
THE IMPACT OF EDUCATIONAL APPLICATIONS ON LANGUAGE LEARNING: APPS IMPROVE VOCABULARY ACQUISITION

Introduction

The importance of knowing more than one language is undeniable in today's society. Because of the need for global communication, many parents and educators encourage learning a second language during both the early years and primary schooling.

In a discussion of the implications of recent studies on language learning during the first three to four years of life, Jeanette Vos (2007) noted that language learning is a natural process for young children. Vos described the success of foreign language training in Sweden, where three-year-old preschoolers spoke three different languages fluently (1997). These findings validate why language development in children should be given priority.

The Flexible Brain

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 few years of a child's life, the probability of creating those connections decreases considerably. The brain's facility, which allows the neurons to respond to input, adjust responses, form connections, and even reorganize the connections, is referred to as neuroplasticity. This plasticity, or flexibility, is discussed by López (2011), who emphasized the importance of the prefrontal cortex's plasticity during youth. With learning and practice, the brain becomes even more flexible when making additional connections. Thus, we should take advantage of the child's fleeting ability to reorganize its brain cells based on the information received, while forming and consolidating its primary learning pathways. All the knowledge acquired afterwards will be built over those pathways (Vos, 2007).

Vocabulary Development

It has been shown that children between twelve and eighteen months of age are able to learn an average of ten words per day by listening and interacting with vocabulary in their environment (Bloom, 2002).

High-school graduates need to know approximately 75,000 words in English (Snow and Kim, 2007, p. 124).

In a review of several studies of school-age English Language Learners (ELLs), Snow and Kim found that ELLs from Spanish-speaking families generally come to school with limited English vocabulary, particularly in the area of comprehension (2007, p. 126).

These findings underscore the importance of early and repeated exposure to words in meaningful contexts.

Children do not acquire words just by listening to them; the words need to catch their attention (Stahl and Stahl, 2004). When children attend to a word, they become more aware of and invested in it, which is called being word conscious. Research shows that often an incorrect or limited meaning is created on the first exposure to a word. The child may not yet have enough information to have a thorough understanding of the word. This process is called fast

mapping (Carey, 1978). Over time, a child comes to realize that a word may have a more nuanced meaning. Also, the learner becomes aware that some words, such as bat (flying mammal, baseball bat, club, etc.), have multiple meanings. According to Christ and Wang (2010), to generalize and completely establish the meaning of a word, a child needs to:

- be exposed to new vocabulary,
- be motivated and engaged,
- have multiple exposures to new words that give contextual definitional information, and
- use independent vocabulary learning strategies (p. 85).

Variety in the exposure to new words gives the child the chance to gather information and build meanings.

Fun When Learning

There is also evidence that a child needs to have fun while learning. The brain comprises four areas. When we have fun, the area housing our emotions is activated. This makes learning easier, because it is close to the brain's memory storing area (Dryden and Vos, 1997; Adžija and Sindik, 2014). Krashen and Tyrrell (1988) discussed the (non-technology-based) use of games in ESL (English as a Second

Language) classes, stating, “Indeed, experienced instructors who work with children know that they become more involved more quickly with an activity if it is presented in a game format” (p. 121). Although these observations were made well before the era of gaming through technology, the principle stands: games are indispensable. Given a child’s ability to learn by games and exploration, language can be learned with relevant practices: imitation, observation, playing, singing, and rhyming. These methods are especially effective with non-reading learners.

Implications for Using Technology

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Technology offers many opportunities for language learning. In a review of the literature on information and communications technology (ICT), Te Rūnanga and Te Mātauranga described ICT, in part, as including digital products and programs that allow users to get information and communicate. In early childhood education (ECE), the term ICT could include “computer hardware and software, digital cameras and video cameras, the Internet, telecommunication tools, programmable toys, and many other devices and resources” (2004, vii).

The authors also noted that children are already affected by these technologies—they are surrounded by devices and apps, which offer new opportunities for learning.

Multimedia resources, such as interactive apps or computer games, can provide a playful learning environment, as well as provide familiar real-world representations. When discussing relevant research, Blachowicz, Beyersdorfer, and Fisher (2006) noted that “...technology has become one avenue to learning that would seem a ‘natural’ fit for vocabulary learning” (341). The authors summed up their discussion regarding the opportunities for using technology, stating that technology provides “interactive environments to gain, refine, and practice word knowledge” (345), and that “vocabulary is learned through multiple exposures to words in a variety of ways” (346).

When 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 used Minimum’s language learning apps, comparing its efficacy to the more traditional approach of teaching

The Study

Through a cross-sectional study we sought to verify whether children have a better learning experience with the Monkimun language apps than when using a traditional learning method. We tested 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 flash (picture) cards and recordings (the same audio-files from the game) representing the vocabulary being tested. In the digital method, the children played with two mini-games from the Monkimun app. A pretest was performed to measure the number of words that the children already knew.

Hypothesis

The children using the educational app will learn more vocabulary about the topics (food and clothes) than the children using the flash cards.

Participants

32 five-year-old children (second year of preschool)

Materials

MonkiHome application, flash cards, and audio recordings:

- **Game 1:** MonkiHome kitchen (fish,

carrot, red pepper, mushroom, and steak)

- **Game 2:** MonkiHome laundry (pants, dress, skirt, scarf, and socks)

Design and Protocol

Two experimental groups:

- Group 1: Sixteen children learned vocabulary using flash cards with audio.
- Group 2: Sixteen children learned vocabulary using two Monkimun apps.

Process

Pretest:

- The participants were shown a group of images and asked to decide which card was related to the audio. The purpose of this pretest was to determine the participant's knowledge before the test. An audio recording was used to avoid biasing the sample with the researcher's Spanish accent.

Instructions:

- Flash-card method: All the flash cards belonging to the same topic were displayed. During two playings of the audio recording of the word, the student was instructed to choose the relevant flash card.

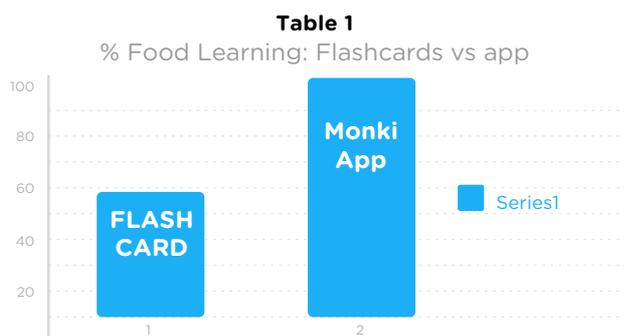
- Educational application method:
The game was introduced, and the children were allowed to play freely, thereby reducing interaction with the players to a minimum. The same procedure was repeated with the second game.

Pretest:

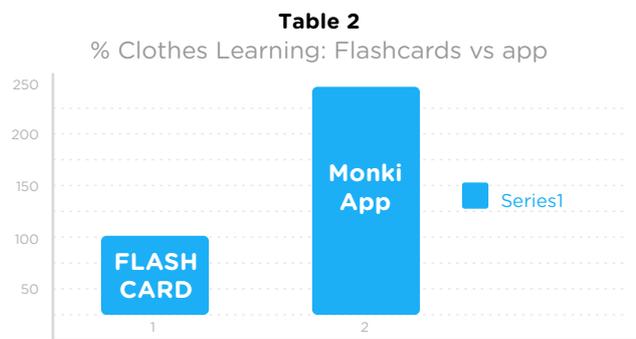
- The pretest was repeated, and the results were recorded.

Results

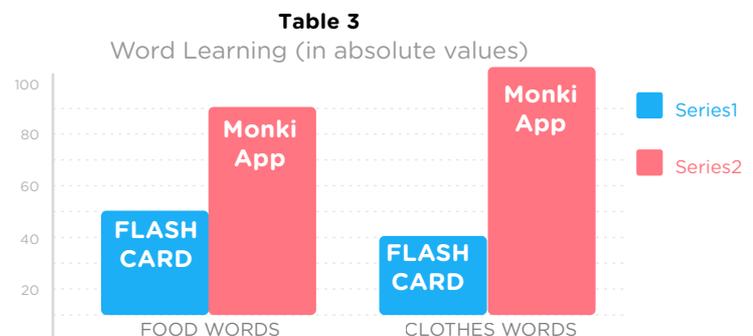
A comparison of overall learning between the first game (Table 1) and the traditional method showed that the children using the traditional method learned 58% of the words (column 1). The children using the digital game by Monkimun recognized 100% of the words (column 2).

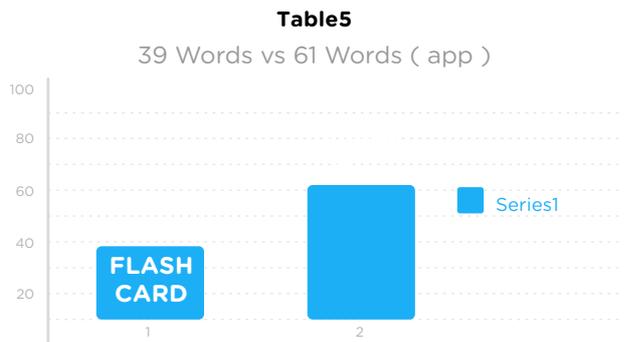
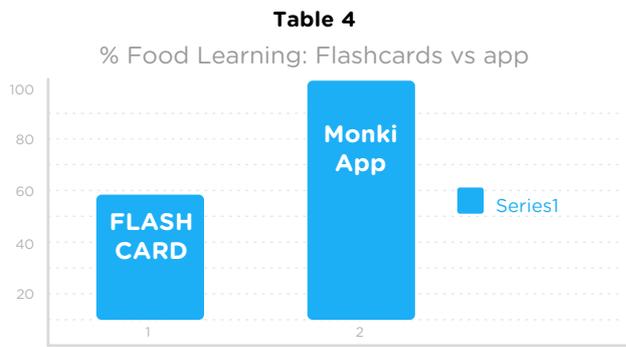


The results after the second game (Table 2) demonstrated that children using the Monkimun game recognized twice as many vocabulary words (column 2) as those children using the flash cards (column 1).



An overview of the absolute values of new words learned using both methods (Table 3) highlights the significant difference between the learning results obtained in the clothes game. The blue bar indicates the words learned using the traditional method. The red bar indicates the number of words acquired after the game. Children using the Monkimun app learned a total of 102 words in comparison to the children using the flash cards who acquired only 41 words. Table 3 also shows that 22 more clothes-related words were learned than food-related words. The cumulative result shows 61 more words acquired with the clothes mini-game and 39 more with the food game.





concept of “learning by doing” instead of other, more passive, methodologies such as individual memorization, are likely to be more effective in the acquisition of knowledge. Using ICT, as noted by Te Rünanga and Te Mätauranga (2004), is a part of a young learner’s environment. The use of ICT during the earliest stages of education can support learning a second language, which, if sustained throughout the school years, can provide social benefits that come with mastery of a second language.

Conclusions

As described in the introduction, preschool children who use games are absorbed in the activity. When learners enjoy a game, they are more likely to repeat it, aiding their retention of the vocabulary. This autonomous play with self-guided games also contributes to increased independence.

This study showed that the use of the educational app increased the subjects’ acquisition of vocabulary in English. Children using the Monkimun app were shown to increase their vocabulary more than the children taught by a traditional instructional method. Resources prioritizing the

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