

SUSTAINABILITY OF U-CALL

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ABSTRACT

This paper shows that the flexibility of time as a potential of Computer Assisted Language Learning (CALL) proves the sustainability of its latest stage – Ubiquitous CALL. Firstly, the ideas of the Third Millennium Pedagogy are combined with the ethical and philosophical principles of sustainable education. One of the descriptors of the sustainable education – its durability is then compared with the principle of time flexibility in e-learning. On this theoretical base, the ideas of Ubiquitous Learning in general and Ubiquitous CALL (U-CALL) in particular are developed. Two comparable cases of the research aimed at the time flexibility of e-learning in foreign language education are described. The former one was conducted in 2016, the later in 2008. Similar results in time flexibility prove that e-learning in language education can be omnipresent, fulfilling the demands on Ubiquitous CALL. The durability of time flexibility proven by the real-life examples indicates the sustainability of U-CALL.

KEYWORDS

Time flexibility, Third Millennium Pedagogy, Sustainable education, Durability, Ubiquitous CALL.

.1 INTRODUCTION

Foreign language pedagogy has always been an important part of education. In our modern globalized world, learning foreign languages is becoming more and more important not only for work, but also in private lives of all people, the fact which shows the necessity of making learning available for anybody, anytime and anywhere. This goal can be reached with the help of technologies. Computer Assisted Language Learning is entering its new stage fulfilling the needs of learners by being as omnipresent as its technological tools.

The ideas of the Third Millennium Pedagogy combined with the principles of sustainability of education show us the road to the world where learning will be a part of everyday life of all people. With the examples of using e-learning and/or blended learning environment, this paper proves sustainability of Computer Assisted Language Learning (CALL) in its latest stage – Ubiquitous CALL.

2 SUSTAINABILITY OF EDUCATION

The sustainability of education should be the main goal of educators within the framework of the so-called New Millennium Pedagogy. As stated by Sterling (2008), it is necessary to find an alternative to the educational practice of the past:

...we need an educational culture and practice adequate and appropriate to the volatile, densely interconnected, and dangerously vulnerable world that we have created. Instead of educational thinking and practice that tacitly assumes that the future is some kind of linear extension of the past, we need what I call an anticipative education, recognising the new conditions and discontinuities which face present generations, let alone future ones... (p. 64).

Sterling as the “father” of the term “sustainable education” (which is used by him to distinguish “education for sustainable development” from “sustainability of education”) develops the idea of “changing the educational culture” (Sterling, 2001) on the basis of the ideas of those educators who were aware of the fact that the Third Millennium will need a change in educational paradigm.

Townsend, Clarke, & Ainscow (1999) predicted the change in thinking about the schools in the Third Millennium. Their ideas compared Second Millennium Schools and Third Millennium Schools. According to them, the education in the Third Millennium will be (among other characteristics):

- offered by different sources in time-unlimited interval;
- accessible on the basis of abilities and interests of students;
- controlled by the learner.

Sterling (2008) characterizes sustainable education by its four descriptors (p. 65):

Sustaining: it helps sustain people, communities and ecosystems;

Tenable: it is ethically defensible, working with integrity, justice, respect and inclusiveness;

Healthy: it is itself a viable system, embodying and nurturing healthy relationships and emergence at different system levels;

Durable: it works well enough in practice to be able to keep doing it.

The application of Sterling’s ethical and philosophical principles in the theory of the Third Millennium Schools offered by Townsend, Clarke, & Ainscow leads us to the contemplations on e-learning, which, if properly used, may be a sustainable contribution to educational attainments.

Sterling’s principles in the theory of the Third Millennium Schools

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Basic principles of e-learning were described by Khan (2006). Khan considers e-learning to be “...an innovative approach for delivering well-designed, learner-centered, interactive and facilitated learning environment to anyone, anyplace, anytime by utilizing the attributes and resources of various digital technologies [...] suited for open, flexible and distributed learning environment.” (p. 3). The learning environment offered by e-learning can be also described as a sustainable one, when viewed from the perspectives of the above-mentioned principles.

Stepanyan, Littlejon & Margaryan (2013) propose the term “sustainability” as a “useful umbrella concept because it helps bring together diverse terminology and various strategies addressing a range of interrelated issues in the area of e-learning.” (p. 91). In the results of their scoping review, they state that in the concept of sustainability “[r]egardless of the variations of the definitions of the term, there appears to be a common foundation: a property of the continuity over time.” (p.94). Time and space flexibility is one of the most important benefits of e-learning students can profit from (cf. Frankl & Bitter, 2012).

The space in which e-learning is happening is as flexible as its time framework – students can access their e-learning environment from any place with an internet connection, by any device (a notebook, a mobile phone, a tablet). According to Howard (2015), learning in the “afterschool spaces” is more challenging and entertaining than learning in formal school setting. The term “afterschool spaces” was introduced by Prensky (2012), who claimed that the afterschool world is for the young people more attractive than the traditional school environment. We do not have to agree with this idea without any doubts. In fact, both spaces should be equal, since learning at school should be as attractive as its informal equivalent.

This interpretation of sustainability in e-learning provides us with a solid base for further development of these ideas towards the concept of Ubiquitous Learning (U-learning).

3 UBIQUITOUS LEARNING (U-LEARNING)

The term U-learning was introduced by Wheeler (2009), who applied the idea of ubiquitous computing (pervasive computing) in the educational environment:

U-learning will rely heavily on access to devices and tools that enable and support learning in any context, whether mobile or static, anywhere 24/7, and in a manner that is seamless and unobtrusive. It will also need to be 'intelligent' according to the strictest interpretation of the ubiquitous model, so that it can predict changing contexts and user needs as they occur. The key tools of U-learning will be mobile phones, laptops and other portable wireless devices.”(Wheeler, 2009, para 2).

Veselá (2012) connected these ideas with Computer Assisted Language Learning, and consequently introduced a new stage of CALL – Ubiquitous CALL (U-CALL). Its basic features are briefly described in the Table 1.

Table 1 Ubiquitous CALL

Technology	<i>PC's, mobile devices, Internet, multimedia, social media</i>
Role and use of computers	<i>Integral part of learning</i> <i>Authentic and purposeful multimedial communication</i> <i>Networked collaboration</i>
Applied linguistics	<i>Constructivism and connectivism</i>
Role of learners	<i>Autonomous part of global network</i>
Role of teachers	<i>Challenger, motivator, navigator</i>
Learning objectives	<i>Accuracy, fluency, agency and co-efficiency</i>

Adapted from Veselá, 2012

Since this paper is focused on just one characteristic of U-CALL – its omnipresence, which is closely connected with the durability of sustainable education, the description of the first two lines of the Table 1 follows.

As a rule, technological innovations enter the field of education relatively shortly after their production. It is believed (Norman, n.d.) that one of the first books printed by Guttenberg in Minz (the exact date is unknown) was *Ars Minor*, a schoolbook on Latin Grammar written by Aelius Donatus. The first public film screening using the Lumière brothers' 'cinematograph' in 1895 was followed by the first educational film 10 years later (Educational Films, n.d.). Other technological developments that entered the field of education include the television, the tape recorder, and so on. In 1953, IBM introduced the first mass produced computer (the IBM 701) to the public, and in the 1960's the history of Computer Assisted Instruction (CAI) began (Computer Help, 2012). Moreover, the same tendency can be traced even nowadays. As soon as the cellular phone became part of everyday life – M-learning (mobile learning) was introduced by technology-friendly teachers. Palmtops, iPods, e-book readers – all these innovations are already used in education and many more will follow. In U-learning all kinds of mobile and/or stationary devices with Internet connection can be used for teaching/learning purposes.

With the massive influx of social networks in our lives, the exploitation of their potential in education rises. According to the Centre for Learning & Performance Technologies (2015), which has been publishing the list of top 100 tools for learning for the last nine years, the 2015 Top Tools are (for the purposes of this paper the first twenty entries are selected):

Twitter	PowerPoint	Skype
YouTube	Dropbox	Evernote
Google Search	Facebook	Prezi
Google Docs/Drive	WordPress	Wikipedia

Pinterest	iPad and Apps	PowToon
LinkedIn	Kahoot	Slideshare
Moodle	Blogger	

When compared with the list from the year 2007, a fast move upwards of the social networks is clear. The first ten in the year 2007 were (Hart, 2007):

Firefox	Gmail
delicio.us	Google Reader
Skype	Blogger
Google Search	Word
PowerPoint	
Wordpress	

All of the above-mentioned technologies can be (and are) used in CALL.

Hanson (n.d.) envisions the future of computers, which will make technologies even more omnipresent than it is now. He predicts computer potential equivalent to the human brain, with a global network, self-editing software, instant data transfer, laptops built in desks, computers that never crash, holographic touch screen computers, computers that can turn into the size of a small sticky note, virtual reality, Internet-connection implant, holographic messages, and many other technologies connected with Artificial Intelligence, Robotics, Electronics, and Science on one hand, but also with Home and Society on the other. We are convinced that the technologies he predicts to appear in the near future will be usable in language pedagogy within the frame of learning which will be sustainably omnipresent. Together with new technologies, new challenges for teachers and learners arise. The main question is not whether we should or should not use technologies in education, but whether we, teachers and our learners alike, are prepared for using them despite the fact that today we can hardly imagine what in the not too distant future can be taken for granted.

4 CASE STUDY RESEARCH

Time and space flexibility of U-CALL, as the recent stage of CALL, is strongly supported by ‘ubiquitous technologies’. This feature can be illustrated by the research conducted by Puschenreiterová (2016), who in her dissertation analysed the data provided by the LMS Moodle as a part of her case study research.

The course of English Lexicology, taught during the winter term of the academic year 2015/2016 at the Department of Language Pedagogy and Intercultural Studies (the Faculty of Education, University of Constantine the Philosopher, Nitra, the Slovak Republic) to the English language teacher trainees, was taught in blended learning environment. The lectures were read face-to-face, and the seminars were provided in the form of a blended course in the LMS Moodle. All the lectures in the form of PowerPoint presentations, texts with additional information, Internet resources, interesting web pages and quizzes, and, finally yet importantly, course assignments were available in the Moodle course without any restriction. The only time constrictions were the deadlines of the assignments.

The students regularly attended scheduled seminars; however, they were free to complete their assignments online any time up to the deadline just before the next week seminar. Twenty-nine students were participating in the case study. The researcher analysed the data from the LMS Moodle and concluded that the course materials were accessed “any time on any day of any week” (Puschenreiterová, 2016, p. 110), which proves the time flexibility of e-learning.

In the Figure 1, the hits of all 29 students during the whole term (the winter term 2015) are shown. Tuesday is divided into three parts respectively according to the time of the seminars and the assignment deadline. The students used the online course mostly during the seminars (Tuesday 02:00 – 06:00); Monday and Tuesday up to 02:00 pm follow, clearly due to the assignment deadline. As it can be clearly seen from the Graph in question, no day during the whole week, including Sunday and holidays, is without any hit.

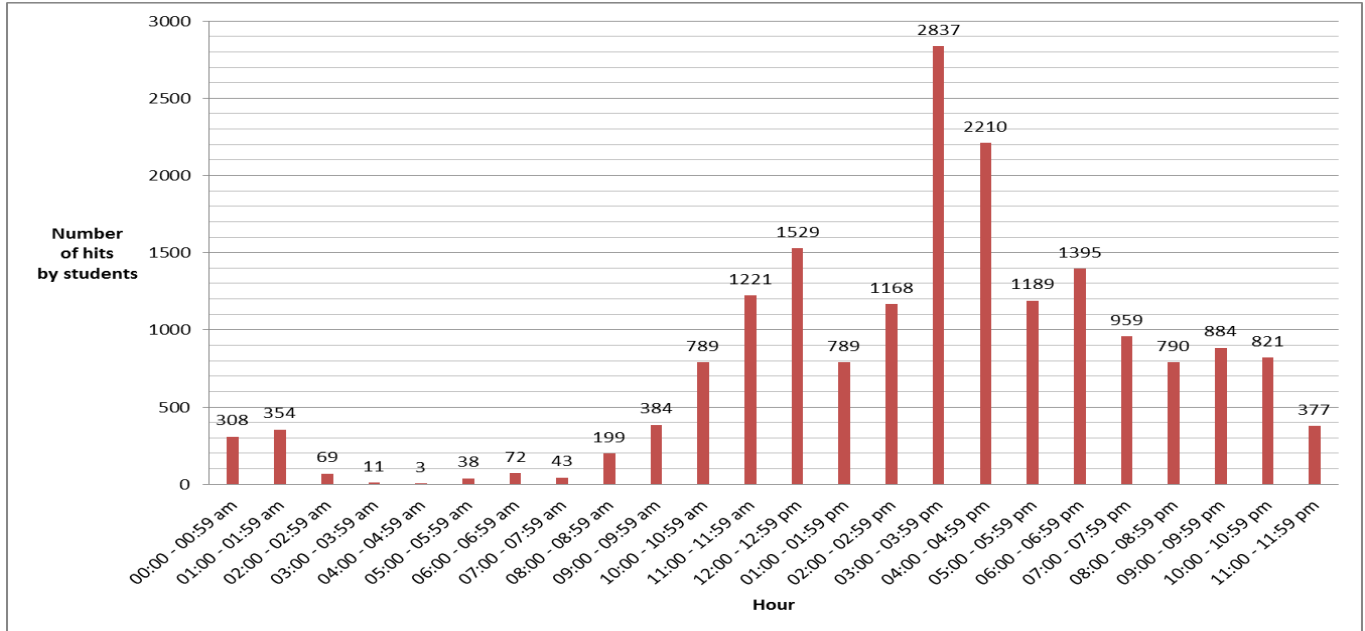


Figure 1 Number of hits – days of week

Source: Puschenreiterová 2016, p. 110

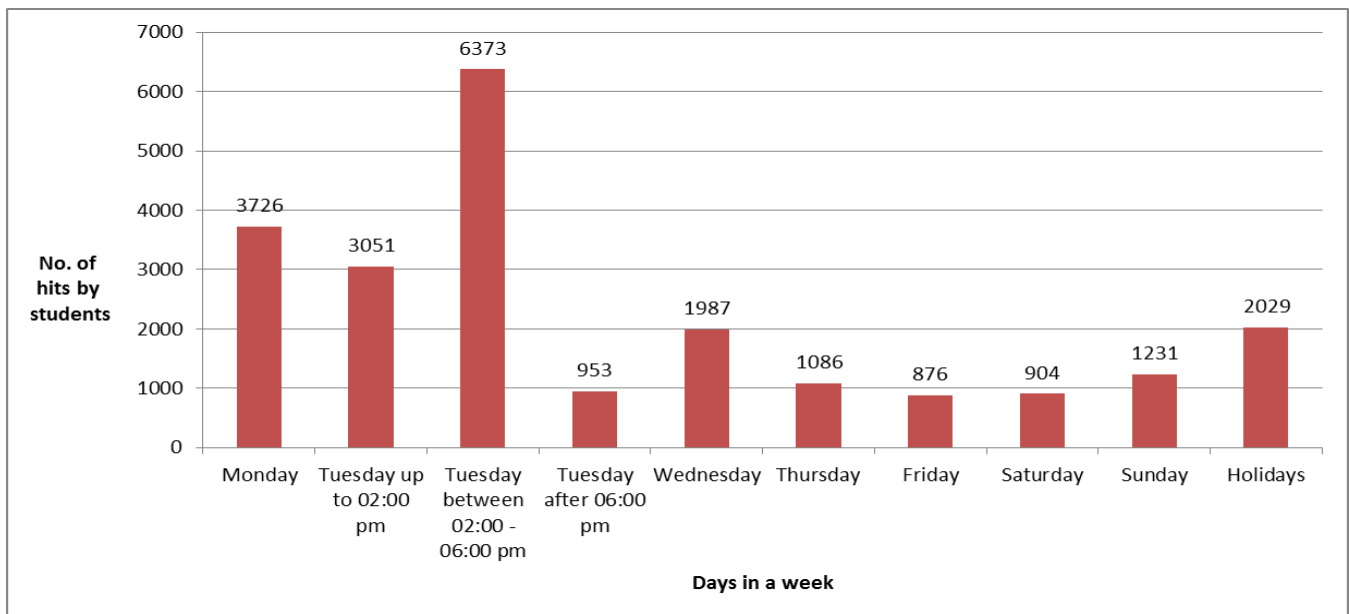


Figure 2 Number of hits / hours over the semester

Source: Puschenreiterová 2016, p. 111

Puschenreiterová’s (2016) analysis of the time flexibility continues with the analysis of the hits within 24 hours. Again, the hits for the duration of all the semester were included in the analysis. From the Graph 2 it can be deduced that besides the hours of the seminars and shortly before the assignment deadlines, all hours were utilised for assignment completion purposes. There are hits recorded even in the early morning and night hours.

The results of this part of the Puschenreiterová's case study show that the time flexibility of e-learning was definitely one of the potentials fully exploited by the students. There was no time of a day and no day of a semester which would not be used for the online studies.

Similar results were reported by the study conducted nine years before Puschenreiterová. Despite the fact that the conditions were not absolutely the same, it can be stated that the flexibility of time in e-learning is its durable characteristic, and thus e-learning in its specific subcategory U-CALL can be considered sustainable.

Veselá (2009) also analysed the data from a Moodle course used for blended learning. Sixty-seven students of the specialisation European Development at the Faculty of European Studies and Regional Development (the Slovak University of Agriculture, Nitra) participated in her research in the academic year 2007/2008. They studied a similar subject as a part of their intensive language course – in this case it was the course Applied English Lexicology, aimed mostly at the practical part, i.e. the development of English vocabulary. The course is still available at <<http://eldum.phil.muni.cz/course/view.php?id=15>>, which is the project of the Masaryk University in Brno, the Czech Republic. (Note: Since the course is archived and not updated and maintained regularly, it can be considered as outdated.)

Veselá's (*ibid.*) results are similar to those of Puschenreiterová's (2016). The Figure 3 shows the number of hits per days of the week. Similarly, the number of hits is the highest during the seminars (in this case Mondays, Tuesdays, and Wednesdays) and also correspondingly no one day is left without any hit. The high number of hits during Sundays proves that students used the flexibility of time provided by the e-learning course.

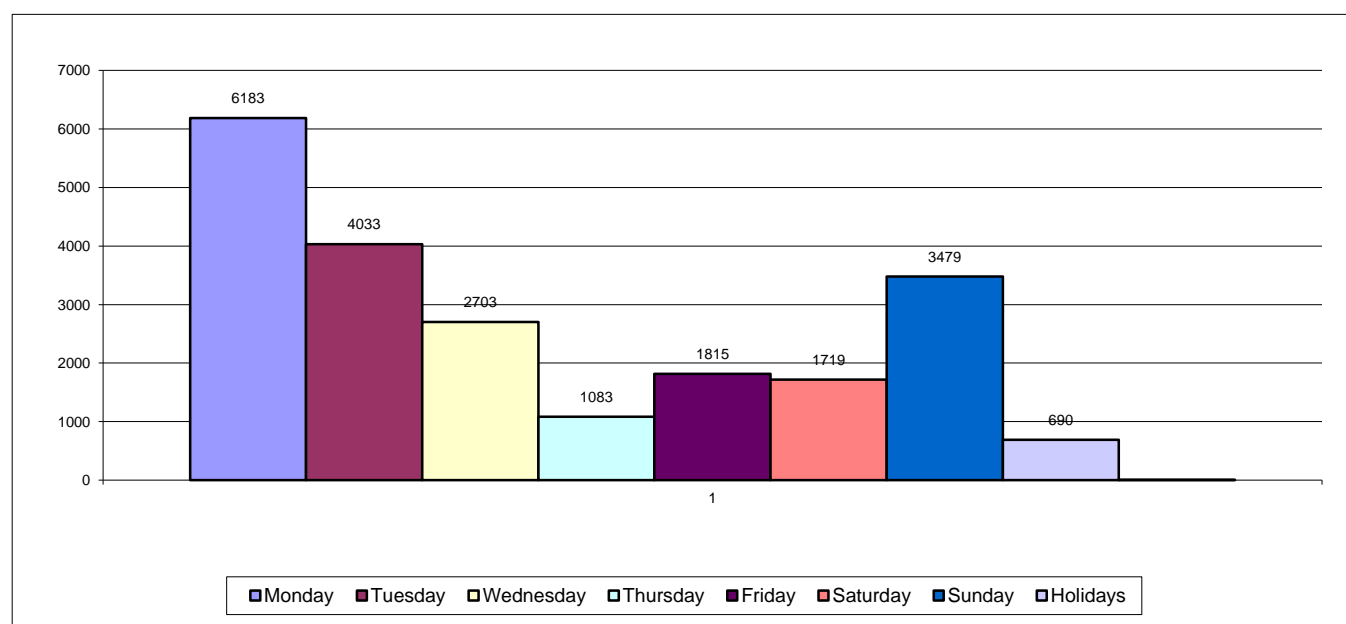


Figure 3 Number of hits – days of week 2008

Source: Veselá, 2009, p. 74

The Figure 4 shows the results of Veselá's (2009) analysis of the hits according to the hours. In this case, an average week was considered; however, for the purposes of this paper, the results can be compared to those in the Figure 2. Except for 05:00 and 06:00 am, all the hours were used by the students exploiting the time flexibility of e-learning.

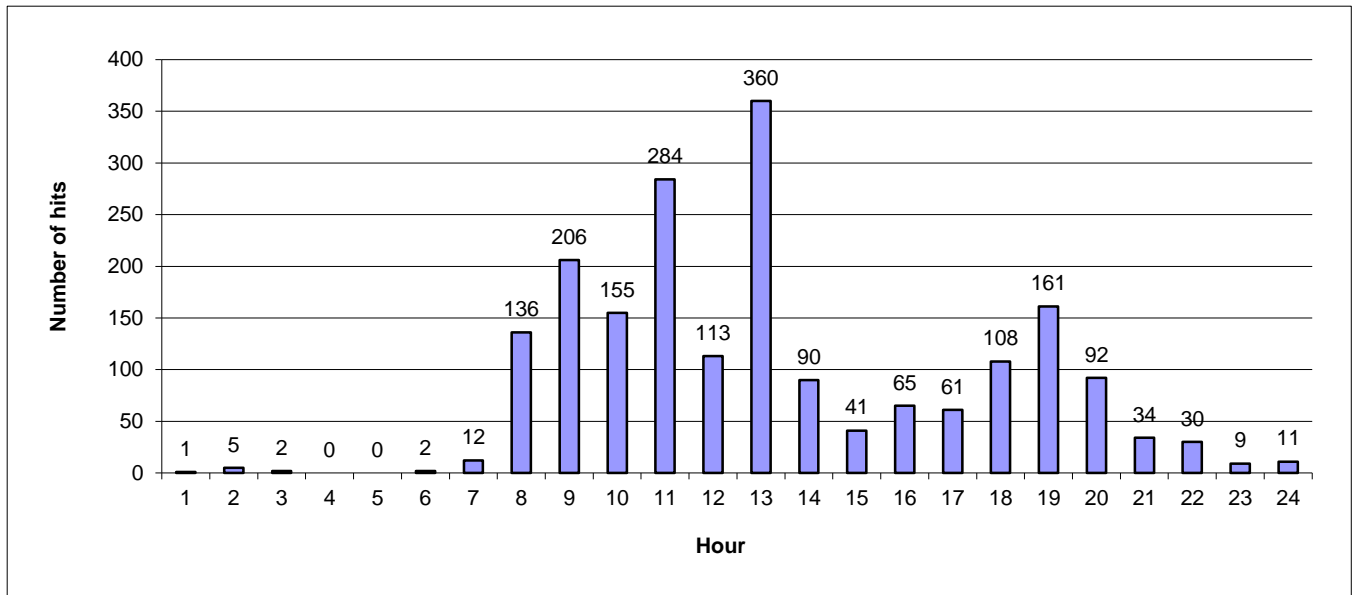


Figure 4 Number of hits – hours per an average week 2008

Source: Veselá, 2009, p. 75

CONCLUSION

Beyond a shadow of a doubt, the digital age has caused a change in the educational paradigm. As Bozkurt and Ataizi (2015) suggest, since learners' characteristics and learners' needs have unquestionably changed, so new pedagogical approaches have appeared. Sterling (2001) in his idea of "sustainable education" changing the educational culture, in which durability is one of the four major characteristics (see above). It can be reached by e-learning and its time flexibility.

Flexibility of learning has been and still is in the centre of interest mainly of those researchers whose concern is focused on students. Several studies prove that flexibility (in our paper limited to time flexibility) gives grounds for student satisfaction (e.g. Pei-Chen Sun et al., 2008, Arbaugh, 2002, Arbaugh & Duray, 2007). Kupetz and Ziegenmeyer (2006) claimed that flexible learning activities stimulate the learners' autonomy, and propose using Web 2.0 tools to meet the need of meaningful learning. We positively agree with their findings; in addition our research proves that time flexibility of learning in the U-learning environment is durable – it does not change during the course of time. Moreover, its importance grows with the development of portable technologies and availability of the Internet.

Learning enters its omnipresent phase – U-learning. The real life examples show that foreign language education can be sustainable in an e-learning environment. The stage of Computer Assisted Language Learning which is characterised by omnipresent learning with the help of modern technologies as learning tools – Ubiquitous CALL – supports the durability of sustainable education.

REFERENCES

- Arbaugh, J.B. (2002). Managing the on-line classroom: a study of technological and behavioral characteristics of web-based MBA courses. *Journal of High Technology Management Research*, 13 (2002), pp. 203-223. DOI: 10.1016/S1047-8310(02)00049-4.
- Arbaugh, J.B. & Duray, R. (2002). Technological and structural characteristics, student learning and satisfaction with web-based courses – An exploratory study of two on-line MBA programs. *Management Learning*, 33 (3) (2002), pp. 331-347. DOI: 10.1177/1350507602333003.

- Boykurt, A. & Ataizi, M. (2015). English 2.0: Learning and Acquisition of English in the Networked Globe with the Connectivist Approach. *Contemporary Educational Technology*, 2015, 6 (2), 155-168. Retrieved 10 October 2019 from <<https://files.eric.ed.gov/fulltext/EJ1105725.pdf>>
- Centre for Learning & Performance Technologies (2015). *Top 100 Tools for Learning 2015*. Retrieved 8 September 2017 from <<http://c4lpt.co.uk/top-100-tools-for-learning-2011/>>
- Computer Help (2012). *When was the first computer invented?* [online] Retrieved 5 September 2017 from <<http://www.computerhope.com/issues/ch000984.htm>>
- Educational Films* (n.d.). The Great Soviet Encyclopedia, 3rd Edition. (1970-1979). Retrieved 15 September 2017 from <<http://encyclopedia2.thefreedictionary.com/Educational+Films>>
- Fankl, B. & Bitter, S. (2012). Students' perspectives on eLearning in a blended learning context. Paper presented at the *International Conference on e-learning*. pp. 79-XI. Retrieved 8 April 2018 from <<http://search.proquest.com/cocview/1326324793?accountid=32244>>
- Hanson, J. (n.d). Future Technology predictions and Scenarios. *FutureForAll.org*. Retrieved 20 September 2017 from <<http://www.futureforall.org/future-technology-predictions.html>>
- Hart, J. (2007). Jane's Gem: Top 100 tools for learning, 2007. *eLearnmagazine*. Retrieved 75 April 2018 from <<http://elearnmag.acm.org/featured.cfm?aid=1361064>>
- Howard, P. (2015). Digital Citizenship in the Afterschool Space: Implication for Education for Sustainable Development. *Journal of Teacher Education for Sustainability*, vol. 17, no. 1, pp.23-34. Retrieved 12 April 2018 from <http://www.ise-lv.eu/ufiles/1444061381JTEFS_2015_vol%2017_no%201_DRUKA_jauns.pdf>. DOI: 10.1515/jtes-2015-0002>
- Khan, B. (2006). *E-learning. Osem dimenzií otvoreného, flexibilného a distribuovaného e-learningového prostredia*. [Translated by K. Veselá] Nitra: Slovenská Poľnohospodárska Univerzita. ISBN 80-8069-677-2.
- Kupetz, R. & Ziegenmeyer, B. (2006). Flexible Learning Activities Fostering Autonomy in Teaching Training. *ReCALL* 18 (1): 63–82. DOI: 10.1017/S0958344006000516.
- Norman, J. (n. d.). *From Cave Paintings to the Internet* [online] Retrieved 20 September 2017 from <<http://www.historyofinformation.com/index.php?id=3195>>
- Pei-ChenSun, Ray J.Tsai, Glenn Finger, Yueh-Yang Chen, & Dowming Yeh (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*. VI. 50 (4) pp. 1183/1202. DOI: <https://doi.org/10.1016/j.compedu.2006.11.007>.
- Prensky, M. (2005). *Teaching Digital Natives: Partnering for Real Learning*. Retrieved 15 April 2018 from <http://marcprensky.com/wp-content/uploads/2013/04/Prensky-TEACHING_DIGITAL_NATIVES-Introduction1.pdf>
- Puschenreiterová, J. (2016). *Pitfalls and Potentials of Technologies in English Language Education*. (Unpublished doctoral dissertation). Department of Language Pedagogy and Intercultural Studies, Faculty of Education, Constantine the Philosopher University in Nitra, the Slovak Republic.
- Stepanyan, K., Littlejon, A., & Margaryan, K. (2013). Sustainable e-Learning: Toward a Coherent Body of Knowledge. *Educational Technology & Society*, 16 (2), pp. 91-102.
- Sterling, S. (2008). Sustainable education – towards a deep learning response to unsustainability. *Policy & Practice. A Development Education Review*. Issue 6, Spring 2008, pp. 63-68. Retrieved 15 September 2017 from <<https://www.developmenteducationreview.com/issue/issue-6/sustainable-education-towards-deep-learning-response-unsustainability>>

Sterling, S. (2008). *Sustainable education. Re-visioning Learning and Change*. Green Books. ISBN 9781870098991.

Townsend, T., Clarke, P. & Ainscow, M. (1999). Third Millennium Schools: prospects and problems for school effectiveness and school improvement. In *Third Millennium Schools: A World of Difference in Effectiveness and Improvement* (pp. 353-366) Lisse: Swets & Zeitlinger B.V. ISBN 9026515413

Veselá, K. (2008). Applied English Lexicology. *El-dum*. [online]. Available from <<http://eldum.phil.muni.cz/course/view.php?id=15>>. ISSN 1803-4748.

Veselá, K. (2009). *Učebné pomôcky pre počítačom podporované vyučovanie cudzích jazykov*. [Teaching tools for computer assisted language learning] Nitra: UKF. ISBN 978-80-8094-602-9

Veselá, K. (2012). *Teaching ESP in New Environments: CA-CLIL*. Nitra: ASPA. ISBN 978-80-89477-06-7

Warschauer, M. (2004). Technological Change and the Future of CALL. In Fotos, S., Browne, C.M. (eds.). *New Perspectives on CALL for Second Language Classrooms*. ISBN 0-8058-4404-8.

Wheeler, S. (2009). U-learning? In *Learning with 'e's*. Personal blog of Steve Wheeler. Retrieved 20 April 2018 from <<http://steve-wheeler.blogspot.com/2009/08/u-learning.html>>