The impact of digital technology on the study of languages and the development of digital education

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Abstract. This research is based on an analysis of the impact of information technology on education. It also examined the transformation of traditional education into a digital format. The paper presents the arguments of outstanding specialists in the field of education of various countries and clippings from their popular works. This paper explores the symbiosis of pedagogical and technical principles. It also shows the place of digital technology in teacher education. As special cases, here are considered the use of technology in the study of English language and modern theories of language learning.

1. Introduction
The application of modern teaching methods nowadays means especially effective use of modern digital technologies and the effective use of digital learning materials. Digital technology is supporting the education process for some time but nowadays the emphasis is on the new class model termed as New Generation Classrooms. Such classrooms its arrangement and equipment provide a stimulating environment for learners which raises learners’ motivation to independent work and supports the constructivist approach in the educational process such as inquiry-based education. The main emphasis at these termed classrooms is also learners’ access to modern digital technologies which also function as a motivation but mainly give learners the newest opportunities to their own creative activities. Using these technologies, they acquire almost unlimited sources of information, tools for their independent inquiry and experimentation or various forms of online collaboration and knowledge sharing. On independent learners’ inquiry and experimentation, today points out the constructivist approach called inquiry-based education, which also emphasizes the active use of ICT in the classroom and also during self-study and in preparation for lessons. Inquiry-based education means such instruction which includes activities focused on exploration and discovery, teaching inspired by inquiry and research methods, which very well supports and enhances the potential of digital technology. Another important part of the modern educational process is the content of education and software tools to support building new knowledge. Digital educational content is interactive reusable digital learning objects whose potential would not be only accessed via the Internet anytime and anywhere, but especially explanatory help for
learners to understand phenomena, whose introduction in the traditional way of teaching mathematics could be problematic. The teacher creates digital learning objects either himself or herself or uses already prepared objects either unchanged or is able to modify the acquired objects and align with required educational goals and the actual content of teaching discipline. So he is able to modify it in the specialized software for creating interactive digital learning objects which are e.g. programs for creating animation and software for creating digital learning objects designed for the interactive boards. These practices, technology and digital learning objects can be applied to the educational process from primary education to university education. For this purpose, it is necessary to have suitably prepared digital learning objects including access to these objects, i.e. it is necessary to have during own education access to information and communication technologies [1].

2. Inculcating digital technology as a tool for learning languages
Digital technology is considered to be one of the most important drivers of linguistic change in a modern period. Over the last decade with its’ remarkable entry as an educational device, the tradition of English Language teaching has drastically changed. Graddol claims: “Technology lies at the heart of the globalization process; affecting education, work, and culture. The use of the English language has increased rapidly after 1960. At present, the role and status of English are that it is the language of social context, political, sociocultural, business, education, industries, media, library, communication across borders, and key subject in curriculum and language of imparting education” [2]. “Technology has turned into one essential aspect of society that helps students to understand the bigger picture of the world and not just stay confined to what schools and teachers teach them within their classrooms” [3]. Certainly, advanced technology has proved to be successful in replacing traditional methods. But it is really interesting whether contemporary teachers agree or disagree with the replacement of traditional teaching methods with the modern one. An overwhelming majority of teachers in Europe (90%) use ICT to prepare their lessons Outside the EU, the story seems to be the same. In the US, the Institute of Educational Technology has developed a “National Educational Technology Plan” for transforming education through the power of technology [4]. It is evident that in most countries ICT is playing a crucial role in teaching and learning the English language. Even in the US, educational reform is being realized towards the implementation of technology in classes. Nowadays, many studies have been implemented to find out the answer to this key issue, and most of them have proved the importance of the usage of digital technology in classes. For example, according to the results of the research conducted by teachers in Iran, they had positive attitudes regarding the use of technology in their classrooms [5]. Researchers from Saudi also reached the same conclusion that there is a positive correlation between a teacher’s presence during a computer use and a Computer Assisted Language Learning (CALL) training and a positive attitude toward the use of Information and Communication Technologies (ICT), methodologies in learning [6]. Moreover, Korean teachers found out computer technology as a useful teaching tool that could easily support teaching methods by providing students with a variety of language inputs and increasing students’ learning capabilities in real-life contexts. According to Chong, the advantages of using the Internet in the classroom were listed as providing authentic materials for learners, making students meet native friends online, and assisting teacher-student communication [7]. Teachers’ individual interest in Internet use, teachers’ skills at incorporating Internet resources in classroom tasks, and computer amenities and technical support in schools were the three key factors influencing the Internet use in the foreign language classroom [8].

3. Digital technology in teacher education
The developments in the use of electronic media have influenced all walks of life. Education is no exception to this. The use of computers and the internet for enhancing the quality of education by making learning more relevant to life has been seen as an ideal by educational institutions. The citizens of tomorrow who are our students now are going to live in the age of digital technology. How are we preparing them for the same? Are we giving them technology-based Education? Are we giving them exposure to the use of computers and the internet? Have we integrated digital technology into classroom
processes? What are the efforts made by the department in this direction? What does the policy say about digital technology in Education? There are several such questions that we need to probe into. An understanding of these issues will enable us to use digital technology more meaningfully in Education [5, 9]. With the growing demands of society and on the set of Information and Communication Technology-based education, it is necessary to include digital technology in teacher education. With a scenario where information is accessible to a child at one mouse click, a teacher must be equipped with competence to use digital technology for their own professional development. There is a major paradigm shift in the overall education system with the implementation of better teaching concepts. This technology invites learners to be more independent and the curricula to be more dynamic. Teachers need to complement their content and pedagogy expertise by utilizing online facilities. The use of digital technology effectively requires a change in classroom practice rather than mere acquisition of technical skills. Teachers need to familiarize themselves with possibilities approaches and applications in the use of digital technology, the facilitation of teaching-learning. There are a variety of approaches to the professional development of teachers in the context of the use of digital technology in education. Professional development to incorporate digital technology into teaching and learning is an ongoing process. Teachers need to update their knowledge and skills as the school curriculum and technologies change. No more learning is a teacher-centric static process; it is more of a learner-centric and flexible process. Now with the inclusion of digital technology, it is observed that the Classroom has turned into an active participant's platform where actually the knowledge evolves. Thus, professionally powerful teaching is the need of the hour in order to design dynamic ways of human development. Teachers need to acquire knowledge as well as skills to be able to survive and more than that to impart the best of knowledge to the students [9].

3.1. The use of technology for English language learning

Apart from the presence of new technologies within classrooms, technology has opened up classrooms as spaces such that “learning extends beyond the walls of the school” [10]. This significantly has given rise to descriptions of classrooms as sites of a “new ecology of learning” or a “new paradigm of learning” [11] where different notions of learning have been articulated. Esteban-Guitart describes this new paradigm as “participation in communities of interest (such as a Facebook group, WhatsApp group, the interactive whiteboard, and a digital song, for example), and using different formats of representation, with a predominance of visual language and multimodality of devices and codes [12].

3.2. Recent theories of language and literacy learning

Tompkins points out that “now literacy is considered a tool, a means to participate more fully in the technological society of the 21st century”. Citing Tracey and Morrow that “multiple theoretical perspectives improve the quality of literacy instruction”, Tompkins proposes that instruction should represent a balance between “teacher-centred and student-centred theories”. The balance of theories that Tomkins proposes is among the following: behaviourism, constructivism, sociolinguistics and cognitivism. Arguing that the role of the teacher as a dispenser of knowledge continues to remain key in 21st-century classroom instruction, behaviourism requires to focus on how the teacher provides input and when. Tompkins explains that behaviourism is enacted by the teacher when “information is presented in small steps and reinforced through practice activities until students master it because each step is built on the previous one” [13, 14]. Behaviourism explains the need for quality teacher input that further student learning.

Constructivism occurs when learners are engaged and motivated in learning. Engagement is argued through both instructional processes such as schema activation and development as well as through task designs that allow for learners to demonstrate their understanding and create their own knowledge. Through the lens of constructivism, language and literacy learning is collaborative and inquiry-based. A sociolinguistic view of language and literacy learning, on the other hand, includes the view that language is socially and culturally responsive. Language learning is enhanced when authentic in terms of contexts and tasks. From a sociolinguistic perspective, the role of the teacher shifts from that of an
expert to that of a facilitator and guide. A sociolinguistic lens to language learning offers the view that learners are positioned as inquirers of language use in all forms of texts. Tompkins identifies that language and literacy learning embraces cognitivism since language skills such as reading and writing are meaning-processes where learners as readers and writers use a range of resources in order to make meaning. Apart from a balance of theories, Tompkins further argues that a balance to instruction also attends to graduated levels of language support during instruction that ranges from teacher-focused to learner-focused, to both language knowledge and skills, differentiated instruction to meet the needs of all learners and principles of inclusion as resources for different abilities and groups [14]. The role that technology plays within this combination of theories for balanced instruction is undeniably varied for it can assist the teacher in providing expert and visually adapt input to learners as a means to structuring learning, form multimodal resources for learners to discuss, collaborate and co-create and offer the means for language practice and output by learners as well. As a result, instruction that transcends from the physical world of classrooms to technological platforms is described as “blended approaches” and is yet another attribute of balanced instruction. The current view of the role of technology in instruction is that this seamless transition from the world of the classroom and the world of technology is how technology is accommodated in instruction. Further, the concept of “‘content curation’ – selecting, sifting, showcasing and sharing content with friends, family, and peers”, as Motteram explains it, is becoming more popular [4]. As such, Reis’ comment that “it is about having the courage to change the focus in the classroom from a teacher-centered classroom, in which we are the bearers of knowledge and truth, to a student-centered classroom in which the children are the discoverers and builders of knowledge” [15] is symptomatic of significant theoretical shifts. From the perspective of the connectivism alone, the inclusion of specific technologies requires a reorientation to long-held beliefs about individual agency in learners.

4. Conclusion
With the use of digital technology as a pre-requisite to filling the role of “learning”, many of us as users of technology are already familiar with the hardware required for access to the world of technology. The list is, nevertheless, provided for teachers who may be in contexts that still have limited or are without technology and they are preparing to accommodate technology into instruction. Unfortunately, outfitting classrooms with the technology remains an expensive endeavor and if your school context is not yet wired, we could as teachers seek funding options from the government or international community to assist with this preparatory step.

We can determine that there is still a lot to walk for these technologies, several challenges, and barriers that educators need to take into account before they introduce them into the classrooms. Nevertheless, as long as we have them we can use it for the benefits of our teaching space and our students, to promote attires to the co-working, the co-dependency, and the co-development. It is a challenge, and not only to these technologies that can present an important number of flaws and debilities, but also to the teachers, they to be ready and mature enough to open the door to new information, to understand that not only the information is held by the teachers alone but it is outside and the students can reach it, the educators should not be forbidding the access to that information, instead educators should be promoting and teaching a proper, and better way to reach it and understand it.

References
[1] Nocar D, Qianjun T and Bártek Kv 2016 Educational hardware and software: digital technology and digital educational content Edulearn16 Proceedings pp 3475-84
[2] Graddol D 2000 The future of English (The British Council) pp 1-60
[3] Warschauer M 2000 The Changing Global Economy and the Future of English Teaching TESOL Quarterly 34(3) 511
[4] Motteram 2013 Innovations in learning technology for English language teaching British Council BJET 45(2) E5-8
[5] Mollaei F and Riasati M 2013 Teachers’ Perceptions of Using Technology in Teaching EFL International Journal of Applied Linguistics & English Literature 2(1) 13–22

[6] Alshumaimeri Y A 2008 Perceptions and attitudes toward using CALL in English classrooms among Saudi secondary EFL teachers The JALT Call Journal 44(2) 29–66

[7] Shin H J and Son J B 2007 EFL teachers’ perceptions and perspectives on internet assisted language teaching Computer-Assisted Language Learning Electronic Journal (CALL-EJ) 8(2) 1-13

[8] Chong D 2000 The Practical Considerations of the Internet in the EFL Classroom Multimedia-Assisted Language Learning 3(2) 9–35

[9] Kaur P 2016 Teachers Education in India: Inclusion of ICT in Teachers Education International Education and Research Journal 2(2) 62-4

[10] Jansen C and Merwe P 2015 Teaching practice in the 21st century: Emerging trends, challenges and opportunities Universal Journal of Educational Research 3(3) 190-9

[11] Kivunja C 2015 Teaching students to learn and to work well with 21st century skills: Unpacking the career and life skills domain of the new learning paradigm International Journal of Higher Education 4(1) 1-11

[12] Esteban-Guitart M, Serra J and Vila I 2017 Informationalism and informalization of learnings in 21st century. A qualitative study on meaningful learning experiences Social and Education History 6(1) 1-25

[13] Tracey D H and Morrow L M 2006 Lenses on reading: An Introduction to theories and models (New York: Guilford Press).

[14] Tompkins G E 2010 Literacy for the 21st century: A balanced approach (New Jersey: Pearson Education)

[15] Reis V 2015 21st century learning for 21st century young learners Modern English Teacher 24(1) 14-6