



## E- learning Translator Prototype for Iraqi Kids

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### Abstract

The official language of Iraq is Arabic. Many other languages are spoken by a variety of ethnic groups, most notably are Kurdish and Turkoman. The main aim of this study is to improve the unsatisfactory materials that currently available for teaching English for the Iraqi kids who speak Arabic, Kurdish and Turkoman.

This study objective is to develop an interactivity based prototype for children's who aged from 6-11 years old to educate them some of the English Language vocabulary by introducing word-to-word based online translator. The age 6-11 is an important time of intellectual and emotional development for children, and it is important to remember that even as they gain rudimentary reading skills, they still enjoy being read. The concept of multimedia technology with represented by audio and images used in interactive way.

The study includes two types' interview methods. A semi-structure interview used to gather the prototype requirements. In prototype evaluation a structured interview conducted based on IBM questions form which is designed for system usability evaluation.

### 1. Introduction

With technological advances, Information Technology has become a new medium that provides interactivity on new media. It affected the way we learn, work, and play such as web-based systems, multimedia software, online-encyclopedias, etc [7].

Nowadays, students and children are exposed to information in very different ways. In addition, the amount of this information is rapidly rising. For example, they can use educational online-systems for studying at their own place on their own computer [4]. The children demonstrated a great interest in using the technology and had little difficulty in adjusting to the new learning environment. Although many children were exposed to the technology for the first time, it was obvious that these children were ready for the technology [13].

This study dedicated to Iraqi children who aged from 6-11 years old. That is because children between 6-11 years should be permitted to explore the computer according to their own interests. They will often be happy to show and illustrate to us what they know, and what they can do on the computer without our help.

The term interactivity will be used. According to [12], he defined interactivity as one of the buzzwords

of common discussion of innovations such as two-way television, computer and audio conferencing, view data and videotext. This can be true if someone want to sell a new visualize device or just to pay more attention on that, call it "interactive". Studies conducted in this area have shown that the environments which appeal to more than one sensory organ positively affect the stability.

It shows that human beings can remember 20% of what they have only seen, 40% of what they have seen and heard, 75% of what they have seen, heard and done [9]. In a similar research [3], it has been revealed that human remember 10% of what they have read, 20% of what they have heard, 30% of what they have both seen and heard, 50% of what somebody has explained to them and 90% of what they have done themselves

#### 1.1 Problem statement:

Recently, as we know that English Language has an exceptional position in world. From here, came the importance to develop a prototype to assist the Iraqi children to learn the English Language. Furthermore, as it shown below in the literature reviews most of the common translation software are basically designed to be used by the adult. None of these systems are

focus on the English educations for Iraqi kids. The prototype will assist the Iraqi children who speak Arabic, Kurdish and Turkoman to learn English vocabulary in speedy, interactive and funny way. Moreover, [15] believes that the last two decades have witnessed rapidly changes in the English and Chinese interactive distance learning, a few studies have been conduct in E-learning area for the Russian, Korean and Arabic languages. In another words, Arab children don't have many online resources to help them learn this language.

### 1.2 Objectives:

The main objective of this study is to develop an Interactive English word to word translator for Iraqi kids who speak Arabic, Kurdish and Turkoman. Specifically, the system will assist the Iraqi kids to read, write and listen to the English vocabulary in attractive way.

The sub objectives of this study are:

**A.** To design the system using Unified Modeling Language (UML) notations.

**B.** To conduct structured interview to evaluate system usability satisfaction base on IBM questionnaire form.

### 1.3 Scope of the study:

The main goal of this study is to develop an Interactive web-based system and word-to-word translator for Iraqi kid's .It is intended to children between 6-11 years old.

The prototype developed using ASP.NET technology, Visual Web Developer 2008 as an Integrated Development Environment (IDE). As any web based system, it involve client side execution languages like (HTML, CSS) and Server side executing languages like Active Server Page (ASP) and Data Base Management System DBMS represented by SQL Server which is the default integrated DBMS for Microsoft Visual Studio. Figure (1) shows the mostly important languages that are used in developing any web-based system.

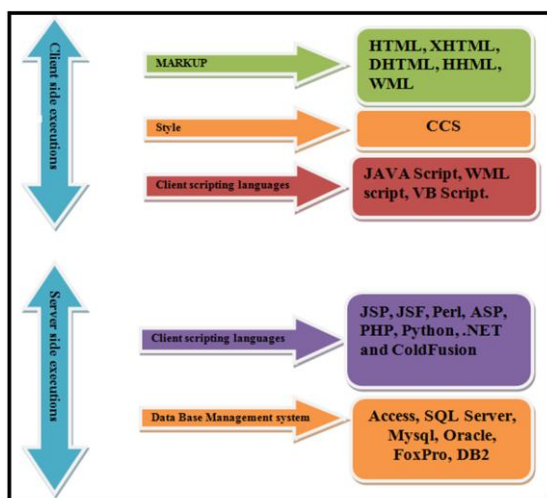


Figure (1): Web base system languages

## 2. Literature review

### 2.1 Web-based learning system

The web-based learning systems have been expected to be learner centered educational systems which provide learners with high degree of freedom for learning environment. The goal is to provide a framework for understanding the application of e-learning in education [5]. The current stage of distance education is characterized by two-way interactive real-time capabilities of audio and video, desktop conferencing and video available on demand. E-learning is also known as distance education, online learning, virtual classes, interactive learning using multimedia supports and Web-based education in the literature [1].

With the technology available today, learning is possible even if the student lives across the country far away from the school. E-learning is about a broad and deep topic [11].

This is especially important considering some of the hype surrounding e-learning fuelled by strong commercial and political agendas. Basically, e-learning comes down to:

**A.** Understanding how education works

**B.** Understanding the role and value of content in teaching and learning.

### 2.2 English-Arabic translation and learning software's

There are many desktop Arabic-English word-to-word translators like Golden Al-Wafi translator and Al-kafe translator developed by ATA software technology ([www.atasoftware.com](http://www.atasoftware.com)). Sakhr Microsoft Company, for example, offers Learn Arabic for non-Arabic speakers, a course for beginners, and Letters and Numbers for children but it's also a desktop application. Moreover, there are short courses available online for adults like Arabic Now! 8.0. Learn Arabic in Two Hours is a short course teaching vocabulary through association, e.g. to learn the Arabic words baTTa 'duck' and samaka 'fish', the learner has to associate them with the English words 'butter' and 'smack'. Another multimedia course is called Fun with Arabic by Naglaa Ghali, containing interactive lessons covering the alphabet, basic grammar, and short phrases. It focuses on Standard Arabic with occasional reference to Egyptian.

None of the above desktop and web-based systems developed to assist the Iraqi kids who speak in Arabic, Kurdish and Turkoman in understand and memorized English vocabulary. The developed system will assist the Iraqi children to learn English vocabulary in speedy, interactive and funny way.

### 2.3 Multimedia:

Multimedia is a combination of various elements, such as text, graphic art, animation, video, and sound [14]. Moreover, with the demand increasing tremendously for the supports multimedia and the WWW supports through the past few years, for example in e-learning, business, traveling, etc, these elements have become important part of the multimedia [8].

Multimedia was used in 1965 to describe the “exploding plastic inevitable”, a performance that combined live rock music, cinema, experimental lighting and performance art. In the late 1970s, multimedia was used to describe presentations consisting of multi-projector slide shows timed to an audio track. In the 1990s it took on its current meaning [6].

### 3. Methodology

The developing of interactive E-learning application like any other system involves multiple steps. The used methodology in our system, is System Development Research Methodology (SDRM) or sometimes called "Improvement Research" Developed by [10]. Figure (2) show the adapted methodology which consists of five major phases (steps) and we explain each SDRM in the following subsections.

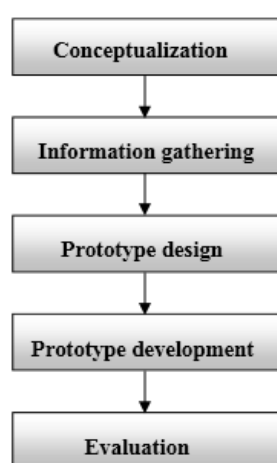


Figure (2): System Development Research Methodology (SDRM) [9]

#### 3.1 Conceptualization:

The process starts with an "idea" or better described as "the vision" which is the conceptual starting point. The starting point is ironically the visualization of the ending point.

The object of this phase is defining the idea and determines the problem definition of this study that we have mentioned in the problem statement. After that, continues in designing the research in a way that the needed data can be gathered and analyzed to achieve the project objectives.

#### 3.2 Information Gathering:

There are many techniques can be used to gather the system requirements. According to [6], gathering of information could be done through direct interviews. In this study the requirements gathering process made via semi-structured interview with two lecturer at Alsqar primary school/ salahidden as it shown in appendix A. The analysis of the information in conjunction with inputs from the literature survey from the available sources such as kids' books,

proceedings, journals, white papers, thesis, CD ROMs and news are reviewed in order to gather and correct the relevant information that we need in this study.

#### 3.3 Prototype Design:

In the prototype design process, UML (Unified Modeling language) notations have been used. UML is the de facto standard for modeling objects. UML is a graphical notation for drawing diagrams of software concepts. It can be used to draw diagrams of a problem domain, a draft design of software or a software application.

In this study, we used case notation to describe the system functionality and the interaction between the users (actors) and these functions. The Activity Diagram used to describe the flow of the system process. Finally, Class Diagram represents the classes and the objects within a model form. Appendix (B)

#### 3.4 Prototype Development:

This step involves the development of the prototype based on the gathered requirements. Figure (3), show system navigation flow.

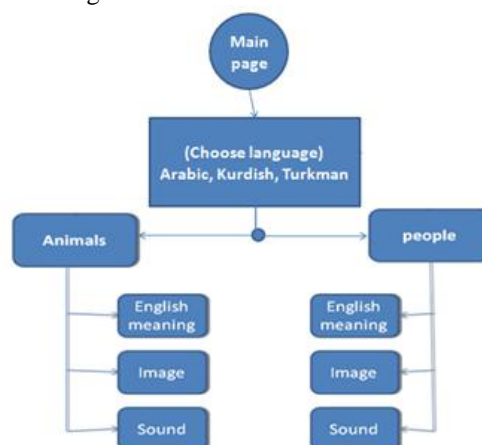


Figure (3): The flow of the prototype pages

The user can start the browsing process by key-in Arabic English Translator URL. At the main page, the user have to choose one of the languages (Arabic, Kurdish and Turkoman). the user can choose the options animal or people.

For example, after pressing the Animals button, the page in right side, figure (4) will appear. The user has to key-in the correct Arabic word that he/she want to translate it to English and press the (ترجم) button, if the word is exist the system shall display the image of the word that we want to translate it. If the word is not exist the system will display an error message (Sorry, This word is not exist. Try to check the grammar and try again). To listen to the word sound, the user has to press the (سماع).



Figure (4): To the left Arabic translator main page to the left, to the right animal page

### 3.5 Evaluation:

The interview technique can be divided into structured and semi-structured interviews. The semi-structured interview used when the researchers or interviewers are free to manage the interview questions and answers, in our study the questions are based on IBM usability satisfaction questionnaires form.

The interview held at Alsqar primary school/ salahidden. A child's aged from 6 to 11 chosen to test the system usability satisfaction. The interview based on one by one student interview. We choose the interview place where the children feel safe, comfortable and free to speak openly. During the interview time, the interviewer needs to closely observe children's behavior such as sighing, smiling, reusing software, etc.

The class lecturer assists us in explaining the benefits and the usefulness of using this system to the students learning process.

The children's were very excited to use the system and they are very eager to show us their capabilities to use the computer and internet. Most of the children's are familiar with the computer even though two of the students were scare to use the system for the first time, the lecturer encourages them to use the system and answer the interviewer questions.

The questions divided into 9 questions, each of the questions explained comprehensively by the lecturer and the interviewer. Table(1) shows interview coding.

**YES:** means that the students agree the question.

**NO:** means that they disagree the question.

**Q:** question , **S:** student.

Table (1): Structured interview coding

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
S1	YES	YES	YES	YES	YES	YES	YES	YES	NO
S2	YES	YES	YES	YES	YES	YES	NO	YES	YES
S3	YES	YES	YES	YES	NO	YES	YES	NO	YES
S4	YES	YES	YES	YES	YES	YES	YES	YES	YES
S5	YES	YES	YES	NO	YES	YES	YES	YES	YES
S6	YES	YES	YES	YES	YES	YES	YES	NO	YES
S7	YES	YES	YES	YES	YES	NO	YES	YES	YES

However, there are three of the questions agreed by the entire students (Q1: Overall, I am satisfied with how easy it is to use this system. Q2: It was simple to use this system. Q3: I can effectively understand the tasks of this system.).

The entire student agree that the system easy to use. They have to key in the word and press (translate), to get the selected word translator. It was very easy to them to understand the system main functions.

Six of the student agrees that they are able to browse the system quickly (Q4). One of the student said that the system is slow and not that fast.

Most of the student feel comfortable to use the system and they agree that the system will help them and easy to learn how its work.

Two of the student they do not really like the interface, thus we recommend to use more interactivity tools like using Adobe Flash player tools to make the interface more user friendly.



Finally, most of the students agree that they are satisfying with how it is easy to use the system and they really like it.

#### 4. Significance of study

1. The Iraqi kid's especially primary school children get profit from using this prototype in helping them to learn English language faster and more effectively.
2. The interactive system based on the affectivity of multimedia (sound and images) and interactivity technology.
3. Improve the unsatisfactory materials that currently available in teaching English for the Iraqi kids.
4. The translator is very important because it will facilitate and help the children to memorize the vocabularies especially when they do it with pictures and sound the pronunciations will be easier to memorize.
5. The accessibility from anywhere in anytime to the required information if there is internet access.

#### 5. Conclusion

The study present an applicable web-based system to Iraqi children (Arabic, Kurdish and Turkoman) who aged from 6 to 11 years old to help them

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understanding English language vocabulary with much fun by using multimedia concept (images and sound).

The children in this age should be permitted to explore the computer according to their own interests. Moreover, they will happy to show and illustrate to us what they know, and what they can do on the computer without our help.

The analysis of the information in conjunction with inputs from the literature survey from the available sources such as kids' books, proceedings, journals, white papers, thesis, news and CD ROMs are reviewed in order to gather and correct the relevant information that is needed in this study. Moreover, two semi-structure interviews are conducted. The first one used in the requirement gathering process, and the second applied to evaluate the developed prototype in the term of usability satisfaction.

The system usability satisfaction show that is very easy to children understands the system main functions. Finally, most of the students agree that they are satisfying with how it is easy to use the system and they really like it.

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## نموذج نظام ترجمة الكتروني تعليمي للاطفال العراقيين

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### الملخص

ان اللغة الاولى الرسمية في العراق هي اللغة العربية، مع ذلك هناك الكثير من اللغات مستخدمة من قبل قوميات وتجمعات اخرى اهمها الكردية والتركمانية. ان الهدف الرئيسي من هذه الدراسة هو تحسين المصادر التعليمية الموجودة في الساحة التعليمية والخاصة بتعليم اللغة الانكليزية للاطفال العراقيين الذين يتكلمون اللغة العربية، الكردية والتركمانية. تقوم الدراسة بتطوير نموذج نظام تفاعلي للاطفال الذين تتراوح اعمارهم بين سن السادسة وحتى سن الحادية عشر، حيث يساهم النموذج على مساعدة المدرس في تعليم الطالب بعض كلمات اللغة الانكليزية بطريقة تفاعلية تضمن القراءة الصحية والنطق السليم. ان الاعمار التي تتراوح ما بين (6-11) سنة يكون الاطفال فيها اكثر تذكر للصورة والصوت مما هو عليه في حال عملية القراءة التقليدية، كما ان العملية التعليمية تكون اكثر متعة للطالب. في هذه الدراسة تم الاعتماد على نموذجين من المقابلات. الاولى هي مقابلة غير مهيكلة مع معلمين من مدرسة الصقور الابتدائية في صلاح الدين الغرض منها جمع البيانات والتأكد من ان الدراسة مبنية على اساس تطبيقية وتربوية. المقابلة الثانية اجريت مع سبع طلاب من نفس المدرسة وكانت المقابلة مهيكلة كون الاسئلة كانت معدة مسبقا وهي معتمدة على نموذج اي بي ام الخاص بتقييم الاستخدام للبرامج التطبيقية.