EDUCATIONAL APPLICATIONS MAKE LANGUAGE LEARNING TWO TIMES MORE EFFECTIVE IN KIDS

Experiment reveals language apps double vocabulary acquisition among young children.

Our globalized world

The crucial role of having an academic and professional background with a special focus on languages is indisputable in today's society, giving rise to serious concerns about the acquisition of a competent education and culture from the earliest childhood.

Because of global intercommunication, bilingualism has been introduced in the first years of primary schooling. The interest in language learning made early-age language acquisition studies a reference in Developmental and Educational Psychology.

Recent studies show that the best age to learn a foreign language is between the age of 2 and 6.

Learning a language is a natural process. This is why cognitive development of children is an opportunity that cannot be missed, and should be given special relevance.

Ephemeral neuroplasticity

A child is born with 100,000 million neurons, each with the potential to create 20,000 connections.

According to ***Diamond (1988, in Vos, 2007)*** if those connections are not stimulated, they will die, depending on the degree of sensory stimulation the child receives. After the first years of a child's life, the probability of creating those connections decreases considerably. Thus, we should take advantage of the child's ephemeral neuroplasticity -the way the brain reorganizes its cells based on the information it receives- forming and consolidating its main learning pathways. All the knowledge acquired afterwards will be built over those pathways ***(Vos, 2007)***.

It has been shown that children between 12 and 18 months are able to learn an average of 10 words per day by listening and interacting with them in their environment ***(Bloom, 2002).*** But children do not acquire words only by listening to them: they need to catch their attention ***(Stahl and Stahl 2004)***. When a word attracts a child's attention, he becomes aware of it. Research suggests that a biased meaning is created on the first exposure to a word: this is called fast mapping ***(Carey 1978)***. According to ***Christ and Wang (2010)***, to generalize and completely establish the meaning of a word, what does a child need?

What a child needs:

- To be exposed to new vocabulary
- Motivation & commitment
- Multiple exposure to new words to contextualize the information and seize the definition

Variety in the exposure to new words gives the child the chance to gather information and build a meaning. Given a child's ease to learn by games and exploration ***(Piaget, Vygotsky)*** we can teach a language with simple methods: imitation, observation, playing, songs and rhymes, specially for those who aren't able to read yet. There is scientific proof that a child needs to have fun while learning. Our brain actually contains four different areas: when we have fun, our emotional brain is activated, which makes learning much easier, since it is closer to the brain's memory storing unit ***(Adžija and Sindik, 2014).***

Many of the benefits of second language teaching methods can be found in electronic means. Multimedia resources can provide a playful learning environment as well as world representations which are familiar for children. Numerous scientific studies and the wide literature in this regard show how the use of multimedia resources vastly increases attention spans, while motivating and improving vocabulary learning due to the active participation of the child, who interacts with the word ***(Blachowicz, Fisher and Ogle, 2006).***

But when it comes to comparing traditional language classes with the use of multimedia resources... to what extent do children retain the concepts they learn? To answer that question we will use Monkimun's educative language learning apps.

Methodology

Through a cross-sectional study we aimed to verify if children have a better learning experience with the Monkimun language apps than using traditional learning methodologies. To tackle this question, we worked with a group of children using two different methods to measure the number of English words acquired. Half of the sample used a traditional method based on recordings (the same audio-files appearing in the game) and picture cards representing the vocabulary that was being tested. In the digital method, the children played with two mini-games from the app. A pre-test was performed to measure the number of words that the kids already knew from the vocabulary used in the test.

Hypothesis: The children using the "Educational App" method are likely to learn more vocabulary about the selected topics -Food and Clothes- than the children using the "Flash Cards" in their daily classes.

Participants

- 32 five-year-old children (Second year of Pre-school)

Materials

- Monki Home application, Flash Cards and audio recordings.
- Game 1: Monki Home kitchen (Fish, carrot, red pepper, mushroom and steak)
- Game 2: Monki Home laundry: (Pants, dress, skirt, scarf and socks)

Design

Two experimental groups (n=32; 16 children using the traditional learning condition and 16 children using the digital method)

- Group 1, Flash Cards: children learn vocabulary through the images.
- Group 2, Educational Application: two vocabulary-learning games from the Monki Home Application.

Process

- Pre-test: The children start with a pre-test phase. The participants are shown a group of images and then asked to decide which card is related to the audio they are listening to. An audio recording is used to avoid biasing the sample with the researcher's Spanish accent. The purpose of this pre-test is to register the participant's knowledge before the test.

The next step is performing the test using two different methods:

Flash-card method: All the flash-cards belonging to the same topic are shown, and each recording is played twice while the right card is pointed at.

Educational Application method: The game is introduced and the children are allowed to play freely, reducing interaction with the children to a minimum. The same procedure is repeated with the second game.

- Post-test: The same procedure as in the pre-test is performed, recording the results. Post-test: The same procedure as in the pre-test is performed, recording the results.

Results

A comparison of overall learning between the first mini-game and the traditional method (Table 1) shows a difference with the pre-test of 100% more words, while the traditional method show a difference of 58%, meaning that **children using the educative digital game by Monkimun recognize twice as much vocabulary as children using the traditional learning method.**

Table 1 - % food learning: cards vs app

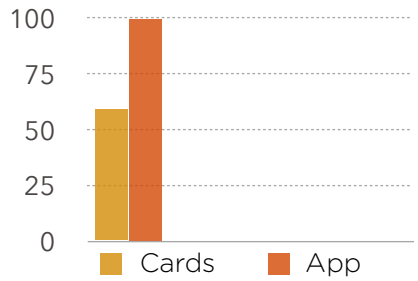
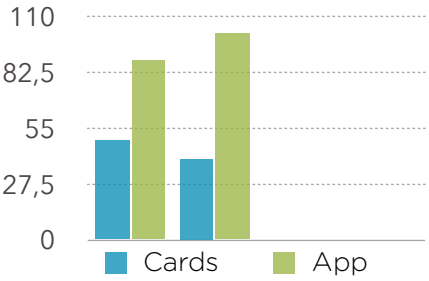
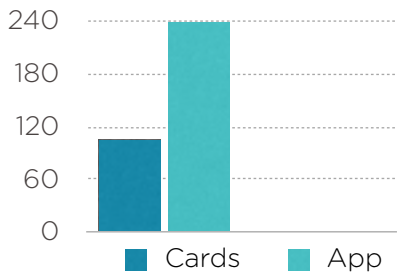


Table 2 - Word learning in absolute values



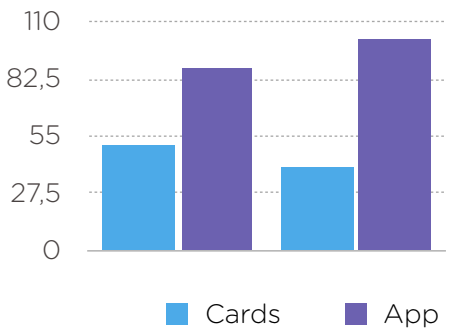
Results from the second game (Table 2) show a difference of 223% of acquired words, while the traditional method show a difference of 100%, revealing that **children using the educative digital game by Monkimun recognize three times as much vocabulary, while children using the traditional learning method recognize twice as much.**

Table 3 - % clothes learning: cards vs app



An overview of the absolute values of new words learned using both methodologies highlights the significant difference between the learning results obtained in the Clothes game (shown in the second bar chart, Table 3). One bar indicates the number of words acquired after the game, against the words learned using the traditional method, indicated by the second bar. **An overall sum of the words learned by each child shows a total of 102 words acquired using the educational application by Monkimun, against the 41 words learned using the traditional method.** In Table 4 we can see that 22 more clothes-related words were learned than food-related words, but the main result shows 61 more words acquired through the clothes mini-game and 39 more through with the food game.

Table 4 - Word learning in absolute values



Final results show that children learn 166.5% more under the technological method, against 79% more using the traditional method, indicating that the digital educational game by Monkimun is 2.1 times more effective than traditional methods. **Kids learn two times more vocabulary using the educational application by Monkimun than with traditional learning tools.**

Table 5 - % food learning: cards vs app

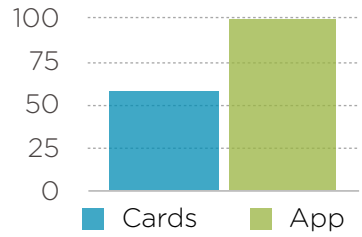
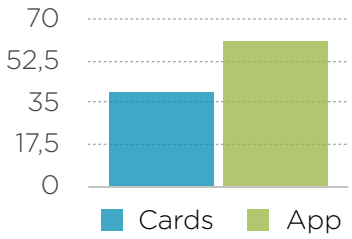


Table 6 - Word learning in absolute values



Conclusions

The key factor of fast vocabulary acquisition is enjoyment. In addition to the reasons described in the introduction, pre-school children are unaware that they are actually studying or receiving more information. Children learn by playing games and exploration; if they like the game, they can seize the opportunity of learning through it. The fact that children play and learn by themselves also contributes to increasing their independence and autonomy. **Less guided games, entailing the minimum interference from an adult, help increasing initiative and creativity.**

ICT are effective tools to increase a child's knowledge -or acquisition- among very young children, who can only learn by using interactive and didactic means.

Resources prioritizing the concept of "learning by doing" above other more passive methodologies such as individual memorization, are likely to be more effective in the acquisition or improvement of mental skills or strategies. Beyond the development of cognitive abilities, educational practices promoting a more intuitive -and less guided- learning methodology may translate in the acquisition of more profitable problem-solving strategies to deal with situations or problems present in the child's daily life.

These kinds of techniques draw optimum results during the earliest stages of education addressed to bilingualism and the social benefits that learning a language entails.

The media used in our daily routine must attract our attention and raise our interest, while making it easier to perceive essential factors of a topic through images, sounds, etc.,. bearing in mind external and internal motivations. The most recent resources created by our generation should be used for this purpose.

References

Adžija, M., & Sindik, J. (2014). Learning of foreign language in pre-school children: evaluation methods in kindergarden's enviroment. Metodički obzori, 9(19), 48-65.

Te Rünanga, O. A. M. T., & Te Mätauranga, R. I. (2004). The role and potential of ICT in early childhood education.

Vos, J. (2007). Can preschool children be taught a second language. Retrieved July, 27, 2007.Urbina, S. (1999). Informática y teorías del aprendizaje. Pixel Bit. Revista de Medios y Comunicación, 12, 87-100.