Using ASSURE Model Supported with Multimedia for Developing Some Preparatory Science and Math Teachers' English Speaking Skills

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Abstract

This research study aimed at investigating the effectiveness of using the ASSURE Constructivist Model supported with multimedia to improve English speaking skills for science and math teachers at the preparatory stage. Ten teachers at Al-Shaheed Ahmed Galal and 25th January Governmental Schools with some lack of speaking subskills -as indicated by the pretest- were purposively selected to participate in the study. The researcher used the one-group pre-post test quasi-experimental research design in the light of which a speaking pre-post test was designed along with an English speaking sub-skills checklist to assess the participating teachers' improvement in the specific speaking skills before and after using ASSURE Model supported with multimedia. The results demonstrated that there was a statistically significant difference at 0.05 level between the mean scores of the research group in the pre-post administration of the speaking test in favour of the post-administration. It was found that using ASSURE Model supported with multimedia achieved high effectiveness in improving the speaking sub-skills of science and math teachers.

Keywords: ASSURE Model, Multimedia, Speaking skills

المستخلص

هدفت هذه الدراسة إلى معرفة مدى فاعلية استخدام نموذج ASSURE المدعوم بالوسائط المتعددة في تحسين مهارات التحدث باللغة الإنجليزية لدى معلمي العلوم والرياضيات باللغة الإنجليزية في المرحلة الإعدادية. تم اختيار عشرة معلمين من مدرستي الشهيد أحمد جلال و ٢٥ يناير الرسمية للغات، يفتقر هؤلاء المعلمين إلى بعض مهارات التحدث ـ كما يتضح من الاختبار القبلي – لذا تم اختيارهم للمشاركة في الدراسة.

استخدم الباحث المنهج التجريبي ذا التصميم شبه التجريبي من خلال التطبيق القبلي والبعدي على مجموعة بحثية واحدة. تم تصميم اختبار قبلي للتحدث مع قائمة تقييم للمهارات الفرعية للتحدث. و لقياس مدى فاعلية المحتوى التدريبي، تم اجراء الاختبار عليهم بعد تطبيق المحتوى التدريبي. تم جمع البيانات ومعالجتها وتحليلها، و أظهرت النتائج وجود فرق ذي دلالة إحصائية عند مستوى ٠.٠٥ بين متوسطات درجات مجموعة البحث في التطبيق القبلي و البعدي لاختبار التحدث لصالح التطبيق البعدي. وقد تم التوصل إلى أن استخدام نموذج ASSURE المدعم بالوسائط قد حقق فاعلية عالية في تحسين مهارات التحدث لدى المعلمين.

الكلمات المفتاحية: نموذج ASSURE البنائى، الوسائط المتعددة، مهارات التحدث

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Introduction

Language is the cornerstone of day-to-day communications as it conveys ideas and information; moreover it works to stir new thoughts, emotions and situations, and motivates to think to expand the horizons of imagination, and develop creative abilities. This led some to link between language and human thought. Without language, the individual is unable to pursue human progress and keep pace with civilized progress in every time and place.

There is not any disagreement about that learning the skills of any language does not serve a specific course in the school program (the language course only) but it also serves the learning of other courses, especially if this language is the communication tool used to teach and learn other courses. It is, therefore, not surprising that language learning problems are at the center of other learning problems and the academic performance of learners in general (Mozts, 1996).

The ability to sustain a language is to master 4 major skills: listening, speaking, reading and writing. Of all the four macro English skills, speaking seems to be the most important skill required for communication (Zaremba, 2006). It is also stated that of all four key language skills, speaking is deemed to be the most important in learning a second or foreign language (Bahadorfar & Omidvar, 2014). As stated by Ur (1996), speaking included all other skills of knowing that language. It is the desired outcome of learning a language. Speaking is the actual practice of language.

The idea that 96 % of the scientific articles in the world are written in English cannot be overlooked. In this case, it is impossible to read scientific research without English proficiency, the language that overwhelms scientific publishing. Communicating with peers in different disciplines and conducting scientific dialogue with them outside the framework of this language is impossible (Engber Daniel, 2013).

Science and mathematics curricula in English have their own special role in creating a strong knowledge structure for students in a global language through which they can learn about contemporary and future scientific developments and share scientific experience with specialists from all over the world. Therefore, proper language performance was a very important requirement as learners need to master English language skills as well as learning scientific content. Another issue is the trend of the educational policy towards teaching science and math in English from preparatory one up (WafaaYehia, 2018).

Although it is important for science and math teachers to master the English speaking skills to provide learners with the information in an appropriate way, the development of these skills are not paid enough attention in most of science and math classes. This is because the teacher does not have enough confidence to speak English as he is not proficient in that skill and more anxious about making mistakes (Trent, 2009). At the same time learners should be given opportunities to speak, because speaking skills can be developed only through engaging the learners in the act of speaking and interacting. This cannot be done unless the teacher masters speaking skill. The teacher should give the learners more opportunities to interact only in English and not in the mother tongue (Mundhe, 2015).

Thus, it is clear that the teacher's task of teaching in English is not only teaching the content, but also providing a sound language free from mistakes because language represents the vessel that carries the scientific content, and without such a vessel the scientific content (science and mathematics) loses its value and the purpose of teaching it in English.

In this regard, a number of studies pointed to the importance of training teachers to master language skills, which is reflected on their students in different stages of education, including the study of Ahmed Bakr Falata (2000) and Ahmed Mohamed El-Nuimi (2017).

Falata (2000): The study has indicated that the specialized authorities should pay attention to the in-service training of teachers in order to develop their listening, speaking and reading skills, in addition to providing all the necessary materials, equipments and tools to train them in the course of teaching courses.

The results of the study of Ahmed Mohamed El-Nuimi (2017) have indicated the effectiveness of the proposed program based on the integration of the arts of language (listening, speaking, reading and writing) in developing creative writing skills for student teachers.

Modern models supported with multimedia introduce a variety of methods based on diversity and take into account the language skills. One of these models is the model of Heinich, Molenda and Russell for the use of technology in education, known as the ASSURE Model. It is considered one of the constructivist models and procedural designs that can be functioned in planning and organizing the use of all available learning aids, including means of communication, and selecting the most appropriate for the learners according to their characteristics. It has been designed to help the teacher to construct an integrated educational program that ensures effective use of the educational aids (Abdel Hafez Mohamed, 2004).

Technology in education is a practice to facilitate the process of education and improve performance through the application and use of appropriate methods to manage the sources of technology (Janszewski & Molenda, 2013, 1). Educational technology helps the teacher or learner in self-learning based on media, aids, and tools to achieve the educational goals (Mangal & Mangal, 2009, 12).

There are many studies that have confirmed the positive impact of the use of technology in education, such as the study of Mansour (2016), Bahadorfar & Omidvar (2014), Abu Naji (2013), Abdul Jalil (2012), Al-Bitar (2005), Al-Todari (2000) and others.

Some educational videos, in which the content is provided by native speakers of English, can be used. These videos are presented to the trainees via the interactive whiteboard, thus multimedia can be functioned as a means that support the proposed ASSURE model.

The Constructivism Theory - on which ASSURE model is based - plays a major role in imparting language skills, as a result of shifting attention from the focus on the output to the focus on processes; the focus is directed towards what is going on within the learner, or the learner's internal mental processes while interacting with the educational situation, in which the learner plays a positive role in activating and using previous knowledge, searching for its relation to the current knowledge, and analyzing reconciling it to extract new knowledge to be included into the learner cognitive structure in a way that makes learning and mastering the language is easy and purposeful.

The results of several studies have shown the effectiveness of using ASSURE model in developing language skills including the study of Hessa Bent Mohammed Alshaya (2015) and the study of Nora Mohammed Amin (2011).

The study of Hessa Bent Mohammed Alshaya (2015): The results have shown that students have benefited from the language program in different language skills. The results also have pointed out that the students have had positive attitudes towards the program and desired to learn in this manner. Also, the study of Nora Mohammed Amin (2011): has showed the effectiveness of using linguistic activities based on constructivism theory in developing reading comprehension skills. The recommendations of the study have shown that constructive language activities are one of the most important programs in the program of preparing and qualifying teachers before and during service.

It is obvious now that using various activities depending on (ASSURE) constructivist model is of great importance for developing the academic achievement and different scientific skills. But it is still unexamined enough in the field of language. So, the current study is an attempt to train science and mathematics teachers on the basis of ASSURE model to develop their speaking skills in order to have impact on the linguistic performance of the students who study science and mathematics in English.

Research Problem

The sense of the problem has come from the researcher's observation of the language performance, especially speaking skills, among the teachers of science and mathematics in English in the classrooms, during the work of the researcher as an English teacher and participation in some educational training.

Several studies have indicated that there is a lack of language skills among teachers in our Arab community in general. The most prominent of these studies: the study of Nawal Hassan Hashisho (2009) which have shown that a number of teachers were making remarkable efforts, and that some showed good classroom practices, but the language skills of most of them were weak. The study highlighted weaknesses in the in-service training courses for teachers. In light of the results of the study, a number of recommendations have been made, including the need to prepare a double-sided plan for teacher training; one for those who will be employed in the future and others who are currently working in schools. Language proficiency should be a basic requirement for preparation and in-service training.

To assure the existence of the problem, the researcher has done a pilot study through applying a speaking test to a group of twenty science and math teachers. The results have asserted that fifteen teachers of science and mathematics have lack of proficiency in the skill of speaking English.

It is obvious now that teachers of science and mathematics have weakness points in the skills of speaking English. Therefore, the current study is an attempt to train the teachers of science and mathematics based on the ASSURE model to develop speaking skills to have a positive impact on developing the linguistic performance among preparatory students.

Research Terms

Model

A virtual representation that replaces the reality of things or actions describing, explaining or interpreting them to be understandable (Hassan Zaitoun, 2001, 40).

It is also known as a simplified visualization that explains the most important steps that should be included in the methodology to be constructed. It accurately describes the most important steps that must be taken when constructing and implementing the curriculum and the procedures that must be followed to ensure its effectiveness (Sami Mahmoud Abdullah et al., 2006).

The researcher defines the training program procedurally as: a diagram that functions as a guide for the training of science and math teachers, and a simplified representation of the procedures and ideas related to the curriculum so that they can be implemented and used to develop some of their speaking skills.

ASSURE Model

The procedures that the teacher does to plan the student's educational activities and convey these activities through the effective use of teaching aids (Al-Hilla, 2002, 352).

ASSURE is one of the various models used for educational design. Using ASSURE Model is preferred with media and technology. In addition to being organized, it is a strategy to assist the instructor on designing and evaluating learning. (Asad, Hassan & Sherwani, 2014).

The word ASSURE is an acronym that comes from the initials of the educational design invented by Heinich, Molenda and Russell for the use of technology in education. Each letter of the name stands for a level in this model. The letter (A) stands for (Analyze the learner), which means analyzing the characteristics of the learners, (S) stands for (State objectives),which means setting some desired objectives, (S) stands for (Select media and materials),which means identifying preparing the materials intended to be used, (U) stands for (Utilize media and materials), which means using the materials prepared, (R) stands for (Require learner participation), which means asking the learners to participate and observing their response, and the last letter (E) stands for (Evaluate and revise), which means assessing and revising what has been done (Heinich, Molenda, Russell & Smaldino, 2002; Aziz, 2003; Bayne, 2014).

Figure (1) a diagram that clarifies ASSURE Model steps
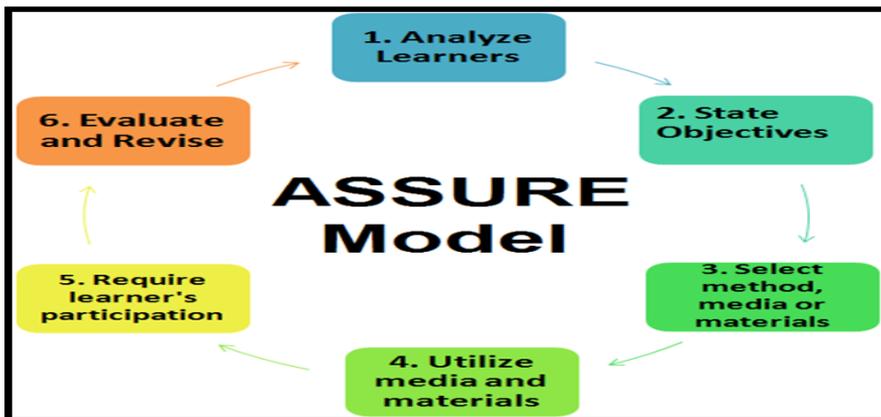
It is procedurally defined by the researcher as: a systematic process like an educational guide consisting of a set of stages that adopts a training plan in which the material is organized properly. This process seeks to achieve more efficient and effective training for the trainees (science and math teachers) through a content delivered in a sound language using a variety of essential techniques and educational resources to develop the teachers' speaking skills.

At each stage of the model:

Smaldino, Lowther, & Russell, (2008) have illustrated what the six letters in the ASSURE acronym stand for as follows:

1. A is for "Analyze Learners"

The first step in the ASSURE process for planning a lesson is to identify and analyze the characteristics of learners. More specifically, the instructor should identify and analyze the learners' characteristics shown to be associated with learning outcomes. This information will then guide the teacher in the decisions he/she makes in each of the following five steps of the lesson planning process. Keeping the characteristics of the learners in mind will help them to select strategies and find media, materials, and resources that will be most appropriate and useful to learners.

There are definite elements that should be put into consideration during the analysis step. (See Table 1 below)

Table 1 shows the key areas to consider in the analysis step

General characteristics of learners	Prior knowledge	Learning styles
• grade level • academic abilities • status • attitudes • interests	• Do the learners have the knowledge base required to receive the lesson? • Do they have technical vocabulary for this lesson? • Do they have biases or misconceptions about the subject?	• auditory • visual • tactile

2. S is for "State standards and objectives"

The first "S" in the ASSURE acronym stands for state standards and objectives for the learning module. In this step, the instructor must describe what the learner will do as a result of that instruction. The instructor must put into consideration that a learning objective is a statement of what the learner will know, achieve, or be able to do as a result of the learning process. These statements will be the basis for assessment. Hence it is critical that the learning objectives be written in such a way that they are observable and measurable.

Each lesson the instructor develops will almost certainly be tied to the learning outcomes. This step in the ASSURE model reminds the instructor to keep these *standards* in mind while developing learning objectives. Beginning with the course-level student learning outcomes and/or curricular objectives, the instructor should ask himself/herself, what specific outcome(s) the lesson will focus on. With this in mind, the instructor should describe what the learner will do as a result of the lesson.

Well-stated objectives have four main components: (1) the audience for whom the objective is intended, (2) the behaviour or performance to be demonstrated, (3) the conditions under which the behaviour or performance will be observed and (4) the degree to which the new knowledge or skill must be mastered. (See Table 2) These are combined into single, complete sentences, such as:

After watching the video about magnetism, science teachers will define magnetism in English correctly to 100% accuracy.

Table 2 summarises the simple ABCDs of well-stated learning objectives

Audience	**B**ehaviour	**C**onditions	**D**egree
For whom is the objective intended?	What is the behaviour or performance to be demonstrated?	What are the conditions under which the behaviour or performance will be observed?	To what degree will the knowledge or skill be mastered?

The verbs used in the statements are very important; the verb describing what the learner will know or be able to do is the heart of the learning objective. It may prove helpful to the instructor to review Bloom's Taxonomy for categorizing the domain of learning he/she is focusing on. Most of the documentation on Bloom's Taxonomy includes lists of verbs that state observable 'behaviours' for the different domains of learning. These verbs should be used if possible.

Finally, each objective should allow the instructor to identify what the expectations are for the learner, identify the necessary requirements for the learning environment, assess learning, and determine needs for appropriate media or materials. This is how the objectives can be assessed.
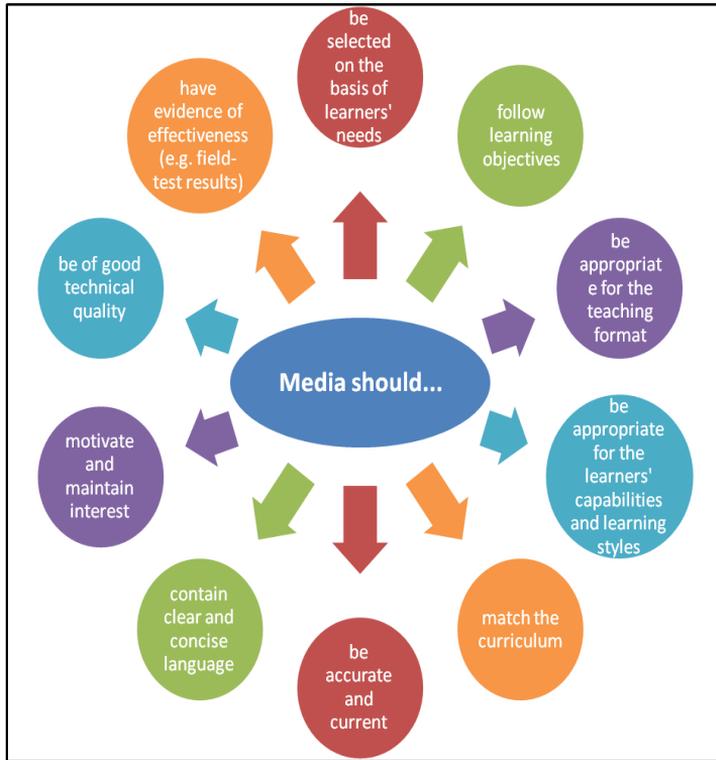
3. S is for "Select strategies, technology, media, and materials"

The second "S" in the ASSURE acronym stands for select strategies, technology, media, and materials. In this step, the main task for the instructor is to choose instructional strategies, technology, and media that are appropriate for learners and the stated standards and learning objectives. Selecting instructional strategies, technology, media, and materials that will result in learner achievement of the stated learning objectives is of primary concern here.

As a first step, the instructor should decide what method of delivery will be used for instruction. Will instructor-centred strategies (e.g. lecture, demonstration, presentation, or *showing a video*) be primarily used? Or will learner-centred strategies (e.g. *discussion*, WebQuest, cooperative group work) be used for the most part? Common sense weighs in on the side of learner-centred strategies. Learning becomes more exciting when there is more class participation. Ultimately, it is the learner who must gain mastery over the material, not the instructor. However, there will be a certain amount of crucial information and techniques that the instructor must give over and demonstrate. Most effective lessons should include a mix of instructor-centred and student-centred strategies. Therefore, the current research will include that mixture between showing videos and discussions.

Selecting media is a very important step. Therefore, it should be done according to some criteria that guarantee its effectiveness. See figure 2

Figure 2: shows media selection criteria

4. U is for "Utilize technology, media, and materials"

The next step in the ASSURE process for planning a lesson is to utilize *technology*, *media, and materials*. This is where the instructor plans his/her role for implementing strategies and utilizing the technology, media, and materials to help learners master the stated learning objectives. A detailed description of how they will be implemented into lessons should be given to help learners to meet the objectives.

Smaldino, Lowther, & Russell, (2008) suggested following the **"5 P's"** process which can be summarised in Table 2.3 below:

Table 3 shows the five steps of using technology, media, and materials

1. Preview the technology, media, and materials	2. Prepare the technology, media, and materials	3. Prepare the environment	4. Prepare the learners	5. Provide the learning experience
The instructor should:				
• Give everything a thorough review to make sure that the lesson will gosmoothly.	• Make sure that everything needed is there and works.	• Make sure that there areenough desks. • Make sure that there are no sources of noise that may disturb the learners.	• Inform learners of the learning objectives to create a mental map of what they need to absorb and to create a 'need to know' • Tell learners how they will be assessed.	• Carry out the lesson with every prior step of the process in mind.

5. R is for "Require learner participation"

The "R" step in the ASSURE acronym is where the instructor requires learners' participation. The lesson plan should include a description of how learners will be required to know, comprehend, apply, analyze, synthesize, and evaluate the information included in the lesson. The goal here is for active learning to occur! Hence, all of the planned activities should provide opportunities for learners to practice the new knowledge or skills and to receive feedback on their efforts before being finally assessed.

The current research later includes a plan that shows exactly how the learners will participate in the learning process. This plan is more specific than just saying that they will listen and absorb the material. However, learners should prepare questions and comments at home to bring into the class. Individual learners might try to lead classes or discussions in the style of a seminar. That must be done during encouraging a specific kind of note-taking.

6. E is for "Evaluate and revise"

The final step in the ASSURE process is one of the most important steps. In this step, the instructor documents the plans for evaluating the impact of the lesson on learners' learning. Smaldino, Lowther & Russell (2008) defined three particular things to consider in the process of evaluation: a) evaluating learners' performance whether with a pen and paper test or by observing the behaviour; b) evaluating media components to determine the media effectiveness; c) evaluating the instructor's performance to determine whether or not his/her performance as instructor/facilitator was effective.

In conclusion, the ASSURE model is a sufficient way to plan effective, media-rich lessons. It integrates multimedia and technology to enhance the learning environment. Its straightforward, practical approach has made it one of the most widely taught instructional models in the education arena. Several studies have been done examining the model and it proved to be effective. For example: A study by Kim et al (2016), over a 2-year period of time, examined 39 separate cases of curriculum being developed using the ASSURE model and the curricula's subsequent effect in promoting student learning. In addition to analyzing scores on student assessments, teachers' perceptions and instructional

strategies also were examined as part of this study. It was acknowledged that the ASSURE model is a practical, easy-to implement approach for integrating technology into classroom instruction. Beyond its ability to facilitate the development of new lessons, it remains to be seen if, and to what degree, it may affect student learning gains. Consequently, it was with much surprise that such large learning gains were so consistently reported across nearly every case analyzed in the study. Admittedly, it is unlikely that such large and sweeping gains will occur in all future studies. That being said, such positive and overwhelming results encourage the need for additional studies examining the potential influences of the ASSURE model to determine more precisely to what degree and in what areas the ASSURE model has the greatest impact on instruction and learning.

Rostina Sundayana et al (2017) have tested the improvement of students' mathematical communication ability using ASSURE learning design in Indonesia using the experimental method with the pre-test post-test control group design. Two classes used ASSURE learning design with a problem-based learning (A-PBL) and discovery learning (A-DL) model for each class, and the last class used conventional learning design with a problem-based learning and discovery learning (K-PBL/DL) model. The results showed that the improvement of students' mathematical communication ability by using the ASSURE learning design is better than students using conventional learning design. Furthermore, the use of A-PBL and A-DL are equally suited to improving students' mathematical communication ability in middle and upper-level school, while in lower level schools, it is more suitable to use A-DL.

Multimedia

The development, integration, and the delivery of any combination of text, graphics, animation, sound or video through the digital computer and its many variants such as tablets, smart phones and smart boards (Savage & Vogel, 2014, 2).

It is procedurally defined by the researcher as**:** an interactive environment between the trainees and the educational material offered. It ensures that the trainees (science and math teachers) acquire some English speaking skills. The environment includes written and uttered text, pictures and movement.

Skill

Linguistically it is an ability to do an activity well, especially because you have practised it. It can be developed through training and experience (Cambridge Dictionary, 2019).

Terminologically it is the set of behaviors that a person shows in his or her educational activity in order to achieve emotional, dynamic, or verbal responses characterized by elements of accuracy and speed in performance and adaptation to the conditions of the situation (Abdurrahman Jamel, 2002, 116).

It is procedurally defined by the researcher as: the ability of science and math teachers to speak English accurately and fluently.

Speaking skill

"The process of building and sharing meaning through the use of verbal and non-verbal symbols, in a variety of contexts" (Chaney & Burk, 1998).

It is procedurally defined by the researcher as: all forms of spoken language produced by science and math teachers, through which they can express scientific knowledge and convey it to students in a fluent pronunciation and correct grammar. It is measured by the marks that the teachers get in a speaking test they will take.

Research Objectives

The current research aims at developing preparatory science and math teachers' speaking skills in English in the governmental language schools.

Research Questions

1- What are the sub-skills of English speaking suitable for preparatory science and math teachers?

2- What is the effectiveness of using ASSURE Model to develop English speaking skills for preparatory science and math teachers?

Research Significance

- Theoretical Significance

Providing a theoretical background for the training programs for teachers, a production skill of language such as speaking, and ASSURE Model in terms of its foundations and stages as a modern constructivist model supported with technology based on a theory that has proved its validity and strength as constructivism.

- Practical Significance

The importance of this research is that it can benefit each of:

Current Teachers

- Providing a list of some sub-skills of speaking.

- A Test measures those skills.

- A training program based on ASSURE model in the light of constructivism, which can contribute to the development of the speaking skills as a production skill of language.

- Linguistic strategies and activities to develop the linguistic performance of their students.

Student Teachers

- The current research may help guide and develop the preparation and training programs for students of the science and mathematics departments for the international schools in the Faculty of Education during the preparation period or after graduation and joining the field of work as a vocational development program.

Students studying science and math in English

- Indirectly developing their proper linguistic performance skills.

The authors of curricula and planners

- The authors of curricula and those who plan these curricula can benefit from this research to shed light on language skills in the process of designing science and math curricula in English in the preparatory stage, which may contribute to the development of proper language performance.

Researchers

- This research may help to open new research horizons for researchers to conduct further studies to develop the skills of receiving and producing English language for teachers in different disciplines in different educational stages, with the possibility of benefiting from the research tools in new studies.

Research Delimitations

Research Group

A group of preparatory science and mathematics teachers at Al-Shaheed Ahmed Galal Governmental Language School, where the researcher works and 25th Revolution Governmental Language School.

The preparatory stage was chosen because of the rich language through which the scientific content is presented in science and mathematics courses.

Multimedia

Some educational videos that are presented to the trainees (teachers of science and mathematics).

Speaking sub skills

1. Using word and sentence stress, intonation patterns and the rhythm of the second language.
2. Selecting appropriate words and sentences according to the proper social setting audience, situation and subject matter.
3. Organizing their thoughts in a meaningful and logical sequence.
4. Using language as a means of expressing abstract concepts.
5. Using the language quickly and confidently with few unnatural pauses, which is called as fluency (Nunan, 2003).

Research Design

For the purpose of this research, the quasi-experimental design will be used in verifying the validity and stability of the research tools through the exploratory study, as well as: doing the research which examining the effectiveness of a training program for teachers of science and mathematics based on ASSURE Model supported with technology to develop speaking skills. The quasi-experimental design which is based on one sample group will be used through the pre and post application on the research group.

Materials and Tools

- Research Materials: (prepared by the researcher)

- Teachers' Guide for science and math teachers about the training.

- Research Tools:

First: Data Collection Tools: (prepared by the researcher)

- List of English speaking sub-skills appropriate for preparatory science and math teachers.

Second: Measurement Tools: (prepared by the researcher)

- A test for measuring the level of English speaking skills for preparatory science and math teachers.

- An observation rubric for measuring the level of English speaking skills for preparatory science and math teachers.

Research Procedures

To answer the research questions, the research proceeds according to the following procedures:

1- To answer the first question "What are the sub-skills of English speaking suitable for preparatory science and math teachers?**"**

The following steps will be followed

- Looking into the previous studies in the field.

- Prepare a list of English speaking sub-skills that is suitable for preparatory science and mathematics teachers.

- Modify the list according to the opinions of the jury members to reach the final form.

2- To answer the second question "What is the effectiveness of using ASSURE Model to develop English speaking skills for preparatory science and math teachers?**"**

The following steps will be followed

- Preparing the specification table for the test of English speaking skills, presenting it to the jury members, and making appropriate adjustments according to their opinions.

- Designing a test of English speaking skills, verifying its validity according to the opinions of the jury members, and applying it to the pilot group.

- Preparing an observation rubric for measuring the level of English speaking skills for preparatory science and math teachers, presenting it to the jury members, and making appropriate adjustments according to their opinions.

- Determining the preliminary levels of the research sample of teachers, by the pre-application of the test and the observation rubric.

- Using ASSURE Constructivist Model supported with multimedia to train the research group of teachers.

- Re-applying the test after the completion of the training prepared in light of the stages of ASSURE Model.

- Observing the level of the English speaking sub skills among the preparatory science and math teachers.

- Analyzing data statistically, extracting results and interpreting them.

- Making recommendations and proposals.

Research Results

In reference to the findings of the research, it stated that using ASSURE model supported with multimedia had a great and effective impact on the teachers' speaking skills. It helped them to manage their speaking skills. The applied activities gave the teachers a new experience in speaking skills. The activities based on watching videos by native speakers enabled teachers to listen to sound language then use it. The implementation of the steps of the ASSURE model was successful to help the teachers to involve in the teaching-learning process of speaking through cooperative learning groups. The activities were practicing discussing with classmates, think-pair-share and peer correction. These activities made the teachers communicate with one another and also with the trainer. The implementation of visual activities was beneficial to enhance teachers understanding of the spoken language with all its details (sub-skills). Using media as short movies helped the teachers to predict the next notion in the lesson viewed. Also, teachers were interested in using various graphic organizers that helped them to present the required information and helped them master the speaking skills. Using the discussion technique helped teachers to overcome psychological problems such as hesitation to speak. It supported teachers with self-awareness, self-understanding, self-motivation and own forms of expression.

In conclusion, based on the result of the teachers' scores indicated the improvement of their speaking. The scores were gained from the pre-test and the post- test. The mean score increased from 14.4 in the pre-test to 74.3 in the post-test. This training course proved its effectiveness as its consequences were satisfied and approved the hidden abilities of the teachers that need to be discovered and shed the light on. Following the steps of ASSURE model supplied with multimedia supplies teachers with an opportunity to practise the skill in a way that enhances their abilities to acquire and improve the sub-skills they needed.

Discussion of Results

The current study concluded that the use of activities based on the steps of the ASSURE constructivist model supported by materials presented through multimedia proved to be effective and had a significant impact on developing the English speaking skills of science and mathematics teachers at the preparatory stage. Accordingly, the current study recommends the necessity of employing the constructivist ASSURE model as well as the use of multimedia in educational content and curricula in general. It also recommends the necessity of conducting more future educational research based on investigating the effectiveness of using the ASSURE constructivist model and multimedia in developing other English language skills. (i.e., listening, reading and writing).

Research Recommendations

The following recommendations are made in light of the current research study'sfindings and conclusions:

1. Sufficient time should be devoted to teachers' practice of speaking.

2. Science and math teachers should be involved regularly in extra activities and speaking tasks.

3. Every teacher should be encouraged to his/her own multimedia materials by which he/she can enhance his/her speaking skills.

4. Teachers should motivate their students to get eagerly involved in speaking tasks.

5. Educators need to notice the signs of weakness of speaking skills for teachers and provide them with continuant training courses.

6. Teachers need to be regularly trained on different speaking skills.

7. Formal training of EFL speaking instructors should include programs that are based on using ASSURE model in qualifying and training science and math teachers to develop their speaking skills.

8. Assessing teachers speaking skills from time to time is crucial.

9. Using ASSURE model in educating different aspects of English language, such aslistening, reading and writing.

10. Teachers themselves should design their lesson plans using ASSURE model and multimedia, the thing that will help them with their roles and facilitate the process of learning.

11. Providing science and math teachers with the materials that may be used to enable them to use clearer and more effective activities in their teaching process.

12. Educators and curriculum designers are advised to provide the current curriculums with related multimedia materials

Suggestions for Future Studies

Based on the obtained results, the researcher suggests conducting further studies as follows:

1. The present research study was limited to science and math teachers only; other studies can expand to include other specializations.

2. Other studies can investigate the effectiveness of using the ASSURE model supported with multimedia for developing other language skills, such as listening, reading and writing.

3. Other studies can examine the effect of using the ASSURE model supported with multimedia for developing students' language skills.

4. Other studies can investigate the impact of using the ASSURE model supported with multimedia for developing science and math teachers' speaking skills on enhancing students' understanding or speaking skills

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