

The Impact of Educational Module Strategy on Developing
English Reading Skills of Biology Department Students at
Al-Arish Faculty of Education

DR - Ahmed Elsayed Khodary

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Abstract

The aim of this study was to investigate the effect of teaching educational module strategy to Biology department students on improving their reading skills. The design of the study was a one group pre – posttest quasi experimental design. Thirty of first – year Biology university students were selected to the experimental group of the study. This experimental group was tested using pre – post reading. skills test before and after being exposed to educational module strategy treatment The experiment lasted for three months during the first term of 2016-2017 academic year . Paired – samples of t – test revealed significant differences between the pre –test and post test of reading skill test. It was concluded that teaching educational module strategy to university students was effective on developing their reading skills .

Keywords : educational module strategy- reading skills - students of Biology department

ملخص البحث باللغة العربية

عنوان البحث: فاعلية استخدام استراتيجية الموديول التعليمي في تنمية مهارات القراءة باللغة الانجليزية لدى طلاب قسم البيولوجي بكلية التربية بالعريش

هدفت هذه الدراسة التعرف علي فاعلية استخدام استراتيجية الموديول التعليمي في تنمية مهارات القراءة باللغة الانجليزية لدى طلاب قسم البيولوجي بكلية التربية بالعريش. اشتملت الدراسة علي مجموعة واحدة تجريبية و تكونت أدوات الدراسة من قائمة بمهارات القراءة اللازم تنميتها لدي طلاب قسم البيولوجي بكلية التربية بالعريش واختبار مهارات القراءة لطلاب شعبة البيولوجي ، إلي جانب إعداد موديول تعليمي تم تقديمه الي طلاب شعبة البيولوجي في الترم الأول من العام الجامعي ٢٠١٦-٢٠١٧. تكون التصميم التجريبي من مجموعة واحدة تجريبية اشتملت علي عدد ٣٠ طالب في مادة اللغة الإنجليزية لغير المتخصصين ، شعبة البيولوجي ، الفرقة الأولى . أوضحت نتائج الدراسة فاعلية استخدام الموديول التعليمي في تنمية بعض مهارات القراءة لدي طلاب قسم البيولوجي بكلية التربية بالعريش و تم تقديم مقترحات و توصيات الدراسة .

الكلمات المفتاحية : استراتيجية الموديول التعليمي - مهارات القراءة - اللغة الانجليزية - طلاب قسم البيولوجي
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Background of the problem

In foreign language setting, reading is one of the most important skills among the four language skills. Shebang and Arad (2014) as well as Morataz and Mehdi (2014) agree that reading has always been an important skill to everyday life. Reading is an essential part of language instruction at every level because it supports learning in multiple ways.

Language skills are a main component of the English language. Reading is a key for developing other language skills. Reading skills include skills acquired through reading, such as comprehension, fluency and independence. Overall, these skills give students the ability to turn words on a page into a clear meaning. Maynor (2016)

Reading material is language input. By giving students a variety of materials to read, instructors provide multiple opportunities for students to absorb vocabulary, grammar, sentence structure, and discourse structure as they occur in authentic contexts. Students thus gain a more complete picture of the ways in which the elements of the language work together to convey meaning. The National Capital Language Resource Center. (2004)

In the Egyptian universities, the problem seems more serious .The researcher as a lecturer of TEFL notices during teaching ESP courses at Alarish Faculty of education that university students after years of studying English in different educational stages are not good readers. Surveying different studies that investigated reading skills at the university level in the Egyptian context (e.g. El-Embaby, 2012, Mohammed, 2016 Ali, 2015, El-Dahrawy, (2016).The researcher concluded that university students who are studying English for Specific Purposes encounter different problems in their reading skills. Also, the researcher conducted a pilot study , a test of reading included two passages for the students of first year , Physics department at Alaric faculty of education (out of the study sample) .The results of the study sample revealed that the majority of students (80 %) encountered difficulties in reading .

Statement of the Problem

The problem of the present study was stated as follows : There was a low level of reading skills among the university students at Alarish university , faculty of education .In attempt to find a solution for this problem , the present study would train these students to use educational module strategy to develop their reading skills.

Study Questions:

1. What are the needed reading skills to be developed by the students of Biology at Arish faculty of education?

2. What are the components of an educational module for developing some reading skills at Arish faculty of education?

3. What is the impact of the educational module strategy on developing some reading skills at Arish faculty of education?

Hypotheses of the Study

The first hypothesis:

There is no significant statistical difference at the level of ($\alpha \leq 0.05$) among the - mean scores of research group students (non specialists) of Biology department in pre and post application of the reading skills test.

The second hypothesis:

-There is no accepted effect size of educational module strategy on developing English reading skills for research group students (non specialists) of Biology department .

Study Aims:

A-presenting a checklist of the most important reading skills at college level.

b-preparing an educational module for developing some reading skills at Arish faculty of education

C-recognizing the impact of an educational module strategy on developing some English reading skills at Arish faculty of education.

Significance of the Study:

The significance of the present study lies in the following points:

a) This study would add to the research on the effect of educational module strategy on developing different language skills.

b) The findings of this study can be helpful for both EFL lectures and learners in terms of application educational module strategy in their classrooms.

c) Using educational module strategy to pre- service teachers will enable them to transfer their knowledge to their students.

The Study Tools:

a- A checklist of needed reading skills for the students of Biology department.

b - A test of reading skills for the students of Biology department.

A module for developing some reading skills at Arish faculty of education

The study Sample:

The study samples will be consisted of one experimental group of Biology department, first year , first term of 2016-2017 , number of (30) at Arish city . Students will be guided for using the module to develop some reading skills at Arish faculty of education.

The Study Approach:

This study will use the descriptive and semi experimental approaches for presenting the literature review and related studies of the study variables and the application of the study instruments.

Study limitations :

- This study is limited for one experimental group of Biology department, first year , first term of 2016-2017 , number of (30) at Arish city .
- A module for developing reading skills.
- This study is limited for these reading skills which are :

Drawing conclusions , inferencing and Finding the main idea, important facts, and supporting details

The study Procedures:

- Literature review and related studies on the study variables.
- Preparing the checklist of reading skills of the English language.

- Preparing the test of reading skills.
- Preparing the educational module for the students of Biology for developing reading skills.
- Judging the tools of the study by the jury members.
- Selecting the study sample of Biology department, first year 2016-2017 .
- Conducting the pre test of reading skills.
- Conducting the educational module for developing reading skills.
- Conducting the post test of reading skills...
- Conducting the interpretation of the study results.
- Presenting suggestions and recommendations of the study.

Definitions of Terms:

Educational Module Strategy (dependent Variable)

Sweet (2016) clarifies that in education, the term "module" refers to an instructional unit that focuses on a particular topic. Although the details and activities vary according to the specific context, such as course and student level, most educational modules include information about the topic, focus on student-centered learning activities and culminate in a project for students to demonstrate understanding. The researcher argues that educational module is a planned perspective which includes related information and activities to achieve the aim of the module.

Reading Skills (independent Variable): According to Hays (2016) reading skills are the skills which are acquired through reading, such as comprehension, fluency, story ending and independence. Overall, these skills give students the ability to turn words on a page into a clear meaning. The researcher defines reading skills as the skills that lead to

the understanding of words and turning that into mentally processing vision. Reading skills enable readers to turn writing material into meaning and achieve the goals .This study is limited to comprehension skills.

Review of the Related Literature:

English for Specific Purposes:

English for specific purposes (ESP) is a sphere of teaching English language including Business English, Technical English, Scientific English, English for medical professionals, English for waiters, English for tourism, English for Art Purposes, etc. Aviation English as ESP is taught to pilots, air traffic controllers and civil aviation cadets who are going to use it in radio communications. Wikipedia, 2017.

TESOL International Association (2017) declared that TESOL's English for Specific Purposes Interest Section (ESPIS) serves the needs of those teachers, program developers, consultants, and researchers who are interested in the design and delivery of courses for individuals with identifiable academic and professional goals.

Due to the constant and rapid developments, taking place in science and technology, most of the traditional models of language education have become extremely inadequate to meet the challenges of the present day's demands and practices of the academy in the world of professions. Recent research clearly favors a model of English for specific purposes (ESP) that focuses on the acquisition of professional expertise, which integrates disciplinary knowledge and professional practice in a complex and dynamic manipulation of different social situations within which most forms of specialized communication take place. Up-to-date technologies and scientific ideas continue to be exchanged all

round the world. In this line it is imperative that engineers and scientists, including graduates of technical universities, to develop the language skills necessary to be active and contributive players in the competitive world.

(Musician, 2016)

According to Ono and Murrin (2007) within an ESP course it is important learners acquire: - An English proficiency which will allow them to communicate with English-speaking specialists all over the world - A cosmopolitan, global outlook - Experiences which will enable them to communicate with other nations on equal terms outside their own country - Creative skills and self-motivation for exploring solutions to problems related to their professional domains - An appreciation of diverse cultures in the world.

As the language competence needed by engineers and scientists should be related to their professional field there is no longer need to ask if their English language skills must be improved, the question is how teachers should go about improving these skills allowing learners to perform a full-fledged communication in the typical situations of their professional activity. Thus, as the language competence needed by scientists and engineers should be related to their professional area, a language learning approach should be based on the activities that are relevant and typical to their profession in an international context. A language learning program will therefore have to improve not only the language skills as such, but will also have to enhance their comprehensive awareness enabling learners to communicate adequately with colleagues from other countries. Tilburg (2006).

Bell (2002) and Porcaro (2013) address the question of how much knowledge of the learners' field of study the ESP teacher needs to have to be able to select, adapt, simplify authentic texts and develop the manual that would meet the requirements of the NA, and then teach learners. From this point of

view the best solution is to employ an ESP teacher having a technical background relatively close to the field of study, which in many cases is not possible. Majority of ESP practitioners are not experts in the target field of the learners and have to struggle to comprehend materials they require learners to master. Such situations should induce ESP teachers to develop a special relationship with the learners, which should be more equal than in ordinary English language learning settings.

There are many studies in Egyptian context which indicated the need to develop different language skills for ESP (English for Specific Purposes) like Elshami study (2013) which investigated the effectiveness of a suggested curriculum for employing English language in teaching science based on ESP approach at experimental language schools. Also, Waly study (2013) which investigated using action learning set approach (also) to develop some English language writing skills among information and computers college students.

Elsayed (2015) evaluated English for commercial school series textbook in the light of proposed ESP criteria. Also, Abdel Hamid (2015) conducted this study to recognize the effectiveness of using podcasting in enhancing speaking for adult learners of English as a foreign language. Al-Shater, (2015) investigated the effectiveness of an ESP program in developing some language skills among faculty of commerce students. Also, The study of El-Daharawy (2016) presented the implementation of a computer-based virtual environment for developing the reading and writing skills of the first-year students at the faculty of commerce. Also, Abd-Elrazek study (2017) which indicated the effect of using an English morphology program on developing faculty of medicine students' medical communicative writing skills and language proficiency. Also, Elhefnawi (2017) conducted this study which

aimed at recognizing the effectiveness of an ESP content-based program in developing some language skills for higher institutes of social work students .

Self – Instruction Strategy

Self-instruction can be defined as the ability of one to cognitively plan, organize, direct, reinforce, and evaluate ones own independent learning without a teacher's prompting. There are three powerful influences behind self-instruction: First the learning and modelling of materials, the ability of verbalization, and finally, self-regulation (metacognition). The use of imagery, which is fundamental in the development of ones cognitive processing, is among the many connections that can be made through Distance Education. Psychology Wiki ,2017 .

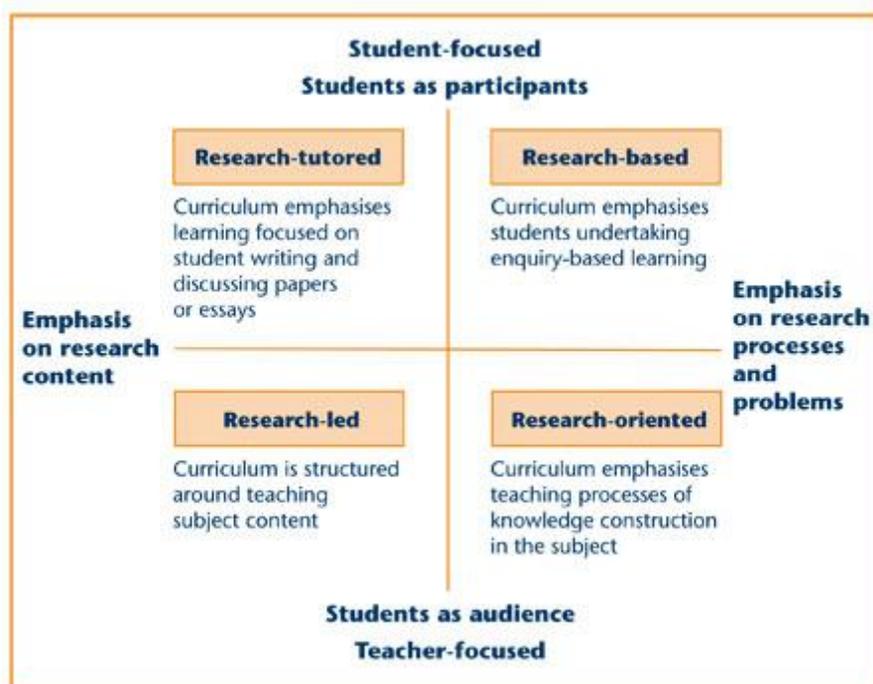
Self instruction is a cognitive technique which aims to give learners control over their behavior through guided self talk that gradually becomes covert and self generated. Self-instruction involves a person telling him or herself to do something and then doing . It has some advantages to traditional instruction. It focuses upon giving the consumer responsibility for instruction rather than relying upon a teacher or facilitator. By using “self-talk” or stating the instruction out loud, responsibility for the instruction moves from the facilitator to the learners . It is an easy procedure to develop, learn, and use. Further, self-instruction can be practiced inside and outside of a classroom or training room. Finally, it allows a learners to self-direct his or her life in settings where instructional support is not available., National Gateway to Self Determination National Office, Kansas, 2017.

Studies of Bensley et al (2006), Dimopoulos, Paraskevopoulos and Pantis (2008), Bown (2009) , Schonrock et al (2009), Loe, et al (2009), Schwab and Freeman (2011), Adani and Michael (2012) , Alelaimat and

Ghoneem (2012), Adani and Michael (2012), Hommes, and Van der Molen (2012), Talib et al (2015), Smith et al (2016) and Sinharay (2016) indicated that self-instruction can increase independence for individuals by decreasing a need for adult supports . Also, self-instruction was effective in improving the achievement in different subjects . Self – instruction helped in achieving communication processing .Besides that , these studies indicate that educational module as a technique of self-instruction strategy may help in improving the students language performance . This technique could be promising for communication skills.

Educational module :

Teaching modules are usually conceptualized as self-contained "units" of content or technique. A unit can cover just one class or more (in which latter case, the module usually specifies day 1, day 2, etc.). Modules can also teach techniques. In education, the term "module" refers to an instructional unit that focuses on a particular topic. Although the details and activities vary according to the specific context, such as course and student level, most educational modules include information about the topic, focus on student-centered learning activities and culminate in a project for students to demonstrate understanding. Sweet , 2017.



Source: Healey and Jenkins (2009, 7; amended from Healey, 2005, 70)

When designing a module, the three key points that designers need to keep in mind are:

- The starting point for good module design is the ability to write effective and relevant learning outcomes.
- The way teachers teach, the way teachers assess and the module design should all be constructively aligned.
- Research into teaching and learning has identified four factors related to module design that tend to encourage the development of criticality and four factors that tend to discourage it.

A review of a module might start by evaluating how well the existing design matches up to the principles shown above. Teachers will also want to gather data on how students have experienced the module and take advantage of any insights they may be able to give .

Enhancing your Module

Attempts at module enhancement should be focused on understanding:

1. How well a module has been delivered in terms of its intended educational outcomes, and...
2. ...the quality of student learning which has taken place.

The goal is to understand what is working well and what might need some adjustment in order to facilitate more effective learning for future offerings of the module. Module enhancement is a responsive and reflective activity based on the assumption that there are many variables at play which have an influence on how a module runs. These can include, indicatively, variables like:

1. Range of student abilities;
2. Levels of student engagement;
3. Clarity of student understanding about the outcomes and content of the module;
4. Teaching interactions between staff and students;
5. Complexity of assessment tasks.

As a module coordinator you are entrusted with responsibility for ensuring the on-going quality and relevance of some of your school's modules. In taking an enhancement approach to the delivery of your modules, you could use the following questions to take a "step back" to review how well a module is achieving its aims:

- a. In your view what aspects of this module worked really well? Why did they work well?
- b. What aspects of this module could be enhanced for the future? How might these be achieved?
- c. How well do the learning outcomes you have designed, express clearly what it is you expect students to learn in terms of the range of material? How clear is the level of academic understanding you expect the students to reach?
- d. How well does the design of the student workload support the

intended learning outcomes of the module in terms of: contact time; range and timing of assessments?

- e. What does the pattern of student grades for the module suggested in terms of how well students are achieving the learning outcomes teachers have set?
- f. How well do you think your assessments help students' learning and test their understanding of the material covered?
- g. What does student feedback reveal about their experience of the module? Teaching and Learning Centre, Dublin, 2017.

Designing effective teaching modules

Teachers in Higher Education retain a very significant advantage over teachers in other branches of education. The choice of texts and ideas which become the focus of study, the planning of experiences for students and the means by which achievement is assessed.

Designing modules is a great privilege, but also a responsibility. It can be difficult, when starting out designing modules, to know where to begin. There are three key factors to think about when designing a module which teachers can apply to any teaching subject.

1. Be clear about the module purposes and aspirations for student participants and communicate these to students.

It's important to have clear, achievable goals or outcomes for your module.

What do you want students to know, understand and/or be able to demonstrate after they complete your module? We would usually call these aims learning outcomes or objectives. Learning outcomes are statements of what skills, knowledge, or learning a student will have once they have completed the module.

Many learning objectives are based on a hierarchical model of learning first articulated by Bloom in the 1950s. Bloom’s model has been critiqued and modified since then, but it is still useful for thinking about learning outcomes.

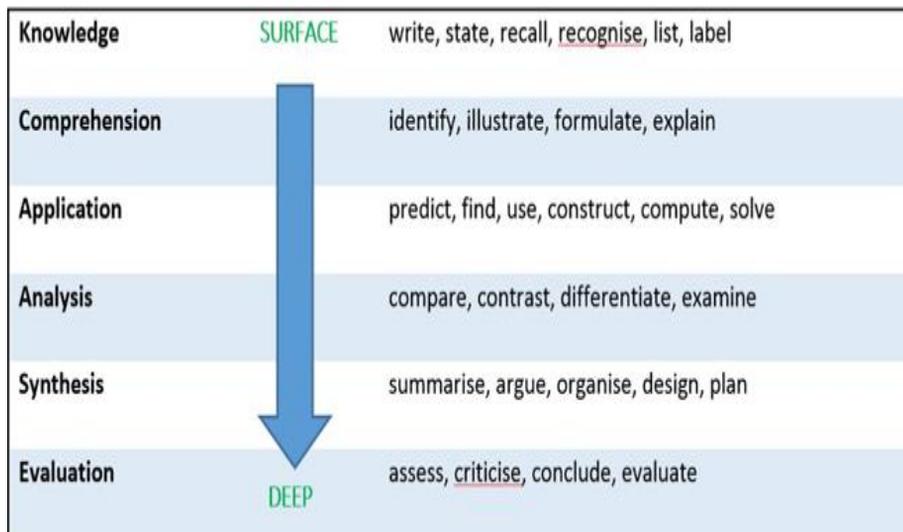


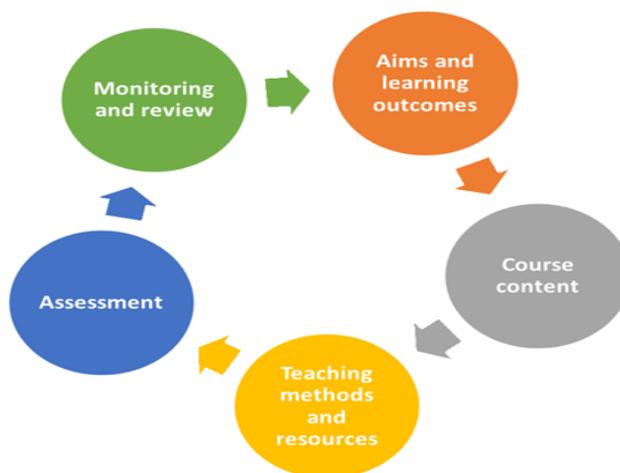
Figure no (1) Bloom Model

Bloom categorises learning into gradually increasing levels of sophistication, beginning with surface learning skills, such as recall of information, moving to deeper learning skills of assessment and evaluation. Typical learning outcomes for a module might map onto Bloom’s hierarchy, indicating the development of learning over the course of the module.

2. Make sure your module is constructively aligned (the learner actively constructs their own understanding and all teaching and assessment is aligned with the intended outcomes).

A successful module is one in where the stated learning outcomes or objectives align with teaching activity and assessment (what has been called constructive alignment). In other words, in the context of the learning outcomes, what learning activities do you want your students to engage with? What kinds of activities would lead to achieving the learning objectives? What content will be

needed to achieve learning outcomes? What support will the learners need to achieve the learning outcomes? What is the best way to assess how far students have achieved the learning outcomes? The image below is useful for thinking about how the different elements of a module fit together in constructive alignment.



3. Considering the course in context (department, institution, sector).

Finally, it's important to think about what might affect the design of a module in the context. This is likely to change the way you think about designing outcomes, learning activities, and assessment. Teachers think about:
The type of course (How long is the course? How many students? What level (e.g. undergraduate or postgraduate)? What type of students (e.g. visiting students, practitioners)?

- The resources available (Who is involved? How are roles allocated? What administrative support is available?)
- Your disciplinary context (how is the subject normally taught in your discipline? Are there any broader structures to consider (e.g. professional bodies that accredit courses)?

- National and legal requirements (Equality and diversity legislation; UK academic infrastructure and internal requirements).

Reading skills :

Definition :

Catts, and Kamhi, (2017) argued that reading is not a single ability that can be assessed by one or more general reading measures or taught by a small set of strategies or approaches. Muijselaar, et al (2017) argued that reading as a process is related with many factors like reading strategies, reading fluency, vocabulary, and working memory .

Reading as a Process :

Edwards and Taub, (2016) indicated that research indicates the primary difference between strong and weak readers is their phonemic awareness skills. However, there is no consensus regarding which specific components of phonemic awareness contribute most robustly to reading comprehension.

Barnes and Kim (2016) believed that adults enrolled in basic education exhibit poor academic performance, often reading at elementary and middle-school levels. There is a need for controlling word reading and language skills for adults.

Nouwens, Groen, and Verhoeven, (2017) added that working memory is considered a well-established predictor of individual variation in reading in children and adults. However, how storage and processing capacities of working memory in both the phonological and semantic domain relate to reading comprehension is still unclear. semantic storage plays a more important role in reading than previously thought.

Moonand (2017) justified that reading, or understanding the author's message, is a critical component of learning . The university students reported more enjoyment and understanding of reading while using technology . The university teacher candidates gained valuable experience as they worked on a

technology-enhanced learning experience with actual students. It was suggested that student-centered reading activities on the iPad can lead to better student achievement in reading .

Wong (2017) is supporting the predictive influence of character reading and listening comprehension on reading comprehension besides that language comprehension and literacy development are interrelated in young second language learners.

Mellard, and Fall (2012) believed that four composite variables representing word skills, language comprehension, memory, and fluency errors may help in building component model of reading for adult education participants.

Murphy (2016) mentioned that there is a predictive relationship between adult students' reading assessments in four component sub-skills (phonological decoding, vocabulary, fluency, and spelling) and their gains in reading. Teacher knowledge about fluency instruction, vocabulary instruction, and reading instruction were also significant predictors of gains in reading skills .

Barnes et al (2017) argued that reading component skills are including decoding, language comprehension, and reading fluency besides eye movement variables for connected-text oral reading. Eye movement comparisons between individuals with higher and lower oral reading fluency revealed within- and between-subject effects for word frequency and word length as well as group and word frequency interactions.

Fracasso et al (2016) added that the Adult Basic Education (ABE) is related with the relative contributions of phonological decoding and morphological awareness to spelling, vocabulary, and reading .

Lesaux and Harris (2017) added that reading research and theories, suggest that reading processes are to support effective construction of a rich

mental representation of the text, they must be accompanied by relevant background knowledge and language skills.

Components of reading processing :

1. Phonomic Awareness

Phonemes are the smallest units of sound that make up spoken words and Phonomic Awareness is defined as the ability to “focus on and manipulate phonemes in spoken words.” Phonomic awareness impacts meaningful reading, and thus it is critical for students to develop this skill. When a person hears and can understand the three sounds that the word ‘cat’ has, they’ve demonstrated their understanding.

Some skills involved in phonomic awareness include:

- Identifying specific sounds at the beginning, middle, and end of words. For example, what is the first sound in the word “Table.”
- Blending sounds. For example joining /s/ and /it/ to form sit.
- Making a new word by adding a phoneme to a word. For example, deriving what work is created when adding /s/ to the word “and.”

2. Phonics

Phonics are a set of rules that specify the relationship between letters and sounds. The English language has such rules that help predict the sounds in new words. However, it is not always consistent.

Learning about phonics will help students read and spell easily and accurately. It involves recognizing letter-sound relationships and then using those relationships to read connected text.

An example of Phonics is learning about the various letter combinations that can be used for the sound /k/

3. Fluency

Fluency is the accurate and rapid recognition of words in a text and using phrasing and emphasis in a way that makes what is read sound like spoken language.

Fluency is important for reading comprehension, because it frees up working memory in the brain providing an opportunity for students to comprehend what they are reading.

4. Vocabulary

Vocabulary refers to the words that we use in reading, writing, listening and speaking. A good vocabulary helps ease word recognition, and thus makes reading easier.

5. Comprehension

Comprehension is the final goal of reading. This involves being able to connect what has been read to what the reader knows, constructing meaning that is reasonable and accurate and then, contemplating this information until the meaning is understood.

While teachers often focus on this aspect of reading, it is important to understand that difficulties in this area are often a result of deficits in other aspects of reading. Professional Learning Center (2017) .

Reading Strategies

Strategies that can help students read more quickly and effectively include:

- Previewing: reviewing titles, section headings, and photo captions to get a sense of the structure and content of a reading selection
- Predicting: using knowledge of the subject matter to make predictions about content and vocabulary and check comprehension; using knowledge of the text type and purpose to make predictions about

discourse structure; using knowledge about the author to make predictions about writing style, vocabulary, and content.

- Skimming and scanning: using a quick survey of the text to get the main idea, identify text structure, confirm or question predictions
- Guessing from context: using prior knowledge of the subject and the ideas in the text as clues to the meanings of unknown words, instead of stopping to look them up.
- Paraphrasing: stopping at the end of a section to check comprehension by restating the information and ideas in the text. The National Capital Language Resource Center (2004) .

Reading skills development hold a main process in English language learning.

There are some related studies for developing the reading skill . Altmisdort (2016) investigated whether transfer from L2 to L1 in reading occurs, and if so, which reading sub-skills are transferred into L1 reading. The aim is to identify the role of second language reading skills in L1 reading skills by means of transfer. In addition, the positive effects of the second language transfer to the first language in the context of reading skills and sub-skills were analyzed. Fifty-three native Turkish-speaking adults English language learners were tested in this study. These participants were university students who had the same L1 Turkish proficiency backgrounds. While 26 students took L2 reading courses for four months, the other 27 students did not take any L2 reading courses. After four months of L2 reading courses, these two groups were given a standard L1 (Turkish) reading test. The Turkish reading test included vocabulary, comprehension, grammar and reading sub-skills questions. The results revealed that L1 reading skills were affected positively by the L2 reading skill transfer.

The study reveals which L1 reading sub-skills are more developed by L2 reading skills transfer.

Nevo et al (2016) pointed out that it has been well established that poor reading skills in the first grades of primary school can lead to poor reading skills in all coming years. A reading acceleration program (RAP) known to improve reading skills in adults and children with and without reading difficulties (RD) was tested for its effect on children in second grade with standard reading skills. Seventy-nine learners in second grade were divided into two study groups and one control group. Each study group received a training program that emphasizes reading skills: decoding, fluency, and comprehension were trained at the levels of words and sentences in Version A and at the levels of words and paragraphs in Version B. Both programs significantly improved reading skills compared with the control group that was not trained: Group A improved word fluency whereas Group B improved accuracy measures (word, pseudo-word, and text). Both training groups showed significantly greater improvement over time than the control group on reading comprehension. It was concluded that a RAP training that combines words, sentences, and paragraphs is the most effective for improving reading skills.

Conord (2016) indicated that prominent models of word reading concur that the development of efficient word reading depends on the establishment of lexical orthographic representations in memory. In turn, word reading skills are conceptualised as supporting the development of these orthographic representations. As such, models of word reading development make clear predictions of bidirectional relations between lexical orthographic knowledge and word reading skill. Lexical orthographic knowledge and three aspects of word reading skill: word reading accuracy, word reading efficiency, and

phonological decoding are assessed . Consistent with theoretical predictions, we found that earlier word reading accuracy, word reading efficiency, and phonological decoding predicted gains in lexical orthographic knowledge. Contrary to theoretical predictions, lexical orthographic knowledge did not predict gains in any of our measured word reading skills.

Instrument and material :

The list of reading skills :

The list is prepared to answer the first question of the study which is:

- What are the needed reading skills to be developed for the students of Biology department at Alarish faculty of education ?

The list of reading skills is prepared through literature review and related studies. The list included reading skills which are :

-Summarizing

-Sequencing

-Inferencing

-Comparing

- Contrasting

-Drawing conclusions

-Self-questioning

-Problem-solving

-Relating background knowledge

-Distinguishing between fact and opinion

-Finding the main idea, important facts, and supporting details

This study is limited for these reading skills which are :

Drawing conclusions , inferencing and Finding the main idea, important facts, and supporting details

The educational module:

The educational module is prepared in the light of literature review and related studies . The educational module consisted of different parts like pre evaluating test of the module , an introduction , literature review about reading skill , activities of reading skills , post evaluation test of the module , readings for further information , references of the module. The different activities of reading skills can be promoted and presented by different aids. These aids included pictures, cards and wall-charts besides using related web- sites.

The reading skills test :

The reading test is prepared to answer the third question of the study which is : What is the effectiveness of using educational module strategy in developing some reading skills for the students of Biology department at Alarish faculty of education ?

Aim of the test : This test is used to recognize the of effectiveness of using educational module strategy on developing some reading skills for the students of Biology department at Alarish faculty of education ?

Constructing of the test items :

In the light of the different resources of literature review and related studies, the test items were constructed . The items of the two main passages of reading followed by questions measuring the skill of comprehension. Theses questions included :

Piloting the reading skills test :

The test was administered to a pilot sample of (20) student of the physics department of Arsih faculty of education, first year , at Arish city . The test was piloted to define its statistical features as well as to determine the appropriate time.

Time of the test :

The test lasted 60 minutes according to the following equation :

$$\frac{\text{The time taken by the fastest student} + \text{the time taken by the slowest student}}{2}$$

$$40 + 80 \div 2 = 60 \text{ minutes}$$

Test Instructions :

The instructions of the test are explained clearly and orally in English during the experimentation for the experimental group to make sure that the students understood what is required in each part of the test .

The Final Form of the test :

The test is constructed and its form is appropriate for administration .The test consisted of two reading passages one consists of 5 questions , and the second consists of 10 questions to recognize the students level of English reading skills .

The Validity of the test :

The validity of the test is done by submitting the reading skills test to a jury members . Some of them are specialists in the field of language teaching , while others are specialists in the academic field of the English language. The jury members are asked to give their suggestions and comments for the items. According to the suggestions, and comments, some modifications were done to the final version of the reading skills test .

The Reliability :

Reliability of the test is statistically carried out by using spilt-half method. The test was divided into parts, thus the reliability co-efficient of the rubric was based on administrating of the test to the students of Biology department . The reliability of the test is measured by half spilt equation. The reliability of the test was (0.82).

The Experimentation:

The experimentation of the study continued for two months including presenting the reading skills test and the proposed educational module of reading . The module of reading skills helped the students of Biology department to recognize the different components of reading skill and how to develop this important skill. The students of Biology department are asked to search for some items of the reading skills by their own and to present their own reflection .The students are asked to conduct some activities for achieving the purpose of the module . These activities may help in achieving the essence of self- learning strategy. The experimentation was conducted during the teaching of English course for non specialists , first year at Arish faculty of education .

The statistical results of the study:

The first hypothesis:

H_0 : there is no significant statistical difference at the level of ($\alpha \leq 0.05$) among (the non specialist) mean scores of research group students of Biology department in pre and post application of the reading achievement test.

T value was calculated for statistical differences of the correlated mean scores for significant of research group students (non specialists) of Biology department in pre and post application of the achievement test using SPSS .The results are the following

Table No (1)

Results of t test of students marks of research group students (non specialists) of Biology department in pre and post application of reading achievement test

Application	No	Mean	Standard Divergent	Freedom degree	T value	Sig	Significance
Pre	٣٠	9.00	2.42	٢٩	6.72	٠.٠٠٠٠	Significant at the level of 0.01
Post		12.77	2.46				

This table indicates that t value is significant at the level of 0.01 and the freedom degree is 29 while the standard divergent is 2.42 in pre application and is 2.46 in post application . T value is 6.72 which indicates that there is a significant statistical difference between pre and post application and by doing so , zero hypothesis is denied and accepting the alternative hypothesis which is:

H_a : there is a significant statistical difference at the level of ($\alpha \leq 0.05$) among the mean scores of

research group students (non specialists) of biology department in pre and post application of reading achievement test for post application

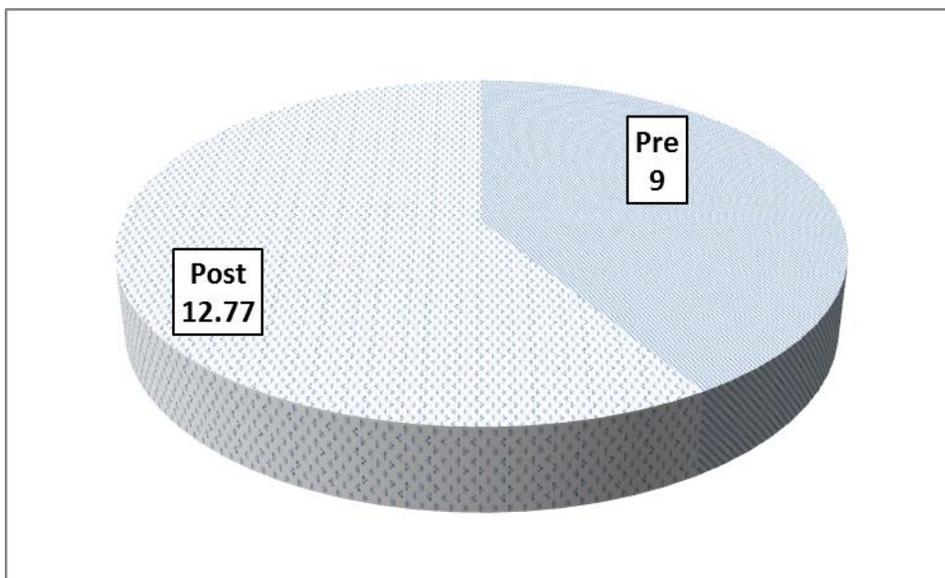


Figure No (1)

The second hypothesis:

There is significant statistical effectiveness of educational module strategy on developing English reading skills for the students of Biology department. The effectiveness was measured using the equation of earning for measuring the effectiveness using SPSS and size impact . The results are showed in the following table :

Table of size impact of the used treatment (educational module strategy on developing English reading skills for the students of Biology department.

Table No (2)

Pre mean	Post mean	Maximum degree	H-SGR
9.000	12.767	20	0.188

Reference table of effectiveness size :

Table No (3)

Big effectiveness	Accepted effectiveness	No effectiveness
٠.٧١ – ١.٠	٠.٣١ – ٠.٧٠	٠ – ٠.٣٠

- H-SGR is 0.188 which indicates that the educational module strategy has a big effect size .

Zero hypothesis:

There is no accepted impact and size effect of educational module strategy on developing English reading skills for research group students (non specialists) of Biology department .

-Alternative hypothesis:

-There is accepted impact and size effect of educational module strategy on developing English reading skills for research group students (non specialists) of Biology department .

The effectiveness is calculated using H-SGR on pre and post means of students marks of Biology department students. This table indicates these results:

The effect size was calculated of using educational module strategy on developing English reading skills for the students of Biology department using the value of t calculated from the difference of mean scores (pre and post) and freedom degree . The results are showed in the following table:

Table No (4)

Effect size of using educational module strategy on developing English reading skills for the students of Biology department

Technique	Freedom degree	T value	Pearson factor	Factored value	Size effect
<i>d</i>	٢٩	6.720	0.209	١.٥٤٣	big
(η^2)				٠.٦٠٩	

Table (4) shows that the effect size *t* is big according to *t* value which is 6.720 and Pearson factor (0,209) for reading skills test and therefore the second hypothesis of the study is accepted . The finding supports that educational module strategy may help on developing English reading skills for college students

The effect size was calculated of using educational module strategy on developing English reading skills for the students of Biology department using the value of *t* calculated from the difference of mean scores The results indicated that the effect is big .

The researcher concluded that according to the table results that the gain value is existed in the range of effectiveness and the effect size is big that there is an effectiveness and effect size of using educational module strategy on developing English reading skills for the students of biology department.

Findings Discussion of the study:

Findings of the study helped in recognizing the interpretation of the statistical analysis of the reading skills test . The hypothesis of the study are the following

The first hypotheses:

There is no significant statistical difference at the level of ($\alpha \leq 0.05$) among
- the

mean scores of research group students (non specialists) of Biology department in pre and post application of the reading skills test.

The second hypotheses:

-There is no accepted effect amount of educational module strategy on developing English reading skills for research group students (non specialists) of Biology department .

According to the statistical results of the study , the researcher urges that these results are consistent with the studies of Bensley et al (2006), Dimopoulos, Paraskevopoulos and Pantis (2008), Bown (2009) , Schonrock et al (2009), Loe, et al (2009), Schwab and Freeman (2011), Adani and Michael (2012) , Alelaimat and Ghoneem (2012), Adani and Michael (2012), Hommes, and Van der Molen (2012), Talib et al (2015), Smith et al (2016) and Sinharay (2016) indicated that self-instruction can increase independence for individuals by decreasing a need for adult supports . Also, self-instruction was effective in improving the achievement in different subjects . Self – instruction helped in achieving communication processing .Besides that , these studies indicate that educational module as a technique of self-instruction strategy may help in improving the students language performance . This technique could be promising for communication skills.

For using educational modules , Birol et al study (2006) indicated the effectiveness of educational modules in tissue engineering based on the "how people learn" framework.

Also, Alelaimat et al study (2012) revealed the effect of educational modules strategy on the direct and postponed study's achievement of seventh primary grade students in science, in comparison with the conventional approach.

Javed, M et al (2015) . Developing reading comprehension modules to facilitate reading comprehension among Malaysian secondary school ESL students.

Ong and Tasir (2015) studied the information retention among trainee teachers using a self-instructional printed module based on Cognitive Load Theory for learning spreadsheet software . The module are so as to produce trainees with a deeper comprehension and better retention of information and communication technology knowledge and skills.

Sayeski et al (2015) urged that multimedia modules may be a promising avenue for providing instruction for teacher students with reading disabilities or who struggle with beginning reading have difficulty with phonology and concepts associated with the alphabetic principle. Additional research, however, is needed to ensure mastery of knowledge and to evaluate how principles of effective instruction can guide multimedia module use by teacher educators. Bai et al (2016) pointed out that web-based interactive modules on Engineering improved students' learning motivations.

These studies indicated the role of educational modules on developing achievement and motivation of students and teachers . The educational module helped in producing trainees with a deeper comprehension and better retention of information and skills.

Conclusion

This study suggests that educational module leads to superior improvement of reading skills compared to the traditional method of teaching reading . However , this conclusion is limited by the participants' level and the length of the study .

Study Suggestions

- Recognizing the students problems in reading skill at other educational stages
- Identifying the different reasons of student teacher weakness in reading skills

-Using the English language labs in developing the reading skills for the student teachers of English department .

-Using different tools of technology in developing reading skills for children in primary schools .

Study Recommendations

-Presenting a training program based on multimedia tools in developing the reading skills for the student teachers of Biology department.

-Presenting a training program based on educational scaffolding in developing the reading skill for the students of secondary schools .

-The effectiveness of using active learning strategies in developing spelling skill for the students primary schools .

-The effectiveness of using brain storming strategy in developing spelling for the student teachers of Biology department.

-The effectiveness of using educational modules in developing different English language skills .

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