Category: preliminary communication

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Digital Technology and Second Language Acquisition in Pre-School Age

Abstract:

This paper presents a study investigating the use of digital technology - tablets and mobile phones by six pre-school children in Požega, Croatia and the way this technology facilitated the English language learning process through its content. The children involved were two boys and four girls aged between four to five. The paper's introduction reflects on today's widespread use of digital technology amongst the young learners. The study itself was conducted using two quantitative research methods - contextual interviews with the pre-school children and interviews with the children's parents. The study findings indicated that the children preferred multimodal content such as cartoons and video games with colourful themes or characters, that prompt or ask questions, i.e. encourage participation. A strong preference for English speakers changing pitch and tone within the content was also indicated in the findings.

The findings pointed to children's preference towards music videos - nursery rhymes teaching letters, numbers or colours. Finally, gaming videos and tutorials were a common choice of content for all six children, where they were mostly exposed to visual and aural prompts. In conclusion, the children independently selected multimodal content: cartoons, videos games, tutorials, gaming videos and nursery rhymes which all shared visual, aural, linguistic and spatial modes of communication. The research provided a valuable insight into the type of digital content that pre-school children opt for in non-educational environment and how they acquire basic communication skills in English as a result.

Keywords:

digital technology; apps; pre-school children; English as a second language; L2

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Introduction

Digital technology is integrated into our everyday lives and it would be difficult to imagine performing the simplest activities without it. As a result, learners of all ages including infants and pre-school children in Požega, Slavonia and globally are exposed to digital technology, more specifically tablets and mobile phones. Young children start using handheld devices early on and rely heavily on them in order to learn about the world around them, including how to communicate. This way, young children are exposed to a variety of multimodal content in English (L2). A large number of pre-school children in Požega develop basic L2 competence however, these children have no formal or informal education at that stage. Contrarily, they are exposed to digital technology such as handheld devices from infancy.

The objective of this research was to determine what types of apps and content pre-school children used to facilitate the L2 learning process at home. Since the aim of the research was not only to find out what kind of L2 content pre-school children accessed at home, but also how they interacted with it, two qualitative research methods were used to collect the necessary data: contextual interviews with pre-school children, followed by interviews with their parents. Contextual interviews provided a valuable insight into how the participants utilised the content including L2 and interviews with their parents served as a complement to contextual interviews. This was to confirm whether the participants normally accessed the type of content demonstrated in the contextual interviews, and to provide parents an opportunity to share any additional information.

Previous studies suggest that the interaction of young children with digital technology has a positive influence on language learning. More specifically, it has a positive influence on emergent literacy skills, such as vocabulary recognition and retention [1], phonological awareness, expressing ideas and develop their motor skills through touchscreens [6].

Methodology

The research was conducted Požega, Požeško-Slavonska County, where pre-school children are generally not intentionally taught English by their parents or family. The participants were aged between four to five, two boys and four girls; and one parent per child. All six children had lived in the same neighbourhood and frequently spent their free time together either indoors or in their gardens. The objective of the research was to determine what types of apps and content pre-school children used and how this facilitated the L2 learning process in a non-educational setting.

Since the objective was not only to establish the type of content used, but also how the content facilitated the learning process, two qualitative research methods were used to collect the data. In Paradigms of Social Research, Piergiorgio Corbetta supports the concept of a researcher 'putting [themselves] in the position of the participant' in order to gain a better understanding of their interaction with the technology [3].

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Contextual interviews with pre-school children

The first qualitative method was a twenty-minute long contextual interview with each child. A classic observation sessions would not be applicable for the sensitive age group of four to five year olds who appreciate a verbal and gestural input from the observer in order to feel comfortable. A verbal interaction with the researcher through an open-ended interview created a more natural, child-friendly environment, which yielded more accurate results. Any unpredicted behaviour and lack of focus was also avoided. The aim was to gather data regarding particular apps and content that the children used on tablets and mobile phones (types of apps or content, names), multimodality in the apps or content (visual, aural, spatial, linguistic) and nonverbal communication (body language and gestures) [9]. Data was collected in writing by completing contextual interview sheets as well as writing down answers to the questions that the participants provided during the interviews.

Contextual interview sheet:

Participant name:			
Age:			
Gender:			
Date and time:	*Types of apps or content, names*	*Multimodality: visual, aural, spatial, linguistic,*	*Body language, gestures*

Interviews with the parents

Interviews with the parents were conducted with one parent of each child, and they were applied as the second qualitative research method to add credibility to the research. The interviews served as a complement to the contextual interviews with the children in order to verify whether the participants accessed the same type of content regularly. The interviews were open-ended and prompted by the written guide. They also provided parents an opportunity to contribute with their own opinions on the children's learning process and provide any additional information.

Interview guide examples:

1. Describe what type of content or apps your child uses on tablet or mobile phone?
2. Describe how your child participates in tutorials or nursery rhyme videos.
3. Tell me how your child navigates a video game or an operating system in L2? (with ease, struggling)
4. Describe how and in which situations your child uses L2?

Findings & Discussion - L2 Content Type & Multimodality

Contextual interviews

According to the findings, all six participants had a strong preference for five types of L2 content while using tablets and mobile phones:

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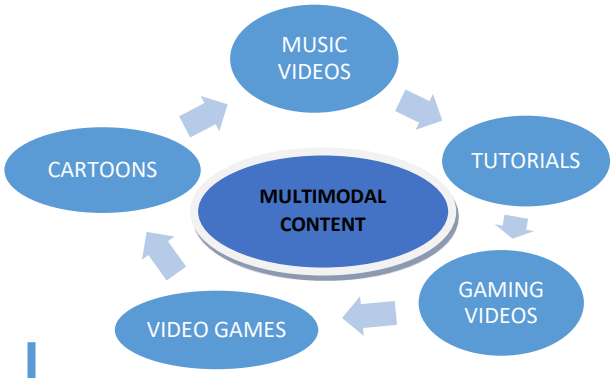
cartoons, video games, tutorials, gaming videos and music videos.

The most accessed L2 content during the contextual interviews was youTube cartoons Pokoyo, Peppa Pig, and Masha and the Bear, although this type of content was preferred amongst the girls. Overall, half of the participants considered Pokoyo their favourite cartoon.

Figure 1. Content type



Source: author

Content type

The analysis of the content indicated that all categories shared variety of multimodal characteristics [10] that captivated children's attention and encouraged their participation in L2 learning: visual: fluid and gestural characters with colourful clothes or features who run, dance, move quickly, do sports, perform activities with friends - usually animals or toys, changing viewpoints and distance from one character to another, changing angles; aural: sound effects - loud horn, stomping, (train) whistling as well as songs and background music, which children often repeated the lyrics to; and spatial: usage of hardware buttons on tablets on mobile phones to turn the volume up or down, or the navigation bar to play video games.

Participation of the children to either repeat the movement, sing a song or form an utterance was directly encouraged through linguistic mode across all content including cartoons. This was achieved in delivery of questions such as 'Narrator: Can you tell Pokoyo what to do with the whistle?' in Pokoyo or 'A dressing up' song in Peppa Pig, which encourages children to dress appropriately for the weather conditions while singing a song. Introduction and reiteration of words is also present in cartoons, for example, 'Narrator: And look. It's Pocoyo's musical flower. Pokoyo: Flower! Music!' which also encouraged children to memorise and repeat certain vocabulary. Pokoyo narrator successfully utilised exclamatory utterances such as 'Yes! It worked!, You've got it!' through frequent changes in pitch and tone in order to convey excitement and encourage the children to pay attention. On other occasions, by expressing approval and praising Pokoyo 'It's that one! Great job, Pocoyo', he motivated the children to continue paying attention. Praising and approving is a recommended ESL teaching practice with both children and adults, as it has a positive effect on learners' motivation [2].

Finally, the narrator was frequently using questions such as 'Could it be? Are you, um, looking for something? You are?' in order to intrigue the participants and prompt them to wait and expect an answer either by being provided one verbally or being shown the solution on screen. Questions were mainly used by the narrator throughout the series in order to elicit vocabulary from the participants. This approach is supported by the study with five-

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year-old immigrant children which involved learning vocabulary through e-storybooks [11]. The control group used static while listening to stories while the experimental group had video content instead. The results showed that the children who were exposed to the e-storybook with the video content acquired expressive L2 vocabulary more efficiently.

All three cartoons did not exceed 7 minutes in length. According to previous research, the concentration span of a four-year-old is approximately 8 minutes long [5] so the length of these cartoons appeared ideal to hold participants' attention.

The participants showed an equal interest for video games, and three out of six accessed Peppa Pig Sports Day, which included an ice-cream making activity; and two out of six accessed the KidsEnglish app.

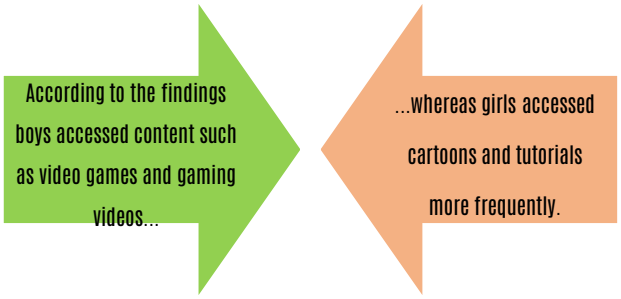
The Peppa Pig Sports Day video game included a variety of activities such as racing, dressing up, and making an ice cream. This game combined a linguistic mode with visual and aural. Utterances such as 'Let's make delicious ice cream after all that exercise', or 'Move whisk to mix all the ingredients together'alongside with floating, interactive images of the ingredients and whimsical background music encouraged the participants to use L2 and progress in the game. The three participants completed all the activities with ease. When asked how they knew which images to select, the participants provided the following answers:

Participant 1: I move these here (moves images of the ingredients to the mixing spot).

Participant 3: Milk and chocolate go here (moves images of the ingredients to the mixing spot).

The possibility of children using video games as a way to scaffold their way through the L2 learning process was previously explored by Sandvik, Smørdal, and Østerud [7]. The apps with multimodal texts - letters with sound representation were used in kindergartens, which supported the children's literacy development and phonemic awareness. The study concluded that 'multimodal texts [...] scaffold the children's learning process and encourage them to make the meaning themselves.

Figure 2. Type of content accessed



Source: author

Two out of six participants - two boys used the KidsEnglish app designed to encourage vocabulary learning through video, a look and choose an activity, a listen and guess activity, and a quiz. After a visual or aural prompt, the participants completed activities requiring selection from the drop-down menu with ease, selecting correct items (colours, animals, flowers, etc.) by either touching or swiping the screen. The app had categories presented in a variety of colours and colourful images illustrating a particular object. The pronunciation was provided upon correct selection. A study by Xin and Affrunti where iPads were used by children with learning difficulties in order to learn English vocabulary

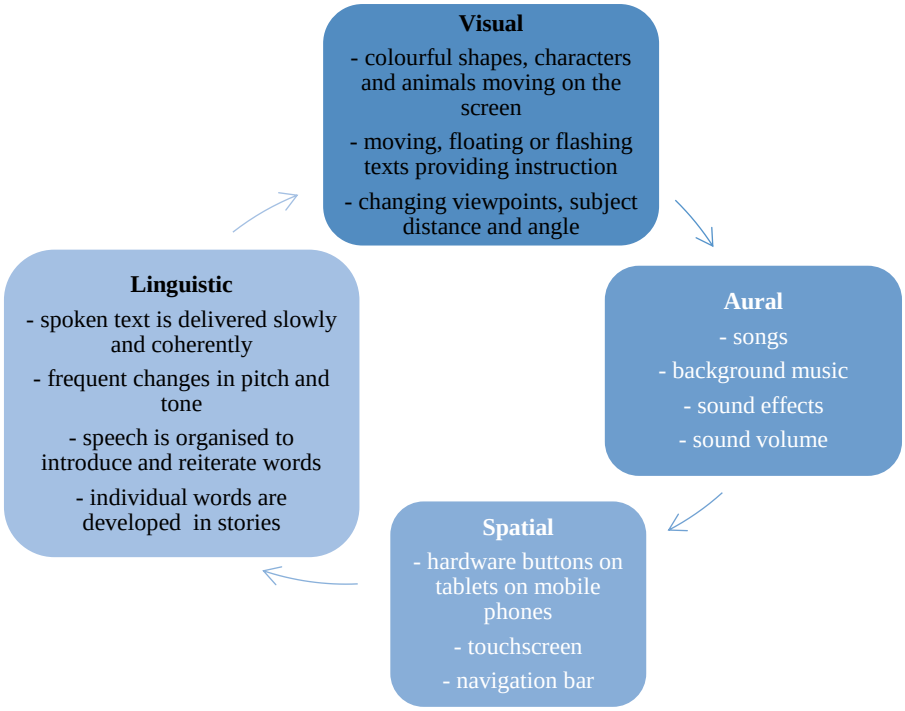
indicated that auditory and visual approaches for each word presented encouraged better word recognition and understanding of vocabulary [12].

When asked how they decided what the correct answer was, one of the participants stated:

Participant 2: It's easy...I like this game. I just look, then choose.

The Aghlara and Tamjid study indicated that children's perception of L2 vocabulary learning appeared to be a game rather than conventional learning [1]. The study suggested that the children who learned vocabulary through a video game combining multimedia and text had a significantly better score than the group which used non-digital resources such as blackboard and paper.

Figure 3. Multimodality in content



Source: author

Gaming videos such as and Thomas and Friends Magic Tracks were also selected amongst the two out of four boys during the observations.

The gaming video featured a popular digital character with a colourful design - Thomas the Tank Engine, the railway track running through his village, and a multimodal design of instructions to encourage the progress in the game. Visual mode included flashing signs and arrows pointing at the right direction and displayed at the appropriate time, and names of villages and buildings. Aural mode included background music as well as the train whistle. The participants were prompted to use L2 and progress in the game through linguistic modes of 'Choose your engine.' and 'Watch out for that rolling boulder!'. Examples such as 'Where shall we go next? Forward leads to The Boulder Cliffs.' encouraged participants to carry on by providing different outcomes, whereas 'Look how wonderful your train set is!' created player investment, attachment, and sense of reward,

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encouraging the participant to proceed with the game [1]. The Sandvik, Smørdal and Østerud study with the app Puppet Pals and the engaging visuals demonstrated how and the teacher's scaffolding of vocabulary allowed children to manipulate images from smaller to larger while progressing through the app [7]. A previous study by Hutchinson and Beschorner supports the claim that children who are exposed to multimodal response opportunities such as visuals and audio prompts, can easily utilise those responses better [4].

According to the findings, girls preferred craft tutorials over gaming videos. Participant 1 explained she liked watching paper being cut into a braid and Participant 5 referred to youTube Tangled Bookmar DIY tutorial as 'cut and fold' video in L2. The tutorial demonstrated how to make Rapunzel's face and the braid out of paper through visual mode: paper cutting, colouring and gluing, aural mode: the whimsical background music and the linguistic mode where the narrator provides verbal instruction on how to complete the activity 'Bring the sharp corner up to the fatter corner at the top, We're going to trim the top. We can also trim that later.'

YouTube nursery rhymes were also popular amongst the girls according to the findings. The examples included an hour long compilations of classic nursery rhymes such as the ABC song, The Alphabet Song, One Potato - Two Potatoes, Wheels On The Bus, Itsy Bitsy Spider, Head Shoulders Knees and Toes, etc. The rhymes were accompanied by visuals - videos featuring either cartoon characters including children and animals or adults and children singing and dancing. The dancing characters prompted the participants to use body language and gestures to sing and dance along with them. The characteristics of nursery rhymes generally include verse repetition. In these videos, the verses were uttered very slowly the first time, then speeded up gradually with every repetition. This allowed the participants to retain lyrics easier and it encouraged them to participate. Previous study by Verhallen and Bus established that the learners who were exposed to video content during storytelling acquired expressive L2 vocabulary more efficiently than those who were exposed to static content only [11].

According to the findings, a 100% of the participants demonstrated excellent motor skills and were able to use handheld digital devices with ease. This was supported by the Neumann study from 2016, which suggested that touchscreens encouraged the development of motor skills in children [6]. In the present study, the participants navigated operating systems in English efficiently as well as downloaded app games without difficulties. Fast screen touching and swiping motions were prominent while and managing a variety of options asking the user to select or confirm a choice in order to proceed: 'Would you like to upgrade? Yes or Upgrade later'. An example included Participant 4, who appeared to know which option to select in order to proceed without being interrupted by the updates. Participant 4 explained that the particular option meant the message would just disappear and would allow him to continue to the app he wanted to access. All participants were able to successfully install the apps of their choice from the App Store or Play Store, such as Talking Tom Gold Run and Roblox while navigating the App Store or Play Store with ease

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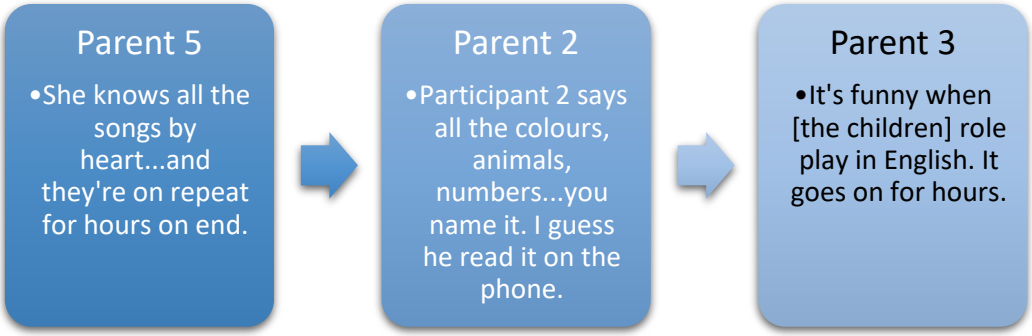
VALLIS AUREA

on the touchpad. All the children were also able to confirm the appropriate choices in messages such as 'Download now'.

Interviews with the parents

According to the results, four out of six parents indicated their children accessed cartoons such as Pokoyo, Peppa Pig and Masha and the Bear on a regular basis. Two out of six parents stated their children also accessed cartoons, but preferred video games. All six parents stated their children played video games such as Disney Magic Kingdoms, Peppa Pig Sports Day, Talking Tom Gold Run and KidsEnglish every day. It was also confirmed by all six parents that the participants accessed gaming and craft videos, however gaming videos were accessed more frequently by the boys and craft videos by the girls. The parents also confirmed that the girls accessed nursery rhymes videos rather than the boys.

Figure 4. Examples of parent statements



Source: author

All parents stated their children had excellent motor skills and were able to navigate the operating systems on the devices within days of first using them. Also, all participating parents agreed that the children had no issues following instructions in L2 when using apps or games. According to the findings, the children frequently engaged with videos and apps either verbally - repeating words when prompted, singing, or nonverbally - dancing, whistling, jumping, when prompted. According to parents, the children often imitated the characters they had listened to and were speaking in English with their friends, e.g. role play with dolls, general communication in English while bicycle riding, etc. It was also stated that the children specifically repeated words such as animals, colours and numbers or sentences such as 'How are you today? I'm fine, thanks.' in cartoons and nursery rhymes videos. Parents also believed that digital devices helped their children develop cognitive and language skills.

Conclusion

The research objective was to establish the type of digital content that pre-school children used to learn L2. The objective was achieved through two methods: contextual interviews with six pre-school children and interviews with one parent per child. According to the findings, the

UDK 373.2:004; DOI 10.2507/IJVA.7.2.3.85

participating pre-school children mainly accessed cartoons, video games, tutorials, gaming videos and nursery rhyme videos during the research. The content shared multimodality characteristics [10]: visual mode: colourful shapes, characters and animals moving on the screen, moving, floating or flashing texts providing instruction, changing viewpoints, subject distance and angle; aural mode: songs, background music, sound effects and sound volume; spatial mode: hardware buttons on tablets on mobile phones, touchscreen and navigation; and linguistic mode: spoken text, frequent changes in pitch and tone, speech - organised to introduce and reiterate words. It appeared that multimodal content encouraged participants to develop basic L2 competence such as ability to utter short sentences and recognise and speak a variety of words. In the present study the participants presented excellent motor skills - touching and swiping as well as navigating the operating system in L2. The research provided a valuable insight into the type of digital content that pre-school children opt for in non-educational environment and how they acquire basic communication skills in English as a result.

Following the study, it remains unclear whether prolonged usage of tablets and mobile phones has any negative impact on the children's wellbeing and everyday life. The Aghlara and Tamjid study also did not establish how the interaction with digital technology supported children's lives generally, i.e. whether it was beneficial or harmful [1]. It also remained unclear whether the participants progressed through video games fast due to a multiple trial and error or whether the children made their own meaning through the multimodal presentation of the game using all the resources including L2 on the screen. Further research with a greater number of participants over a longer period of time would need to be conducted in order to explore the meaning-making process through video games as well as potential harmful effects of long-term use of digital technology in pre-school children.

References

[1] Aghlara, L. & Tamjid, N. H. (2011). The Effect of Digital Games on Iranian Children's Vocabulary Retention in Foreign Language Acquisition in Procedia Social and Behavioral Sciences, Vol. 29, pp. 552 - 560, Available at https://www.sciencedirect.com/science/article/pii/S1877042811027364, Accessed: 2021-05-01

[2] Akbar, R. & Al-Gharabally, N. (2020). Does Praising Intelligence Improve Achievements? An ESL Case in International Journal of Higher Education, Vol. 9, No. 3, pp. 279 - 289, Available at :https://eric.ed.gov/?id=EJ1255723, Accessed: 2021-05-04

[3] Corbetta, P. (2003). Paradigms of Social Research, Social Research: Theory, Methods and Techniques, SAGE Publications, ISBN: 9780761972532, London

[4] Hutchison, A. & Beschorner, B. (2013). Using the iPad as a Tool to Support Literacy Instruction in Technology, Pedagogy and Education, Vol. 24, No. 4, pp. 407 - 422, Available at https://doi.org/10.1080/1475939X.2014.918561, Accessed: 2021-04-29

[5] Khojasteh NamS., Fallah, N. & Shahraki, A. (2014). The Relationship Between Trilingualism and Attention Span: The Case of

UDK 373.2:004; DOI 10.2507/IJVA.7.2.3.85

Iranian Trilinguals in The Iranian EFL Journal, Vol. 10, No. 2, p. 50 , Available at: https://www.researchgate.net/profile/Mohammad-Ghorbani/publication/318339626_Mobile_vs_teacher_assisted_language_learning/links/5964922f458515a35763843e/Mobile-vs-teacher-assisted-language-learning.pdf#page=42, Accessed: 2021-09-28

[6] Neumann, M. (2016). Young children's use of touch screen tablets for writing and reading at home - Relationships with emergent literacies in Computers & Education, Vol. 97, pp. 61 - 68, Available at https://dl.acm.org/citation.cfm?id=2912496, Accessed: 2021-04-14

[7] Sandvik, Smørdal, O. & Østerud, S. (2012). Exploring iPads in Practitioners Repertoires for Language Learning and Literacy Practices in Kindergarten in Nordic Journal of Digital Literacy, Vol. 7, No. 3, ol.7, pp. 204 - 221, Available at https://pmt-eu.hosted.exlibrisgroup.com/primo-explore/fulldisplay?docid=TN_doaj_soai_doaj_org_article_65ebba0f0d4c4b60ab36689063879c87&context=PC&vid=44OPN_VU1&lang=en_US&search_scope=EVERYTHING&adaptor=primo_central_multiple_fe&tab=default_tab&query=any,contains,%E2%80%98Digital%20Practices%20in%20the%20Kindergarten%E2%80%99,%20Nordic%20Journal%20of%20Digital%20Literacy,&offset=0, Accessed: 2021-04-29

[8] Sergi, K, Gatewood Jr., R., Elder, A. & Xu, J. (2017). Parental Perspectives on Children's Use of Portable Digital Devices in Behaviour & Information Technology, Vol. 36, No. 11, pp. 1148-1161, Available at https://doi.org/10.1080/0144929X.2017.1360941, Accessed: 2021-04-29

[9] The Open University (2017). Introduction EE818 Weeks 12 - 13 Learning Through Multimodal Communication, Available at https://learn2.open.ac.uk/mod/oucontent/view.php?id=1023946, Accessed: 2019-07-10

[10] The Open University (2017). 7.3 Extending Multimodal Text Analysis EE818 Weeks 12 - 13, Learning Through Multimodal Communication, Available at https://learn2.open.ac.uk/mod/oucontent/view.php?id=1023946&section=4, Accessed: 2019-07-24

[11] Verhallen, M. J. A. J. & Bus, A. G. (2010). Low-Income Immigrant Pupils Learning Vocabulary Through Digital Picture Storybooks in Journal of Educational Psychology, Vol. 102, No. 1, pp. 54 - 61, Available at https://www.researchgate.net/publication/232520950_Low-Income_Immigrant_Pupils_Learning_Vocabulary_Through_Digital_Picture_Storybooks, Accessed: 2021-05-24

[12] Xin, J. F.& Affrunti, R. L. (2019). Using iPads in Vocabulary Instruction for English Language Learners in Computers in the Schools, Vol. 36, No. 1, pp. 69 - 82, Available at https://www.researchgate.net/publication/330890982_Using_iPads_in_Vocabulary_Instruction_for_English_Language_Learners: Accessed: 2021-05-21

UDK 373.2:004; DOI 10.2507/IJVA.7.2.3.85