

Assessing electronic educational cards (EECs) as a method of foreign language learning: An experimental design approach using kindergarten students

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Abstract

This study investigated the effects of Electronic Educational Cards (EECs) on Teaching English as a Second Language (ESL) in Kindergarten. The experimental group participants (N = 500) and the control group participants (N = 500) were observed for six months and did pre-and post-experimental tests. The results showed that children in the experimental group compared to the control group demonstrated significant improvements in learning English as a Second Language. This study concluded that there is irrefutable empirical evidence that modern teaching methods should be encouraged and embraced for the betterment of early education students' learning. It is recommended that the format and structure of implementing the electronic revolution in Jordan's early education sector be premised closely with that of the experimental group used in this study and rolled out throughout all the kindergartens in the Ma'an Governorate, and the entirety of the Hashemite Kingdom of Jordan.

Keywords: Electronic Educational Cards, Kindergarten, Teaching English as a Second Language;

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1. Introduction

Numerous studies underpin the consensus that the formative years of a child's learning experience are critical for his improved outlook on academic excellence in the later years of his educational life. With this universal agreement, the main differences then surface in the various and best ways that a quality early childhood education can be nurtured. With such a wide range of suggestions for the ways and means children can gain most from early childhood education, it is not surprising that the curriculum and tools thus utilized are varied in combination as there are schools of thought. However, one significant factor that cannot be downplayed is the impact of the cultural and social environment realities interwoven into the very fabric of society, and education is no exception, even early childhood education (Lee, 1996). In recent years, the methodology of early childhood education has embraced technological advances in teaching methods.

Electronic Educational Cards (EECs) are not a panacea for the learning ability or motivation of an uninterested student, they have some proven advantages as teaching and subject retention methods. Several researchers have compared the effectiveness of electronic flashcards versus paper flashcards for improving second language vocabulary. Studies such as (Azabdaftari & Mozaheb, 2012; Dizon & Tang, 2017; Kiliçkaya & Krajka, 2010) indicated that the use of electronic cards is more effective in second language learning. However, these studies did not examine the effect of electronic flashcards (EECs) on ESL teaching in kindergartens in Jordan. This study examines the effect of the Electronic Educational Cards (EECs) for Teaching English as a Second Language (ESL) in Kindergarten in Ma'an Governorate Southern Jordan.

1.1. Early Childhood

The importance of having a well-rounded childhood cannot be taken lightly. During early childhood, an individual's mental and physiological makeup is formulated (Shonkoff & Philips, 2000). With physical development, a child's emotional nature will subconsciously be molded by the interaction of social and environmental stimuli and the individual. Seemingly simple occurrences and events can have lifelong effects on a person, mainly when they occur early on when the personality is not yet cemented and is therefore easily malleable. Interactions with teachers, other children, the curriculum, and, most importantly, the learning materials will play a big part in how the child's educational development progresses.

Social skills are developed during this time and contribute to future behavior and temperament. A stress-free learning environment provides a platform for kindergarteners to start forming helpful social bonds based on mutual consideration and care for other people, primarily due to the peaceful, non-threatening surroundings (Marzouk, 2015). When the child feels safe, cared for, and supported, attention, and affirmation is given, and affection is shown, their mental state becomes conducive to the absorption of education provided (Barnett, 1995).

1.2. Electronic Educational Cards (EECs)

Electronic Educational Cards (EECs) or as called flashcards have been in use for more than 200 years. While their origin is not directly known, they gained prominence in the 1800s. Their spread was primarily propagated by educational pioneer Joseph Lancaster in his book "Improvements in Education," first published in 1805. At this point, they were called reading cards (Wilson, 1977).

There are three main reasons why flashcards are effective. First, Flashcards allow for confidence-based repetition. The theory behind this is that since each flashcard contains a single idea or group of ideas, they can be mastered separately. This aspect allows the learner and their teacher to concentrate

focus and emphasis on topics that seem to be harder to grasp. The cards with more straightforward concepts can be put separately as they will be used less frequently. Second, flashcards engage your recall capabilities. They engage the mental faculty associated with memory and are proven to be effective in creating subject associations, and thereby mastery of the whole subject rather than one single concept. Finally, flashcards invoke metacognitive faculties. Because you can self-assess when you reveal the answer on the other side of the question card, and you subconsciously make an effort to remember more of those that you seem to be failing in. This act tends to ingrain memories into your collective knowledge and learning experience (Dykes, 2009; Karpicke & Roediger, 2008; Oren, Willerton & Small, 2014; Smolen, Zhang, & Byrne, 2016).

This is the general concept of flashcards or educational cards. With the advent and spread of technology in the last century, there has been increased penetration of these traditional cards into the electronic realm. The widespread use of computers and digital gadgets, in general, has seen these cards being introduced to all levels of learning. This fact is also actual for early childhood learning and has seen the evolution of the traditional flashcard into the digitally enhanced Electronic Educational Cards (EECs).

1.3. Electronic Educational Cards for Teaching English Language

The most common way of teaching in preschool years in the world has been mostly visual and audio. Before a person learns to read and write, their first medium of communication will be aural. Indeed, it has been suggested that a baby starts learning from the womb and can recognize the mother's distinct voice (and sometimes the father's) from the time they are born (Skwareki, 2013). As they grow, this is further enforced through the many technological marvels that they will come into interact with almost every day of their lives. Television, computers, mobile phones, and game consoles have become commonplace. Even very young children become competent users of these tools very early in their lives with little or no formal learning (Nikolopoulou, 2019; Parvin, & Salam, 2015).

Literacy is enabled by using the computer keyboard or the keypad on a mobile phone (Maureen et al. 2018). As they are in constant proximity to such items, the alphabet is easy to learn as it is both visual and tactile; that is, they can feel it with their fingers. It is relatively easy to teach a young one the sound and the shape of the letters of the alphabet as they play with the keyboard or keypad. This letter and sound correspondence facilitate the ease of learning the pronunciation of words, both native and foreign. It is a very convenient and straightforward way of teaching language, and so English as well (Al-Awidi & Ismail 2014). By about three years of age, the child is ready to start some sort of formal education. These are called different names in different regions, preschool, early childhood education, or kindergarten.

1.4. The Current Study

In this study, we shall use the term kindergarten, and the range of children fitting into this class will be defined as those between 3 and 6 years in the Ma'an, Jordan, where the official national language is Arabic. It is the language spoken by most people, and invariably the first language that children learn. It is the language most used in written documents as well as in the media. Nonetheless, being a former British colony, English is also widely spoken and is a compulsory school subject taught alongside Arabic (Fayez & Oliemat, 2016).

The great appeal of EECs is the ease with which they can be adapted. When there is a new development in a specific field or a change in curriculum, it is relatively easy to update the existing material with a simple download. For the traditional flashcard method of learning, the content is not

easily altered to represent the new reality, and more often than not has to be discarded. So, this study examines the effects of the Electronic Educational Cards (EECs) for Teaching English as a Second Language (ESL) in Kindergarten in Ma'an Governorate Southern Jordan. According to this, our study tries to test the following hypotheses:

H1. There are statistically significant differences in the average scores of the experimental group of students before and after teaching English with Electronic Educational Cards (EECs).

H2. There are statistically significant differences in the average scores of the experimental group students and the control group students after six months of teaching English in different ways.

2. Method

2.1. Participants

Totally 1000 students across the Governorate of Ma'an were selected as participants. All of the participants were between the early childhood ages of 3 and 6 years old. Further, the sample was equally divided across gender lines and consisted of one-half being boys and the other half being girls. This consistency was maintained across all the four districts of the Governorate. This sample of 1000 was then apportioned into two distinct categories; the experimental and control groups on a 50:50 basis.

2.2. Instruments

Participants completed the test, which we designed according to the English curriculum for the sample and contained 20 questions, every question has multiple choices, four choices, and one of them is right, the questions tests consisted also of photos and sentences to motivate the students to reply and help us to evaluate their answers. The test in its initial form consisted of 30 questions, and after shown to 7 expert teachers, it was shortened to 20 questions according to the experts' opinions. Cronbach's alpha coefficient was (0.89).

2.3. Procedures

First, both groups (experimental and control groups) completed the test, which took 15–30 minutes to complete. Second, we designed the electronic educational cards to differentiate the methods of learning English as a second language between two distinct types. Third, participants in the experimental group were taught using electronic educational cards on tablets, computers, and mobile phones over six months, while, the control group retained the traditional methods of learning, which mainly consisted of laminated placards. Finally, after six months of learning for the two groups with different methods, we asked both groups to complete the test again.

2.4. Data Analysis

Means, standard deviations, and T-Tests (Paired and independent samples) through SPSS (version 23) were used to test the study hypotheses (H1 and H2). Before that, we checked the normality for each variable to determine the appropriate test. Kolmogorov-Smirnov and Shapiro-Wilk's results showed that all the study variables are standard. Moreover, we did the T independent samples test to check the differences between the experimental group and control group before teaching English and doing our

experiment and found that there are no differences between both groups which means our two group samples follow the condition.

3. Results

3.1. Differences between the experimental groups before and after teaching English with Electronic Educational Cards (EECs)

Means, standard deviations, and T-tests among experimental groups before and after were analyzed and presented in Table (1).

Table 1: Paired Samples Tests for pre-test and post-experimental groups

	Experimental group before		Experimental group after		T-test	
	M	SD	M	SD	T	P
Scores	15.98	4.333	18.83	3.390	3.192	.003

** : $p < 0.01$.

1. The results (Table 1) showed that there were statistically significant differences in the students' mean scores in learning English before and after the teaching. Students' scores were significantly higher at post-test ($M = 18.83$) compared with pre-test ($M = 15.98$), $p < .05$.

3.2 Differences between the control groups before and after teaching English with traditional way

Table 2: Paired Samples Tests for pre-test and post-control groups

	control group before		control group after		T-test	
	M	SD	M	SD	T	P
Scores	14.55	4.333	16.51	4.102	3.3	.5

** : $p < 0.05$.

The results (Table 2) showed that there were no statistically significant differences in the students' mean scores in learning English before and after the teaching. Students' scores were significantly higher at post-test ($M = 16.51$) compared with pre-test ($M = 14.55$), $p < .05$.

3.3 Differences between the experimental group and control group ad before teaching English in different ways

Means, standard deviations, and T-tests among pre-experimental and control groups were analyzed and presented in Table (3).

Table 3: Independent Samples Tests for pre-experimental and control groups

	Control group		Experimental group		T-test	
	M	SD	M	SD	T	P
Scores	14.55	4.333	15.98	4.333	-2.815	.4

******: $p < 0.01$.

The results (Table 3) showed that there were no statistically significant differences between the students' mean scores of the c group and control group before teaching English in different ways, scores were not significantly higher in the experimental group ($M = 15.98$) compared with the control group ($M = 14.55$), $p > .05$.

3.4 Differences between the experimental group and control group ad after teaching English in different ways

Means, standard deviations, and T-tests among post-experimental and control groups were analyzed and presented in Table (4).

Table 4: Independent Samples Tests for post-experimental and control groups

	Control group		Experimental group		T-test	
	M	SD	M	SD	T	P
Scores	16.51	4.102	18.83	3.390	-2.815	.006

******: $p < 0.01$.

The results (Table 4) showed that there were statistically significant differences between the students' mean scores of the experimental group and control group after six months of teaching English in different ways, scores were significantly higher in the experimental group ($M = 18.83$) compared with the control group ($M = 16.51$), $p < .05$.

5. Discussion

This study aimed to examine the effects of the Electronic Educational Cards (EECs) for Teaching English as a Second Language (ESL) in Kindergarten in Ma'an Governorate Southern Jordan, and the results showed that children in the experimental group compared to the control group demonstrated significant improvements in learning English as a Second Language. So, these findings supported our hypotheses. These results consistent partially with studeis (Azabdaftari & Mozaheb, 2012; Dizon & Tang, 2017; Kiliçkaya & Krajka, 2010) which indicated that the use of electronic cards is more effective in second language learning. Our study provides irrefutable empirical evidence that modern teaching methods should be encouraged and embraced for the betterment of early education students' learning. The fast-changing world demands that learning trends keep pace and better implement policies that are pertinent to this than at the very foundations of the Jordanian education system. Young children are especially adept at acquiring new skills and learning new languages because they are not set in their ways, and very little is cast in stone at this time in their lives. The speed with which things are done and trends make electronic tools a decidedly attractive option to learning as material and content can be easily updated to keep up with the times. Electronic Educational Cards are an easy and engaging way to keep the restless minds of young children engaged while imparting vital tools and lessons. These lessons will be required to thrive in the world when the sheltered throes of home send them out to make something of themselves. A prosperous population makes for a prosperous nation, and creating a

stable, reliable, and knowledgeable foundation is fundamental to furthering the achievement of these desirability.

It is recommended that the format and structure of implementing the electronic revolution in Jordan's early education sector be premised closely with that of the experimental group used in this study and rolled out throughout all the kindergartens in the Ma'an Governorate, and the entirety of the Hashemite Kingdom of Jordan. The authorities are recommended to identify and avail sufficient resources for this effort.

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