Evaluating CD ROMs for Pre-Primary English Courses in the Czech Republic and Slovakia

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Abstract

Living in the digital age means that modern information and communications technologies (ICT) have penetrated into every aspect of human lives, including education. Despite the fact that ICT are widely used in educational setting, many educators (and parents) have nevertheless remained concerned about how to adapt them into children´s education meaningfully and effectively. The use of ICT in education in general, and in preschool institutions in particular, has become an important research issue. The study focuses on evaluating multimedia CD-ROMs published in two countries with the intention to be used in pre-school institutions for the introduction of English as a foreign language to the youngest learners (children 3 – 6 years). The results point to the fact that majority of the CD ROMs offered activities which were marked as "**robotic**", "**glib**", "**static**", **and** "**empty**" (built upon simple and usually mechanically repeated instructions), never reached beyond mechanical memorisation of English vocabulary in any entertaining way. The author calls for designing cognitively challenging materials which could support development of higher cognitive or affective functions of very young learners.

ICT and very young learners

Young children are enveloped by modern ICT technologies, both at home and in preschool, making it possible to claim that "even the youngest children live in a media-saturated world and magnitude of their technological experiences differs substantially from that of previous generation" (Wartella, et al., 2005). This must be naturally reflected in the ways very young learners are educated (Christina, 2003; Guo, 2007; Leung, 2003; Li, 2006; Nikolopoulou, Gialamas, & Batrsouta, 2010;

Plowman & Stephen, 2005; Plowman, McPake, & Stephen, 2008; Prensky, 2001; Xia, Toki, & Pange, 2014).

In the knowledge-based societies, ICT plays major role in almost every aspect of modern life. This puts an important role for educational institutions on all levels of education and schooling - to develop knowledge and skills to be able to live a successful life "with and among computers" (United Nations, 2005; UNICEF, 2013; OECD, 2006; Guo et al., 2006).

Many countries have realized the importance of ICT in education, including the Czech Republic and Slovakia, both members of the European Union. Along with many EU initiatives (European Commission, 2006), both Ministries of education initiated programmes to encourage ICT integration into education on all of its levels. Under the financial support of the EU, several programs were implemented aiming at the development of ICT infrastructure (educational hardware, software and services) and teacher training. In both countries a project called Internet to Schools has been started as well other projects (e.g. *Elektronická školička* in the Czech Republic, *Infovek & Digiškola* in Slovakia). Pre-school education (ISCED 0) has not been left out of these tendencies. A large number of schools has been equipped with computers, printers, scanners, multimedia stations, and has got access to the internet.

In both countries, the ability of pre-school learners to use various information and communicative tools, including ICT, has been incorporated into the final requirements defined in basic pedagogical documents (MŠMT ČR, 2007, 2008, 2018; MŠVVŠ SR, 2008). The incorporation of ICT into pre-school education has also been an object of interest for many researchers and teacher trainers in both countries (Cimermanová, 2011; Dostál, 2009; Farkasová, 2015; Hajduková, 2011; Kalaš, 2010, 2011; Pekárová, 2009; Pokrivčáková et al. 2011; Straková, 2015 and others).

Possible benefits of ICT in education

Potential benefits of using ICT in the educational settings at all educational levels from preschool to higher education are well documented (United Nations, 2005). Many research findings showed that teaching and learning through ICT can positively influence children's cognitive functions, academic performance and learning outcomes (Cimermanová, 2011; Kalaš, 2010, 2011; Lovari & Charalambous, 2006; UNICEF, 2013). Others proved that computer assisted learning can have a significant effect on children's emotional, linguistic and literacy skills (Brastitsis, 2012; Fesakis, Sofroniou, & Mavroudi, 2011; Gao, 2011; Haugland, 1992; Wu & Li, 2008). Moreover, using ICT from the very early age at schools is an effective way to develop digitally-proficient ad successful individuals for modern information society.

In general, it might be concluded that that using ICT was seen as a way of:
● creating new educational environments,
● providing new teaching methods,
● changing the traditional teacher-student relationship

● and, finally, improving the quality of education.

Burgerová (2003) enumerates the benefits of using ICT in education as follows:
● interactivity,
● multimediality,
● hypertextuality,
● globality,
● virtuality,
● and mobility.

Risks of using ICT in education
It should be added that these benefits remain only expectations and empty wishes if ICT is not applied systematically, effectively and in accordance with basic pedagogical and psychological principles of educational processes. If educators fail in these responsibilities, ICT in their hands (and hands of their learners) fails to be "cognitive tools that can engage students in learning". It then becomes a tool for entertainment or a distractor. In this particular context, pedagogical theory uses two terms: "edutainment" (when entertainment prevails over education; for more see McKenzie, 2000; Okan, 2003; Resnick, 2004; Veltman, 2004) or "technotainment" (when technology is used for entertainment purposes only and education is suppressed; for more see McKenzie, 2000; Veltman, 2004).

Olson and Clough's (2001, cited in the form acc. to Kazanci & Okan, 2009) also warn that:
● Technology should not determine the content or the activity, but teachers should shape the technology in order to meet their or the students' needs.
● The technology used in the classroom should be goal-oriented, not just for the sake of the technology.
● The reasons for using technology should be strong, if the only reason is to have fun, other options should be considered.
● Advantages and disadvantages of technology should be considered before the decision to use it.

Some authors pointed out also to other risks or negative effects of using ICT in pre-school classes (Funk er al., 2003; Pokrivčáková, 2011; Straker et al., 2006), such as overusing technologies in situations when it is not necessary; reducing opportunities for real personal interactions with other children; tendency to mechanical "step-by-step" thinking over the critical thinking and evaluation skills.

ICT in language learning (CALL)

Integrating ICT into language learning and teaching is a long-lasting and complex process which led to the establishment of a relatively independent approach to teaching foreign languages - computer assisted language learning (CALL; for more see Bax, 2003; Ducate & Arnold, 2006; Dudeney & Hockly, 2012; Hubbard, 2009; Warschauer, 1996, 2004). ICT has become invaluable assistant in all aspects of language education - both in teaching all language system (pronunciation, vocabulary, grammar) and developing communicative skills (listening, speaking, reading, writing), for more see individual chapters in Pokrivčáková et al., 2015). However, research studies in applying CALL at nursery schools and pre-primary education are scarce.

4. Research

4.1 Research objective

The main objective of this study is to evaluate the didactic effectiveness of instructional softwares for very young learners of English (pre-school beginners) which originated and have been available in both the Czech Republic and Slovakia (they all include a considerable portion of verbal materials in either Czech or Slovak languages).

4.2 Research sample and respondents

Research sample consisted of 9 CD ROMs available at a book market. All of them were created as learning materials intended to introduce English as a foreign language to learners from 3 to 6 years (or older) – either at home or at nursery schools. All 9 CD ROMs were bilingual with activities in English and instructions and explanations in children's mother language (Czech or Slovak). 5 CD ROMs were English/Czech, 3 were English/Slovak and one provided an opportunity to choose between the Czech or Slovak versions when first downloading to the computer.

The list of evaluated CD ROMs with descriptions (translated from their covers):

Moje prvé slovíčka (My first words, publisher: SILCOM Multimedia)

This CD is intended for the smallest children – beginners. The teaching part is in the form of classic picture dictionary in which the learner can choose from several forms of the presentation of new words (alphabetically or topically). The playful part contains various activities and games (mostly substitution or matching activities).

Začíname s angličtinou: Moje prvé slová (We start with English: My first words; publisher: Terasoft)

This is a multimedia interactive programme intended for teaching English as a foreign language. It is intended for children of pre-school age. Each word is illustrated. The publisher claims that the vocabulary used in the programme was selected based on their occurrence in most frequently used textbooks in Slovakia. It is divided into 23 topics which are close to children (e.g. family, house, food, time,

a town, days of the week, animals, colours, school, etc.). The producer promises effortless and entertaining learning through funny illustrations which help effective remembering. The programme enables learners to choose from one teaching and two testing modes.

Interaktivní angličtina pro předškoláky a malé školáky (Interactive English for pre-school and elementary school learners; author: Pařízková Štěpánka)
This new CD is intended for teaching English, especially to pre-school children, or as a teaching complement at the first level of elementary schools. Using modern form of interactive computer-based teaching, children will learn 172 basic words from basic thematic areas: colours, toys, home, food, animals, plants, etc. The main intention was to introduce the language in a way which would be adequate to the abilities of children common at the age of approx. five years. It is enough just to listen to them and play, which are main attributes of teaching at that age. The use is very comfortable, there is no need to install or save anything into the computer.

Angličtina pro děti: Let´s play (English for Children: Let´s Play; authors: Irena Zatloukalová, Ondřej Jirásek, Kateřina Kroftová)
The book is intended for pre-school children, to facilitate, already at this young age, their first contact with English and teach basic vocabulary and phrases. The DVD and the book make up one whole. The child will watch a story about beings from space on DVD. Little heroes communicate with them in English. Eight lessons in which the child will learn basic vocabulary, numbers, colours, simple grammatical forms.
* the child will watch an animated tale on DVD, watching an educational video the child pronounces names of the pictures seen on the screen, opens a book, colours drawings and pronounces their names, the exercises in the book help the child to save the name deeper into the memory. The child can go through the coloured story again, memorise the new words and, at the same time, colour the pictures, sing songs or recite.

Zábavná angličtina pro děti: Králík Bunny a jeho dobrodružství (Funny English for Children: Bunny and his Adventures, authors: Christopher Barickman, Andrea Jandejsková)
The authors claim that Learning English is fun**.** If learning becomes play, then it is easy! On DVD children may watch the adventures of Pink Bunny and his friend Andrea. Pink Bunny speaks only in English and Andrea has a role of an interpreter: she communicates with the Bunny in English and then translates into Czech. The aim of the book, full of activities, is to review the vocabulary the child comes across in the story. Everything is again happening in a playful way – through colouring and puzzle solving.

Chytré dítě - English - Angličtina pro nejmenší děti - CD ROM (Smart Children – English for the Youngest Ones, publisher: Petr Blumentritt - BLUG) is intended for children from 3 years of age as well as for the older children who begin to learn English. The book´s advantage is in its new method of teaching. It is not based on translating words, but on children´s intuitive mental activity, the same as when they learn their mother tongue. The children fix words by means of pictures and sounds. They can learn themselves by playing, without parents or teachers.

Angličtina pre deti - CD-ROM (English for Children; publisher: LANGMaster)
is an extraordinarily interactive program for the teaching of English, intended for children from 5 to 9 years of age and covering first two years of teaching. It contains almost 700 basic words and expressions, 25 English poems and a set of interactive exercises. The IBM ViaVoice speech recognition system provides a unique opportunity to do exercises orally and thus to train correct English pronunciation.

Pohádky bratří Grimmů - audiokniha+CD-ROM+DVD (Brothers Grimm´s Fairy Tales – Audiobook + CD-ROM + DVD; publisher: EDDICA)
Pohádky bratří Grimů – the set "LISTEN and LEARN" helps children to acquire the basics of English in a modern way, through tales. Learning English in a natural way through associations (sound, text and pictures). The listening book is based on the popular concept of mirror books. Its aim is to improve the ability to understand a continually spoken text. The English text is fully equipped with sound and its playback can be adapted in a very simple way to correspond to the level of your current ability to understand (individual setting of the length of pause between sentences, number of repetitions of the sentence, ...).

The nicest tales – CD ROM (publisher: EDDICA)
a series of multimedia programmes. The programme contains a sound tale in the form of an audiobook (spoken in English and Czech/Slovak), colouring books using motifs from tales, the sound Czech/Slovak-English Pexeso and Merlin school of English.

Respondents
The CD ROMs were evaluated by two groups of experts (in-service teachers of English at nursery schools with a teaching experience longer than 10 years) who were well acquainted with the educational context at nursery schools in which the programmes are intended to be used. Each group consisted of 6 teachers. They were selected from the larger groups of volunteers who answered the call for participation in the research via teachers´ associations and universities (in total 168 applications have been registered).

The first group included teachers from nursery schools in the Czech Republic, the second one teachers from Slovak nursery schools. The group members did not know each other before the research, which was one of the selection criteria. Other selection criteria were: age, sex, region, length of teaching practice, and training in the use of educational ICT.

4.3 Methodology

To get the research data, a combination of three methods was used:

1. heuristic evaluations (Nielsen, 1992; Squires & Preece, 1999);
2. expert reviews (Korhonen, 2010);
3. focus groups.

Heuristic evaluations (Nielsen, 1992; Squires & Preece, 1999)

The basic principle of heuristic evaluation is that the group of experts "work their way through the system, using their expertise to role-play the behaviour of a typical user" (Squires & Preece, 1999, p. 472). Therefore, as the first step of the research, 12 experts - teachers were asked to use all 9 CD ROMs as if in a role of a child user. They were asked to use all the activities and to use all the applications. Each expert tested each of the sample softwares individually (March – September 2017).

Expert reviews

Then the experts evaluated the CD ROMs from the sample in the form of expert reviews. Based on their teaching expertise and personal experience with CD ROMs, they were asked to evaluate the balance between education and entertainment and fill in their assessments into the McKenzie´s Assessment Chart (Appendix No. 1). They were also asked to record their personal experience, notes, and comments in a written form for the purposes of a later discussion in the focus group (September 2017).

Focus groups

In the last phase of the research study the experts were divided into two focus groups who met to discuss their opinions and assessments in November 2017. The Czech group met at the Tomas Bata University in Zlin, the Slovak group at the University of Trnava. Each meeting lasted 90 minutes and the author of this study acted as a moderator in both of these meetings.

Williams & Katz define focus group (FG) as „a small gathering of individuals who have a common interest or characteristic, assembled by a moderator, who uses the group and its interactions as a way to gain information about a particular issue" (2001, p. 2).

The method was chosen because it enables the researcher to get participants to (Breen, 2006):

● share and compare their experience with each other,

- develop and generate ideas,
- explore issues of shared importance.

Each meeting has the same structure:
1. welcome and opening (rules of a discussion in focus groups)
2. discussion on individual points from McKenzie´s Assessment Chart
3. filling in the chart again to create a single report for the group
4. closing the meeting

During each session, the moderator directed the direction of the discussion and motivated respondents to express their opinions openly. Examples of prompt questions:
Does the software provide unique multimedia learning environment? Does the software enable users to achieve the right outcome? Does the software include any useless elements distracting users, e.g. meaningless flashes, animations, etc.?
Focus groups members provided the moderator with their notes and the moderator made her own notes as well. These, together with two final charts (FG 1 and FG 2), were the main source materials for later analysis.

4.3.1 Selecting an evaluation instrument
To provide the experts in focus groups with some united review form to evaluate the selected sample of educational CD ROMs, the researcher could choose from several already designed and tested evaluation tools (Barker & King, 1993; Leacock & Nesbit, 2007; Papanastasiou & Angeli, 2008; Park & Hannafin, 1993; Reeves, 1992). The following criteria were observed: easy to use, suitable for evaluation by experts (not learners or regular users), and economic (providing enough relevant data through a simple procedure and in a short time).
The instruments for evaluating teaching materials come in various forms (scales, grids, user´s questionnaires, etc.) and structures. One of the most complex evolution instruments was designed by El Mhouti, Nasseh, & Erradi (2013) which cover four areas: pedagogical quality aspect, didactic quality aspect, technical quality aspect, and academic quality aspect (see Fig. 1).
Each section (academic quality, pedagogical quality, didactic quality and technical quality) must be associated with a set of additional criteria, and each criterion is then associated with one or more questions to verify the suitability of the product examined with each reference criterion. "The criteria are intended to encourage evaluators to think critically about the resource and evaluate some of its more detailed aspects" (p. 29). The instrument, despite being an excellent tool, was not suitable for our purposes due to its complexity and its focus on details.
Another example of an excellent evaluation instrument (or better a set of evaluation criteria) has been provided by Norwegian Centre for Education (online)

named Quality Criteria for Digital Learning Resources. It leads researchers and teachers in analysing and evaluating digital learning materials in three areas:

- user dimension: the interface between user and resource;
- the distinctiveness of the digital resource: the possibilities and limitations of the digital resource;
- subject and education dimension: the educational and evaluation potential (p. 2).

The instrument has a form of 8 grids each of which contains of up to 5 open questions (see Fig. 2 – 5).
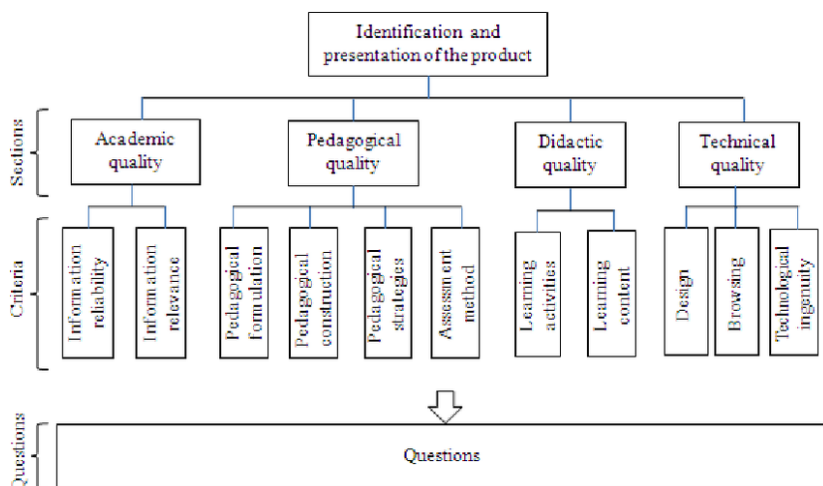

Fig. 1 The structure of the evaluation instrument for educational CD ROMs by El Mhouti, Nasseh, & Erradi (2013, p. 29)

Does the digital learning resource create interest?

Description	In-depth questions
The resource • should help activate and motivate the pupils • must be relevant to the subject being taught	a) What type of functionality helps create interest, and how does the design and layout contribute to this? b) How are images, graphics, video, sound, and so forth exploited to create interest? c) What choices have been made to ensure that the resource will promote learning and not merely activity and entertainment?

Fig. 2 The example of an evaluation grid for the area User orientation (ibid., p. 4).

How does the digital learning resource utilize the inherent possibilities of digital media?

Description	In-depth questions
Resources should • include various media forms such as text, images, video, animation, simulations, etc. • select and incorporate the media forms on an educational basis	a) In what ways can the user use a variety of media forms in the resource? b) How does interactivity (if such exists) help capture the pupils' interest in the subject? c) How is it ensured that the presented information is up to date?

Fig. 3 The example of an evaluation grid for the area "The distinctiveness of the digital resource" (ibid., p. 5).

How does the digital learning resource enable new educational possibilities that are lacking in traditional learning resources?

Description	In-depth questions

The resource should
• facilitate a varied teaching and learning practice through
  • the use of various media forms
  • the use of communication resources
  • solid access to updated information
	a) Does the resource enable communication between pupils, between teacher and pupil, and between others?
	b) How does the resource challenge the pupils in regard to the subject matter?
	c) To what degree are links provided to alternative sources and updated information?
	d) How are the specific capabilities of various media forms used in the learning work?
	e) To what degree is the resource innovative, and how can it help teach the subject matter?

Fig. 4 The example of an evaluation grid for the area "The distinctiveness of the digital resource" (ibid., p. 5)

How is the digital learning resource relevant for the curriculum?

Description	In-depth questions
The resource should • be relevant for the current curriculum • indicate how various goals in the curriculum are to be achieved	a) How is the learning resource relevant for the curriculum and the competence objectives? b) Is the learning resource suitable for achieving the goals that have been defined? c) Is the resource intended for a certain age or target group? How is it designed so as to reach any such target groups?

Fig. 5 The example of an evaluation grid for the area "Subject and education dimension" (ibid., p. 7)

CD-ROM title	Purpose	Activities	ESL Strengths	ESL Weaknesses
The Magic Letter Factory	Explore letters, sounds, word formation, and sentences	Songs, videos, make words, sentences	Variety of activities suited for many learning styles	Very little vocabulary, navigation is difficult, low interaction
Millie and Bailey Preschool	Learn math and reading	Make stories, learn alphabet, practice numbers	Large vocabulary building activities, high interaction	User manual does not recommend how to use with ESL student
Chicka Chicka Boom Boom	Learn letters	Sing-along, reading	Very musically oriented	Very little vocabulary, navigation is difficult
A to Zap	Recognize letters and identify words	A short activity for each letter of the alphabet	Manual explains how to be used with ESL students	Very little interaction
First Phonics	Teach letter-sound correspondence and build vocabulary	Matching exercises, listening activities	Many activities for students and student progress report,	Very little vocabulary building, navigation may be difficult with beginners

Fig. 6 Example of the analysis grid from Arendt (2000, p. 29)

The different (simpler) approach to the evaluation of CD ROMs, this time specifically for language learning, was manifested in the work by Arendt (2000) who cooperated with the group of evaluators - instructors who were using the evaluated softwares at the time of his study. First, Arendt analysed the form of the learning materials according to the following criteria: purpose, type of activities, and both the strengths and weaknesses of CD ROMs regarding methodology of teaching English as a second language (see Fig. 6).

Later during the research, he asked experts-teachers to evaluate the set of educational CD ROMs and focused on their opinions and attitudes (not objective measures of the CD ROMs) which is visible from the two last columns of the chart in Fig. 7.

CD-ROM title	Grade Level	Language ability	Instruction time	Use	Likes	Dislikes
The Magic Letter Factory (1 response)	Pre K-2	mid-beginner	15 minutes	Individually	Manual, variety, graphics	Student evaluation
Millie and Bailey Preschool (1 response)	Pre K-2	mid-beginner	30 minutes	Individually	Graphics, materials	evaluation
Chicka Chicka Boom Boom (2 responses)	PreK-1 and K-2	Low-beginner	15 minutes	Groups and Individually w/ instructor	Variety, skill areas	N/A
A to Zap (1 response)	PreK-1	Low-beginner	15 minutes	Individually, and groups	Sound, graphics, cost	Worksheets, microphone, evaluation
First Phonics (1 response)	Pre K-1	mid-beginner	15-30 minutes	Individually, groups, and individually w/ instructor	Variety, student report, sound, graphics	Teacher's manual
Letter Sounds (2 responses)	PreK-1	mid-beginner	15 minutes	Individually	Manual	graphics

Fig. 7 Example of the evaluation grid by Arendt (ibid., p. 42)

After letting the group of experts (experienced in-service teachers) participating in this research to choose from the offer of 4 evaluation instruments (El Mhouti et al., 2009; Norwegian Centre for Education, not dated; Arendt, 2000; and McKenzi, 2000), they opted for the last one as the most appropriate, user-friendly and economic. **McKenzie's Assessment Chart** was introduced by McKenzie (2000) and used in Kazanci & Okan´s study (2009). Despite being originally used as a tool for distinguishing between *technotainment* activities (= using technology for technology's sake without any or with a very little educational value) and real, valuable educational activities, it can be used as a tool for determining and comparing didactic effectiveness of digital learning materials. The expert team needed to evaluate the selected CD ROMs according to the following criteria and decide whether the CD ROM has the said quality or not.

- **Pointless:** means that a software itself becomes the goals of the activity rather than the medium to education. Learners do not benefit from the advantages of multimedia environments. „It is believed that when someone, somehow transforms any information into a digital platform, the activity takes the form of a computer-based activity" (Kazanci & Okan, Z. 2009, p. 33).
- **Nonstandard:** means that the educational content of the software is disconnected from the educational standards of the country where it is used.

- **Robotic:** The software is robotic if the activities included do not require higher thinking skills of learners. They just follow the instructions without any independent critical or creative thinking.
- **Glib:** means that the software provides only mechanical (deductive) learning, the activities included in the software do not require any exploring, discovering, or asking essential questions.
- **Static:** means that none of learners´ knowledge, skills or opinions has been changed, developed, modified in any way during the activity.
- **Disneyfied:** Cartoon characters naturally appeal to young learners. But their appearance in educational softwares must be functional. If the educational material is marked as "disneyfield", it means that the attractive design seems to be more important than the quality of educational content; the activities are designed to be first-plan attractive without any connection to the development of learners´ knowledge or skills.
- **Flashy:** special effects like decorative animations and sounds are overused and distracting learners´ attention.
- **Empty:** Learners cannot learn from the activities anything new.

4.4 Research results

The final results based on the agreement of all expert teachers involved in the research evaluation are summarised in Tab. 1. Please note that the numbers in the first line do not correspond with the order of softwares in the sample description.

Tab. 1 Results of evaluation of educational software for teaching English at nursery schools (using McKenzie's Assessment Chart, 2000).

	1	2	3	4	5	6	7	8	9	Total
Pointless		+	+	++	++	++	++		++	12
Nonstandard		++			+	+	+		++	7
Robotic	++	++	++	++	++	++	++	++	++	**18**
Glib	++	++	++	++	++	++	++	++	++	**18**
Static		++		++	++	++	++	++		12
Disneyfield	++			++		++			+	7
Flashy				++						2
Empty	++	++	++	++	++	++	+	++	++	**17**
Total score	4	5	4	7	6	7	6	4	5	

+ means that the trait was identified in the CD ROM by one focus group
++ means that the trait was identified in the CD ROM by both focus groups

The data showed that in each software the focus groups were able to identify at least half of "undesirable" traits. Some traits were identified only in few programmes, others in all programmes. In general, the high similarity in evaluations provided by

both focus groups (marked as ++) is obvious. According to Breen (2006, p. 472-473), the extent of agreement (or disagreement) is a good indicator of the reliability of the gained focus group data).

Final evaluation of the CD ROMs in focus groups (according to individual traits)

1.   Pointless

The feature pointless was observed in two thirds of the evaluated materials. The research samples contained mostly simple matching activities or substitution activities that might be easily complete on paper without using any sophisticated technology.

An extreme example of such a "technological uselessness" was the activity called "Interactive colouring game" where the selected picture had to be printed out to be handed to a child and then coloured in a classical way (by colour pencils).

2.   Nonstandard

Only half of the software packages examined in this study were designed to follow or to build upon the existing state educational standards either in the Czech Republic or Slovakia.

3.   Robotic, glib and empty

All softwares in the sample were evaluated as "robotic" because the vast majority of activities were based on following the instructions given by the programme. Instructions were usually repetitive, mechanical and too simple = not challenging children´s thinking. There is a risk that learners remain cognitively passive and they do not develop any of higher cognitive or affective functions. As one member of the focus group mentioned, the "children are nothing more active than when watching the same TV programme all around with one finger active".

From a methodological point of view, nearly all activities in all programmes were focused on fixing new vocabulary (with the visual or audial support). None of them went beyond mechanical memorisation of words (e.g. match the word you can hear with a picture). What is even more confusing, English words were presented as isolated items without any appropriate verbal context. In some cases, "word-to-word" translations were used, which is the technique with very questionable effect on very young learners.

4. Static

Half of the evaluated softwares focused only on a limited scale of learner´s competences and skills (repetition of vocabulary, matching a picture with a meaning of the word and its correct pronunciation, moving an object over the screen, drawing or colouring pictures).

5.   Disneyfied

All programmes contained at least some activities designed in the cartoon game format. All activities used various cartoon characters (mostly animals) as some guides and actors in the activities. What is good is that only in three cases the focus groups

evaluated the software graphics as Disneyfied. Commenting on them, the experts used words as "dysfunctional", "infantile", and "annoying".

6. **Flashy**

According to the evaluations provided by the focus groups, only one of the evaluated CD ROMs contained meaningless special sound and visual effects (flashes and rings) which could distract learners´ attention appeared only in one of the evaluated softwares.

From other comments and observations by members of both focus groups:

1. Some members of focus groups appreciated the fact that despite "the tiny market", there are publishers who are willing to publish original multimedia learning materials intended for children in the Czech Republic and Slovakia.
2. Several CD ROMs provided rich cultural materials in both learners´ mother and foreign languages (e.g. traditional national fairy tales and other literary forms in both languages).
3. Generally, all evaluated CD ROMs were praised for a quality aesthetic design.
4. Experts complained about the gap between the majority of evaluated CD ROMs and modern methodology of teaching foreign languages to very young learners (e.g. presence of vocabulary lists, "word-to-word" translation activities).
5. Members of focus groups stated that CD ROMs failed to provide users with a wide scale of activities for the development of various communicative skills. They all were focused mostly on developing vocabulary.
6. Truly interactive tasks (when children could make some choices, get an immediate response from the computer and proceed accordingly) could be observed only in one CD ROM.
7. In general, the CD ROMs were not technologically innovative or challenging for very young users.

Discussion and conclusions

The research results showed that all CD ROMs analysed in this study did not use the educational potential of ICT in the fullest. They failed to fulfil the expectations that new technologies would provide the learners with pedagogically attractive and cognitively challenging materials. Even though the programmes were evaluated as visually attractive, all of them offered mostly robotic, monotonous, and mechanical activities. The results thus corresponded with the findings by Kazanci & Okan (2009).

The results also showed that the analysed CD ROMs for the introduction of English to very young learners had more characteristics of electronic games than of educational software, which places them closer to the category of edutainment or *technotainment* (c.f. McKenzie, 2000; Okan, 2003; Resnick, 2004; Veltman, 2004).

It is the task and responsibility of researchers and teaching material evaluators to permanently point to both strengths and weaknesses in the quality of published materials, inform teachers and parents about requirements on multimedia learning sources, and instruct materials designers and teachers about the possible ways to effective improvements.

References

Agudo, J. E., Sánchez, H. & Sosa, E. (2005). Adaptive hypermedia systems for English learning at Pre-school. In Méndez-Vilas, A. et al. (Eds.), *Recent research developments in learning technologies* (pp. 300-304). Badajoz: Formatex.

Angeli, C. (2004). The effects of case-based learning on early childhood pre-service teachers' beliefs about the pedagogical uses of ICT. *Journal of Educational Media*, 29(2), 139-151.

Arendt, B. P. 2000. Evaluation of computer software for elementary school ESL classes. Retrospective Theses and Dissertations. Available at: https://lib.dr.iastate.edu/cgi/viewcontent.cgi?referer=https://www.google.sk/&https redir=1&article=8099&context=rtd

Barker, P. & King, T. (1993). Evaluating interactive multimedia courseware - a methodology. Computers in Education. 21(4), 307-319. Oxford: Elsevier Science.

Bax, S. (2003). CALL-Past, Present, and Future. *System: An International Journal of Educational Technology and Applied Linguistics*. 31(1), 13-28. Available at http://www.editlib.org/p/96413

Bratitsis, T., Kotopoulos, T., & Mandila, K. (2012). Kindergarten children's motivation and collaboration being triggered via computer while creating digital stories: A case study. *International Journal of Knowledge and Learning*, 8(3-4), 239-258.

Breen, R. L. (2006). A Practical Guide to Focus-Group Research, *Journal of Geography in Higher Education*, 30(3), 463-475. DOI: 10.1080/03098260600927575.

Burgerová, J. (2003). Nové technológie v edukácii. Prešov: Rokus.

Chen, J. & Chang, C. (2006). Using computers in early childhood classrooms: Teachers' attitudes, skills and practices. *Journal of Early Childhood Research*, 4(2), 169-188.

Christina, C. W. H. (2003). Challenges of using ICT in Hong Kong early childhood settings. *IFIP Working Group 3.5 Conference: Young Children and Learning Technologies*. Parramatta.

Cimermanová, I. (2011). *Using Technologies in Teaching English*. Prešov: PU.

Dostál, J. (2009). Multimediálni, hypertextové a hypermediálni učební pomůcky – trend soudobého vzdělávání. *Časopis pro technickou a informační výchovu,* 1(3), 18–23.

Ducate, L. & Arnold, N. (Eds.). (2006). *Calling on CALL: From Theory and Research to New Directions in Foreign Language Leaching*. San Marcos: CALICO.

Dudeney, G. & Hockly, N. (2012). ICT in ELT: how did we get here and where are we going? *English Language Teachers Journal*, 66(4), 533 –543.

El Mhouti A., Nasseh A., & Erradi M. (2013). Development of a tool for quality assessment of digital learning resources. *International Journal of Computers Applications*, 64(14).

European Commission. (2006). *Benchmarking access and use of ICT in European schools 2006. Key Findings per Country of Final Report*. Available at: http://ec.europa.eu/information_society/newsroom/cf/itemlongdetail.cfm?item_id= 2888

Farkasová, A. (2015). *Využitie edukačných softvérov v materských školách*. Bratislava: Metodicko-pedagogické centrum.

Fesakis, G., Sofroniou, C., & Mavroudi, E. (2011). Using the internet for communicative learning activities in kindergarten: The case of the "Shapes Planet". *Early Childhood Education Journal*, 38(5), 385-392.

Funk, J. B., Buchman, D. D., Jenks, J. & Bechtoldt, H. (2003). Playing violent video games, desensitization, and moral evaluation in children. *Applied Developmental Psychology*, 24, 413-436.

Gialamas, V., & Nikolopoulou, K. (2010). In-service and pre-service early childhood teachers' views and intentions about ICT use in early childhood settings: A comparative study. *Computers & Education*, 55, 333–341.

Guo, L. (2007). *ICT and early childhood education*. Shanghai: East China Normal University Press.

Guo, L., Qian, Q., Wang, J., & Zeng, Z. (2006). Investigation and analysis of kindergartens' IT use in Shanghai. *Shanghai Research on Education*, 6, 37-40.

Hajduková, V. (2011). *Informačné kompetencie detí predškolského veku vo vzdelávacích programoch pre predprimárne vzdelávanie*. Dostupné na: http://www.spvzv.sk/products/informacne-kompetencie-deti-predskolskeho-veku-vo-vzdelavacichprogramoch-pre-predprimarne-vzdelavanie-viera-hajdukova-/

Haugland, S. W. (1992). The effect of computer software on pre-school children's development gains. *Journal of Computing in Childhood Education*, 3, 15-30.

Hill, J. R. & Hannafin, M. J., 2001, Teaching and learning in digital environments: The resurgence of resource-based learning. *Educational Technology Research and Development*, 49(3), 37–52.

Hohmann, C. (1998). Evaluating and selecting software for children. *Child Care Information Exchange*, 123, 60-62.

Hubbard P. (Ed.) (2009) *Computer-assisted language learning*, Volumes I-IV, Routledge: London and New York. Available at: http://www.stanford.edu/~efs/callcc/

Kalaš, I. (2010). Digitálna gramotnosť a Pinocchiov zlatý kľúčik. In: *Zborník konferencie Moderné vzdelávanie v materskej škole*. Prievidza, s. 1 – 13.

Kalaš, I. (2011). *Spoznávame potenciál digitálnych technológií v predprimárnom vzdelávaní*. Bratislava: Inštitút UNESCO pre informačné technológie vo vzdelávaní IIT.

Kazanci, Z. & Okan, Z. (2009). Evaluating English Language Teaching Software for Kids: Education or Enetartainment or both? *The Turkish Online Journal of Educational Technology – TOJET, 8*(3), 30-38.

Kern, R.G. (1995). Restructuring classroom interaction with networked computers: Effects on quantity and quality of language production. *Modern Language Journal*, 79, 457-476.

Korhonen, N. 2010. Comparison of playtesting and expert review methods in mobile game evaluation. Fun and Games *'10 Proceedings of the 3rd International Conference on Fun and Games*, pp. 18-27.

Leacock, T. L., & Nesbit, J. C., 2007, A Framework for Evaluating the Quality of Multimedia Learning Resources. *Educational Technology & Society*, *10*(2), pp. 44-59.

Leung, W. M. (2003). The shift from a traditional to a digital classroom: Hong Kong kindergartens. *Childhood Education*, 80(1), 12-17.

Li, H. (2006). Integrating Information and Communication Technologies into the early childhood curriculum: Chinese principals' views of the challenges and opportunities. *Early Education and Development*, *17*(3), 467–487.

McKenzie, J. (2000). Beyond edutainment and technotainment. *From Now On,* 10(1).

MŠMT ČR. (2007). *Dlouhodobý záměr vzdělávání a rozvoje vzdělávací soustavy České republiky*. Available at: http://www.msmt.cz/vzdelavani/skolstvi-v-cr/dlouhodoby-zamer-vzdelavani-a-rozvoje-vzdelavaci-soustavy-3

MŠMT ČR. (2008). Škola pro 21. století: Akční plán pro realizaci „Koncepce rozvoje informačních a komunikačních technologií ve vzdělávání pro období 2009 – 2013" (usnesení vlády č.1276/2008). Available at: http://www.vzdelavani2020.cz/images_obsah/dokumenty/knihovna-koncepci/rozvoj-ict/akcni_plan_skola_21.pdf

MŠMT ČR. (2018). Rámcový vzdělávací program pro předškolní vzdělávání (úplné znění k 1. lednu 2018). Praha: MŠMT. Available at: http://www.msmt.cz/file/45303/

MŠVVŠ SR. (2008). *Koncepcia informatizácie a digitalizácie rezortu školstva s výhľadom do roku 2020*. Available at: https://www.minedu.sk/koncepcia-informatizacie-a-digitalizacie-rezortu-skolstva-s-vyhladom-do-roku-2020/

Natsiopoulou, T., & Bletsou, M. (2011). Greek preschoolers' use of electronic media and their preferences for media or books. *International Journal of Caring Sciences*, 4(2), 94-104.

Nikolopoulou, K., Gialamas, V., & Batrsouta, M. (2010). Young children's access to and use of ICT at home. *Review of Science, Mathematics and ICT Education*, 4(1), 25-40.

Norvegian Centre for Education. (online). *Quality Criteria for Digital Learning Resources*. Available at: https://iktsenteret.no/sites/iktsenteret.no/files/attachments/quality_criteria_dlr.pdf

OECD. (2006). *Are students ready for a technology-rich world? What PISA tells us*. Paris: OECD.

Okan Z (2003) Edutainment: is learning at risk? *British Journal of Educational Technology*, 34(3).

Olson, J. K. & Clough, M. P. (2001). Technology's tendency to undermine serious study: a cautionary note. *Clearing House: A Journal of Educational Strategies*, Issues and Ideas, 75(1), 8 -13.

Papanastasiou, E., C., & Angeli, C. (2008). Evaluating the use of ICT in education: Psychometric prosperities of the survey of factors affecting teacher teaching with technology (SFA-T3). *Educational Technology & Society*, 11(1), 69-86.

Park, I. & Hannafin, M.-J. (1993). Empirically-based guidelines for the design of interactive media. *Educational Technology Research en Development*, 41(3).

Pekárová, J. (2009). Digitálne technológie v materskej škole: vybrané otázky. Rigorózna práca. Bratislava: UK.

Plowman, L., & Stephen, C. (2005). Children, play and computers in pre-school education. *British Journal of Educational Technology*, 36(2), 145-157.

Plowman, L., McPake, J., & Stephen, C. (2008). Just Picking it up? Young children learning with technology at home. *Cambridge Journal of Education*, *38*(3), 303-319.

Pokrivčáková, S. et al. (2014). *CALL and Foreign Language Education: e-textbook for foreign language teachers*. Nitra: Constantine the Philosopher University.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon, MCB University Press*, 9(5), 1-6.

Reeves, T. C. (1992). Evaluating Interactive Multimedia. *Educational Technology, 32*(5), 47-53

Resnick, M. (2004). *Edutainment? No Thanks. I Prefer Playful Learning*. Available at: http://parents-choice.org/article.cfm?art_id=172&the_page=editorials

Salaberry, M. R. (2001). The use of technology for second language learning and teaching: A retrospective. The Modern Language Journal, 85(i), 39-56.

Squires, D., and J.Preece. (1999). Predicting quality in educational software: Evaluating for learning, usability and the synergy between them. *Interaction with Computers*, 11 (5), 467-483.

Straková, Z. (2015). Challenges of teaching English at primary level. *Procedia Social and Behavioral Sciences*, 174, 2436-2443. Available at: http://www.sciencedirect.com/science/article/pii/S1877042815009660

United Nations Children's Fund (2013). *Children, ICT and Development: Capturing the potential, meeting the challenges.* Innocenti Insight. Florence: UNICEF Office of Research.

Veltman, K. H. (2004). Edutainment, Technotainment and Culture. *Città Annual Report 2003*. Florence: Giunti. Available at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.98.6628&rep=rep1&type=pdf

Warschauer, M. (1996). Computer Assisted Language Learning: an Introduction. In Fotos, S. (Ed.), *Multimedia language teaching* (pp. 3-20). Tokyo: Logos International. Available at: http://www.ict4lt.org/en/warschauer.htm

Warschauer, M. & Healy, D. (1998). Computers and language learning: An overview. *Language Teaching*, 31, 57-71.

Warchauer, M. (2004). Technological change and the future of CALL. In Fotos, S. & Brown, C. (Eds.), *New Perspectives on CALL for Second and Foreign Language Classrooms* (pp. 15-25). Mahwah, NJ: Lawrence Erlbaum Associates.

Wartella, E., Vandewater, E. & Rideout, V. (2005). Introduction: electronic media use in the lives of infants, toddlers and preschoolers. *American Behavioral Scientist*, 48(5), 501-204.

Weiss, J. (1994). Keeping up with the research. *Technology and Learning, 14* (5), 30-34.

Williams, A. & Katz, L. 2001. The Use of Focus Group Methodology in Education: Some Theoretical and Practical Considerations. *International Electronic Journal for Leadership in Learning*, 5(3). Available from: https://www.researchgate.net/publication/228941039_The_Use_of_Focus_Group_Methodology_in_Education_Some_Theoretical_and_Practical_Considerations_5_3.

Xia, L., Toki, E. I., & Pange, J. (2014). The Use of ICT in Preschool Education in Greece and China: A Comparative Study. *Procedia - Social and Behavioral Sciences,* 112(2014), 1167–1176.

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Appendix 1: McKenzie Assessment Chart

Trait	Traits of Technotainment	Y/N
Pointless	The activity involves the use of a tool such as a spreadsheet or presentation program without an authentic connection to the regular (social studies, science, etc.) curriculum for the grade level of the student. PowerPointing and spreadsheeting become goals rather than just means to ends.	
Nonstandard	The activity is disconnected from state standards and the new tests. No relationship or contribution made to the students' grasp of either content or skills.	
Robotic	The activity requires little original thought or higher level thinking. The student blindly follows directions and wins success by taking orders.	
Glib	The activity requires nothing more than skimming along the surface of the content without probing, exploring, asking essential questions or creating new insight.	
Static	The activity does nothing to advance the skill level or the skill repertoire of the student. Same old, same old!	
Disneyfied	The activity is sugar coated and packaged with arcade quality graphics as if learning must be turned into a game or cartoon before young people will find it rewarding.	
Flashy	Special effects, transitions, bells and whistles are prevalent. Students are encouraged to devote more than 25% of their time and effort to packaging and special effects rather than the thought, the content and the production of new ideas.	
Empty	The activity does little to advance student understanding of any issue, question or idea worth study.	

Appendix 2: Covers of evaluated CD ROMs