same time, natural fear exists of the new and the unknown which is also manifested in the attitude towards technological innovations, which are often more complex, and require learning and acquisition of new skills. Thus, the opposing opinions within the educational circles "For" and "Against" technologies speak unequivocally, and especially about the extent of their application in education, how effective they are, how they would support mastering the subject matter and when they hinder the achievement of the set goals. Of course, each scientific and respective academic field, with its accompanying curricula, subjects and formats of education, has its own specifics and the universalization of education in a digital environment is difficult to achieve, at least at this technological stage of human development.

In the article we present observation and research results during Bulgarian seminars with 1st and 2nd year Bachelor students. Our conclusions are based on proven results from face-face tuition with students as well as online teaching in

electronic environment during the past academic year. The statistical data is made from questionnaire surveys and analysis of the exam achievements at the end of the second and the fourth semester in both groups of second year students (22 and 24 learners respectively), which gives us confidence to consider the drawn conclusions, based on the shown results, as representative. The tasks and the projects, developed during the semesters of the two academic years, have also been analysed; those, presented during the online tuition have received higher marks, which shows that the digital environment is more comfortable for the learners - the target group of the research.

Despite constant desperate laments/ laments as to how education has been "done with", how in an electronic environment it is formal and ineffective and the hesitant opinions whether the school year should be declared null, because much of the teaching material had not been taught, or was superficially mastered, or both (mostly in primary and secondary education), we consider that e-learning can be just as effective as classroom teaching. The innovative point here is that the responsibility of the individual learner is greater, and the tutor now has to solve a number of issues on the adaptation, transformation and digitalising the study material, as well as to find techniques and methods, to build strategies whereby to accomplish the set goals and thus achieve satisfactory results. The motivated self-disciplined, organized and responsible learner with clear goals and set results, will be trained, regardless of the form of tuition, while the unmotivated one, simulating interest and commitment during a lesson, not clear why he/ without a clear idea why he or she is taking the relevant course at the faculty and university, would produce the same, or very similar, results, which would otherwise be shown during classroom attendance form of training. In this case, reference is made to the field of higher education, which is voluntary, not compulsory, although there are future graduates who enrol a high school of education under pressure from the environment, the family, "fashion" to receive a degree, etc. external factors, but not consciously with the will for personal advancement and future self-realization.

## II. DISCUSSION

It is necessary to clearly define and distribute the tasks and responsibilities between the tutor and learner, and then the interaction between them will be effective and working. In order to achieve good results, the tutor distributes the different activities and assignments 50 / 50 to both sides in the process, with small variations during the different stages. There are no universal pedagogical and methodological paradigms to guarantee the efficiency and success of the learning process. The digital environment provides a number of opportunities and facilities, which in the classroom environment require effort and material and technical resources. For example, in order to present illustrative materials - audio, photo images (photographs, reproductions of works of art, diagrams, graphs, tables, etc.), videos, these shall first need to be presented physically in the form of boards, recordings, reproduction players, or a media and the corresponding technique by which to present them, and if in

electronic format, or if they are available on the network, respectively a stable connection to the Internet, etc., would be required. The advantage of the digital environment is the theoretically unlimited resource the tutor avails of, through which the learning process can be made more attractive, more intensive and diverse, but this also requires prior work and preparation, refinement and selection of materials by the tutor. Most opportunities also mean more work on the preparation and selection of those that would really work for the specific tasks and thus achieve the set goals.

Our personal e-learning environment experience shows that along with the curricular teaching materials, topics and reactions focused on students' comprehension / miscomprehension, the very essence of the digital environment leads to the use of additional materials for illustrations, as available on the web. In most cases, additional illustration helps and clarifies the teaching material misunderstood at first reading. For example, this is especially useful when it comes to object or realia that has no material analogue in a foreign language context nor a corresponding lexeme for naming it, and in this sense, only the translation, in English, for example, does not bring clarity to foreign students [3]. The Internet provides access to numerous illustrative materials such as photos, paintings, excerpts from films, reports, videos, etc., which can supplement a particular situational context underlying a particular lesson unit. Our opinion is that in this way a more complete idea can be established of the culture and characterization of the native speakers, through the lexeme, expression, phrase and their situational usages, than by articulative and descriptive narration of what it is as presented by the tutor. Moreover, visual impressions and images leave more lasting impressions in the minds and memories of learners than the verbal material, as we mentioned before, presented most often through a mediator language, in most cases foreign both to learners and the tutor. The long path of a foreign language unit - translation into another foreign language - translation into a native language - memorization - usage, is shortened to a foreign language unit - image - memorization - usage. Here is a very conditional example of the process, illustrated by the following two schemes would look like (Fig. 3).

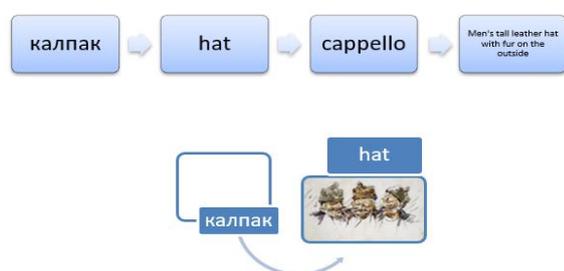


Fig. 3. Reaching meaning through visualization

Of course, we must also consider that the use of an illustration is far from new, but in the case of the use of the Internet a number of examples can be offered, along with additional socio-cultural information. In this specific case of illustration, the name of the writer and painter Chudomir can be mentioned and encourage students to read a story of his,

etc./ and the students can be encouraged to read a story of his, etc.

We must also take into account the fact that the generations born and raised during the digital age have become accustomed to the use of electronic devices for perceiving most information, communication and social interactions over the network. That is, the electronic environment is much more natural and comfortable for cognitive and social interaction than is usual for previous "analogue" generations, which a large number of tutors belong to. For example, lately it is/ has been observed that only about 10% of foreign language learners use a paper dictionary in class [4], while the rest avail of electronic online dictionaries via a smartphone, especially since in addition to the standard translation of written the word, they also provide features such as translation from an image (from a photo to word, a passage from text, etc.), voice recording, translation into more than one language, etc. (Our observations are based on our work with 143 international students, who studied Bulgarian in mixed groups from the faculties of TU during the 2019/2020 and 2020/2021 academic years.) The use of technology, of course, has its drawbacks and misleads the learner by offering the easy and fast version of the e-translator, and providing minimal effort to complete an assignment. For example, for the task of writing a short text on a given topic, the student writes his presentation in his native language, "launches" it through the popular Google translator, then uploads it to the platform or sends it by e-mail. The texts translated by the mentioned software as output are quite decent over the last two years. An option in such a case is to ask the learner to read his / her text, which will make clear which words are new to him / her and indicate that an automatic software translator was used. This "lazy" option for fulfilment of the set assignment can be made use of by asking the learner to read the text again, use examples from the sentences to demonstrate the new terms, use repetition, etc. The idea is that any work done can be used to extract the most benefit for the learner, and not just be declared "cheating" so the task be assigned again, but this time use his available abilities to fulfil it.

We agree with the first part of the following statement made more than ten years ago: "Information technologies create new trends in cognition and a new attitude towards knowledge. It is not about the use of technology at any cost, about its conformity to civilization changes, which is invading in-depth the institutional forms, culture and mentality of the traditional educational system. Of particular interest are the problems and constraints to which the education system is subjected and how the use of new information technologies can help solve these problems and comply with these constraints. Obviously, information technology cannot do this without the evolution of the policy, of the organizational forms and pedagogical practice." [1]. As to the policy, organizational forms and pedagogical practice that the author talks about, they were changed revolutionarily, under the pressure of the pandemic situation. For better or for worse, the changes are a fact and we cannot but work towards optimizing the pedagogical interaction between tutor and learner in a digital environment.

The quoted article concludes: "The use of didactic materials for teaching, prepared on a computer, needs to be extremely well balanced, scientifically substantiated, in specially equipped methodical rooms. Otherwise, there is a risk of facing the opposite effect - auditory and visual fatigue in students. The learner's attention must be engaged with the teaching material and be distracted as little as possible by the technical devices." [1]. This is about the use of new information products and "multisensory" documents as part of traditional training, no one imagined only a year ago that training would be entirely transferred to an electronic environment and mediated by a computer or smart device. But two of the problems are properly pinpointed – the fatigue that we all experience during prolonged work in front of the monitor and the problem of retaining the attention of learners who are in an environment conducive to distraction and the difficulty to retain attention. And we must note that the device itself offers opportunities for "multi-track" communication and activities such as messengers, social networks, surfing the Internet, watching videos, etc., which we have witnessed in practice.

The most common drawback of e-learning is supposed to be the lack of live contact with classmates / fellow uni-students, as well as that with the tutor. Consciously or not, much of the information we receive about others is by visual contact with participants in communication by facial expressions, gestures, postures and body language. In a video link most of this information is lost, but not quite. With a smaller number of participants during a video conference session and when choosing the option for the speaker to appear on a large screen window, facial expressions, gestures and somatic signs that express feelings, moods and attitudes during / toward the learning process and the matter under discussion can be read successfully enough. This is of course not possible when learners turn off their cameras or the internet connection is poor. As the saying goes - "there is no complete happiness", but even during classroom activities there is no guarantee that the signals given by the learners are not intentional and false, nor that the tutor will notice them and read them out correctly. In such case, things depend on what the two sides want and how motivated they are in the learning process, but the idea is that e-learning provides tools that can bring synchronous e-learning close to that of a real environment.

monologue and is unaware of which students are actively listening and whether they are actually present at the moment. In our practice it has happened more than once when calling and asking a question to a student, he does not answer and it remains so until the end of the class, he just signed in his presence by joining the group, perhaps accustomed to the practice of attending online lectures, where there is no dialogue with each one individually, as it is supposed to be in a language training seminar.

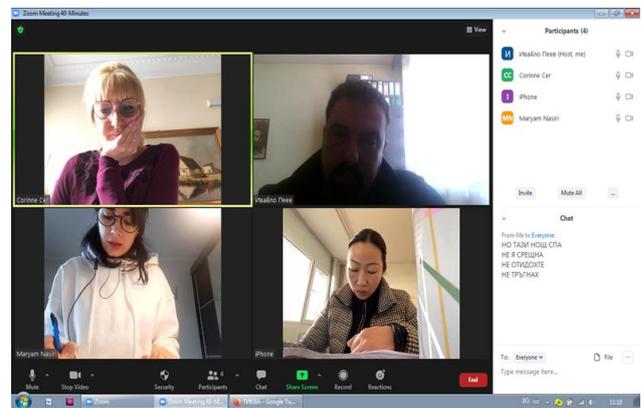


Fig. 5. Online tutorial, teaching new grammar

The next screenshot, Fig. 5, however, unequivocally illustrates the opportunities of the video platform for individualising which learner, and to what extent was engaged, concentrated, and motivated during the lesson. In this specific case, the captured moment is from a new grammar lesson, which is clear from the examples recorded in the chat. Even judging by the expressions and postures of the learners, and more precisely by the student asking the question, it can be assumed that the matter troubles her - the thoughtful look, exhibiting difficulty, expressed with a palm-supported chin, etc. Our personal experience indicates that with the abilities of the camera and the “zoom” in the video platform, it is easier to understand what is happening with the learner than it would be possible if it were a classroom lesson, most often in a large hall, where the distance between learners and tutors is for example more than 3 m.

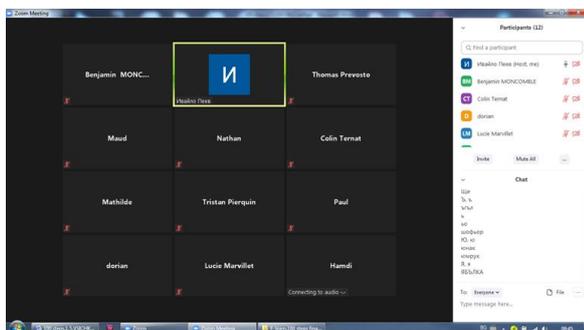


Fig. 4. Image of a lesson in an online environment

The photo in Fig. 4, made during a lesson in an electronic environment, obviously shows that the tutor is holding a

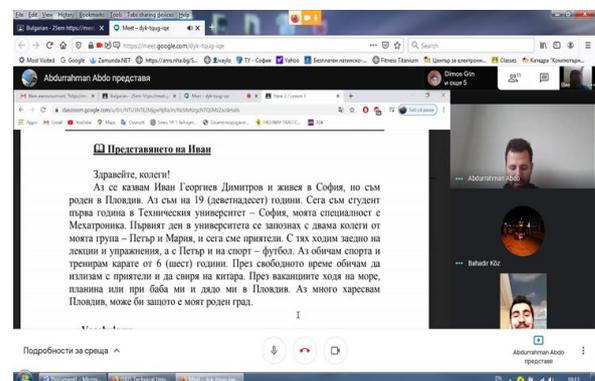


Fig. 6. Reading a text during an online Bulgarian language lesson for foreigners

The image in Fig. 6 illustrates the probability of maintaining visual contact with the learners when using a shared

screen, in the/this case of reading a new lesson. On the one hand, you can see the reactions of the reader, and on the other hand, those of the listeners at that moment, who can be recalled if they get distracted, which can be done by asking a question or be asked to continue reading. The set examples, in our opinion, clearly demonstrate that learning in a digital environment is not so different from the classroom environment, if the common points between the two forms of learning are sought and the possibilities of the videoconferencing platforms are used. In the "visual aspect" each student actually becomes the centre – the focus of the process when it is his turn to read, when answering and asking questions and all the attention is focused on him, both by the tutor and by other students through the leading window, pre-selected in the video software menu. In our view, this enables training to be as effective as classroom courses, if even not more effective. When we think about it, in real learning environment, no tutor "shoves" in the face of the reader to figure out the facial expressions of the learner, whereas in the video platform there is the option to observe even the facial expressions, thanks to the active window. The effectiveness and use of the advantages of this format of tuition, of course, depends largely on the tutor, his adaptation to technology and behavior in the electronic environment, his pedagogical experience and the ability to implement this experience in the digital field.

## II. CONCLUSION

The following observation on the use of information and communications technologies can be adopted, and in particular the second part of the following quote that ICT lessons are "... aesthetically emotional, captivating and interesting. They allow the use of visual didactic materials, which leads to a greater inspiration for mastering the curriculum. They broaden the opportunity for individual and research work" [2].

Multimedia technologies do not affect the structure of the lesson. All stages there are preserved, and the efficiency of the educational process is enhanced. The learning environment is rapid/ rapidly evolving and intriguing. ICT-s can find their place in all stages of the lesson - in the initial presentation of the new material, during its comprehension and consolidation, when structuring the abilities for its practical application using examples and giving assign-

ments, as well as in determining the level of knowledge." [2]. The e-environment is actually more attractive and stimulating especially for contemporary learners, for example in traditional classroom learning the individual assignments (e.g. giving a presentation on a certain topic, writing an essay, term paper, etc.) are mostly prepared on the basis of sources from the Internet and almost no paper resources are used. At least these are our observations from the training of engineering students, for whom the computer has become a principal tool of learning, and the network the main and "most trusted" source of knowledge and information.

Very indicative of this change is the attitude of students (observations over the past five years) to paper textbooks, which most often copy the pages with topics that they will "need" for the exam, but when these students, future graduates, have the editions, these are in bad shape - crumpled, scratched, torn in two so as not to take up much space in their bags, not to weigh, etc. The paper book edition is rather "an old school exotic", it is impractical, the pages cannot be "scrolled" on, there is no copy-paste, delete ... Nowadays students feel uneasy using them. The first signs of the "death" of the "paper-ink hegemony" in the learning process are taking notes on a laptop, compiling dictionaries on a smartphone, in recent years - recording on the dictaphone of a smartphone and recording what the teacher wrote on the board with a smart device and often the subsequent choral request from the fellows to the "photographer" - "Send it to me!"

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