

A New Terminology for Technology Assisted Language Learning (TALL)



The use of terms concerning certain stages in computer assisted language learning has by today in retrospect and in reflecting the period become obsolete or at best inaccurate. It is our opinion that a new, more precise and up to date terminology is needed that reflects a better understanding of those technologies which assist language learning in the given period. Therefore it is necessary to present and lay out a new terminology that shows the terms of the single periods according to the particular technology most characteristic in their application. The new terminology to be introduced will try to describe (and thus represent) the different progressive stages in a way that the names at the same time accurately reflect the typical and important technological approach in the area of informatics assisted language learning.

This paper analyses the role of digital technology as a means in language learning. We are looking for clues as well as facts to discover how the application of such possibilities could, from the beginning to this day, make foreign language learning more efficient. It is important to note, however, that this paper investigates language learning, especially individual language learning (apart from a few exceptions), assisted by digital technology. The use and role of these technologies in institutionalized language learning is a subject of separate research, it is dealt with only marginally in certain cases when it has relevance. It is also important to note that the application of digital technologies in learning or education in some cases cannot be sharply separated since such digital educational means often serve-beyond illustration – in a direct or indirect way the support of learning.

Computers as a means for language learning

Computer assisted language learning (CALL) – A survey of the literature

Just as information and communication technologies (ICT) have achieved a more and more dominant position in everyday life, so have the possibilities of computer assisted language learning (CALL) become part of the accessories in the field. As Torut defines the concept, the objective of computer assisted language learning is to find possibilities on how to use the computer in language teaching and learning alike. (Torut, 1999) The role of the computer in the history of CALL implies, by and large, the implementation of two main functions, the computer as a tutor on one hand and as an instrument on the other. (Leahy, 1998) These two approaches keep appearing with distinct importance, meaning that the roles show up, most often, not exclusively but as mixed in the various methodologies.

In his book Levy defines three major periods in the history of CALL. These are the 60-ies-70-ies, the 80-ies and the 90-ies. (Levy, 1997) Warschauer et al. also distinguish the same periods but they name these stages after the pedagogical-psychological trends characteristic of these times. The first period, typical for the 60-ies-70-ies, is called the behavioral CALL, the next decade is the communicative CALL, while from the 90-ies on there comes the integrative CALL. The latter, the integrative CALL from the end of the 90-ies can be further divided into multimedia off-line programs and the stage of internet applications. (Warschauer & Healey, 1998)

The behavioral CALL

The whole story started in the USA in the 60-ies when experiments had been conducted in connection with the application of computers in language teaching, in university mainframe computer environment. There had been experiments with the system of PLATO III in Illinois in the last years of the 60-ies and in 1973 PLATO IV started to function. This system was exclusively made for educational purposes and had a language learning laboratory with about 80 terminals. The experiments were based on the so called "drill and practice" and the programmed instructing method which was at the time more accepted in the US than in Europe. This concept emphasized linguistic precision against fluent speech, focused on receiving tasks as well as on mechanic exercises and the computer commanded the process as a programmed tutor. Due to the initial (behavioral) linear programming technique the machine could not handle the linguistic errors and this concept did not put emphasis on the analysis of the mistakes but stressed that the student should learn the correct forms.

According to Skinner the task of the teacher is to inform the student, i.e. to supply information in good quality and quantity. The teaching material is built up, after Skinner's suggestion, of basic knowledge units. These units are built up in a linear way, they follow each other according to the degree of difficulty and proceed gradually to the implementation of more complex tasks. It was important that the phrasing of the tasks be simple and explicit so the student, while following a predetermined path could do it in his own tempo. (Skinner, 1973) This period is called CALL, based on behavioral psychology.

"The learning programs prepared along behavioral principles made it possible for the student to access the next stage of learning unit only in case of a correct answer. The teacher-student interaction was eliminated, the system guided the student along the way of preprogrammed instructions. This kind of instructional programs were similar to a textbook commanded by a computer." (Hoffmann, 2005)

These systems, though rather inflexible, were accessible only for a few, and even then in a limited way. Naturally, they could not handle linguistic complexity, would react only to a narrow preprogrammed reply stock. That is why mostly exercises of the multiple choice type dominated the scene. There was no chance to create and build in the program tasks which would make one think or require creativity. It needs to be remembered that the limits of the hardware and the basic software selection

(e.g. operation system) and the programming languages made it difficult to prepare useful and efficient programs for these systems. At this time not even graphical monitors were in general use, but in a mainframe environment cathode ray tube terminals were considered as modern, at least compared with a punched card output unit.

In our opinion it is important to treat this period separately within the history of CALL and it can be labelled, according to the Kecskés terminology, machine oriented programmed instruction or programmed learning (Programmed Learning, PL in short) (Kecskés, 1987) In this case when PL is defined it should be treated as the old version of CALL.

These early behavioral instruction programs can be described as such that they certainly made efforts to make the work of teachers and students more efficient but later empirical research could not prove sufficiently the increase of efficiency in mass related individually targeted learning. (Hoffmann, 2005)

When we approach this period from the direction of applying computers to language learning it can be stated that these early systems could not properly utilize one of the most important competencies of the computer which is interactivity. Beyond the obsolete approach this was also helped by the limits of the Skinner type linear programming technique. The advantage of such systems lied in the fact that certain partial tasks important in language learning were preprogrammed and the machine could endlessly repeat the material to be learned (memorized) through restarting the program. Depending on the coding the student could direct his own progress according to his tempo. At the same time it should be mentioned that there was also the motivation created by the technical novelty of the computer.

Communicative CALL

By the 80-ies the behavioral approach to language learning and teaching became a more and more criticized and dismissed paradigm both on theoretical and pedagogical level. The rapidly spreading use of personal computers (microcomputers) offered more and more possibilities for individuality and interactivity in the instructing systems. (Levy, 1997)

Interactivity is an important potentiality and has been such an important concept in the field of computer assisted learning that it should be dealt with in some detail. It became clear by the 80-ies that the most important novelty of the computer as an instrument was its interactivity, at least compared with the thus far available (audio- visual) appliances. "When the computer is compared with other appliances used in education, it can be stated that it is superior to all in one aspect and it is the interactivity between the machine and the user." (Kecskés, 1987:30) Books and sound materials (records, cassettes) can demonstrate to the students the rules and correct solutions but they are inappropriate to analyze the errors made by the students and make them react to answers that guide them to the right solutions and get them to understand (explain to them) what rules can be found behind the correct answers. (Nelson et al., 1976)

The interactive relationship with the student is the most effective teaching technique that an instructor can apply. When the student makes an error the teacher not only points to the error and then gives the correct solution but also reveals in what the error lies and based on this makes him correct the mistake. This is made in a way that the student is led to find the correct solution. In a traditional language class there is no time or possibility to correct, least of all analyze, errors made by individual students. But the computer equipped with the requisite program can do this. (Kecskés, 1987)

Interactivity has an important role in commanding and maintaining attention. Brückner states the interactive environment keeps student attention alive, independently of age and level of former training. (Brückner, 2001) Dringo-Horváth summarizes that the new possibilities offered by the means of computer technology and which result in that the information keeps being channeled to the recipient, i. e. the student, have a positive impact on the efficiency of learning and promote those interactive solutions where the student receives immediate response about the correctness of solutions and his overall linguistic work. (Dringo-Horváth, 2003)

The communicative CALL where the basic principles are based on the cognitive learning model and cognitive psychology, considers learning as information processing. If we would like to understand it better, using a simple analogy, that of the computer and how it works, then we should consider how the brain processes the incoming information and how it generates different outputs. In such a case the student perceives the information, receives, then processes them, which is essentially decoding. As a result of processing mental schemes and models are formed, ordering and classifying information occurs which leads to active knowledge structures. Recognizing individual differences new adaptive or intelligent systems appear with the capability to adapt to the user just as the teacher can adjust his methods to the personality of the student. Another direction that the cognitive learning theories can utilize is the discovery type learning. To apply this to the computerized instructing systems means that contrary to former systems it makes possible to overview and roam the learning material from individually oriented different sides. (Hoffmann, 2005)

The essence of communicative language teaching is to develop communicative competency, and the objective is to help the communication of the students, to remove potential hurdles. One of the most important part of language classes and the communicative CALL system is to create authentic communicative environment where the student learns either by observing his environment or enters the process after his own initiative. (Csoma, 2007)

In this period softwares developed after the instructions of the communicative method already contain tasks for text reconstruction as well as simulations which allow the students to work individually or in groups. The focus is on the use of the language in context. To put it differently the point is not on what the student does with the machine but on what "they do with each other", how they effect each other while the student uses the machine (Warschauer, Healey 1998), (Gündüz, 2005).

Integrative CALL

Multimedia appears by the end of the 80-ies and the early 90-ies and signals the most spectacular developmental stage of computers. The technology of multimedia makes possible the transfer of impulse units perceived by multiple, even

synchronizable, sense organs and secures that the process can be guided for the receivers in an interactive way. Multimedia as a concept means a complex media system which together or separately can present visual (i.e. text, picture, motion picture) as well as auditive (speech, music, sound effects) information. One of the most important advantages of multimedia, from a pedagogical point of view, that it creates, for the receiver, multisensorial environment which can be used, beyond learning, for the sustaining of attention and motivation as well as for entertainment. (Hoffmann, 2005) Possibilities and advantages that multimedia help attain and their examination, is a large topic and one which is emphatically important from the point of view of computer assisted language learning.

If the definition above is taken seriously multimedia have already appeared in analogue audio-visual instructing systems but in connection with the computer what is meant is the digital media, with all the advantages this means. It is also important to emphasize that these media are interactive, their accessing is not necessarily sequential and they can have an impact on each other as well.

The division of the history of CALL into periods since Warschauer and Healey has been a much discussed and analyzed topic. Though Warschauer and Healey mentioned three periods in their 1998 article, the examination of the concrete CALL systems which were considered integrative at the time, yielded two subgroups: one was the stand-alone programs, the other was the internet based applications. (Warschauer, Healey, 1998)

Torut also analyzes CALL and follows these periods but when halving integrative CALL he speaks about stages of "integrative multimedia CD ROM" and "integrative internet applications". (Torut, 1999) Gündüz published a paper in 2005 about CALL and though mentions the Warschauer, Healey taxonomy, he calls the 90-ies the stage of interactive CALL. According to Gündüz the integrative approach allows the students the use of various technological means in language learning, instead of isolated work in language labs once a week. (Gündüz, 2005)

It was Bush who noted that in the second half of the 90-ies the terminology changed and the acronym CALL gradually shifted to TELL (Technology Enhanced Language Learning). This change occurred because it was not the computer which was in the center of the process any longer but the media and technology spread through it. The computer provides only the basis to reach these means. (Bush, 1997) This concept of Bush is also stressed by Hayford O'Leary in his recension about the book. (Bush, 1997) (Hayford O'Leary 1998) The concept has turned up publicly as technology assisted language learning. But the term though popular around the millennium never spread to the extent that it could have prevailed over CALL.

Since computer assisted learning labelled as integrative has ruled the scene it meant that not only the available technology changed significantly but that the pedagogical-psychological approach to learning has also been transformed. According to the integrative approach the different learning methods can be used either one after another or side by side but it always means the combination of the various units in such a way that they come together as an organic whole and never as an isolated event. (Mórotz 1993) The objective of integrative CALL is to bring together (integrate) the different skills and competencies (listening, speech, reading and writing) on one hand and to integrate technology into the language learning process on the other. The integrative approach considers it as important to teach the students to use the different technological means and apply them to help language learning. (Warschauer, Healey, 1998) According to Papp integrative pedagogy is the sum of those theories and actions which help experience identity along differences and the development process makes it possible for the children in heterogeneous groups to learn from each other. (Papp, 2002)

The technology of mainframe computers was behavioral, the PC technology was communicative and the technology of integrative CALL is the multimedia network computer. The multimedia network computer offers developed communicative, publicational and informational possibilities and provides more possibilities to use the computer in an integrative way in learning. It can also be applied, in a direct or indirect way, in language learning, using digital reading, writing and communication. (Warschauer, Healey, 1998)

To sum up the most important novelties of CALL in this period, the following must be emphasized. There appear the multimedia possibilities (picture, sound, video) in the instructing programs and interactivity, mostly between machine and student, developed further. There is no or little chance for interactivity among the students or between student and teacher. The role of the teacher started to become that of a helper or tutor, since the students have now a possibility to traverse individually charted paths. The teacher nevertheless has an important role in directing and supporting the students as well as maintaining their motivation since the lack of personal human presence in the programs could easily reduce initial motivation or persistence.

The formerly detailed points have slightly changed in the CALL period of integrative internet applications and the emphasis has moved to the web applications. In the age of web applications the integrative CALL computers are connected to networks and have internet access which adds new possibilities to CALL applications. There appear different web browsing programs as well as hypertext. Downloading different contents including multimedia contents and online web communication all but becomes possible. Yang summarizes that the development of computer networks has made it possible that the network as medium serves communication (local as well as global) and is the source of authentic teaching material. (Yang, 2010) New forms of online and offline communication simplify the higher level interaction between teachers and students. Contrary to traditional CD based instruction materials web programs can be more easily updated. (Hoffmann, 2005)

The following table summarizes the interconnections between the periods, technologies and target areas of the analyzed CALL manifestations. It is our opinion that the changes and interconnections between the various stages analyzed from different points of view can be more easily understood in the form of tabulation. Web applications discussed previously can traditionally be considered as web 1.0 stage. Classical terminologies, when ordering CALL stages do not deal with post 2000 processes since the literature was generated around the millennium. The next chapter will introduce a new terminology, which covers the area of technology assisted language learning from the beginning to our days.

Stages	70ies-80ies structural behavioral CALL	80ies-90ies communicative CALL	2000– integrative CALL
technology	mainframe computers	personal computers	multimedia internet
English teaching paradigm	grammar-translation Audio-lingual method	communicative language teaching	content based depending on objective
language approach	formal-structural system	mentally developed cognitive	social cognitive (by way of social interaction)
objective of computer applications	language exercises and tasks	communicative tasks	authentic discourse
main target area	linguistic correctness	linguistic correctness fluent communication	linguistic correctness fluent communication useful language knowledge

Table 1. The major stages and means of CALL (based on Warschauer 1996, Kern and Warschauer 2000, Warschauer 2000, Yang, 2010)

Proposal for a new terminology

As it has been previously demonstrated computer assisted language learning went through an immense development in recent decades. Since the computer as an experimental trial first appeared as a means in assisting learning has passed half a century. The tendency which characterizes the different stages of CALL, shows that change due to technological development has become faster. It is also evident that the role of the computer in language teaching and generally in teaching has changed. This change is special but at the same time ambivalent. It is clear that the role of the computer has bit by bit and to a large extent become more and more valuable both in learning and instructing. This growth supported by technology may be due to the fact that computers have by now become a natural ingredient in our daily life. (This is the trend of popularization.) What was still a science fiction territory 20 years ago, it has become a reality technology for the last 10 years and is daily routine by now. Due to this development there is the tendency to the opposite direction, that though computer technology binds our life intricately together the machine itself as a technical device is less and less interesting for us. What is important is the potential offered by digital technology. It becomes more and more clear that in language learning just as in all other walks of life the initial machine dominance has shifted to the human factor. The role of the individual has also changed and instead the community has taken over.

The new technology proposed will try to represent the different stages of development in a way that the terms accurately reflect the technological side most characteristic for the period in question in the area of computer assisted language learning. As it is described in the chapter on integrative CALL the term and acronym TELL (Technology Enhanced Language Learning) appears and it signifies that the emphasis is not any longer on that machine but on the technology. (e.g. Bush, 1997) This term, however, for reasons unknown, could not take root in professional circles.

Therefore instead of CALL or TELL it is far more fortunate to use the term TALL (Technology Assisted Language Learning) since that is what the recent period has been about: language learning supported by technological means (hardware, software). The computer is part of the technology, which latter is in this case a collective term, even if it was in certain stages only a partial term.

The following table shows the different periods together with their English language descriptive terminology and the relevant acronyms. The beginning and the end dates do not separate the stages. Just as in real life there was no sudden change but a continuity and as it could often be observed the different trends existed side by side. The period distribution shows an estimate indicating what technologies or means were dominant at the given time.

The naming column uses and completes the English language terminology. The "Assisted Language Learning" (ALL) phrase is added in all cases to the end of the acronyms and namings. The first words and the first letters of the acronyms describe briefly the name characteristic of the given technology. (It should be noted that reading the letters of the acronyms in one sequence results in meaningful English words.) It is also interesting to point out that in our days language learning assisted and dominated by social media and "smart" applications can be found everywhere and due to advanced radio transmitting techniques the web can be any time and everywhere accessed, so the SMART ALL acronym is more than appropriate. Deciphering the acronym: Social Media (on) Advanced Radio Technology Assisted Language Learning has meaning both in unfolded and in sequentially letter read form as an acronym.

The following chapters will explain the newly proposed terms for the single stages.

The major stages of Technology Assisted Language Learning (TALL)		
Period	Acronym	Naming
~1960–70	PALL	Program Assisted Language Learning
~1970–85	CALL	Computer Assisted Language Learning
~1985–95	MALL	Multimedia Assisted Language Learning
~1995–2005	WALL	Web Assisted Language Learning
~2005–10	SMALL	Social Media Assisted Language Learning
~2010–	SMART ALL	Social Media (on) Advanced Radio Technology Assisted Language Learning

Table 2. New terminology: The major stages and names of TALL

PALL Program Assisted Language Learning

The period labelled PALL used mainframe computers programmed according to behavioral concepts. They could support language learning and teaching only experimentally and in a primitive way. As it was referred to in the chapter on behavioral CALL it is important to view separately the initial period in the history of TALL as it can also be considered machine directed programmed instruction or programmed learning.

In mainframe environment most programmers identified language learning assisted by computer with programmed learning (Programmed Learning or PL in short). As Kecskés remarks the subject index of vol. 6, 7, 8, of the journal entitled Language Teaching and Linguistics includes the following entry: "computers see programmed instruction" (Programmed Instruction). The two terms are mixed up in later editions as well. (Kecskés, 1987)

In this period the concept of programmed instruction is emphasized (i. e. programming as an activity is in the center point). Therefore it seems fortunate to label the stage both from pedagogical and technological point of view with the term of Program Assisted Language Learning (PALL).

CALL Computer Assisted Language Learning

The spreading of computers en masse in educational institutions (the age of microcomputers) featured the 70-ies and the early 80-ies. This is the classical period which developed under the auspices of a new approach, that of the communicative language instruction or as the new terminology names it: Computer Assisted Language Learning (CALL). This is the stage where the computer itself was in the center.

At this time the student already has an interactive relationship with the machine, just as it is meant today, the instructing programs can effectively help the teacher's work when it is about target solutions, or help exercise type individually tailored learning as well. As Papert put it: computer assisted instructing means that the machine is programming the child. In my view the child programs the computer. (Papert, 1993) Also, this was the time when the acronym CALL, i.e. computer assisted language instruction was born, which was later elevated to a separate discipline in the area of language teaching methodology. (Csoma, 2007)

MALL Multimedia Assisted Language Learning

Due to the massive price reduction hardware PCs have rapidly spread to private homes. The new machines were structured in modules and for that reason they could be easily developed and there also appeared software trading in retail shops. The new machines with new knowledge are linked up with the new potentials of multimedia. Digital media (music, pictures, video) now arrive on CD and later on DVD. It can be said that the PC is promoted from a technology that supports work and learning to an entertainment center.

From the point of view of language learning this is an important period. It is now that sounding and visual materials so far accessible mostly in analog technique become integrated into learning supporting systems. A new dimension, the world of digital, interactive media has been added to the instructing programs.

According to Warschauer's terminology this period is the stage of integrative CALL and it has been named by Torut as "integrative multimedia CD ROM". (Warschauer, Healey, 1998) (Torut, 1999) In our opinion the point is that **the focus of attention has shifted from the computer as a technology to the concept of multimedia. Therefore of all stages of technology assisted language learning the most proper choice of term for this period is multimedia assisted language learning (Multimedia Assisted Language Learning: MALL).**

WALL Web Assisted Language Learning

From the mid 90-ies the internet network was admitting public, educational institutions as well as private homes in our country, too. The capacity of computers widened with multimedia has meant a new dimension which can be called web accessibility. This new window to the world brings about important changes in technology assisted language learning, too.

The perspective of spreading of internet and internet based services, the different web sites (web 1.0) have influenced not only the various forms of communication but also led to the increase of learning tools. Forgo states that first learning materials appeared in textual and pictorial form with multimedia contents. (Forgo, 2009) These materials could be considered as web reincarnations of publications which appeared one generation earlier on optical carriers often with simplified and reduced quality multimedia content. (It should be mentioned that part of these contents can again be accessed as retro material, e. g. as videos on certain social video sharing sites.) It should not be forgotten either that, in the age of modern internet there was only limited bandwidth available and internet subscription was often limited concerning data downloading. At that time it was not yet conceivable to have bandwidth (bit stream) for the transmission of data of multimedia contents available on CD publications through the web. Due to the quality of early web technology interactivity was significantly reduced or totally lost.

"Information on the internet provides further possibilities that authentic, actual (often elaborated after methodological viewpoints) texts, newspaper articles or pictures be used. One of the advantages of internet is that it can simplify the teacher's preparation for the class, makes data collecting and the elaboration of practical exercises easier. Beyond that we can increase our knowledge, discuss questions with other language teachers anywhere in the world." (Hoffmann, 2000) Of course such source materials are also important for the students, just as for the teachers. They can easily search, browse or download source materials in the language in question as well as already ready-made materials to aid learning or practicing (e. g. texts with vocabularies or explanations). "Another valuable feature of global networks-from the point of view of languages□ that by bridging space and time the user is able to contact the target culture and native speakers" completes Csoma Hoffmann's concept. (Csoma, 2007)

Since in the case of technology assisted language learning **the focus of attention shifted in this period to those features accessible on the internet, and within that to web eligibility and contents, it is with purpose to call the period the stage of web assisted language learning (Web Assisted Language Learning: WALL)**

SMALL Social Media Assisted Language Learning

New technologies always develop from older ones. Around the middle of the first decade of the new millennium there occurs a new change in the world of informatics which is interesting not only from a technical point of view. It is the concept of social media which is built on the internet and the force of human communities. Social media is a concept that connects advanced multimedia capacities, web technologies and users who are open minded, motivated or interested to belong to a community which shares information about certain topics, and all this is done through the internet. This entails that the students perform independent learning (SDL Self-Directed Learning) not only assisted by computers or teachers but in network communities. The interconnection of SDL and social media provides extremely good possibilities to increase the efficiency of language learning.

In spite of the rapid development that has occurred in the field of artificial intelligence (AI), it has not attained to the level of the human mind so far (2017). This is particularly valid for the area of natural human languages. Artificial text production is not on the level nor in the quality that a beginner in language learning could rely on. But one can sense some progress on the level of translation between natural languages, mainly in word and phrase correspondences. Machine translations which concern sentences or whole texts have not yet overcome basic challenges. On AI see (Hawking et al., 2014), (Graaf, 2016), (Nagy, 2016), (Cellan-Jones, 2014).

What we have in hand is the communication channel offered by the internet, the web secured space and the multimedia technology. The AI part here is still weak but it could be substituted with human resources available on the net. What could be done, for example, is to group and connect people with similar interest and with the objective that they support each other. What happens in such a case as delineated above is that social knowledge could substitute the deficiencies of artificial intelligence. This has been realized in the case of language exchange networks. (T. Nagy, 2013)

Several pedagogics have discovered that web 2.0 tools (blogs, wikis, podcasts) provide an excellent possibility to control the students, to build actively their knowledge, and to ensure access to learning environments based on collaboration. (Solomon, Schrum, 2017) The aim of the so called language exchange communities, beyond sharing language materials, is language learning through social interaction. One of the main characteristics of these sites, which is the most important from the point of view of language learning is that the students can start interaction with the native speakers of the target language through video or chat based channels. (Stevenson, Liu, 2010)

It is important to deal separately with the special impact of the social networks which have impregnated technology assisted language learning and have by now become dominant in the area and should be treated as a special stage within the history of TALL. It is the paradigm of **the social media which determines and describes the concept system of the period, therefore it should be marked as social media assisted language learning. (Social Media Assisted Language Learning: SMALL)**

SMART ALL Social Media (on) Advanced Radio Technology – Assisted Language Learning

The early 2010-ies bring about the proliferation of the so called smart instruments, such as phones, tablets, smart televisions. Radio micro network technologies and tools (wifi, bluetooth etc.), due to 3G, then 4G mobile networks have come of age, and provided through proper bandwidth permanent internet access at a reasonable price. With this it has become possible for anyone to access internet, i. e. to be online. The permanent, stable accessibility of advanced radio technology everywhere is an absolutely necessary condition for the spreading of social networks.

A survey made by Simon and Fell in 2012 shows that approximately 70 % of the students learning foreign languages own smart phones and 60 % of these students (which is more than half of the total) uses it for language learning. (Simon, Fell 2012) This rate must have risen during the 5 – 6 years since the survey was done. The eMarketer predicted in 2012 that by 2016

more than 90 % of the students would own a smart phone. (eMarketer, 2012) Reality has proved the prediction right as according to the 2016 February survey this figure in the age group of 18 – 24 is already 95 %. (eMarketer, 2016) The increase in the rate of smart phones does not mean that language learning has significantly become easier but it does mean that when purposefully used, the student can pick his choice from among a variety of possibilities when he intends to practice. Kurtz examined the use of smart phones among language learners and it was clear that those students who participated in the investigation could use their phones, together with the apps, successfully in support of language learning including listening to sound material for text comprehension and social media for linguistic communication. (Kurtz, 2012)

Smart phones and the advanced radio technologies they use to access internet as well as contact each other make access to the social media and language exchange communities possible. In our days this technology brings about the online accessibility of activities, which being geographically independent and permanent successfully support language learning. In this case the emphasis is not only on social media but that this accessibility should be always and everywhere at our disposal. Smart phones are now widely used successfully in everyday life and are supportive in language learning as well. It is expected that this can be done in a number of ways in the future under the auspices of platform independence traversing capability. **If we follow the naming systems of previous periods the currently valid language learning supporting technological form should be called the period of social media on advanced radio technology assisted language learning. (Social Media (on) Advanced Radio Technology Assisted Language Learning: SMART ALL)** The acronym consisting of the first letters of English language words suggests the prevalence of smart equipment everywhere.

The advancement of science and technology never stops. The current and perspective dominance of social learning will surely be supported by ever new technological developments in the years to come. Let us take as an example tools which make the appearance of 3D virtual reality possible (VR). This will open up a new dimension for social space, which help virtual experiences get closer to reality. It is known since Dale that a lower abstraction level (which is experience closer to reality in the cognitive process) of experience or information acquisition perceptions represent a more valuable level in the process of experience acquisition and later in knowledge preservation. (Dale, 1969)

It is predictable that the role of artificial intelligence will increase in the area of technology assisted language learning but how and to what extent will be determined by future trends of development. That is why the terminology now proposed to be introduced might require further changes or completion again in the perspective of 10 – 20 years.

References

- Brückner Huba (2001) A számítógépek oktatási alkalmazásai, Tapasztalatok és fejlődési tendenciák [doktori (PhD) értekezés tézisei]. [Use of computers in education. Experiences and trends in development. PhD dissertation] Budapesti Műszaki és Gazdaságtudományi Egyetem GTK, Budapest.
- Bush, Michael D. (1997) Implementing Technology for Language Learning. In: Michael Bush (ed.). Technology-Enhanced Language Learning. Lincolnwood. National Textbook Company. pp. 287 – 349.
- Cellan-Jones, Rory (2014) Stephen Hawking warns artificial intelligence could end mankind [website]. Retrieved from (06/2019) <http://www.bbc.com/news/technology-30290540>
- Csoma Katalin (2007) Információs és kommunikációs technológiák a nyelvtanárképzésben. [Information and communication technologies in the education of language teachers] Budapest, Ad Librum. 258 p. Retrieved from (07/2019) http://csoma.eu/phd/Csoma_Katalin_PhD_disszertacio_IKT_a_nyelvtanarkepzesben.pdf
- Dale, Edgar (1969) Audiovisual Methods in Teaching (3. kiadás). New York, Dryden Press. 719 p.
- Dringó-Horváth Ida (szerk.), Kárpáti Andrea (sorozatszerk.) (2003) Informatikai eszközök az idegen nyelv oktatásában. Tanári kézikönyv. [Computer tools in foreign language instruction. A teacher's handbook.] Budapest, Nemzeti Tankönyvkiadó. 151 p.
- eMarketer (2012) College Students Adopt Mobile Across the Board [website]. Retrieved from (06/2019) <https://www.emarketer.com/Article/College-Students-Adopt-Mobile-Across-Board/1009301>
- eMarketer (2016) Teens' Ownership of Smartphones Has Surged [website]. Retrieved from (06/2019) <https://www.emarketer.com/Article/Teens-Ownership-of-Smartphones-Has-Surged/1014161>
- Forgó Sándor (2009) Az új média és az elektronikus tanulás. [New media and electronic learning] Új pedagógiai szemle, 59. 8-9 sz. pp. 91-96. Retrieved from (06/2019) http://epa.oszk.hu/00000/00035/00135/pdf/EPA00035_upsz_200908-09_091-096.pdf
- Graaf, Mia De (2016) A robot has been teaching grad students for 5 months... and NONE of them realized [website]. Retrieved from (08/2019) <http://www.dailymail.co.uk/news/article-3581085/A-robot-teaching-grad-students-5-months-NONE-realized.html>
- Gündüz, Nazlı (2005) Computer Assisted Language Learning. Journal of Language and Linguistic Studies, Vol.1, No.2. pp. 193-214. Retrieved from (07/2019) <http://www.jlls.org/index.php/jlls/article/view/16>
- Hawking, Stephen – Russell, Stuart – Tegmark, Max – Wilczek, Frank (2014) Transcendence looks at the implications of artificial intelligence - but are we taking AI seriously enough? [website]. Retrieved from (06/2019) <http://www.independent.co.uk/news/science/stephen-hawking-transcendence-looks-at-the-implications-of-artificial-intelligence-but-are-we-taking-9313474.html>
- Hayford O'Leary, Margaret (1998) Review of technology-enhanced language learning. Language Learning & Technology, Volume 1. Number 2. pp. 20-22. Retrieved from (07/2019) https://scholarspace.manoa.hawaii.edu/bitstream/10125/25018/01_02_review2.pdf

- Hoffmann Orsolya (2000) Számítógép a nyelvórán? [Computer in the language class?] Új Pedagógiai Szemle, 2000. július-augusztus.
Retrieved from (06/2019) <http://epa.oszk.hu/00000/00035/00040/2000-07-ta-Hoffmann-Szamitogep.html> Hoffmann Orsolya (2005) A számítógéppel támogatott tanulástól az e-learningig - A számítógéppel támogatott tanulás rövid története. [From computer assisted learning to e-learning. A brief history of computer assisted learning.] Neveléstörténet, 2005. évfolyam. 3-4. szám.
Retrieved from (06/2019) http://www.kodolanyi.hu/nevelestortenet/?rovat_mod=archiv&act=menu_tart&e_id=32&rid=1&id=173
- Kecskés István (1987) Mikroszámítógépek használata az idegennyelv-oktatásban. [Use of microcomputers in foreign language instruction.] Budapest, Tankönyvkiadó. 172 p.
- Kern, R. – Warschauer, M. (2000) Theory and practice of network-based language teaching. In: M. Warschauer, R. Kern (szerk.). Network-based language teaching: Concepts and practice. New York, Cambridge University Press. pp. 1- 19.
Retrieved from (08/2019) http://www.google.hu/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0ahUKEwjC-rmXkr7MAhXLICwKHR_ZD9oQFggyMAI&url=http%3A%2F%2Fwww.cambridge.org%2Fdownload_file%2F744708%2F0%2F&usq=AFQjCNEVO26VD_EXZ2fZt53XuWHm1XRN-Q
- Kurtz, Lindsey M. (2012) Learning from twenty-first century second language learners: A case study in smartphone use of language learners. Graduate Theses and Dissertations.
Retrieved from (08/2019) <http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=3676&context=etd>
- Leahy, Christine (1998) Review of computer-assisted language learning: context and conceptualization. Language Learning & Technology, 1998. Volume 2. Number 1. pp. 17-18.
Retrieved from (08/2019) https://scholarspace.manoa.hawaii.edu/bitstream/10125/25028/02_01_levy.pdf
- Levy, Michael (1997) Computer-Assisted Language Learning-Context and Conceptualization. New York, Oxford University Press. 298 p.
- Mórotz Kenéz (1993) Beköszöntő integratív gondolatok. [Initial integrative thoughts.] Integratív Hírmondó, 1 évf. 1. szám.
Retrieved from (08/2019) <http://www.kunsagi.com/hipnozis/ipe/morotz.htm>
- Nagy Nikolett (2016) MI: a legnagyobb veszély, ami az emberiséget fenyegeti [What is the real menace threatening mankind] [website].
Retrieved from (08/2019) <http://www.origo.hu/tudomany/20160518-mesterseges-intelligencia- technologia-elon-musk-stephen-hawking-bill-gates-emberiseg.html>
- Nelson, G. E. – Ward, Jean Renard – Desch, Samuel H. – Kaplow, Roy (1976) Two New Strategies for Computer-Assisted Language Instruction (CALI). Foreign Language Annals, Volume 9, Issue 1. pp. 28-37.
- Papert, Seymour (1993) Mindstorms: Children, Computers and Powerful Ideas. New York, Basic Books. 230 p.
- Papp Gabriella (2002) A tanulásban akadályozott gyermekek iskolai integrációja a szakemberek közötti kooperáció tükrében. [School integration of children with learning disability as mirrored by cooperation among specialists.] Magyar Pedagógia, 102. évf. 2. szám pp. 159-178.
Retrieved from (08/2019) http://www.magyarpedagogia.hu/document/Papp_MP1022.pdf
- Simon, Edwige F. – Paige Fell, Courtney (2012) Using Mobile Learning Resources in Foreign Language Instruction [website]. Educause review,
Retrieved from (08/2019) <http://er.educause.edu/articles/2012/6/using-mobile-learning-resources-in- foreign-language-instruction>
- Skinner, Burrhus Frederic (1973) A tanítás technológiája. [Technology of instructing.] Budapest, Gondolat Kiadó. 248 p.
- Solomon, G. – Schrum, L. (2007) Web 2.0: New Tools, new schools. Washington DC, International Society for Technology in Education. 270 p.
Retrieved from (08/2019) <https://pdfs.semanticscholar.org/73d3/fb84c2fd4c21e423f3dea01ea90dc7725eff.pdf>
- Stevenson, Megan P. – Liu, Min. (2010) Learning a Language with Web 2.0: Exploring the Use of Social Networking Features of Foreign Language Learning Websites. CALICO Journal, 27 (2). pp. 233-259.
- T. Nagy László (2013) A közösségi hálózatok szerepe a nyelvtanulásban. [Role of social networks in language learning.] Oktatás-Informatika, 2013. /1-2 szám. Retrieved from (08/2019) <http://www.oktatas-informatika.hu/2013/03/t-nagy-laszlo-a-kozossegi- halozatok-szerepe-a-nyelvtanulasban/>
- Torut, Bamrung (1999) Computer assisted language learning: an overview. In: Kerry O’Sullivan (szerk.). CALL: a guide for English language teachers. Thailand- Australia Science & Engineering Assistance Project (TASEAP). pp. 1-18.
Retrieved from (06/2019) <http://www.thaiscience.info/journals/Article/SUIJ/10499160.pdf>
- Warschauer, M. – Healey, D. (1998) Computers and language learning: an overview. Language Teaching, Volume 31. Issue 2. pp. 57-71. Retrieved from (08/2019) <http://hstrik.ruhosting.nl/wordpress/wp-content/uploads/2013/03/Warschauer- Healey-1998.pdf>
- Warschauer, M. (1996) Computer-assisted language learning: An introduction. In: Fotos, S. (szerk.). Multimedia Language Teaching. Tokyo, Logos International. pp. 3-20.
- Warschauer, M. (2000) The changing global economy and the future of English teaching. TESOL Quarterly, Volume 34. Issue 3. pp. 511-535.
- Yang, Youwen (2010) Computer-assisted Foreign Language Teaching: Theory and Practice. Journal of Language Teaching and Research, Vol. 1. No. 6. pp. 909-912.

Laszlo T. Nagy Ph.D

t.nagy.laszlo@drhe.hu

Daniel Benediktsson

benediktssondaniel@gmail.com

Istvan Karoly Boda Ph.D

boda.istvan@drhe.hu

(University of Debrecen, Hungary)