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EVALUATION OF INTERACTIVE BOOK CONTENT
FOR LEARNING TO READ IN PRESCHOOLERS

In the present investigation it has been evaluated an interactive tablet-based electronic book based on learning strategies which facilitate the process of reading in children 4-6 years old. It has been analysed and evaluated different design and information content factors such as functionality and usability, content and pedagogical aspects, design and technical aspects that have influence to a process of learning. It was suggested shared reading - interactions between parents and children while eReading – that helps to develop language and comprehension skills with the support of adults who assist children in constructing meaning from presented material.

Keywords: tablet-based electronic books, learning to read, story content, kids.

Introduction

Nowadays more and more people are using the features of the new technology to get new knowledge through their electronic devices. It is necessary to prepare children at an early age to face this new digital world, for this it's necessary to introduce them different possibilities of use of digital devices for an educational purpose. But adults should be selective choosing the book. Content of the book should to offer children access to conceptually challenging vocabulary and material; give children experiences with decontextualized language, requiring children to make sense of ideas that are about something beyond the here and now. Talking after reading books has been found to be beneficial to young children because let children to think about what is going on in the story and identifying the important ideas.

The **aim** of this study is to investigate how to evaluate the content of the e-book and does it fit to target audience.

The emergence of communication media such as: television, radio, and finally the Internet caused the flow of information to become faster, therefore, the way of teaching our new generations changed. The importance of tablets and e-readers in the market is a fact. According to a study by the OECD Research Center, only 30% of Mexican teens had a tablet or e-reader in 2015, but that number almost doubled in 2017 (children who are studying in private schools). Children grow surrounded by screens, the screens have long changed since the ones that the adult's had, but nowadays there is more development of devices designed only for children, since it tries to prepare children for what will come in the future [1].

Due to these changes the book has begun to move towards the digital, which causes a great satisfaction and comfort to the new generations, since, e-books are easy to carry, to use and its cost is much smaller. Digital books or e-book are virtual elements that can be displayed only in various digital devices such as: tablet, mobile phone, computer, etc.

Before the digital devices was consider a luxury, expensive enough to leave it within the reach of children, but, in 2012 it began to come on the market, products that help to share the device with the child the ludic and safe way, these products have shells that in addition to protecting it from falls, it gives a form of character to the product, which makes it attractive to the kids [1].

1. Why use e-books with preschoolers

At the moment, an e-book, age-appropriate book, not only allows the reading of digital content, it is also supports playing a game inside a book, communicating with other people and other applications, among the existing options with educational component, this makes these products attractive to purchase by the parents and family.

One reason why it is better to teach our children reading in a digital way is because reading the book in digital is more interactive, it gives the reader a pleasant experience, due to the hypertextuality of the narration, the comparison between printed books and e-books is that the printed books allow a linear reading, with this we mean that pages can be moved back and forward, allowing us to stop at what interests us, however, there would end the interaction with the book. Therefore, it is necessary to stimulate at a young age the desire for knowledge and to break the fear of using digital devices at this stage. Children's e-books imagination and thought, since they are in an imaginary world where the actions of the characters are developed, in addition, these books allow it to be read by oneself, reading while

playing, play or simply that the same device read the story.

Children grow up among products, images and messages that force them to believe in values, behaviours and tastes, however, with the help of books, people are creating their own vision of the world, The book itself is an educational tool with high value, however, digital or electronic books foment the reading in children, since, it allows them to learn independently and interact with history, although, adults must always be careful c in the way in that how the book is made, since it should be thought in the child and their needs, so that it results beneficial and enriching.

Considering the way of learning of infants and children, we can see that the most effective tool are games, children love to learn in a fun way, since, this is like a journey of exploration and emotion. Games have an important role in early learning, because with them you can learn to count, learn colours, shapes etc. [2].

Games provoke integration among children and foster creative-social learning; it can create an environment of wanting to learn even when it is not there. The games motivate the children in a playful way offering learning with positive characteristics, for example, lighting the mood and increasing the morale in the individuals. The game should not be more important than the learning, It should increase performance and improve to the learning experience.

Appropriate technology and media use balances and enhances the use of essential materials, activities, and interactions in the early childhood setting, becoming part of the daily routine. Technology and media should not replace activities such as real-life game and exploration, physical activity outdoors. Technology and media should be used to support learning, not an isolated activity, and to expand young children's access to new content [3; 4].

2. Interactions between parents and children while eReading

Ample research has demonstrated the benefits of joint-book sharing [5]. Parents or educators are providing access to interactive media and in building on their children's experiences through connecting a game to a person al experience, or in conversations outside the context of the interactive media. Although infants and toddlers learn the most from in-person interactions, they can learn more through technology when it is interactive than when they are viewing the screen passively. In this case parents or educators need to show a kid how to navigate throw the story.

Comprehension also requires the activation of prior knowledge. Parents are their child's first teachers and serves as a bridge to help create the connection between the new knowledge and the known.

Studies comparing tablet-based eBooks and print books have found that parents and children interact differently with these two sources [5]. That's why eReading is best with parent or educators because they are controlling how much of the conversation is device related rather than story focused. Device-focused discussions offer language exposure but less meaningful vocabulary and content. Additionally, adults should be aware if the book's narration and hotspots are dominating the interaction. Discussions of the main character, story en general are necessary for increasing comprehension, language development. But in some interactive books certain features seem to be more distracting than educational. So, selection of eBooks for children should be thoughtful taking into account factors that we will describe below.

3. Methodology for evaluation e-book content

Careful evaluation and selection of materials are essential for parents or educators. To evaluate the content of the interactive educational book it is necessary to know the aim of the book - to teach a specific educational content; how it was designing and who and how will use this book. In order to design a digital book it has to be taken into account that it has been revolutionized experience of the reading itself and consequently the guidelines for design process. The development of a children's digital book requires certain stages such as: defining the audience to be addressed, defining the topic to be treated (educational component), writing the story or plot, developing the story based on an educational content and performing the characters, landscapes and objects that the narrative treats.

Reading children's books becomes an activity with multiple options. Digital books allow you to read for yourself, read while you play, or just let the device read the story.

Interactive digital books contain different sounds and music so the child gets visual and auditory stimulation. Often video and audio content organized as a game that stimulate thinking and understanding, usually associated with its content. Also it is interesting the option that allows in some cases to change the language of the story that let children learn different languages at an early age.

One of the critical areas for informal learning during eReading is building emergent literacy skills.

3.1 Teaching Strategies for emergent literacy skills

Term early literacy as the most comprehensive description of the knowledge, skills, and dispositions that precedes learning to read and write at the edge of preschoolers.

Children get early literacy skills from good quality e-books that include features that promote children's

language and literacy skills, like: built-in dictionary, words that are highlighted when the narrator reads them, games and pictures that help explain the story. Also kids can read e-books over and over again – repeated reading of the same story improves children's literacy skills. Children learn more from e-books when adults share the e-book with them and talk about the story and learn less when they look at e-books by themselves.

When technology is used with kids, it should be integrated into the learning program and used in rotation with other learning tools such as play materials, art materials, writing materials, print books, and should give early learners an opportunity for self-expression without replacing other learning materials [6].

3.2 Aesthetical, technical and pedagogical aspects of interactive book

Examining e-books as educational tools for kids Shamir and Korat in [7] elaborated some categories, identifying several high level design features relevant to young learners, such as oral reading with text highlights that illuminate the nature of print (e.g., word boundaries); hotspot activation aligned with text; a built-in dictionary option that allows repeated action by the child; and a game mode that complement text mode. Worked into eBook design, these features can help to reduce distractibility during book reading.

Another point that plays a significant role while eReading is usability. Interactive technologies may pose significant challenges to children. Designers of interactive media must keep in mind children's motor development and executive functioning skills when designing how specifically the child will interact with it.

For futher analisys we can define structure of interactive educational book based on several investigations [8–10]:

− multimedia design: how text material (visual or spoken) and images (static or in motion) are presented;

− interface design: navigation, usability, format;

− learning design which involves the basic features of instruction, content and feedback.

Each aspect has various principles (see tabl. 1) that can be used to examine technical quality, functionality and content of interactive educational book.

In addition to tabl. 1 we recommend for evaluating educational content of digital books try to answer on several questions [11], such as:

If the story appropriately presented in a book? The voice of the reader is match to the characters. Sound effects and music are adequate. The size and shape of the illustrations fit the tablet's proportions.

Why do you prefer digital version of the story? The story may take advantage of nonlinear storytelling that is more difficult to accomplish in a book where pages are typically turned in one direction. Or e-story may have additional features (like multiple languages)

that readers can purchase, enabling them to increase the length or complexity of the story.

Table 1

Proposed evaluation criteria

Structural part	Criteria
Multimedia design	1. Easy and understandable access to a multimedia content 2. Personalization 3. Intuitive following a story 4. Main character (guide) that facilitate of following the story 5. Organization of the content 6. Technical quality of text, images, audio and animations 7. Aesthetical quality of the content 8. Synchronization between parts of the material 9. User manual (help) 10. Credits, sources used in the book

Interface design	1. Modes: read-only versus read and play.
	2. Facility of Navegation, elements of interface:
	   - bottons,
	   - menu,
	   - sound,
	   - voice control,
	   - change the language
	3. Controlling with multi-touch gestures: swipe, tap
	4. Hotspots
	5. Built-in dictionary
	6. Highlight elements while narrator reads them
	7. Repeated reading options
	8. Communication elements and feedback

Learning design	1. Relevance and how interesting the content is 2. Adequacy to the audience 3. Clarity of Objectives 4. Motivation 5. Management of activities 6. Sharing reading with adults 7. Collaborative work

Do the hotspots integrated to a story or distract readers? Many apps feature interactivity as a key component that complements the narrative flow of the story.

Is it useful complementary content (drawing, puzzles, matching memory games, painting/ drawing)? It is preferable to use apps in which some character or central feature of the book is represented in the supplementary features instead of apps that merely include generic

activities that have little or no content tie in to the story itself.

Does the interactive content help in the early literacy acquisition process? It was identified four especially important areas related to early literacy development to look for: text appearance, highlighting of text (in the Read to Me mode), opportunities for word exploration, and illustration-text match.

According to this we can evaluate design features embedded in the e-book architecture.

4. Case study: "Words Alive" KidBook Production

The electronic educational book for iPad used for this investigation "Words Alive" KidBook Production can be described as an animated show, game and a book. Target audience: preschoolers from 4 years old (fig. 1).
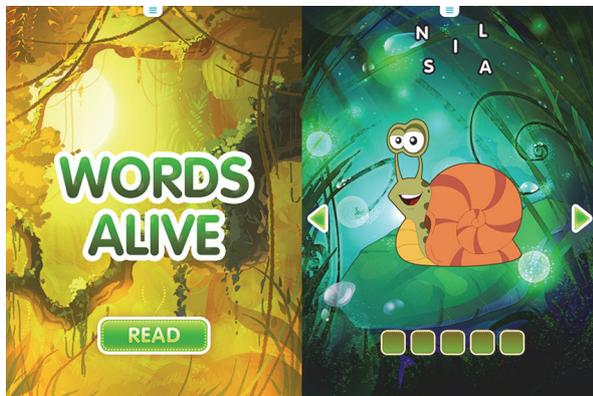

Fig. 1. Cover and sample page
of the interactive educational book "Words Alive"

In this book kid can learn about the delightful animals found in various countries and continents, practice the alphabet at the same time and exploring 30 pages of words, which are truly alive! Interacting with this book preschooler simultaneously is processing visual information, audio content and attending to narration or understanding the story.

The quality of the results of the evaluation is conditioned by criteria that we designed and selected experts. So, the selection of the evaluators was wide and we invited experts in multimedia content and information technology, web designer, and teachers with experience in early childhood education. The aspects that required revision according to tabl. 1 were following: aesthetical, technical and pedagogical. The evaluation criteria offered in section three helped experts make some suggestions how to improve quality of educational content and representation.

As a summary of experts recommendations, we can mention what kind of improvements should be made:

– puzzle and interactive features should only be active after the narrator has finished reading the page. While hotspots attract children's attention, they interrupt the story if they can be activated while the narrator is reading. Many e-books now offer different modes (e.g. read-only versus read and play). Having a child listen to the story first in "read-only" mode will help him or her understand the story;

– add dictionary mode – link a page where explain challenging words can help build children's vocabulary;

– the pictures and interactive "hotspots" should help children understand the story – when music or animations add extra information that is not related to the story, it can interfere with children's ability to understand the story;

– add repeated reading option. This function allows children to repeat pages, sentences, or specific words, which helps build children's understanding;

– it should be developed an instructional material, including audio and images, which allows users with little computer skills to manage the book. To elaborate this material it could be used the concept of micro contents (purpose is to reach the precision of the instructions);

– design a comprehensive guide with recommendations, directed to the adults who accompany the children in navigation of the interface.

Conclusions

The market of interactive educational books are expanding, but print books will not disappear, so parents and educators should focus on how to combine educational content from traditional print books with new format that comes along.

Digital applications contain a set of benefits, for example: improving mental agility, problem solving, fostering imagination and thinking, increasing memorization and learning to manage information, because children have to apply what has been learned previously to be able to continue navigating throw the book.

To conclude, new technologies are an essential part of the liquid society, which is a constant change and causes an increase in both fun and educational digital content, which is why we have to adapt to technology and prepare our new generations to a digital world. Finally, it is emphasized that the incorporation of technology in the teaching-learning process depends on the adult. Parents or teachers are responsible for selection the books that offer children access to conceptually challenging vocabulary and high quality content.

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ОЦІНЮВАННЯ ВМІСТУ ІНТЕРАКТИВНОГО КНИЖКОВОГО ВИДАННЯ ДЛЯ НАВЧАННЯ ЧИТАННЮ ДІТЕЙ ДОШКІЛЬНОГО ВІКУ

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У цьому дослідженні була розроблена оцінка інтерактивних електронних книг, заснована на стратегіях навчання, які полегшують процес читання дітям у віці 4–6 років. Були проаналізовані і оцінені різні чинники, що стосуються як зовнішнього вигляду, так і інформаційного наповнення: функціональність і зручність використання, зміст та педагогічні аспекти, дизайн і технічні аспекти, які впливають на процес навчання. Було запропоновано спільне читання – взаємодія між батьками і дітьми під час читання – що допомагає розвивати навички володіння мовою і побудови складних конструкцій з представленого матеріалу.

Ключові слова: *електронні книги на планшетах, навчання читанню, зміст, діти.*

ОЦЕНКА СОДЕРЖАНИЯ ИНТЕРАКТИВНОГО КНИЖНОГО ИЗДАНИЯ ДЛЯ ОБУЧЕНИЯ ЧТЕНИЮ ДЕТЕЙ ДОШКОЛЬНОГО ВОЗРАСТА

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В настоящем исследовании была разработана оценка интерактивных электронных книг, основанная на стратегиях обучения, которые облегчают процесс чтения детям в возрасте 4–6 лет. Были проанализированы и оценены различные факторы, касающиеся как внешнего вида, так и информационного наполнения: функциональность и удобство использования, содержание и педагогические аспекты, дизайн и технические аспекты, которые оказывают влияние на процесс обучения. Было предложено совместное чтение – взаимодействие между родителями и детьми во время чтения – что помогает развивать навыки владения языком и построения сложных конструкций из представленного материала.

Ключевые слова: *электронные книги на планшетах, обучение чтению, содержание, дети.*