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*Using an Artificial Intelligence Application for
Developing Primary School Pupils' Oral Language
Skills*

BY

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Abstract

The present research aimed at investigating the effectiveness of using an artificial intelligence application on developing oral Language skills (listening comprehension and speaking skills) of the sixth year primary school pupils. The research followed the quasi experimental research design of two groups, whereas (20) pupils were selected to represent the experimental group and (20) to the control group. The materials and instruments of the research were: a checklist of the oral language skills, a listening comprehension skills test, a speaking skills test, a teacher's guide and a student's activity book based on using the artificial intelligence application. The result of the present research showed the statistically significant impact of integrating the artificial intelligence application on developing listening comprehension and speaking skills.

Keywords: Artificial intelligence, Oral Language skills

استخدام تطبيق الذكاء الاصطناعي لتنمية المهارات اللغوية الشفهية

لدى تلاميذ المرحلة الابتدائية

إعداد:

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المستخلص

هدف البحث الحالي إلى التعرف على فعالية استخدام تطبيق الذكاء الاصطناعي لتنمية المهارات اللغوية الشفهية (الإستماع – التحدث) لدى تلاميذ الصف السادس الإبتدائي. اتبعت الدراسة التصميم شبه التجريبي ذو المجموعتين، حيث تم اختيار (20) تلميذاً لتمثيل المجموعة التجريبية و (20) للمجموعة الضابطة. وتضمنت مواد و أدوات البحث: قائمة بمهارات اللغة الشفهية (الإستماع – التحدث)، واختبار مهارات الإستماع، واختبار مهارات التحدث، كما تضمن أيضاً دليل المعلم وكتاب نشاط التلميذ القائمين على استخدام تطبيق الذكاء الاصطناعي. وقد أشارت نتائج البحث الى فعالية استخدام تطبيق الذكاء الاصطناعي لتنمية مهارات الإستماع و التحدث لدى عينة البحث.

الكلمات المفتاحية:

تطبيق الذكاء الاصطناعي، المهارات اللغوية الشفهية

Introduction

for decades in the EFL classroom, turned out to be insufficient in providing learners with proper opportunities to practice English language purposefully and communicatively. Su (2007: 27-40) explained the reasons stating that:

"this traditional teaching procedure decreases students' motivation and interest in learning English. Students are encouraged to identify a large number of individual words, idioms, and grammatical structures to enhance their language competence rather than use the language for real communicative purposes".

Chance (The primary function of language is interaction and communication while vocabulary and structures are important as tools for enhancing students' communicative competence. Generally, language arts: listening, speaking, reading and writing are like an interwoven texture and it is hard to determine precisely where it starts and where it ends. As a result, separation among language arts is unrealistic.

Listening is considered as one of the most essential skill for both communication and language learning. It is often used together with the speaking skill. It is not only a vital skill in language performance, but also a critical means of acquiring other language skills. It helps students to acquire good speaking patterns, and helps them to improve their pronunciation. Listening texts often provide excellent examples of spoken functions needed for effective communication. Acquiring good listening skills allows the listener to accumulate more information and effectively communicates with others. "Listening is the most frequently used skill in our daily life compared to the other three skills, 45% corresponds to listening, 30% to speaking, 16% for reading and 9% in writing" (Hedge, 2005). Additionally, El-Sagheer & Leviene (2002:4) stated "listening to comprehensible input can actually aid language acquisition. As such, listening is considered the channel through which language is naturally acquired".

Speaking is the means through which learners can communicate with each other to achieve certain goals or to express their opinions, intentions, hopes and viewpoints. Furthermore, it is the most frequently used language skill. El-Basel (2008:74) explained that "speaking skills

have been found a fundamental skill necessary for a person's success in life. Baker & Westrup (2003: 5) affirmed that "a student who can speak English well may have a greater chance for further education, of finding employment and gaining promotion". Celce-Murcia (2001: 103) mentioned that for most people "the ability to speak a language is synonymous with knowing that language since speech is the most basic means of human communication". Furthermore, prospective teachers of English should develop their speaking skills to be able to develop these skills once they become teachers of English at schools, because they will be involved in situations that require them to be well-trained in such important skills.

Various studies discussed the status quo of students' oral language skills in Egyptian schools. Abdullah (2008:46-47) nominated various difficulties that faced teachers as well as students in teaching and learning speaking in the English language classroom in Egypt. First of all; it was naturally difficult for students to speak in the foreign language they are learning. Second, the teaching conditions that students were involved in could impede the development of their speaking skills. Third, the teachers' methods of teaching could hinder the oral ability of their students. Fourth, students had passive attitudes towards English, particularly in Egypt. They were reluctant to participate in the speaking activities in the classroom. Fifth, there are psychological factors that may passively influence the students' performances in speaking.

Ibrahem (2018), Abd El-Gelil (2019), Abd El-Salheen (2019), Mahgoub (2019), and Sayed (2019) agreed that practicing the oral skills is either partially ignored or completely neglected. Teachers are not capable of providing the type of experience inside the school situation, which will stimulate thought and feelings as well as train the skills of listening and speaking. El-Hanafy (2016) concluded that, in past, listening has received less attention than the other language skills. This may be due to the following reasons:

- Teachers do not provide enough opportunities for students to listen ;

- Listening has been less emphasized in the English instructional program in Egypt compared with other skills as reading and writing;
- The English language teacher does not use educational technology for creating enriched learning opportunities for the pupils; and
- The teacher uses every skill in isolation, which makes it difficult for primary school pupils to learn English language easily.

Therefore, traditional lectures which have been the form of teaching 2005: 12) claimed that “the biggest mistake of the traditional education is to assume that all the students need the same information at the same place and moment”. Hence, there is a need to shift to new techniques, methods and approaches in EFL classrooms. Because of the disadvantages of the traditional teaching practices, there should be a new trend that changes the role of students in the process of learning. A need for a flexible system in the process of learning and teaching is required; a system that is able to remove the obstacles imposed by the traditional one, employ technological innovations that rely on the use of the internet as an intermediary to provide knowledge and pave the way for the students to learn.

Thus, the use of technological tools can give alternatives to traditional learning environment and offer the chance to use different communication possibilities for interaction. Teaching to students using technology applications, accommodates the demands of the new era and the revolution of technology in recent years. One of the newest technology innovations is artificial intelligence. Artificial Intelligence (AI) refers to the art of creating machines that are able to think and act like humans; or think and act reasonably (Russell & Norvig, 2010).

Artificial intelligence application meets the desire to give pupils more attention in large classes and the observation that they often enjoy talking to robots and are more relaxed about using a foreign language to speak with machines than with humans (Han, 2012). Moreover, AI has the potential to provide more, and more motivating, opportunities for pupils to engage in spoken interaction in the target language, as AI technology includes voice interaction, word error rate for voice-recognition systems which is now on par with humans” (Nordrum, 2017).

The use of artificial intelligence in classrooms is essential to develop listening and speaking, because its application allows fast developmental assessment and fast update; clearly, learning to listen to a foreign language must require listening practice. "In order to become proficient listeners, students need to be exposed to authentic and meaningful listening materials" (Kim, 2018). This view is supported while talking to robots; it gives learners correct models of language input either in spelling or pronunciation.

Firth & Wagner (2005) indicated that even though some L2 students are often required to speak in English in their social settings, they mostly enjoy listening especially when they are watching television or films. This observation emphasizes the use of artificial intelligence in EFL classroom.

Many studies dealt with artificial intelligence, such as: Barr & Feigenbaum (1981), Rich & Knight (1991), Corvalán (2017), Habeeb (2017), Mialhe (2018), and Ocaña-Fernandez (2019). Therefore, it is hoped that the present research would fill a gap in the literature and have potential implications for future uses of artificial intelligence application to promote various English oral language skills.

1. Context of the Problem

As a lecturer in the curriculum and instructions department (TEFL) at Hurghada Faculty of Education, the researcher observed the poor performance of sixth year primary school pupils while practicing the oral language skills. The following points were observed:

1. Sixth year primary school pupils were unable to communicate orally in English appropriately. They hardly developed or maintained a meaningful dialogue. Their oral performance lacked word order and fluency. When they tried to respond to their teacher's speech or questions, they just used non-verbal gestures or they used one word or two at most as a response. They showed a little interest during the

oral activities, they used to avoid asking and answering questions out of shyness.

2. Sixth year primary school pupils had some problems in using English correctly either orally or in the written form when they are required to do so. The researcher used a semi structured interview with a sample of seventy sixth year primary school pupils to decide the problems and difficulties encountered by them, that revealed:
 - Most of the lessons were presented as reading lessons, even the listening activities which require playing a cassette recorder. They were also read by the teacher from the textbook.
 - Introducing the new vocabulary and language items was usually done either by translating them into the mother tongue or by using pictures in the textbook.
 - Repetition techniques were very commonly used in practicing the activities of the textbook. The only variation of such techniques was substituting names, places and numbers in the examples of the textbook.
 - For saving time, most of the activities were conducted individually although they should be conducted in groups. When certain activities were conducted in pairs, the teacher was a partner for a long time till other students get used to the task.
 - Correcting errors and mistakes of the pupils was immediate and direct by using the repetition of the correct form.
 - The board and the textbook were the only tools of teaching although the topics of the units were varied.
 - Some of the activities in the students' book and the workbook were left for the pupils as home assignments.
 - Questions of the textbook were functioned as a mechanical means of rehearsing and memorizing the structures and vocabulary. Questioning was managed according to students' seats, and when questioning becomes predictable, students paid attention only when it was their turn to answer.

- Pupils' chances to get out of their desks were very rare. They seldom get out writing on the board as it was the job of the teacher.
- In the tasks that require acting or playing certain roles as: a mother, a postman and a doctor, pupils just read dialogues mechanically from their textbooks. The focus of such activities was very confined to repeating vocabulary items as much as possible.
- Most of the activities were managed and conducted by the teacher. Some pupils were active while others unfortunately seem to be uninvolved.
- Giving instructions, explaining the task and classroom management were done in the mother tongue. So, the pupils' exposure to the target English language was very limited.
- The control class was following some routines represented in "opening the textbook", "explaining new words", "reading aloud" instead of "playing the tape recorder", and "asking/answering questions".

Based on the previous difficulties and problems that hinder pupils' development of oral language skills, accordingly, the present research used an artificial intelligence application for developing oral English language skills of sixth year primary school pupils.

3. Objectives of the research

The present research aimed to:

1. Investigate the effectiveness of using an artificial intelligence application for developing listening skills of sixth year primary school pupils.
2. Investigate the effectiveness of using an artificial intelligence application for developing speaking skills of sixth year primary school pupils.

4. Questions of the research

The present research attempted to answer the following major question:

What is the effectiveness of using an artificial intelligence application for developing oral language skills of sixth year primary school pupils?

This major question branched out into the following sub questions:

1. What is the effectiveness of using an artificial intelligence application for developing listening skills of sixth year primary school pupils?
2. What is the effectiveness of using an artificial intelligence application for developing speaking skills of sixth year primary school pupils?

5. Hypotheses of the research

The present research tested the following main hypotheses:

- There is a statistically significant difference between the mean scores of the experimental group in the pre/post tests of the oral language skills favoring the posttest.
 1. There is a statistically significant difference between the mean scores of the experimental group in the pre/post tests of some listening comprehension skills favoring the posttest.
 2. There is a statistically significant difference between the mean scores of the experimental group in the pre/post tests of some speaking skills favoring the posttest.
- There is a statistically significant difference between the mean scores of the experimental and the control groups in the pre/post tests of the oral language skills favoring the experimental group.
 1. There is a statistically significant difference between the mean scores of the experimental and the control groups in the post test of some listening comprehension skills favoring the experimental group.
 2. There is a statistically significant difference between the mean scores of the experimental and the control groups in the post test of some speaking skills favoring the experimental group.

6. Significance of the research

The research was supposed to be significant for:

1. Sixth year primary school pupils: as the active learning strategies are supposed to improve EFL pupils' oral language skills.
2. Teachers: as it may improve teaching methodology. It may also develop their awareness of the benefits of artificial intelligence and that of technology as a supporting tool for improving language skills.
3. Decision makers in the education field: as it may pay their attention to design valuable activities based on artificial intelligence which can promote the positive perceptions and attitudes towards EFL learning.
4. Course designers: as it may help them to consider artificial intelligence as an appropriate tool while designing EFL syllabus.
5. Researchers: as it may contribute in modifying and strengthen theories that focus on new technology tool and its advantages in EFL classrooms. It may also serve as a supporting document for further study in the area of EFL researches.

7. Delimitations of the research

The research was delimited to:

1. A sample of twenty sixth year primary school pupils because they need to develop listening and speaking skills , as this stage precedes more complicated one and need the pupils to be prepared for the prep stage.
2. The following oral language skills:
 - Listening comprehension
 - Speaking(Both listening and speaking skills are important in the primary stage, most of the activities are oral).
3. Google assistant application of artificial intelligence as this application has many benefits, through this application, students could communicate orally with the robot using simple structures, it is free

and easy to be downloaded. Students can score their notes and listen to its pronunciation.

4. The first three units of English textbook "Time for English (6)".

8. **Materials and instruments of the research**

The researcher designed and used the following:

1. A checklist of the oral language skills.
2. A listening comprehension skills test.
3. A speaking skills test.
4. A teacher's guide based on using the artificial intelligence application.
5. A pupil's activity book based on using the artificial intelligence application.

9. **Definitions of terms**

Artificial intelligence

is defined procedurally as the ability of a computer-controlled robot to conduct human activities and participate in oral interaction with humans.

- **Listening comprehension skills**

is defined procedurally as the abilities that pupils use in receiving and attending to sounds, interpreting the message, remembering it and storing it for giving response later.

- **Speaking skills**

is defined procedurally as the abilities that pupils use to express their ideas, perceptions and their experiences through words to share with others.

10. **Review of literature**

10.1. **Artificial intelligence**

It is a broad field that is used in many disciplines such as computer science, statistics, linguistics, psychology, and decision science. It is based mainly on getting a computer to replace human intelligence in assigned tasks. Artificial intelligence begins to be seen as algorithmic development or big data analytics. Thus, artificial intelligence could be viewed as "the overarching rubric which encompasses machine learning, which further encompasses deep learning". Rich & Knight (1991:3)

stated that “artificial intelligence (AI) is the study of how to make computers do things which, at the moment, people do better”.

Artificial intelligence refers to the way of simulating the intelligence capabilities of the human brain (Badaró, Ibañez, & Agüero, 2013). It is also assumed that AI is a part of the computer science that deals with the design of intelligent systems, i.e. systems those exhibit characteristics that we associate with intelligence in human behaviors. Mariño & Primorac (2016: 232) further stated that AI is conceived as a part of the computer science that provides “a diversity of methods, techniques and tools to create models and solve problems by simulating the behavior of the cognizant subjects”. From another perspective, AI can be understood, as described by Herrera & Muñoz (2017), as a science oriented towards the search for a profound understanding of intelligence, taking into account its delimitation, its possibilities and characterizing it as a challenge of enormous complexity.

Barrio (2018) has a different perspective on the differences between artificial and human intelligence that, the computer (regardless of its capacity or power) is limited to what he calls “signifiers” (logical programming language) with a memory capacity superior than human intelligence; but which, unlike the latter, is not capable of interpreting meanings. Therefore, the operational or computational intelligence of a computer is limited to the information processing, but does not possess the capacity to understand what they process.

Artificial intelligence can be described as the machines that could think autonomously and make intelligent decisions (Ginsenberg, 2012; Jackson, 2019). Although the idea of developing systems with intelligent behavior similar to humans existed since the ancient times, the concept of artificial intelligence was first mentioned in the 1950s and defined as a new research field (Ertel, 2017). Thus, the attention on the topic has led to several studies on artificial intelligence.

10.2. Benefits of artificial intelligence in education

Artificial intelligence is an approach that makes use of new innovative technologies in facilitating learning and facing the challenges result from unmotivated learning and the absence of expert teachers. Artificial intelligence could be leveraged to create a better student experience. For example, AI could assist students with tracking previously taken courses and help them in applying the information to their course-planning (Gardner, 2018).

According to Cheston & Stock (2017: 4), “conversational interfaces...let students interact with often complex services via messaging, something they do every day”. The interaction can go as deep as the knowledge of the student. According to Olawale (2019), “chatbots are great tools to communicate with customers”. With the feedback they collect through simple questions, customers can make improvements on their services/products; they can also get them to track patterns and behaviors by monitoring user data.” AI can help potential students with completing the steps to enrollment. Current students will benefit from AI through its power to send students reminders about important dates.

It is stated that the use of artificial intelligence in education would make learning more individual, provide effective learning experiences, help to discover students' abilities, develop their creativity and reduce teachers' workload (Bajaj & Sharma, 2018; Liang & Chen, 2018; Xue & Li, 2018). Besides, it is stated also that artificial intelligence could support students in need of special education, address the learners in different learning styles, analyze the learners as a learning coach, make the learning process more efficient, and assist them in making career plans as a guidance consultant (Catlin & Blamires, 2019; Mu, 2019). The above-mentioned studies mainly focused on the support of education/instruction by artificial intelligence systems in addition to scrutinizing artificial intelligence systems based on different approaches in education.

The artificial intelligence-based formats promise a very substantial improvement in education for all the different levels, with an unprecedented qualitative improvement: to provide the students with an accurate personalization of their learning according to their requirements, managing to integrate the different forms of human interaction and information and communications technologies (Ocaña-Fernandez, Valenzuela-Fernandez, & GarroAburto, 2019).

10.3. Artificial intelligence in language learning

Artificial intelligence (AI) with a written or oral interface is supposed to make learning a foreign language easier in the future. Applications such as Siri (Apple) and Galaxy (Samsung), Google assistant could create a real interactive environment for language learning. It therefore seems natural to take advantage of innovative technologies in foreign language teaching too. Generally speaking, one of the most important things for language learning, is interaction (Yero, 2002). Accordingly, AI can provide or enrich language learning opportunities and various activities can be designed to integrate AI application in teaching process to access oral practices in EFL classrooms.

AI is not only used to give a verbal command to one's smartphone to play a particular playlist, but also features in far more complex scenarios such as online games and interactive toys with a language interface, and as virtual tutors in e-learning environments (such as the virtual tutor Ed the Bot in SAP learning software, "Robin" in Google assistants). They are able to make learning possible anywhere and at anytime (Goda, 2014). Studies into the efficacy of Chatbots as language learning tools have demonstrated its applicability and validity (Fryer & Carpenter, 2006; Coniam, 2014; Goda, 2014).

Lotze (2019) explained the most technical language forms of AI:

1. The conventional graphical user interface (+ speech recognition): language learners click their way through digital exercises that are highly reminiscent of those contained in traditional textbooks. The drag-and-drop function is used to match words with pictures or to fill the gaps in cloze texts. Strictly speaking, such learning scenarios do not even fall within the scope of AI research because they are based on a conventional desktop environment.

2. Some of the applications are supplemented by language recognition software that is able to recognize spoken contributions or not, if they happen to be mispronounced. Naturally, this can be no substitute for phonetics lessons given that the technical evaluation of audio data is based on entirely different criteria, such as assessing the probability of sound strings. Thus language recognition can be influenced by unclear pronunciation, whispering or background noise, or intentionally deceived by learners. Furthermore, the applications give no individual feedback about articulation. If learners simply receive an error message in response to repeated oral input, they are more likely to become frustrated than to improve their pronunciation.
3. Language interface with dialogue function: this is an attempt to simulate natural verbal interaction with a virtual tutor that can be described in a narrower sense as AI. These dialogue systems follow the principle of a simple chatbot that helps the learner to communicate intuitively in natural language. Learners are free to make oral contributions that the technology analyses for the presence of predefined keywords. If the right keyword is used, an appropriate predefined response from the artificial tutor is selected and output. The language input and output can be written or verbal.
4. Virtual learning environments with pedagogical agent systems: dialogue systems featuring complex avatars capable even of gestures and facial expressions (embodiment) represent the most advanced development. Outside the scripted application areas, dialogues with chatbots and agent systems are erratic, incoherent and prone to error. They cannot serve as a role model for foreign language learners.

Fryer & Carpenter (2006); Goda (2014); Morton & Jack (2007); and Parker (2007) mentioned the merits of AI in EFL classroom as it can be practiced alone. Quick response: AI responds quickly and reliably to questions. Ease of understanding; as it replies in simple, easy English. Smoothness of interaction: one question, one answer no deviating. Enjoyable/interesting: enjoyable/fun/interesting. Exposure to varied

responses: exposure to new vocabulary and phrases. Speech capture useful: speech-to-text was interesting and useful. Accountability (error detection): valuable to English learning (checking pronunciation and spelling via the speech to text functions).

Despite the great importance and the educational benefits of using artificial intelligence in teaching and learning many subjects, scarce studies on the impact of artificial intelligence in EFL classrooms. Underwood (2017) conducted a study to identify ways to incorporate voice-driven artificial intelligence (AI) effectively in classroom language learning. This nine month teacher-led design research study employed technology probes (Amazon's Alexa, Apple's Siri, Google voice search) and co-design methods with a class of primary age English as a Foreign Language (EFL) students to explore and develop ideas for classroom activities using AI language assistants. Speaking to AI assistants was considered highly engaging by all students. Students were observed to speak more English when using AI assistants in group work, and to spontaneously reformulate, self-correct, and joyfully and playfully persist with speaking English in their attempts to get AI assistants to do what they wanted them to do.

Haseski (2019) conducted a study to determine the views of pre-service EFL teachers on artificial intelligence. It is a qualitative study; data were collected from 94 pre-service teachers at Manisa Celal Bayar University, Faculty of Education. Analyses demonstrated that pre-service teachers assigned different meanings to artificial intelligence, felt basically negative emotions for artificial intelligence, and did not want to live in a world ruled by artificial intelligence. Furthermore, it was found that pre-service teachers considered that artificial intelligence could have both several benefits and risks, and it might have both positive and negative effects on education.

Gallacher (2018) conducted a study to gain a better understanding of the merits and demerits of using chatbots for English study from the students' perspective. Japanese university students (N=253) conversed with human and artificially intelligent (AI) chatbot partners then

recorded their perceptions of these interactions via open-ended written feedback. This data was qualitatively analyzed. Results suggest that, in its current state, students perceive the chatbot used in this study as a novelty rather than a legitimate language-learning tool and that it lacks the richness of interaction they could achieve with their peers. Ultimately, it is argued that educators should be more critical of incorporating AI technology in the second/foreign language (L2) classroom before it is ready for use.

Yang (2007) conducted a study to show some instructional activities of using an artificial intelligence program, Lucy, especially in integrating oral practice and writing activities for beginning learners. The participants of this study were 42 third-year students (n=42) of five-year college in the Department of Applied Foreign Languages at one University of Science and Technology in central Taiwan. A questionnaire was used to get comments and ideas from students about their views on the use of Lucy after one semester's writing class. Results showed that all students agreed that Lucy attracted their attention in the first place. 38 out of 42 (90%) students showed excitement after talking to Lucy. The rest 4 students (10%) though that there are still defects for Lucy. They believed if users can have audio input and really "talk" to Lucy, users can improve their language skills more.

11. Listening comprehension

11.1. Listening comprehension as a process

Listening comprehension is considered by most language teaching methodologists as the "most fundamental and important skill" in language learning. Some of them regard it as the first among the four essential skills. Some others regard listening activities as "the best ways to teach pronunciation, because it familiarizes students with the sounds, features of pauses, stress, rhythm, and intonation, especially if the instructor can motivate them to give their full attention to the material" (Zaytoun, 1988:45).

Listening, as Stice & Bertrand (1994:257) stated, is "a receptive part of oral language; it is highly complex and trans-active. It is invisible, taking place in the mind of the listener; yet it is actively constructive in that listeners construct the rules by which they comprehend speech just

as readers figure the rules for making sense of written language". It can be said that listening comprehension is anything but a passive activity. It is an active, and complex process in which "the listener must discriminate between sounds, understand vocabulary and grammatical structures, interpret stress and intonation, retain what was gathered in all the above and interpret it within the immediate as well as the larger socio-culture context of utterance". Thus, the study of listening comprehension processes in second language learning focuses on "the role of individual linguistic units as well as the role of the listener's expectations, the situations and context, background knowledge and the topic. It, therefore, includes a bottom-up processing" (Vandergrift, 1999:16).

Although listening has not received systematic attention in language learning until the early 70s, it was basically viewed as a problem of aural recognition of linguistic structures (Rost, 1996: 27). Listening comprehension has become the cornerstone of many theories of Second Language Acquisition and the SLA literature is increasingly recognizing the centrality of listening comprehension. Feyten (1991: 174) stated that "more than 45% of most foreign language classroom total communication time is spent in listening while speaking takes 30%".

Underwood (1989:4) stressed the importance of effective listening comprehension as a vital component of learning process. She claimed that "if the students do not learn to listen effectively, they will be unable to take part in oral communication. Merely to hear what a speaker says is insufficient for communication to occur".

11.2. Listening comprehension skill and sub-skills

Teachers should improve and develop the students' listening skills and functions to master the characteristics of effective listening and put them into effect toward effective oral communication. Listening comprehension is assumed to consist of some basic skills and sub-skills. Various efforts have been made towards establishing taxonomies of listening comprehension skills. Coakley (1991: 12-13) classified listening comprehension skills into two categories: General listening skills that include skills such as detecting and remembering facts and details, selecting the main idea, summarizing and paraphrasing, making inferences and predicting what might come; and Critical listening skills that include identifying the purpose of speaker and message,

categorizing facts and opinions, and judging validity and adequacy of ideas and arguments.

According to Dunkel (1986:441), the language learner should develop certain listening skills such as predicting what the speakers is going to say and what the listening content will be about, ignoring and selecting information, taking notes, responding, comprehending the main ideas, and identifying the purposes of the speaker and the message.

Omaggio (1986: 126-127) gave a long, but a necessary, list of listening sub-skills. They involve the ability to:

- retain chunks of language for short periods.
- discriminate among the distinctive sounds of the target language.
- recognize the stress patterns of words.
- recognize the rhythmic structure of English.
- recognize the functions of stress and intonation to signal the information structure of utterances.
- identify words in stressed and unstressed positions.
- recognize reduced forms of words.
- distinguish word boundaries.
- recognize typical word order patterns in the target language.
- recognize vocabulary used in core conversational topics.
- detect key words.
- guess the meaning of words from content.
- recognize grammatical word classes (parts of speech).
- recognize major syntactic patterns and devices.
- recognize cohesive devices in spoken discourse.
- recognize elliptical forms of grammatical units and sentences.
- detect sentence constituents.
- distinguish between major and minor constituents.
- detect meanings expressed in different grammatical forms.
- recognize the communication functions of utterances according to situations, participants, goals.
- reconstruct or infer situations, goals, participants, procedures.
- predict outcomes from events.

- infer links and connections between events.
- distinguish between literal and implied meanings.
- identify and reconstruct topics and coherent structure from on going discourse involving two or more speakers.
- recognize markers of coherence in discourse and detect such relations as main ideas, supporting exemplification.
- process speech containing pauses, errors, corrections.
- process speech at different rates.
- make use of facial, para-linguistic and other clues to workout meanings.
- adjust listening strategies to different kinds of listener purposes and goals.
- signal comprehension, or lack of comprehension verbally, or non-verbally.

Although listening has been a relatively neglected skill in terms of research and how it is introduced to language students, it is now beginning to receive more attention. In the past few years, people have seen the publication of several major texts, both practical and theoretical, specifically dealing with listening skills. In conjunction with these publications, there is now a greater awareness among teachers that they have to help students to develop their listening skill, rather than rely on the skill to develop itself.

12. Speaking skill

While many language methodologists consider listening as the first skill that should be acquired, many others like Ur (1997: 44) stated that "of all the four skills, speaking seems to be the most important since people who know a language are said to be speakers of that language". So, it is important to give students as many opportunities as possible to speak the target language in the classroom. Through speech, students express their emotions; communicate their intentions and react to other human beings. Then, spoken language is a tool for man to communicate with.

Theories of communicative language teaching imply that language teachers must do more than just showing the students how language items are used and how to choose the suitable words to the suitable content. Yet, teaching of speaking skill makes heavy demands on the teacher more than the teaching of other language skills do. This is why many teachers are reluctant to teach it. To this point, as Thomas & Hawes (1994:13) indicated, "it is ironic that in the area of the skill in which it is expected enthusiastic interest of the students while facing problems".

Speaking is an interactive process of constructing meaning that involves producing, receiving and processing information (Burns & Joyce, 1997:13). Thus, the performance or production stage of the lesson should provide the students with the opportunity to use the language previously presented and practiced during the lesson in a communicative context. Students should be encouraged to express their ideas, opinions, and feelings in discussions and debates. The important element of fun can be injected into this stage with games, stories and simulated role play. Genuine questions that encourage student-talk are used in information gap tasks (Rudder, 1999:24).

12.1. Speaking skill and sub-skills

Omaggio (1986: 434-435) described speaking as "the speakers' ability to convey and communicate meaning to other people, and to satisfy the requirements of everyday and daily-life situations, or the speaker's ability to initiate, sustain and bring to closure a wide variety of communicative tasks, or to narrate and describe things, persons, expression, or to ask and answer questions".

Collie & Slater (1992: 4-5) and Omaggio (1986: 178-179) stressed essential speaking sub-skills needed by FL students as follows:

- Asking for and giving information.
- Making introductions and greeting people.
- Describing (people, places, feeling, clothes, objects, etc.)
- Expressing likes and dislikes.
- Asking for and giving information.
- Narrating or telling a story.
- Asking questions.
- Expressing preferences.
- Expressing certainty and uncertainty.
- Negotiation.

- Asking for repetition.
- Complaining.
- Apologizing.
- Arguing and defending.
- Making / accepting / rejecting suggestions.
- Making orders and requests.
- Asking for and giving instructions and directions.
- Deciding / agreeing / disagreeing.
- Giving reasons and explanation.
- Discussing ideas / rejecting or defending ideas.
- Summarizing and reporting.
- Interviewing.
- Giving invitations.
- Exchanging information.
- Exchanging ideas / giving and assessing advice.

13. Integrating listening and speaking

By reviewing related literature, it is obvious that there is a clear and strong relationship between listening and speaking. Anderson & Lynch (1988:15-18) commented that if some language course is designed to practice and develop one skill in isolation, it would consequently leave a considerable gap in the curriculum. They add that even if one skill (i.e. speaking) is intended to be developed, teachers should assess activities in which listening and speaking are linked because speaking results from the process of following and interpreting the listening input.

The nature of oral communication is identified by Byrne (1977:18) as a "two-way process between speaker and listener involving the productive skill of speaking and the receptive skill of understanding". He differentiates between listener and speaker's roles in the oral process saying that "both speaker and listener have a positive function to perform: the speaker has to encode the message to be conveyed in appropriate language; while the listener has to decode the message".

The old saying "children should be seen and not heard" should be put in rest. Outside the classroom, listening is used twice as often as speaking, which in turn is used twice as much as reading and writing (Rivers, 1981:34). Inside the classroom, speaking and listening are the most often used skills (Brown, 1994:26). They are recognized as critical for functioning in an English language context, both by teachers and by students. In short, the venue for speaking can and should be integrated with the teaching of other language skills, especially listening because speaking is the skill that seems to be most easily integrated into the teaching of each of the other basic skills. Through having many opportunities to talk as well as to listen to teachers and peers, children gain language skills so valuable for their success in reading and writing.

To be able to interpret the relationship between listening comprehension and speaking, a deeper understanding of language processing skills is indispensable. Teachers of foreign languages also need a good understanding of the nature and processes of comprehension so that they can give their students the experience of success when trying to cope with unfamiliar spoken language. Developing effective listening skills could well lead, not only to improved listening, but also better speaking, for foreign students as well as for native speakers. (Anderson & Lynch 1988:20).

Design o the Experiment

The present research used the quasi experimental design of a pre/post control and experimental groups. The two groups were pre-tested using a listening comprehension test and a speaking test. Then the experimental group was instructed using the artificial intelligence application while the control group was instructed to use the conventional procedures mentioned in the "Teacher's Guide" of Time for English (6). The experiment lasted for six weeks, a class period for two days a week.

1. Materials and instruments of the research

The researcher designed and used the following:

- The checklist of the oral language skills.
- The listening comprehension test.
- The speaking test.
- The teacher's guide.
- The pupils' activity book.

1.1. Designing the pupils' activity book and teacher's guide

A. Selecting the experimental units:

The selected units were three units, from unit one to three in Time for English (6), in addition to one review. The selected units included (9) lessons that were built on varied oral activities and practices using artificial intelligence application, that aimed at developing and fostering listening and speaking skills. Such number of lessons were thought to be suitable to give a sufficient chance for dealing with the targeted skills.

B. Conducting content analysis

Content analysis was a very important step before building the tools of the research. It helped in giving objective, logical, and quantitative description of the targeted content.

Steps of conducting content analysis:

1. Specifying the main categories and the inventories of the analysis.
They were decided as follows:
 - Vocabulary items.
 - Grammatical items.
 - Communicative functions.
 - Phonological features.
2. Establishing the validity of the inventories. To assure the validity of the content analysis, it was submitted to a jury of language teachers and supervisors who reported the validity of the inventories.
3. Enumerating and measuring the frequencies of the inventories of the analysis, and then giving the ranks and weights.
4. Obtaining the reliability coefficient of the content analysis. To assure the reliability of the content analysis, the researcher analyzed the intended units twice by herself in a month at a breaking time. Coper formula was used to obtain the reliability coefficients.

Table (1)
Inter-rater Reliability of Content Analysis

Categories	1stAnalysis	2nd Analysis	Agreement coefficient	%
Vocabulary items	1049	1062	0.99	99
Grammatical items	925	952	0.97	97
Communicative functions	688	654	0.95	95
Phonological items	480	988	0.98	98
Total	3142	3156	0.99	99

C. Building the checklists of skills

To build the checklists of listening comprehension and speaking skills and sub-skills, the following steps were followed:

1. Reviewing literature on developing listening and speaking skills in order to identify the most appropriate skills for the intended subjects. E.g: Coakley (1991); Dunkel (1986); Omaggio (1986); Collie & Slater (1992).
2. Revising the results of the content analysis to specify the most related sub-skills.
3. Building the lists in their initial forms to be judged by a jury of teachers, supervisors and staff-members of TEFL.

D. Deciding the final forms of listening comprehension and speaking skills lists in the light of the jury comments and modifications.

E. Designing the teacher's guide in the light of artificial intelligence.

The teacher's guidebook presents the activities and practices that the pupils should handle during the period of the experiment. It is an adaptation of the first three units in Time for English (6), involving scenarios and tasks for using artificial intelligence application Google assistant". The following issues were put into consideration:

1. The book handled mainly listening and speaking activities and practices; the Time for English textbook focused mainly on listening and speaking activity. Accordingly, each new unit includes two main activities: conversation time and practice time.
2. Artificial intelligence application requires every pupil to have a smart phone and practice the prepared scenario on the application. Then pupils are asked to practice in groups and pairs similar

scenarios for more practices. Thus, the teaching procedures in each lesson include presentation, practice and evaluation.

3. The artificial intelligence application was downloaded on each smartphones available for the experiment. The researcher used Google Assistant application as it is an artificial intelligence-powered virtual assistant developed by Google that is primarily available on mobile and smart home devices. Unlike the company's previous virtual assistant, Google Now, the Google Assistant can engage in two-way conversations. (The future is AI, and Google just showed Apple how it's done Published October 5, (2016), retrieved July 5, (2018))
4. Pupils were trained previously to play the application and how to record and interact with the artificial person using prompts.
5. The book offers great opportunities for pupils to be creative as they are asked to produce more sentences and create dialogues with the artificial person in the application. This is done to guarantee pupils' participation and interaction.
6. Oral activities, individual and group (pair) work peer collaboration and evaluation, are supported through human-AI interaction and human - human interaction. Learners can think individually or collaboratively about the probing scenarios to chat orally in a dialog form. Once they finish the chatting, learners can practice their oral with their peers by repeating their dialogues. In the meantime, learners can correct or give comments to each other's oral pronunciation. Through this process, learners can also practice collaboration and evaluation.
7. Learners can start to chat with Robin (Google Assistant artificial application). They will need to type in the words they wrote from their writing, then wait for Lucy's reply. Instructors can request learners to record Robin's (Google Assistant artificial application) replies in order to compare with learners' original dialogue. This function is good when learners are unable or not ready to chat with people in real time. It can be a transition for learners. It motivates them to learn and reduce their anxiety.
8. Shadowing with Robin-while chatting with Robin, learners can speak aloud their words and, in the meantime, repeat what Lucy says. In this way, learners can practice their oral skills and know what reasonable responses are.

9. Once pupils open up, relax and start talking online with Robin, many of them benefit from the experience greatly, especially for those learners who are not ready to chat in the chat rooms. In addition to speaking, once pupils get used to write short dialogs, teachers can train them to write longer and more academic-like works.
10. The pupils' activity book was designed as a reference for the pupils to describe the procedures, directions, and guidelines during the implementation of the activities and practices mentioned in the pupil's book.

Both of the pupils' book and the teacher's guide were judged by a jury to judge the appropriateness of the tasks and activities, the suitability of the language for the subjects and the consistency of the content with the objectives. In the light of the jury's suggestions, some modifications were made in the arrangement of activities and they were all included in the final version of the book.

1.2. Designing the assessment tools

A. The listening comprehension test

To develop the listening comprehension test, the following steps were followed:

1. Reviewing literature related to measuring and assessing listening comprehension skills. The researcher benefited from the studies conducted by Abd El-Salam (1983), Wetstone & Friedlander (1974), Mohamed (1979), Eltoukhy (1999), and Aziz El-Din (2004).
2. Setting up the objectives of the test according to the overall objectives of the developed course.
3. Developing a table of specifications. The table specified the content and number of items, guaranteed that all the learning intended outcomes were measured, and assured that the numbers of questions were suitable for assessing all the objectives.
4. Selecting the types of the questions included in the test. The test included thirty questions of two types: multiple choice and true/false. The choice of such types of questions was due to their high degree of objectivity, their high indices of validity and reliability and their easiness of scoring.

5. Preparing the instructions of the test. They are easy, clear and short.
6. Scoring the test. The maximum test score is sixty marks; two marks per question.
7. Judging the initial form of the test. To determine the validity, appropriateness and suitability of the test, it was submitted to a jury of EFL teachers, supervisors and staff members who approved its validity and recommended changing some pictures as they weren't clear enough and rephrasing some instructions to suit students' linguistic level. In the light of the above mentioned modifications, the test was adapted and prepared for the pilot study.
8. Piloting the test: the test was piloted to a group of thirty six primary school pupils using the test-retest method with two weeks as a breaking time. Piloting the test helped determining the following:
 - **Test validity:**

According to Heaton (1988: 153) "if a test item looks right to other testers, teachers, and moderators, it can be described as having at least face validity". A jury of EFL teachers, inspectors, and staff members agreed that the test is valid and consistent with the objectives it aimed to measure.
 - **Test reliability:**

Pearson product moment correlation formula was used to compute the correlation between the scores obtained by the pupils on the two administrations of the listening comprehension test. Reliability coefficient is (0.82) which is acceptable by Heaton (1988) and Allam (2000).
 - **Difficulty and facility indices:**

Two formulas were used to obtain the difficulty and facility indices of each item in the test to identify the most difficult and the easiest items in order to be omitted or re-worded. The value of the difficulty indices was found to range from (0.33) to (0.57) while facility indices ranged from (0.43) to (0.67). It was found, according to Heaton (1988) & Allam (2000), that these values are very suitable and within the acceptable level.

- **Discrimination Index:**

The extreme groups' method was used to compute the discrimination index. It depended on comparing the top 27.5% of the pupils with the bottom 27.5% of them to find if the item discriminates between the able and the less able pupils. According to Heaton (1988) & Allam (2000), it was found that discrimination values were very suitable and within the acceptable level. They ranged from (0.25) to (0.88).

9. Preparing the final form of the test. In the light of the jury modifications and the results of the pilot study, the test was built in its final form to be used in the basic experiment.

B. The speaking test

To develop the speaking test, the following steps were followed:

1. Reviewing literature related to measuring and assessing speaking skills. Although tests of this nature are lacking, the present research benefited from some studies that aimed at developing the aural-oral skills, e. g: El-Gameel (1982), El-Matarawy (1998), Ahmed (2000), and Aziz El-Din (2004).
2. Specifying the objectives of the test. Objectives of the speaking test were determined according to the overall objectives of the developed course.
3. Developing a table of specifications. The table specified the content of the test. To assure that all the learning intended outcomes and objectives were measured and assessed, the table was built using the most suitable communicative functions by which the targeted speaking sub-skills can be represented.
4. Determining the number of questions. As the speaking test has a time-consuming nature and pupils' individual responses should be recorded to be scored later by two raters, the speaking test consists of twelve items. This number helped in conducting the test successfully within the available time and guaranteed the comprehensive representation of all elements.
5. Selecting type of questions. The test used twelve different communicative situations in the form of twelve questions. These situations have worked as stimuli that require certain oral responses. Nine questions were illustrated in pictures and required certain

structures and vocabulary, while the other three were open-ended situations that gave the pupils the chance to use their own language.

6. Preparing the instructions of the test. It was important to give the pupils complete and clear instructions before they began to answer. Instructions were written in a clear simple English language and they were discussed by the examiner before starting the test.
7. Judging the initial form of the test. To determine the validity, appropriateness, and suitability of the test, it was submitted to a jury of EFL teachers, supervisors and staff members who approved its suitability and clarity.
8. Scoring the speaking skills. The research prepared an assessment sheet of pupils' oral performance to provide a reliable rating scale for assessing pupils' oral responses in the speaking skills. The sheet was decided to include five levels of performance: Excellent, Very Good, Good, Fair, and Poor. It was considered that the five levels should be representative and distinguishing for pupils' different levels of performance.
9. Piloting the test. The test was piloted to a group of twenty pupils. It was administrated individually and pupils' responses were recorded to be scored later using the assessment sheet of performance. Piloting the test helped in determining the following:

(a). Test validity:

A jury of EFL teachers, inspectors, and staff members agreed that the test is valid and consistent with the objectives it aimed to measure.

(b). Test reliability:

Two raters-the researcher and an EFL teacher- scored pupils' responses using the assessment sheet. Pearson Product Moment Correlation formula was used to compute the correlation between the two groups of scores. The reliability coefficient of the sheet is (0.82).

10. Preparing the final form of the test. In the light of the jury approval and the results of the pilot study, the test was built in its final form to be used in the basic experiment.

Selecting the subject groups

Forty pupils were selected to represent the two groups; they were randomly assigned to the experimental and the control group. The participants in the experimental group were chosen according to the ability to use mobile phone. According to their school records, both groups had nearly the same age (10:11 years).

Other interfering variables were controlled as the school distributed the pupils between classes in a way that guarantees equal numbers of excellent, average and poor pupils.

Pre-testing

The two groups were tested before implementing the experiment using the listening comprehension test and the speaking test. "z" value was computed using "Mann Whitney Test" to ensure that there were no statistical significances between the experimental and control groups.

Table (2) shows, according to the results obtained on the pre-test of listening comprehension skills, that there was not any significant difference between means of scores obtained by the subjects of both the experimental and the control groups on the pre-test of the listening comprehension skills.

**Table (2)
Mann Whitney Test Analysis of Scores Obtained by the Control and Experimental Groups on Pre-Test of the Listening Comprehension Skills**

Group	N.	Mean ranks	Sum of ranks	"z" value	Sig
Control	20	19.95	399	0.29	Not
Experimental	20	21.05	421		

Maximum score = 60

Table (3) shows, according to the results obtained on the pre-test of speaking skills, that there was not any significant difference between means of scores obtained by the subjects of the both experimental and control group on the pre-test of the speaking skills.

**Table (3)
Mann Whitney Test Analysis of Scores Obtained by the Control and Experimental Groups on the Pre-Test of the Speaking Skills**

Group	N.	Mean ranks	Sum of ranks	"z" value	Sig
Control	20	18.20	364	1.252	Not
Experimental	20	22.80	456		

Maximum score = 75

Implementing the experiment

After assuring the equality of the two groups, the researcher attended all the EFL classes of the groups and recorded remarks, comments, observations and descriptions of the teaching process in the shape of diaries. These diaries were so helpful in editing and interpreting results and implications of the experiment.

Teaching the control group:

1. Teaching the units to the control group followed the steps and procedures mentioned in the teacher's guide of time for English (6) prepared by the Ministry of Education.
2. Most of the lessons were presented as reading lessons, even the listening activities which require playing a cassette recorder. They were also read by the teacher from the textbook.
3. Introducing the new vocabulary and language items was usually done either by translating them into the mother tongue or by using pictures in the textbook.
4. Repetition techniques were very commonly used in practicing the activities of the textbook. The only variation of such techniques was substituting names, places and numbers in the examples of the textbook.

Teaching the experimental group:

1. The researcher visited the school before starting the experiment to meet the teachers of the two classes and gave the materials for the teacher of the experimental group (The Teacher's Guide & The Pupil's Activity Book). The researcher explained in detail what the teacher had to do with students.
2. Enough copies of the "Pupil's Activity Book" were prepared to be distributed on a daily basis to the students.

Post-Testing

After implementing the experiment, post-testing was conducted with the two subject groups using the listening comprehension test and the speaking test. Certain calculations were carried out to identify the differences between the means of scores obtained by the subject groups on the post-testing of the two tests.

Results and Discussion

The present research aimed at investigating the effectiveness of using an artificial intelligence application on developing primary school pupils' oral language skills (listening comprehension and speaking skills).

Hypothesis One:

Hypothesis one predicted a statistically significant difference between the mean scores of the experimental group and those of the control group on the post test of the listening comprehension skills favoring the experimental group. Table (4) shows the subjects' scores and shows "z" value of subjects' mean scores.

Table (4)
Mann Whitney Test Analysis of Scores Obtained by the Control and Experimental Groups on the Post-Test of Listening Comprehension

Group	N.	Mean rank	Sum of ranks	"z" value	Sig
Control	20	10.53	210.50	5.408	0.01
Experiment	20	30.48	609.50		

Maximum score = 60

According to the data in table (4), "z" value is (5.408), which is significant at (0.01) level. This finding affirmed and supported hypothesis one and indicated that the experimental group surpassed the control group on the post-test of the listening comprehension skills. It is clear that using the artificial intelligence application has a strong positive effectiveness on developing the experimental group pupils' listening comprehension skills.

Hypothesis Two:

Hypothesis two predicted a statistically significant difference between the mean scores of the subjects of the experimental group and those of the control group on the post test of the speaking skills favoring the experimental group. Table (5) shows the subjects' scores and shows "z" value of subjects' mean scores.

Table (5)
Mann Whitney Test Analysis of Scores Obtained by the Control and Experimental Groups on the Post-Test of the Speaking Skills

Group	N.	Mean rank	Sum of rank	"z" value	sig
Control	20	10.50	210	5.417	0.01
Experiment	20	30.50	610		

Maximum score = 75

According to the data in table (5), "z" value is (5.417), which is significant at (0.01) level. This finding affirmed and supported hypothesis two and indicated that the experimental group surpassed the control group on the post-test of the speaking skills. It is clear that using the artificial intelligence application has a strong positive effectiveness on developing pupils' speaking skills.

Hypothesis three:

Hypothesis three predicted a statistically significant difference between the mean scores of the subject of the experimental group in the pre/posttest of the listening comprehension skills favoring the post testing. Table (6) shows the subject' scores and shows "z" value of subjects' mean scores.

**Table (6)
Wilcoxon Signed Ranks Test Analysis of Scores Obtained by the
Experimental Group in the Pre/Post Test of the listening Skills**

Administratic	N.	Mean rank	Sum of ranks	"z" value	Sig.
Negative rank	20	00	00	3.924	0.01
Positive rank		10.50	210		

Maximum score = 60

According to the data in table (6), "z" value is (3.924), which is significant at (0.01) level. This finding affirmed and supported hypothesis three and indicated that the experimental group surpassed in the post-test of the listening skills. It is clear that using the artificial intelligence application has a strong positive effectiveness on developing pupils' listening comprehension skills.

The results indicated the effectiveness of using the artificial intelligence application on developing listening comprehension skills is (1.28). According to Blake & Sleigh (1974:21), it is an acceptable degree of significance as it ranges from (1) to (2). Thus, using artificial intelligence in teaching EFL for sixth year primary school pupils was effective on developing their listening comprehension skills.

Hypothesis four:

Hypothesis four predicted a statistically significant difference between the mean scores of the subject of the experimental group in the pre/posttest of the speaking skills favoring the post testing. Table (7) shows the subject's scores and shows "z" value of the subject's mean scores.

Table (7)
Wilcoxon Signed Ranks Test Analysis of Scores Obtained by the
Experimental Group in the Pre Post-Test of the Speaking Skills

Administration	N.	Mean rank	Sum of ranks	"z" value	Sig
Negative ranks	20	00	00	3.928	0.01
Positive ranks		10.50	210		

Maximum score = 75

According to the data in table (6), "z" value is (3.928), which is significant at (0.01) level. This finding affirmed and supported hypothesis two and indicated that the experimental group surpassed in the post-test of the speaking skills. It is clear that using the artificial intelligence application has a strong positive effectiveness on developing pupils' speaking skills.

The results indicated the effectiveness of using artificial intelligence application on developing speaking skills is (1.24). According to Blake & Sleigh (1974:21), it is an acceptable degree of significance as it ranges from (1) to (2). Thus, using artificial intelligence in teaching EFL for sixth year primary school pupils was effective on developing their speaking skills. The present research aimed at investigating the effectiveness of using artificial intelligence application (Google assistant AI) on developing listening comprehension and speaking skills of sixth year primary school pupils. Statistical treatment of the results of the research revealed a highly remarkable improvement in listening comprehension and speaking skills of the subjects of the experimental group. Generally speaking, since all results were in favor of the experimental group, it can be concluded that using artificial intelligence application (Google assistant AI) is effective on developing the oral factors that contribute to the effectiveness of using artificial intelligence application on developing listening comprehension and speaking skills could be as follows:

- A. Listening and talking through an interaction with the artificial robot serve as a jump start for interactive conversation and

practice intensively the foreign language. Embedding the audio in a context with pedagogically pre/post real oral activities could also help motivate the learners to practice the target language and make it more comprehensible.

- B. The textbook also includes some other activities by using AI in class, such as role play.
- C. Teaching procedures contribute to enhance oral ability of the pupils due to the various opportunities to practice speaking and learn language. For example, speech recognition introduced by the application might be an excellent function for learners to practice speaking.
- D. With a wide variety of meaningful and interesting artificial intelligence, giving learners easier access to the tools can help them develop their listening and speaking skills. This AI technology can provide learners with more opportunities for interaction beyond the restriction from time and locations. It is hoped that language learning can be more fun and more efficient.
- E. Speaking to AI application engaged these pupils' natural curiosity, largely in order to explore what the AI was and was not capable of. For these pupils, asking questions, giving commands, and getting a response appears to have made learning English meaningful and often joyful, even when they were not understood they often tried again. Moreover, listening to native artificial application presents correct language input of utterances.

In accordance with Atwell (1999), Parker (2007), Coniam (2014), Fryer & Carpenter (2006), and Goda (2014), the results of the present research showed the greatest impact of integrating artificial intelligence application on developing primary school pupils' oral language skills (listening comprehension and speaking skills).

Recommendations

In the light of research results, it is recommended that:

- Listening and speaking skills in primary stage need a real care.
- Integrating technology into the process of teaching EFL is very important, as it creates a motivated environment for learning.
- Writing skills could be integrated with oral activities through artificial intelligence application.
- Artificial intelligence application provide good models for pupils' pronunciation.

References

- Abd El-Galil, M. (2019). The Effect of Using Reflective Listening on Developing EFL Adults' Oral Fluency. M.A. thesis, Faculty of Education, Ain Shams University.
- Abd El-Salam, A. (1983). Enhancing Listening Comprehension Through The Use of Total Physical Response Technique for First Year Children in The Basic Education Stage. M.A. thesis, FOE, Zagazig University.
- Abd El-Salheen, N. (2019). The Effectiveness of Using a Program Based on Communicative Situations in Developing the Aural-Oral Skills of First Year English Majors. M.A. thesis, Faculty of Education, Minia University.
- Abdullah, M. (2008). Multiple Ways to be Smart: Gardner's Theory of Multiple Intelligences and its Educational English Teaching and Oral Communication. Retrieved from: <http://www.eric.edu.org>, ED: 234238.
- Ahmed, A. (2000). the Evaluation of the Speaking Skills in the English Language Course for Students of the First Grade at Secondary Stage. M.A. thesis, Ain Shams University.
- Anderson, A. & Lynch, T. (1988). Listening. Oxford: Oxford University Press.
- Atwell, E. (1999). The language Machine: The Impact of Speech and Language Technologies on English Language Teaching. British Council.
- Aziz El-Din, R. (2004). The Effectiveness of a Program Using Creative Dramatics in Developing the Communicative Listening Comprehension and Speaking Skills of Egyptian Elementary Fourth Grader Learning English. M.A. thesis, FOE, Minia University.
- Badora. S., Ibez. L., & Agüero, M. (2013). Expert Systems: Fundamentals, Methodologies and Applications. J. Sci. Technol, 13, 349- 363.
- Bajaj, R., & Sharma, V. (2018). Smart Education with Artificial Intelligence Based Determination of Learning Styles. Procedia Computer Science, 132, 834-842.
- Barr, A., & Feigenbaum, E. (1981). The Handbook of Artificial Intelligence. Stanford, California: Heuris Tech Press.
- Barrio, J. (2018). Aspectos del inacabamiento humano. Observaciones desde la antropología de la educación. Recuperado de: <https://reunir.unir.net/bitstream/handle/123456789/7192/200-barrio.pdf?sequence=1&isAllowed=y>
- Blake, J. & Sleight, M. (1974). Mechanics of Ciliary Locomotion. Biol, Rev. 49(1), 85-125.

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- Brown, H. (1994). *Teaching by Principles: An Interactive Approach to Language Pedagogy*. Englewood Cliffs, NJ: Prentice Hall Regents.
- Burns, A. & Joyce, H. (1997). *Focus on Speaking*. Sydney: National Center for English Language Teaching and Research.
- Byrne, D. (1977). *Teaching Oral English*. London: Longman Group.
- Catlin, D., & Blamires, M. (2019). Designing Robots for Special Needs Education. *Technology, Knowledge and Learning*, 24(2), 291-313.
- Celce-Murcia, M. (2001). Language teaching approaches: an overview. In M. Celce-Murcia (Ed.), *Teaching English as a Second or Foreign Language* (3rd ed.). Boston: Heinle & Heinle.
- Chance, P. (2005). *Learning and Behavior: Active Learning* (5th ed). New York: Wadsworth Publishing.
- Cheston, A. & Stock, D. (2017, June 5). The AI-first Student Experience. *EDUCAUSE* review. Retrieved from <https://er.educause.edu/articles/2017/6/the-ai-first-student-experience>.
- Coakley, C. (1991). *Listening*. Dubuque: LA. Press
- Collie, J. & Slater, S. (1992). *Speaking*. Cambridge: Cambridge University Press.
- Coniam, D. (2014). The linguistic accuracy of chatbots: usability from an ESL perspective. *Text & Talk*, 34(5), 545-567.
- Corvalan, J. (2017). Inteligencia Artificial derechos humanos (Part I). *Diario DPI Cuántico, Diario Constitucionaly Derechos Humanos, Ciudad Autónoma de Buenos Aires*.
- Dunkel, P. (1986). Developing Listening Fluency in L2: Theoretical Principals and Pedagogical Consideration. *Modern Language Journal*. 70(2), 99-106.
- El-Hanafy, Y. (2016). The Effect of Using Music Lyrics Multimedia Based Program on Developing Some Listening comprehension and Speaking Skills for Primary School Pupils. M.A. thesis. Monoufya University.
- El-Basel, R. (2008). The Effectiveness of Multimedia Program Using Animation to Develop the Speaking Skill in English for the Pupils of the Primary Stage. M.A. thesis, Cairo University, Institute of Educational Studies.

- El-Gameel, S. (1982). Designing A Program To Develop Listening & Speaking Skills Among First Year Secondary School. M.A. thesis, Ain Shams University (CDELTA).
- El-Matarawy, A. (1998) Using Cooperative Learning Techniques to develop English Oral Language Fluency of Adult Students. M.A. thesis, FOE, Ain Shamm University.
- El-Sagheer, A. & Leviene, L. (2002). Teaching listening. In Z. El-Naggar et al. (eds). Spotlight on primary English education resources (SPEER). Washington: Academy for Educational Development.
- El-Toukky, H. (1999). The Effectiveness of A Proposed Program for Developing Listening Comprehension Skills among English Department Students at FOE. M.A. thesis, FOE, Tanta University.
- Ertel, W. (2017). Introduction to artificial intelligence (2nd ed.). Switzerland: Springer.
- Feyten, C. (1991). The Power of Listening Ability: An Overlooked Dimension In Second Language Acquisition. *Modern Language Journal*, 75(2), 173- 181.
- Firth, A. & Wagner, J. (2005). On discourse, communication, and (some) fundamental concepts in SLA research. *The Modern Language Journal*, 81(3), 285-300.
- Fryer, L. & Carpenter, R. (2006). Bots as language learning tools. *Language Learning & Technology*, 10(3), 8–14. doi:10125/44068
- Gallacher, A., Thompson A., & Howarth, M. (2018, August). “My Robot is an Idiot!”-Students’ Perceptions of AI in the L2 Classroom. Research presentation at EUROCALL International.
- Gardner, L. (2018). How A. I. is infiltrating every corner of the campus?. *Chronicle of Higher Education*, 64(31), 1-1. Retrieved from <https://www.chronicle.com/article/How-AI-Is-Infiltrating-Every/243022>
- Ginsenberg, M. (2012). *Essentials of Artificial Intelligence*. CA: Morgan Kaufmann Publishers.
- Goda , Y., Yamada, M., & Matsukawa, H. (2014). Conversation with A Chatbot Before an Online EFL Group Discussion and The Effects On Critical Thinking. *Information and systems in education*, 13(1), 1-7.
- Habeeb, A. (2017). *Artificial Intelligence*. University of Mansoura.
- Han, J. (2012). Emerging technologies ROBOT assisted language learning. *Language Learning and Technology*, 16(3). 1-9.
- Haseski, H. (2019). What Do Turkish Pre-Service Teachers Think about Artificial Intelligence?. *Faculty of Education, Manisa Celal Bayar University, International Journal of Computer Science Education in Schools*, 3 (2), ISSN 2513-8359, DOI: 10.21585/ijcses.v3i2.55

- Heaton, J. (1988). *Writing English Language Tests. A Practical Guide for Teachers of English as a Second or Foreign Language*. London: Longman Group.
- Hedge, T. (2005). *Writing*. Oxford: Oxford University Press.
- Herrera, L., & Muñoz, D. (2017). Inteligencia Artificial y lenguaje Natural. *Lenguas Modernas*, 19, 157-165. Recuperado de: <https://lenguasmodernas.uchile.cl/index.php/LM/article/view/45790>
- Ibrahim, M. (2018). Using animated stories to enhance primary stage Pupils' listening comprehension skills and reduce their listening anxiety level. M.A. thesis, Faculty of Education, Mansoura University.
- Jackson, R. (2019). *Introduction to Artificial Intelligence*. Courier Dover Publications.
- Kim, J. (2018). Artificial Intelligence and Retention. Retrieved from <https://www.insidehighered.com/digitallearning/blogs/technology-andlearning/artificial-intelligence-and-retention>
- Liang, Y., & Chen, L. (2018). Analysis of current situation, typical characteristics and development trend of artificial intelligence education application. *China Electrification Education*, (3), 24-30.
- Lotze, N. (2019). Artificial intelligence in language learning Goethe-Institute. V., Redaktion Magazin Sprache.
- Mahgoub, S. (2019). The Effectiveness of the Interactive board based program In Developing EFL Receptive Skills of the primary Language School Pupils. PhD dissertation, Ain Shams University.
- Marino, S., & Primorac, C. (2016). Propuesta metodológica para desarrollo de modelos de redes neuronales artificiales supervisadas. *IJERI: International Journal of Educational Research and Innovation*, 6, 231-245. Recuperado de: <https://www.upo.es/revistas/index.php/IJERI/article/view/1654/1569>
- Miailhe, N. (2018). Competing in the Age of Artificial Intelligence: The State of the Art of AI & Interpretation of Complex Data. *Focus (SCOR Global P&C)*.
- Mohamed, A. (1979). Techniques for Developing Communicative Competence in English among Higher Secondary Stage Students in the Sudan". M.A. thesis, Faculty of Education, CDELT, Ain Shams University, Egypt.
- Morton, H. & Jack, A. (2007). Scenario based spoken interaction with virtual agents. *Computer assisted language learning*, 18(3), 171-191.
- Mu, P. (2019). Research on Artificial Intelligence Education and Its Value Orientation. Paper presented at the 1st International Education Technology and Research Conference (IETRC 2019), China,

- Retrieved from
https://webofproceedings.org/proceedings_series/ESSP/IETRC%202019/IETRC19165.pdf
- Nordrum, A. (2017). CES 2017: the year of voice recognition. <http://spectrum.ieee.org/tech-talk/consumer-electronics/gadgets/ces-2017-the-year-of-voice-recognition>
- Ocana, Y., & Valenzuela, L. (2018). La gestión del conocimiento y gobernanza. Mejores gobiernos, ciudadanos felices. Lima: Fondo editorial UCV.
- Ocana-Fernandez, Y., Valenzuela-Fernandez, L., & GarroAburto, L. (2019). Artificial Intelligence and its Implications in Higher Education. *Propósitos y Representaciones*, 7(2), 536-568.
- Olawale, W. (2019, February 25). Chatbotslife.com. Retrieved from: <https://chatbotslife.com/5-benefits-of-using-a-chatbot-937b8b793826>.
- Omaggio, A. (1986). *Teaching Language in Context: Proficiency-Oriented Instruction*. Boston, Heinle & Heinle.
- Parker, L. (2007). Technology in support of young English learners in and out of school. *Technology-mediated learning environments for young English learners*, 213- 250.
- Rich, E. & Knight, K. (1991). *Artificial Intelligence*. New York: McGraw-Hill.
- Rivers, W. (1981). *Teaching Foreign Language Skills* (2nd ed.). Chicago: Chicago University Press.
- Rost, M. (1996). *Listening in Language Learning*. London: Longman.
- Rudder, M. (1999). Eliciting Student-Talk. *Forum*, 37 (2), April - June, 24- 26.
- Russell, S., & Norvig, P. (2010). *Artificial Intelligence: A modern approach* (3rd ed.). NJ: Pearson.
- Sayed, H. (2019). The Effect of Using a Training Program Based on Digital Storytelling Strategy on Developing Oral Skills and Level of Satisfaction of Third Year English Majors at Faculty of Education. Faculty of Education, Minia University.
- Stice, C. & Bertrand, N. (1994). *Integrating Reading and the Other Language Arts*. Washington: Wadsworth Thomson Publishing Company.
- Su, Ch. (2007). Students' Changing Views and the Integrated-Skills Approach in Taiwan's EFL College Classes. *Southern Taiwan University of Technology, Asia Pacific Education Review*, 8(1), 27-40.
- Thomas, S. & Hawes, T. (1994). Teaching Spoken English for Informative Purposes. *Forum*. 32 (2) April, 22- 25.
- Underwood, J. (2017, Aug). Exploring AI Language Assistants with Primary EFL Students. *Research-publishing.net*, Paper presented at the

- EUROCALL Conference (Southampton, United Kingdom), 23-26.
- Underwood, M. (1989). Teaching Listening. London: Longman
- Ur, P. (1997). A Course in Language Teaching. Cambridge: Cambridge University Press.
- Vandergrift, L. (1999, July). Facilitating Second Language Listening Comprehension: Acquiring Successful Strategies. *ELT Journal*, 53(3), 168- 176.
- Wetstone, H. & Friedlander, B. (1974, September). The Effect Of Live TV And Audio Story Narration on Primary Grade Children's Listening Comprehension. *Journal of Educational Research*. 68 (1), 32- 35.
- Xue, Q, & Li, F. (2018). Security risks and countermeasures in artificial intelligence education applications. *Journal of Distance Education*, 36(4), 88-94.
- Yang, S. (2007). Artificial Intelligence for Integrating English Oral Practice and Writing Skills. USA, *Sino-US English Teaching*, 4(4), ISSN1539-8072.
- Yero, J., (2002). Teaching in Mind: How Teacher Thinking Shapes Education [M]. Hamilton, MT. Mind Flight Publishing.
- Zaytoun, S. (1988, January). Different Techniques For Teaching Listening Comprehension. *Forum*, XXVI (I).

المراجع العربية:

علام، صلاح الدين محمود. (2000). القياس والتقويم التربوي و النفسى، أساسياته وتطبيقاته وتوجهاته المعاصرة. القاهرة: دار الفكر العربى.