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Mobile-assisted ESP learning in technical education

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Abstract

This paper presents research results from the field of mobile-assisted instruction of English for specific purposes for technical and engineering students. The research was structured in three phases: (1) Questionnaire 1 was applied to detect what sources of information students use in higher education, what types of mobile devices they own, what purposes they use them for, (2) how the process of instruction, particularly students' autonomous work supported by mobile devices ran, (3) students' feedback was collected by Questionnaire 2 to evaluate the mobile-assisted learning and provide proposals for future exploitation of mobile devices in higher technical language education. The results show students are sufficiently equipped with mobile technologies and exploit them for various purposes, including education and ESP. At the end, examples of helpful mobile applications are presented.

Keywords

mobile learning, m-learning, mobile application, ESP, technical education

Introduction

Reflecting the latest trends in technical and technological development, mobile devices have become standard didactic means both in foreign language and other subjects' instruction on all levels of education. Mobile devices were defined as very small items to accompany users anytime and anywhere, autonomous from the electrical supply (Roschelle, 2003; Liang et al., 2005). The use of wireless, mobile, portable and handheld devices is gradually increasing and diversifying across every sector of education. Currently, the mobile learning has been exploiting handheld computers, mobile/smart phones and other devices that work on the same set of functionalities. The use of handheld computers is obviously relatively immature in terms of both technologies and its pedagogies, but mobile-assisted learning is developing rapidly (Traxler, in Ally, 2009).

Until now the traditional e-learning (using non-portable devices) has been widely implemented into the education in the Czech Republic reflecting the fact mobile devices were not available to sufficient extent. Within last two-three years the situation changed substantially and mobile learning can be applied on all levels of education, gradually moving from small-scale, short-term trials to larger more sustained and blended deployment.

This study focuses on the use of mobile devices in foreign language instruction (English for Specific Purposes, ESP) at the Faculty of Informatics and Management (FIM), University of Hradec Kralove (UHK), Czech Republic. The main objective was

- (1) to monitor the students' exploitation of mobile devices and mobile learning in ESP, i.e. what sources of information students exploit within higher education, particularly in ESP learning, what types of mobile devices they own, what purposes they use them for,
- (2) to describe the process of ESP instruction, particularly students' autonomous work supported by mobile devices and applications,
- (3) to collect students' feedback and evaluate the mobile-assisted learning and

- (4) to provide proposals for future exploitation of mobile devices and applications in higher technical language education.

The process of ICT implementation into higher education started at FIM in 1997 and widely spread after 2000, when the LMS WebCT started to be used. In 2012 WebCT merged with Blackboard, therefore this LMS is mentioned below. Since 2012/13 academic year the “virtual desktops” have been available to students and teachers, mainly for work with software not providing free/open access (e.g. MS SQL Server, Enterprise Architect). Since 2013/14 the Blackboard Mobile Learn™ version 4.0 for Apple and Android devices has been piloted (this version supports iOS6+, i.e. iPhone 3GS, iPad 2+, iPad mini, iPod Touch 4+ and Android OS 2.3+). Currently, approximately 250 online courses (called e-subjects) supporting single subjects are available to students, either to assist the teaching/learning process, or to be used in the distance form of education. Totally in 21 of them the mobile-assisted language learning (MALL) principles are applied, namely in English for Specific Purposes (ESP) for IT students, Business English, ESP for Tourism & Management, History and Culture: UK, History and Culture: Australia, History and Culture: New Zealand). All e-subjects run traditionally within the LMS, and currently are available on mobile devices in the limited extent as well. In other words, the blended learning model is applied which combines the face-to-face instruction, work in online courses and individualized approach to them through mobile devices which satisfies learners’ time/place preferences (Pieri, Diamantini, in Ally, 2009) and bridges formal and informal learning (Abdullah et al., 2013).

Since the use of mobile devices within the Czech education system has been rather new, the following questions were set to be researched:

1. Are students sufficiently equipped with mobile devices?
2. What purposes do students use the mobile devices?
3. What is the students’ feedback after the MALL?

Theoretical background

The above questions resulted from the background of the FRAME (Framework for the Rational Analysis of Mobile Education) model by Marguerite L. Koole (2009). Equipped with a mobile device, the learner can choose to consult a web page, access audio or video tutorials, send a query via text message to peers, or contact an expert/tutor for guidance. But, Koole asks, how can learners take full advantage of the mobile experience, how can practitioners design materials and activities appropriate for mobile access, how can mobile learning be effectively implemented in both formal and informal learning? The FRAME model offers some insights into these issues as it describes a mode of learning in which learners may move within different real *and* virtual locations and thereby participate and interact with other people, information, or systems – anywhere, anytime. The interaction with information is mediated through technology. Within this context, the FRAME model is represented by a Venn diagram (figure 1) in which three aspects (circles) intersect. The three circles represent the device (D), learner (L) and social aspects (S). The intersections where two circles overlap contain attributes that belong to both aspects. The attributes of the device usability (DL) and social technology (DS) intersections describe the affordances (i.e. availability, called the ownership in our research) of mobile technology (Norman, 1999). The intersection labelled interaction learning (LS) contains instructional and learning theories with an emphasis on social constructivism. All three aspects overlap at the primary intersection (DLS) in the center of the Venn diagram. Hypothetically, the primary intersection, a convergence of all three aspects, defines an ideal mobile learning situation. The model can/should be used to design a more effective mobile learning process (Koole, 2009). The FRAME model takes into consideration the technical characteristics of mobile devices as well as social and personal aspects of learning, thus referring to concepts similar to those found in psychological theories, e.g. in the Activity Theory by Kaptelinin and Nardy (2006) and especially pertaining to the work by Vygotsky (1978) on mediation and the zone of proximal development. In the FRAME model, the mobile device is an active component on equal footing to learning and social processes. This model also places more emphasis on

constructivism: the word “rational” refers to the “belief that reason is the primary source of knowledge and that reality is constructed rather than discovered” (Smith and Ragan, 1999, p. 15).

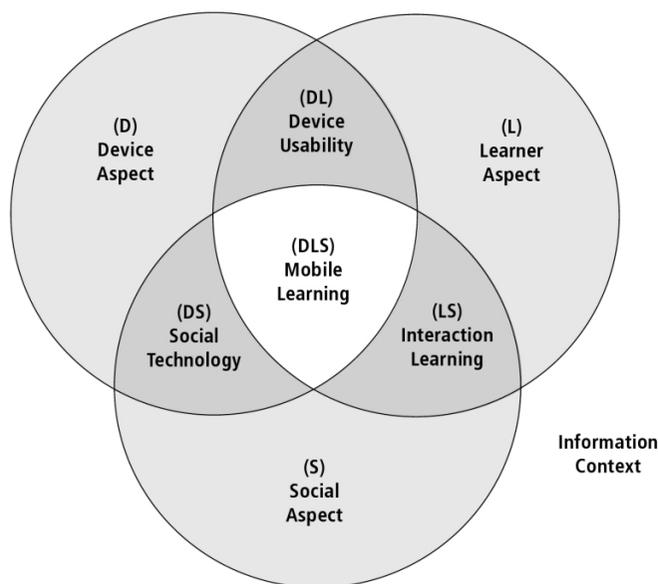


Figure 1. The FRAME Model (Koole, in Ally, 2009, p. 27)

Research Design

In 2013/14 academic year the pilot round of MALL started, having been structured in three phases.

In the first phase, students' preferences were detected in three fields:

- a) what sources of information they use for university study;
- b) what mobile devices they own;
- c) what purposes they use them for: communication (private, education-related), education (foreign languages, other subjects), entertainment.

The state was monitored by the questionnaire (Q1) containing twelve multiple-choice items focused on the above listed fields (a, b, c). The number of choices under each item was not limited. The collected data were processed by the NCSS2007 software by the method of frequency analysis.

In the second phase, from February – May 2014, the pilot process of instruction supported by the Blackboard Mobile Learn™ version 4.0 started. It was held in

- face-to-face lessons (90 minutes /week, for 13 weeks),
- online courses in LMS (e-subjects accessed through PCs, notebooks, netbooks) and
- mobile applications running on mobile devices (particularly tablets and smartphones).

Reflecting the tools available in the Blackboard Mobile Learn™ version 4.0, services in three fields were mostly used: (1) learning-related tools (i.e. Learning Content, Mobile Tests, and Tasks); (2) information tools (Announcements, Roster, Push Notifications, Grades), and (3) communication tools (Blogs, Discussions, Student Journals).

The following activities were implemented in the MALL process:

- face-to-face teaching/learning, i.e. learners attended the lessons where communication and immediate feedback-required activities were preferred;
- after-lesson autonomous learning in online courses in LMS Blackboard (i.e. activity running after instruction in learners' leisure time); the LMS was accessed either from immobile devices,

i.e. PC, but also from mobile ones – notebooks, netbooks, tablets and smartphones, which were recommended for Blackboard Mobile Learn™ version 4.0;

- after-lesson autonomous learning exploiting mobile applications.

LMS Blackboard is a high quality environment designed for education purposes, so it provides all tools necessary for efficient simulation of all phases of the process of instruction. From the tools provided in the Blackboard Mobile Learn™ version 4.0, the learning content in the form of study materials containing texts, figures, images, animations was available to students, new vocabulary and grammar structures could have been practised (not all types of tests are available in the mobile version compared to traditional LMS), as well as listening/reading files in the podcasting form and tests on listening/reading comprehension were available, and discussions were held, both in the written form on mobile devices in discussion forums and on Skype, which was linked with the LMS.

Above all, to practice *vocabulary and grammar* simple applications were designed by students for their peers, where words, phrases or short sentences appeared on the screen; after writing the answer (i.e. translating the item) the notice appeared saying whether the reply was correct, or not, and finally the correct solution was displayed. Both Czech/English and English/Czech versions were available, as well as short texts and animations to explain single grammar items. The *listening/reading comprehension* skills were developed through the “English Reader for IT and Management students,” which is a set of professional texts with professional vocabulary translated (using the Insert, Comments tool) and recordings in mp3 format. This is also an output of students’ project work for their peers. Both these activities enable students to show what they have learned from the studied field and to reflect and share their professional experience, which strengthens their motivation to further study.

In the third phase, after the MALL process had been finished, students’ satisfaction, experience and opinions were detected by evaluation questionnaire (Q2). Totally, seven criteria were set to monitor and evaluate the process of MALL as a whole, especially focusing on the role of mobile devices and encouraging students to introduce their own proposals to improvements. By collecting feedback in this pilot phase we surveyed students’ attitudinal responses to the use of mobile technology, whereas perceptive and cognitive fields will be monitored after the massive use later on. Each criterion was defined in the form of statement. Students’ feedback was expressed on the six-level scale from 1 – completely agree to 6 – completely disagree. In other words, this evaluation questionnaire focused on the field how the mobile technology was viewed by individual users within the MALL process (Chang, Hsu, 2011; Cheng et al., 2010). For the future research activities the main objective will be to learn in what ways the use of mobile devices facilitates the acquisition and development of linguistic knowledge and language skills.

Q2 collected students’ feedback on following statements:

1. Compared to learning in online courses, I consider mobile approach anywhere anytime helpful in the process of ESP learning.
2. Compared to learning in online courses, I consider mobile approach anywhere anytime significantly helpful in the process of ESP learning.
3. I worked with recommended operating system and devices. If you did not, list the devices you used.
4. I did not have any technical problems. If you did so, please explain.
5. The Internet access was as displayed in Internet signal maps.
6. Would you appreciate using mobile devices in ESP learning in the future?
7. Would you use mobile devices in learning other subjects in the future? If yes, provide examples, please.

Research sample

The MALL was piloted in the sample group of 203 students of the Faculty of Informatics and Management, University of Hradec Kralove, who enrolled in IT (63 %) and Management study

programmes (37 %); having 60 % of male students; 60 % of full-time and 40 % of part-time students; 72 % of them 19 – 24 years old, 13 % of 25 – 29-year-old ones, 11 % of 30 -39-year-old and 4 % of 40+.

Research results

Following results were detected in three phases of the research.

Within *the first phase*, students’ preferences were monitored in sources of information relating to the higher education and mobile devices ownership and use were collected by questionnaire Q1. The collected data were considered from the point of ESP and other subjects, from the use of mobile devices for education and private purposes (e.g. entertainment, communication). The following fields were monitored:

Ad a) Sources of information respondents use for education within university study (both in ESP and other subjects)

Following sources of information were taken into consideration: personal attendance of lectures, buying books, borrowing books from libraries, exploiting e-subjects in LMS, study materials on FIM web page, Wikipedia, materials available from the Internet for free, Facebook, discussion groups, LinkedIn, Google+ other sources. As displayed in figure 2, online courses (e-subjects) in LMS are the most frequently used source of information (by 92 % of respondents), followed by personal attendance of lectures (85 %), materials from the Internet available for free (77 %), materials from the FIM web page (there is a special folder where teachers uploaded the materials before online courses, they were widely used, and many teachers still use both this folder and online courses). Above all, half of students borrow textbooks (53 %), but only one third of them buys the materials (31 %). Following the latest trends in social networking, discussions in the LMS are widely used (72 %), as well as Facebook (58 %), followed by Wikipedia (42 %), Google+ (11 %) and LinkedIn (1 %).

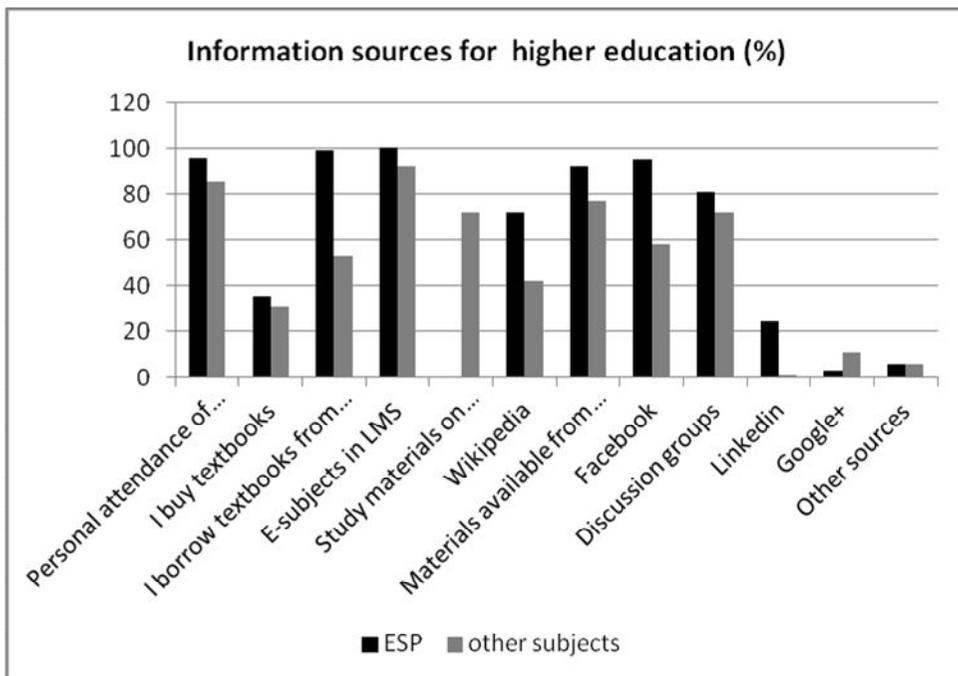


Figure 2. Information sources used for education in ESP and other subjects

Sources of information the respondents use for ESP show different distribution. E-subjects are obligatorily used by all students (100 %), as well as personal attendance of lectures which is required (96 %) and work with textbooks (printed, electronic, scanned, ...). That is why students borrow textbooks from libraries (96 %), buy them (35 %), download free study materials from the Internet (92 %), participate in discussion groups within LMS (81 %) and on Facebook (95 %), they use Wikipedia (72 %), LinkedIn (24 %); no materials are available on the FIM web page for ESP.

Summing up, these are “traditional” sources and approaches which have been applied in e-learning for two decades. As mentioned above, what the MALL approach reflects is the fact that e-subjects have been running on mobile devices for the last few years, including social networks (mainly Facebook) used through mobile devices for sharing experience and study materials, answering questions etc.

Ad b) Mobile devices respondents own

The data show (Figure 3) that notebooks are currently the most frequently owned mobile devices (88 % of respondents possess them), followed by smartphones (61 %), mobile phones (52 %), PCs (52 %), mp3 players (49 %), DVD players (39 %), whereas Hi-fi (27 %), tablets (24 %), game consoles (13 %) and netbooks (10 %) were rather rarely owned. As expected, students do not have one type of mobile devices only but simultaneous possession of PCs, notebooks, netbooks, tablets, smartphones was proved. Other types of mobile devices were not used so often but respondents also mentioned the ownership of TV (67 %), radio (30 %).

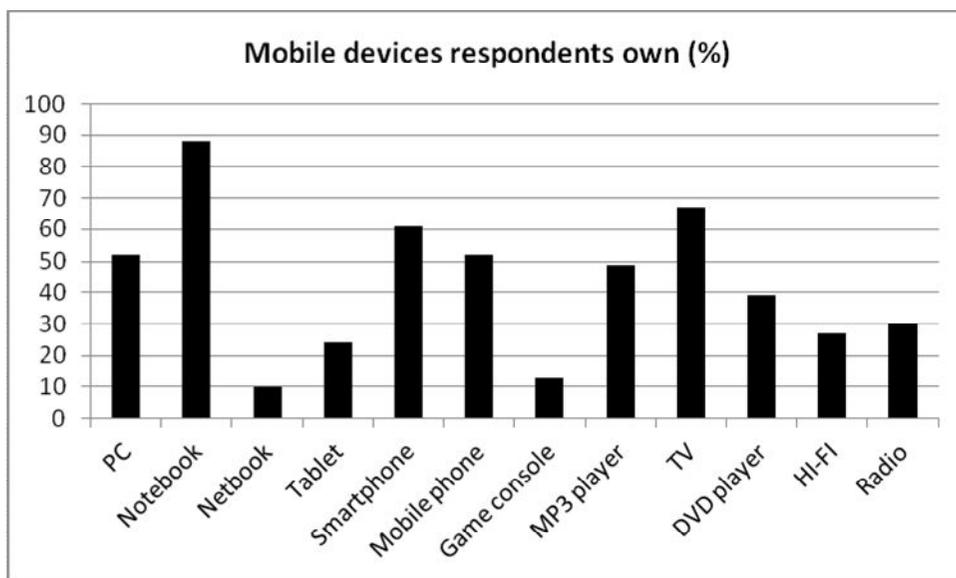


Figure 3. Mobile devices respondents own

Ad c) Purposes students use mobile devices for

Under this criterion following fields were monitored:

- exploitation of mobile devices for *communication*, both private and education related purposes,
- the use of mobile devices for *education*, both in foreign languages and other subjects, and for *entertainment*.

As displayed in Figure 4, from six choices (PC, notebook, netbook, tablet, smartphone, mobile phone) respondents marked in descending order which mobile devices they use for communication, either on private, or education-related matters, and the item of personal contact was added to the list of choices. The results show notebooks were the most frequently used mobile device (79 %), followed by

smartphones (59 %) and mobile phones (55 %); less than 45 % of respondents declared they used PCs, whereas tablets (13 %), netbooks (8 %) were less frequently used. Despite the availability of latest devices, personal contact (96%) was strongly preferred.

In education-related communication results were almost identical, detecting the highest frequency in personal contacts (92 %), the use of notebooks (79 %) and smartphones (56 %). Mobile phones were less frequently used (46 %) but the frequency of PCs increased (55 %). The use of tablets (12 %) and netbook (6 %) was on similar level in both areas.

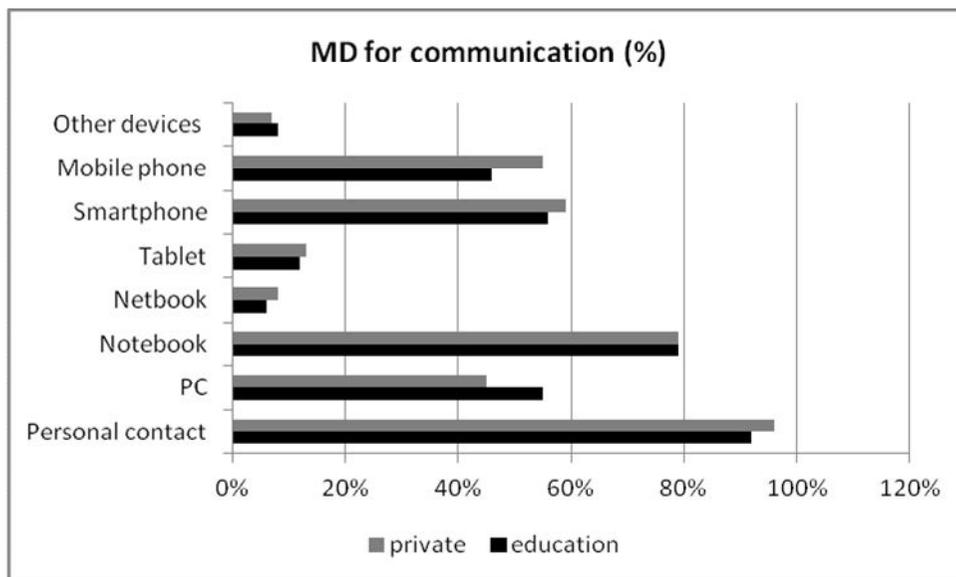


Figure 4. Mobile devices (MD) used for communication

Unlike the previous criterion, data related to mobile devices respondents use for education and entertainment show that different devices are used for entertainment and education. Traditionally, notebooks are on the top position (81 %) followed by smartphones (49 %), mobile phones (28 %), tablets (16 %) and netbooks (7%) but higher frequency of the use was detected with TV (54 %), mp3 player (29 %), radio (18 %), DVD player (16 %), HI-FI (12 %) and game console (10 %).

In ESP mostly notebooks (90 %) and smartphones (80 %), followed by PCs (43 %), mobile phones (32 %), tablets (18 %) and netbooks (6 %) are used. What is interesting, not unexpected but logical, is that respondents declared higher frequency of mobile devices used in ESP than in other subjects. The phonetic side of language and quality of sound/recording provided through mobile devices are in correlation.

In other subjects within higher education notebooks were detected (87 %) as well as smartphones (43 %), PC (42 %), mobile phones (18 %), tablets (18 %) and netbooks (7 %). Results are displayed in Figure 5.

Based on these results, we felt entitled to start the MALL process, i.e. to use the mobile devices to assist the ESP instruction. The process included after-lesson independent work in practising vocabulary, grammar, listening comprehension, written and oral discussions, as described above.

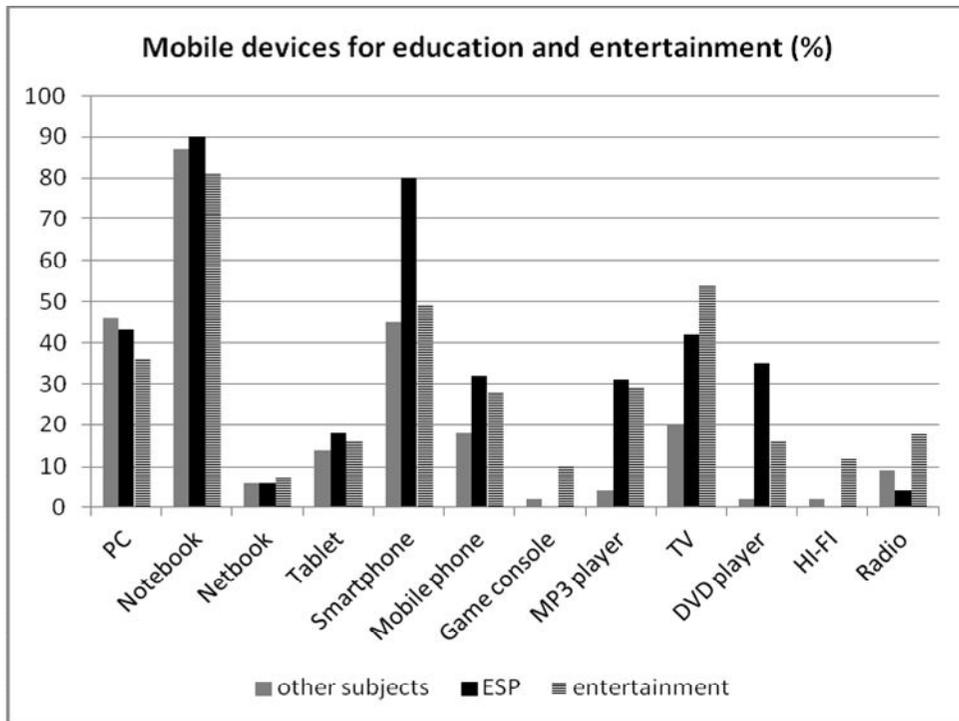


Figure 5. Mobile devices used for education and entertainment

When the MALL process of instruction had been closed in June 2014, respondents provided their experience and opinions with the implementation of mobile devices in MALL via the Evaluation Questionnaire (Q2). Single items drew answers to the question how the use of mobile technology was viewed by individual users (Chang, Hsu, 2011; Cheng et al., 2010) on the 1 (completely agree) – 6 (completely disagree) point scale. Following results were detected by questionnaire Q2. As displayed in Table 1, most respondents’ feedback was highly positive.

	Statement	Evaluation coefficient
1	Compared to learning in online courses, I consider mobile approach anywhere anytime helpful in the process of ESP learning.	1.8
2	Compared to learning in online courses, I consider mobile approach anywhere anytime significantly helpful in the process of ESP learning.	2.2
3	I worked with recommended operational system and devices (if you did not, list the operating systems and devices you used).	1.3
4	I did not have any technical problems (if you did so, please explain).	1.1
5	The Internet access was as displayed in Internet signal maps	1.3
6	Would you appreciate using mobile device in ESP learning in the future?	1.14
7	Would you use mobile devices in learning other subjects in the future? (if yes, provide examples, please): Calculation applications for Accounting; animations, simulations, modelling for various IT subjects; high quality video-recordings for culture- and history-related subjects (English, German, Russian, Spanish) etc.	2.04

Table 1. The MALL feedback

Discussion

Briefly summarized, the results collected at FIM reflect the MALL implementation throughout the world. In the Czech Republic no significant items either on m-learning or MALL have been published. The reason is that m-learning has not become so common as e-learning and thus long-time data are still not available, as the latest types of mobile devices reached the users here later than in economically-strong and developed countries of the Western Europe, USA, Canada and others. Currently, the world being global, differences are quickly fading in the field of the availability of mobile devices. But the scientifically-verified methodology (didactics) on how to implement mobile devices, particularly how to start and apply MALL into the process of instruction, is still absent.

Our study brought identical results as e.g. Viberg, Gronlund (2013) who monitored attitudes towards the use of mobile devices in second and foreign language learning in higher education taking cross-cultural view into account. They employed Kearney's pedagogical framework to mobile learning from socio-cultural perspective (Kearney, Schuck, Burden, Aubusson, 2012). The findings showed the positive impact on individualization (83 %), collaboration (74 %) and authenticity (73 %), whereas gender was identified to be a predictor of differences in students' attitudes to MALL and concluded technology was stronger culture-shaping factor than inherited cultural environment or age.

Additionally, Hsu (2013) investigated the end-users' perception of MALL through cross-cultural analyses in seven countries and regions and discovered that despite the existence of significant differences, all respondents agreed that MALL provides potential for EFL learning. Closely relating to our research topics, in survey by Chen (2013) tablets were detected an ideal tool for interactive, collaborative and ubiquitous environment for independent informal language learning supported by students' positive attitudes towards their usability, efficiency and satisfaction for the MALL purposes. As far as knowledge is concerned, de la Fuente (2014) focused on the aural input and indicated that learners in the MALL group demonstrated significantly higher levels of reporting noticing, bottom-up comprehension and top-down overall comprehension than learners in instructor manipulated language learning.

On the other hand, Golonka et al. (2014) summarized evidence for the effectiveness of technology use in FL learning and teaching, focusing on studies comparing the use of new technologies (mobile and portable devices, network-based social computing) to traditional methods and material (PC) and claimed a limited efficacy of mobile technologies. The strongest impact was discovered in computer-assisted pronunciation training, particularly automatic speech recognition.

Above all, related to digital library services mention above by Lorenz, open access repositories of language learning resources were also researched, e.g. by Zervas and Sampson (2014). Unfortunately, limited experimental evidence was detected about factors influencing MALL resources. We consider them very useful, as both the designing and financial support to them is demanding. These results were verified by quantitative analysis of the reuse of MALL resources stored in Mobile2Learn Repository (Zervas, Sampson, 2013).

Other studies have demonstrated mobile technologies are helpful and appropriate for language teaching and learning, e.g. Demouy and Kukulska-Hulme (2010). In still other studies, significant improvements were detected in listening and reading skills, e.g. Kondo et al. (2012), in vocabulary development, e.g. Agca and Ozdemir (2013), in learning idioms, e.g. Kargozari and Tafazoli (2012), in English vocabulary revision, e.g. Ma, Chen, Hwang, Ding (2012), in using task-based approach to design a contextualized MALL, e.g. Tai (2012), in pronunciation, e.g. Saran, Seferoglu, Cagiltai (2009), etc.

Unfortunately, none of these studies provided any complex didactic recommendations applied either within the process of designing single activities/tools, or in the MALL implementation, as it had been done by e.g. Palalas (2012); when exploring the design of a Mobile-Enabled Language Learning (MELL) solution she defined a set of ten corresponding design principles and eight technological components which should be integrated into the system. Her proposal contributed e.g. to solving the problem of inadequate aural skill acquisition of adult ESP students in Canada, similarly to the one designed by Lorenz (2010) within the Czech educational environment.

The only valuable and rather complex result of the implementation of m-learning (but not MALL) in the Czech Republic was published in 2011 by Lorenz. Following the Corbeil and Valdes-Corbeil research design (2007), he ran a quantitative research in the group of 274 students of IT in library services study programme at Masaryk University in Brno. He analysed the concept of mobile education within the changing university environment focusing on the process of learning and the support which libraries can provide, and answered the question whether both students and teachers are ready for this process, i.e. whether

- they have learning/teaching skills to use the potential of m-learning,
- they are sufficiently equipped with mobile devices,
- they are willing/able to cover financial fees for services used,
- and what both teachers' and students' attitudes to such an approach are.

He also emphasized the m-learning contribution to the lifelong, mass and democratic access to education and (as a librarian) the role of digital libraries. In the proposal he applied the TPCK framework (Koehler, Mishra, 2008) reflecting the principles of problem, co-operative, active, authentic and situation learning (Lorenz, 2010, p. 6) as well as strategies towards efficient use of mobile devices in lessons (Lorenz, 2010, 8). Despite their general nature, all of them can be applied in MALL.

We are aware that his results (Lorenz, 2010, 10-13) were collected in 2010, but they are comparable to FIM in several criteria, e.g.:

- 92 % of students and 85 % of teachers own a mobile phone, 10 % of students and 27 % of teachers have a smartphone (in 2010) – this is the most surprising result; 65 % students and the same number of teachers own notebooks or laptops; 61 % students and 46 % of teachers have MP3 players; 4 % of students and none of the teachers have iPod.
- Despite the possibility to state that both parties were sufficiently equipped with mobile devices, 65 % of students and 42 % of teachers proclaimed insufficient readiness for m-learning, i.e. not having learning/teaching skills for efficient use. This result contrasts with Corbeil and Valdes-Corbeil results where 94 % of students and 60 % of teachers expressed the readiness for using mobile devices for education (from the sample group of 107 students and 30 teachers) (Corbeil, Valdes-Corbeil, 2007).
- Moreover, the total of 57 % of students and 46 % of teachers are willing to pay for services for education purposes and the same amount of both parties would appreciate/are going to implement mobile devices into learning/teaching.
- The most frequently used services include sending short messages 94 % of students, 96 % of teachers, e-mail messages (57 % of students, 65 % of teachers), listening to audio-recordings and saving photos (70 % of students and 58 % of teachers), 54 %/38 % make records by themselves, instant messaging service is used by 45 % of students and 27 % of teachers, podcasts and audio-books are listened to by 18 % of students and 12 % of teachers, e-readers are used by 23 % of teachers and 21 % of students, 32 % of students and 23 % of teachers regularly access social networks, etc.

All users (teachers and learners) consider mobile devices and technologies useful, easy to use, motivating and enjoyable. These criteria provide strong impact on efficient use of mobile devices and the m-learning in general. No restrictions were detected in this field which would limit this process in MALL.

As mentioned above, the Lorenz's study was carried in 2010, which means data have changed within the five-year-long period. This was one of the reasons why our study was important providing latest results reflecting the state in the field.

Mobile applications for ESP (Son, 2014)

Along with the advancement of mobile devices such as smartphones and tablets, a large number of educational apps have been developed and are widely available in the App Store (iOS), Play Store (Android) and other repositories. The number of language learning apps is also rapidly growing and the increasing accessibility of the apps is generating a need for their appropriate selection.

Language learning apps are defined as the apps dedicated to the learning of languages. Running on mobile platforms such as Android (Google) and iOS (Apple), there are three types:

- native apps, designed specifically for their targeted platforms and making use of all device features;
- web apps, being cross-platform websites providing users with similar looks and feelings to native apps but running on browsers;
- hybrid apps, a mix of native apps and web apps exploiting many of their device features.

They are instructional apps, which are explicitly designed with language learning in mind and can be used in and out of the language classroom. They differ from other general purpose apps (e.g. email apps, messaging apps, photo apps, audio apps and video apps) that could be used in language learning but are not originally developed for language learning. The language learning apps can be structured into two types: apps dedicated to language learning (ADLL), or apps adaptable to language learning (AALL).

Mobile apps are available in the App Store (iOS), Play Store (Android) and other repositories. Their number is continuously increasing. According to Pocketgamer.biz, the total number of active apps in the App Store (available for download) on the 15th of February 2015 was 1,515,650 and, on average, 720 new apps were submitted to the App Store every day (<http://www.pocketgamer.biz/metrics/app-store/>). In December 2014 the most popular categories of apps were games (21 %), followed by education (10 %), business (10 %), lifestyle (8 %) and entertainment (7 %). The increasing accessibility of apps, particularly educational apps, is generating a need for the appropriate selection and use of apps for educational purposes. Mobile devices are widely available for language learners and teachers. With the enhancement of hardware and software in recent years, mp3 players have been replaced by smartphones and tablets and MALL is now essentially associated with mobile apps (Burstson, 2014).

Each type of these apps has strengths and weaknesses in terms of device features, offline functioning, discoverability, speed, installation, maintenance, platform independence, content restrictions, approval process, fees, development costs, and user interface (Budiu, 2013). Bradin Siskin (2009) proposes four types of apps for language learning:

- (1) built-in apps – e.g. email, voice recorders, video recorders;
 - (2) instructional apps – e.g.:
 - AccelaStudy (<http://renkara.com/applications/accelastudy.html>),
 - Gengo Flashcards (<http://www.innovativelanguage.com/products/Gengo>),
 - WordPower English (http://www.you2.de/iPhoneSW/progs_wpenglish_e.html);
 - (3) social networking apps – e.g. *Facebook*, *Skype*, *Twitter* etc.;
 - (4) repurposed apps – e.g.
 - audioBoom (<http://audioboom.com/>),
 - Current Postcards (<http://mobilefission.blogspot.com.au/2007/06/about-current-postcards.html>),
 - Google Apps for Work (<https://www.google.com/work/apps/business/>).
- Godwin-Jones (2011), on the other hand, recommends practical language learning apps including Chinese language learning programmes such as
- eStroke (<http://www.eon.com.hk/estroke/>),
 - Pleco (<http://www.pleco.com/>),

- ChinesePod (<http://chinesepod.com/>) and flashcard tools such as Quizlet (<https://quizlet.com/mobile/>), or language learning apps linked to web services or online databases, particularly commercial products such as
- Rosetta Stone (<http://www.rosettastone.com/mobile-apps/>),
- Byki (<http://www.byki.com/mobile/>),
- Babbel.com (<http://www.babbel.com/mobile/>),
- Hello-Hello (<http://www.androlib.com/android.developer.hello-hello-iqCj.aspx>) etc.

Table 2 presents the list of apps for learning English as a second/foreign language (ESL/EFL) is presented. They are divided into ADLL and AALL types, including target learning activities.

ADLL: Apps Dedicated to Language Learning					
Name	Category	Activity	Price	Download	Note
<i>Learn English Grammar</i>	Education	Grammar	Free; paid	App Store; Play Store	3 free sample question packs
<i>Learn English Podcasts</i>	Education	Listening, culture	Free	App Store; Play Store	Podcasts
<i>Learn English, Speak English by SpeakingPal</i>	Education	Speaking	Free; paid	App Store; Play Store	Pronunciation feedback
<i>Learn Languages with busuu</i>	Education	Listening, speaking, vocabulary, reading, writing	Free; paid	App Store; Play Store	Learning activities and tests
<i>Practice English Grammar</i>	Education	Grammar	Free; paid	App Store; Play Store	Lessons and tests
<i>Sounds: The Pronunciation App Free</i>	Education	Pronunciation	Free	App Store; Play Store	Premium version available
<i>Real Deal English</i>	Language course	Listening, culture	Free	App Store; Play Store	Podcasts
AALL: Apps Adaptable to Language Learning					
<i>English Idioms Illustrated</i>	Education	Vocabulary, reading	Free; paid	App Store	20 free idioms
<i>iTunes U</i>	Education	Listening, reading, writing, speaking, etc.	Free	App Store	Free courses
<i>Pirate treasure hunt: Eight challenges</i>	Education	Listening, reading	Free	App Store	Problem solving
<i>TED</i>	Education	Listening	Free	App Store; Play Store	Videos and audios
<i>Advanced English Dictionary & Thesaurus</i>	Reference	Vocabulary	Free; paid	App Store; Play Store	Lexical database

<i>Dictionary.com</i>	Reference	Vocabulary, pronunciation	Free; paid	App Store; Play Store	Offline access
<i>Toy Story Read-Along</i>	Book	Reading, listening	Free	App Store	Interactive reading
<i>Dilbert Mobile</i>	Entertainment	Reading, culture	Free	App Store; Play Store	Comics
<i>Podcasts</i>	Entertainment	Listening, culture	Free	App Store	Podcasts

Table 2 Mobile Apps for Learning English

Source: <http://www.apacall.org/member/sonjb/projects/apps/>

Conclusion

Information and communication technologies help education overcome the gap between time and space. M-learning, based on learners’/teachers’ ownership of mobile devices and mastering skills on how to use them for educational purposes, including their willingness to cover related financial requirements for services used, is a natural solution for the net generation of “digital natives” (Prensky, 2001), as it puts together favourite learning aims (i.e. mobile devices) and methods of constructivism, connectivism, collaborative active learning and others. All these factors result in strengthening learners’ motivation to learn as well as enabling to run the process of learning in the way which is natural for them. The efficiency of such a learning process has been subject of current and future research activities, focused mainly on its didactic potential. Numerous surveys have been published, but didactic ones related to the Czech education and MALL environment are still missing. Mobile technologies’ affordances in specific learning activities and learning contents (subjects, topics), difficult financial situation in the field of education in last years, ethical problems related to the use of mobile devices – these are the hot topics which should be researched and solved in the near future. The didactic design of the implementation of mobile devices in MALL (as well as in other subjects to some extent) should also consider the problem of unlimited availability of the teacher, which is a strongly positive feature from the learners’ side, but logically very conflicted from the teachers’ view. The ethical feeling of non-/contacting the teacher is connected to a general level of behaviour and good manners. And, current learners, being allowed to feel free, sometimes disrupt this gentle border line.

Despite this and as most results show, vast majority of both students and teachers are ready for efficient incorporation of mobile devices into MALL and other subjects. Didactic recommendations from experienced users in technologically developed countries can help substantially. MALL still has many challenges (Burston, 2014), but the popularity of apps on smartphones and tablets and the number of language learning apps are likely to increase further. In MALL, learners are encouraged to combine formal and informal learning. Moreover, mobile apps provide learners with a great way to achieve the goal of connecting learning with real life experiences. It is recommended that more app-based research should be conducted to explore different aspects of apps from diverse perspectives and MALL training opportunities should be offered to teachers.

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