Investigating the Effectiveness of Direct Method and Grammar Translation Method in Teaching Reading Skills

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Keywords

1. Direct Method
2. Grammar Translation Methods
3. English For Medical Purposes
4. Reading Skills

Abstract:

This study investigates the impact of Grammar Translation Method (GTM) and the Direct Method (DM) on the development of reading skills of the first-year medical students at 21 September University for Medical and Applied Sciences in Sana'a. A total of 120 students enrolled in an English for Medical Purposes (EMP) course were selected through a random sampling technique and divided into three groups, each consisting of 40 participants. The first and second groups are assigned to Direct Method and Grammar Translation Method respectively, and the third (i.e., the control group) to Lecture Method (LM) .

The study employed a quasi-experimental design with pre- and post-tests over a two-month intervention period. Data were collected through tests and semi-structured interviews. Test results were analyzed quantitively using SPSS and interview data were analyzed qualitatively to capture teachers' perspectives. Findings from both quantitative and qualitative analyses indicated that Grammar Translation Method and Direct Method were more effective than Lecture Method in enhancing reading skills. These gains were evident in key reading domains, including comprehension, vocabulary, and grammatical accuracy. The study recommends further longitudinal research into varied instructional methods to assess their long-term effects on medical students' reading proficiency and to inform EMP curriculum development.

دراسة تحقيقية لتدريس مهارات القراءة في العلوم الطبية باستخدام المنهج المباشر ومنهج ترجمة القواعد

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الكلمات المفتاحية

2. منهج ترجمة القواعد		1. المنهج المباشر	
4. مهارات القراءة		3. اللغة الإنجليزية للأغراض الطبية	

الملخص:

يهدف هذه البحث إلى إجراء دراسة تحقيقية يتم من خلالها تقييم أثر تطبيق المنهج المباشر ومنهج ترجمة القواعد في مهارة القراءة في المجال الطبي. وقد استخدمت الدراسة تصميمًا تجريبيًا يجمع بين المنهجين الكمي والنوعي، حيث تكون مجتمع الدراسة من طلاب المستوى الأول بجامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية. واقتصرت العينة على 120 طالباً، تم اختيارهم بالطريقة العشوائية، موزعين على ثلاث مجموعات: المجموعة التجريبية الأولى (المنهج المباشر – 40 طالب) والمجموعة التجريبية الثانية (منهج ترجمة القواعد – 40طالب) والمجموعة الضابطة (الطريقة التقليدية – 40 طالب). وتم جمع البيانات باستخدام الأدوات التالية: اختبار تحصيلي قبلي وبعدي، ومقابلة شبه منظمة مع سبعة مدرسين لمادة اللغة الإنجليزية للأغراض الطبية بالجامعة. وتم قياس ثبات الاختبار من خلال تطبيقه على عينة استطلاعية من غير عينة الدراسة وحسب معامل ثبات الاختبار التحصيلي بطريقة كرونخ وبلغ معامل ثباته في مهارة القراءة (0.87). وقد تم تحليل البيانات الكمية باستخدام برنامج (SPSS) بينما تم تحليل البيانات النوعية تحليلًا موضوعيًا. وأظهرت النتائج تفوق المجموعتين التجريبيتين (المنهج المباشر ومنهج ترجمة القواعد) على المجموعة الضابطة (الطريقة التقليدية) في تعزيز مهارات القراءة في المجال الطبي.

وخلصت الدراسة إلى عدد من التوصيات أهمها: اعتماد طرق التدريس القائمة على المنهج المباشر ومنهج ترجمة القواعد ضمن مناهج تعليم اللغة الإنجليزية للأغراض الطبية وتوسيع نطاق تطبيقها ليشمل مهارات لغوية أخرى.

Introduction:

Learning a foreign language needs life-long process, and it cannot be accomplished through passive reception of information or by mere drilling. It must be acquired through an active practice attainable via active teaching methods. Throughout the years, different approaches and methods in foreign language teaching have been the subject of discussion. Methods are the notion of a systematic set of teaching practices based on a particular theory of language, and they are powerful in providing a more effective way of teaching (Richards and Rodgers, 2001). Their proliferation is a prominent characteristic of contemporary second and foreign language teaching. To some extent, this reflects the strength of the profession of teaching, through which the invention of new classroom practices and approaches to designing language programs and materials reflect a commitment to finding more efficient and more effective ways of teaching languages. To add, the classroom teacher and the program coordinator have a wider variety of methodological options to choose methods and materials according to the needs of learners, the preferences of teachers, and the constraints of the educational setting (Richards and Rodgers, 2014). However, teaching and learning are two crucial factors in education that are not separable from each other, and their parallel occurrence in pedagogy is not deniable. These two dependable factors need an appropriate selection of teaching methodology and teaching style that leads to fruitful learning and pave the way to an acceptable outcome and achievement. A large number of scholars confirm the impact of an effective teaching methodology on learning (Miglietti and Strange, 1998). Besides teaching methodology, appropriate choice of materials and learners' needs analysis should be considered as well. Accordingly, Prabhu stated that what is best depends on the chosen method, in what circumstances, for what purpose, and so on (1990). Therefore, pedagogy is a critical item, and the role of teachers in instructing their students is so significant as well.

Among the variety of academic educational fields, one of the most popular areas is applied linguistics, which is related to language teaching and learning and has observed several language teaching methodologies in different eras. Accordingly, several methods emerged in different periods to fulfill specific purposes. Two of the most common methods used in foreign language teaching are Direct Method (DM), in which the second language learning is similar to the first language learning, and Grammar Translation Method (GTM), which is the use of grammatical aspects of language and the use of translation as a means of ascertaining comprehension (Zainuddin and Yahya, 2015). Grammar Translation Method is known as a classical method that was primarily used in teaching classical languages, including Latin and Greek. It is a method of foreign or second language teaching which makes use of translation and grammar study as the main teaching and learning activities (Richards and Schmidt, 2010). Then, the idea of monolingual teaching approach that traces back to the presence of Direct Method, completely banned the use of learners' L1 in L2 teaching process. That insight into language teaching came in the wake of a fresh understanding of the nature of language as an active, dynamic and structured system (Mukalel, 2007). Therefore, these two methods were introduced to language teaching and learning in two different eras. They are familiar to instructors and teachers, and they are widely used in many areas all over the world. Although they are both useful for foreign language teaching, they differ in terms of goals of teachers, effectiveness and the ease of implementation.

Among all different methods of teaching and learning English, English for Specific Purposes emerged as "an approach to language teaching in which all decisions as to contents and methods are based on the student-centered learning" (Hutchinson & Waters, 1987). The student-centered learning focuses on specific topics and skills English for Specific Purposes learners need in a particular subject area. To add, it helps learners understand the language

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and ideas of their own field of activity (Woodward-Kron, 2008; Coxhead, 2013). English for Medical Purposes is a sub-branch of ESP, which refers to teaching and learning English in medical environment. Studying English for medical purposes (EMP) has become one of the priorities in medical education (Cargill & O'Connor, 2006). For keeping pace with research in medicine and clinical practice, a healthcare professional has to use English in their work (Mitrofanova et al., 2018). So, lack of medical language competence in doctors working in some countries may have a negative impact on the quality of provided medical care.

The present study is situated within a specific pedagogical problem observed in the Yemeni context. Since some medical universities administer an admission exam to applicants across their faculties, candidates must possess some basic skills in medical English. However, there is often substantial variation among candidates in terms of language proficiency; most of the students could barely recognize meaning but not produce it, and they lack fluency and accuracy. They also have problems with the other different skills. There is, still, a dilemma for those students; since English is the medium of instruction in medicine, they will not have real access to a great deal of medical information or may not be able to understand and participate at English-medium conferences. In addition, the major problem that often encounters the medicine students at 21 September UMAS is that English is the only language of instruction across all the medicine faculties and departments at the university. This problem is due to the fact that the majority of the students have very low English proficiency, and therefore they struggle to catch up with general language proficiency and find even the basics to be overwhelming. In fact, the process of teaching EMP at different Yemeni universities is not satisfactory. The students are not able to understand lectures. They are not able to apply what they learn in their English classes to their major fields of study, which results in a lack of an effective interaction between lecturers and students. The main

impediment lies in the differences of students' language proficiency level. Taking into account all these aspects, the priority of the current research is to determine the best method for teaching English for Medical Purposes since most of the students are highly motivated to learn medical English. All medical students at the 21 September University of Medical and Applied Sciences (UMAS) and other Yemeni educational institutions will benefit from the results of this research.

In response to this problem, the primary aim of this research is to investigate the effect of the Direct Method and the Grammar Translation Method in comparison with the traditional method of teaching reading skills in medical sciences. This broad objective can be delineated into several specific aims: to examine the effect of the Direct Method on the development of reading skills through assessing the medical students' level before and after the treatment; to investigate the parallel effect of the Grammar Translation Method; to measure the effects of both DM and GTM in comparison to that of the traditional method (LM); and ultimately, to determine the most effective method for improving reading skills in a medical environment.

The significance of this study is underscored by the difficulties students of medical specialties encounter in learning English for Medical Purposes. This research will therefore attempt to pave the way for EMP teachers and learners to achieve the best outcomes from the teaching and learning process. Furthermore, the research possesses both theoretical and practical significance, as it provides a reliable investigation of two selected teaching methods to achieve desired learning outcomes and fulfill EMP learners' needs. The findings will have practical applications for assessing and enhancing students' reading skills achievement within a medical context, which contributes to successful EMP classes. It is expected that this study will be significant in guiding the selection of the most appropriate teaching method for EMP teachers at 21 September UMAS, offering them valuable insight into the methods that best meet their students' requirements.

Concerning the previous studies, it is noticed that many studies have been conducted on the area of using GTM in language teaching as a foreign language. Those studies have contributed a lot to the development of the discipline of language teaching. Various studies tried to prove that GTM is one of the most effective pedagogies applicable to the L2 teachers. Javid et al. (2018) conducted a study with the purpose of evaluating the satisfactory level of students of medicine about GTM and Communicative Language Teaching (CLT) at Urmia University of Medical Sciences, Iran. According to the aim of the study to investigate students' attitudes toward GTM and CLT, and evaluate their preferences concerning these two teaching methodologies at UMSU, the findings revealed that CLT method was not a preferred approach among the students. The majority of students preferred the presentation of content in GTM model. So, the results revealed that CLT in its state of practice is not in favor of learners in some cases, mainly among the students of medicine at UMSU.

Chang (2011) undertook a contrastive study of GTM and Communicative Approach in teaching English grammar at Cheng Shiu University, Taiwan. The findings showed that GTM is more effective than the Communicative Approach. He argued that both respectively bring accuracy and fluency, which are the goals of English learning. The Communicative Approach highlights fluency, and the GTM is related to accuracy. The result also showed that the best way is to combine both methods in teaching English Grammar. Also, Mondal (2012) conducted a survey study to gather data from teachers and students at Bangladesh university to determine whether the translation method was beneficial. Accordingly, he agreed with Chang that the GTM is an appropriate method whose combination with communicative approach will create a beneficent methodology that will fill the gaps of each previous method. The GTM was a good attempt to uphold these traditions to the requirements and overall environment of schools. Its basic aim was to make language learning easier and interesting. Aqel carried out a study about the effect of using the GTM on acquiring English as a foreign language. He investigated the effect of using GTM on acquiring English as a foreign language. The study included 20 students from Grade 10th from Al-Mazar government school, Jordan. The instruments used in the research were test and questionnaire. The research concluded that the students who were taught by using GTM not only improved in grammar, but they also achieved greater self- confidence. Accordingly, it indicated that there was a positive effect of using Grammar Translation Method on English as a foreign language acquisition (2013).

In Liao's large-scale study, in which a questionnaire focusing on merits of using translation in teaching is administered to 351 college students in Taiwan. The participants' attitudes toward using the GTM in classrooms were positive. He drew the following positive conclusions about the use of translation in foreign language teaching:

- it may help students to better understand the L2;
- it may help students to evaluate their comprehension;
- it eases memory impediments in learning new items, idioms, syntax and grammar;
- it may help students to develop and express ideas in the L2;
- it can reduce learning anxiety and boost motivation to learn the L2 (2006).

Regarding the use of L1 in L2 context as one of the typical features of the GTM, the same results were reported by Schweers among Spanish students at the University of Puerto Rico, who preferred the GTM (1999). He compared students' and teachers' views on the use of L1 in L2 classroom, using a questionnaire for students and teachers, recordings of the classes to check L1 use, and interviews with teachers. He found that 88.7% of students and 100% of teachers agreed with using L1 in EFL classes, especially in the

explanation of difficult contents. Tang also reported a similar finding in a study conducted on 100 Chinese EFL students. The data was collected through interviews and observations. Statistically, about 97% of students preferred their teachers' using L1 in their EFL classroom. He added two more reasons for using L1 in the L2 classes: effectiveness and being less time-consuming (2002).

The Direct Method revolutionizes teaching methodologies, especially in speaking, reading, listening, and writing, and researchers examined and found it appropriate, meaningful, and useful method (Ormrod, 2021) . Daud et al. conducted a study about the role of Direct Method and Grammar Translation Method in improving students' reading comprehension. The purpose of their study was to find out which method is more effective in improving the reading ability of the students at SMPS Berbudi Kopian. Based on the results of the analysis using SPSS in that study, it was shown that the two methods slightly improved the students' reading comprehension at SMPS Berbudi Kopian, especially in grade VIII. The results of this study also showed that the Grammar Translation Method improves students' reading ability more than the Direct Method (2022).

Quraishi, et al. conducted a study about the effect of the DM on the academic achievement of high and low achievers in the subject of English at the secondary level**.** For that purpose, the pre-/post–test equivalent group design was used. The result showed that the Direct Method was more effective than the Grammar Translation Method (2010).

In a research paper, Shah et al. showed the impact of DM and GTM on the students' performance. The impact of teaching techniques on secondary school students' performance was investigated. The study also investigated the interaction between teaching approach and medium of instruction on students' language proficiency. Students' data was collected for that purpose from both Urdu and English medium schools. The DM and the GTM were used to teach the students. To examine the differential influence of teaching styles on student academic progress, statistical

analysis employed the general linear model and hierarchical regression analysis. The results were surprising. The post-test mean scores of the two groups in the multiple-choice test, for example, showed significant differences. The findings showed that the language of communication had a great influence on how well students did in school. Furthermore, the language of education and the methods of instruction had a significant interaction effect on students' performance. Finally, the students who were taught using the Grammar Translation Method obtained higher mean scores than those who were taught using the Direct Method**.** The findings concluded that the Grammar Translation Method is both more accurate and more practicable in Asian educational contexts than the Direct Method (2022).

Peters wrote an MA thesis in which she compared GTM and DM at Indiana State University. The findings showed that the GTM is better than the DM during the first semester in translation, vocabulary, and comprehension, whereas the DM is better than the GTM in the second semester in dictation, reading, pronunciation, aural comprehension, and grammar (1931).

However, while many scholars emphasized the effectiveness of using translation in teaching the second language, there are others who do not advocate it. For example, Machida (2011) pointed out that translation can be a beneficial tool in the L2 classroom to help improve form and meaning, allowing students to transfer a message correctly. The act of translating enables learners to understand errors and address them at a higher cognitive level, instead of eliminating them in their language output.

Despite these findings, several gaps remain. Geographically, no studies have investigated the GTM and DM with ESP students in Yemen. Contextually, there is a lack of research on discipline-specific reading skills in medical ESP. Methodologically, many of the studies mentioned above dealt with either one single method of teaching or with GTM and another method other than DM. So, this study is the first to fill this gap through investigating the effect of GTM and DM compared to the traditional

method (LM) of teaching reading skills at 21 September university.

1. Hypotheses of the Study:

The current study is aimed at testing the validity of the following hypotheses:

1. There are no statistically significant differences at the level of 0.05 between the means of pretests and post-tests within each method of teaching reading skills of medical English.
2. There are no statistically significant differences at the level of 0.05 among the means of students' post-test scores in reading skills of medical English by using DM, GTM and LM.

3. Methodology of the Study:

3.1. Research Design:

In this study, the experimental research design is utilized with three groups as follows:

- First experimental group which was assigned to the DM.
- Second experimental group which was assigned to the GTM.
- Control group which was assigned to the traditional method – LM.

To clarify, the researcher uses the experimental design in order to find out whether the methods under scrutiny are effective in improving the students' performance in terms of reading skills. So, in this research, the pre-test and post-test are given to the experimental and control groups with the same test and topic. The pre-test is given to measure the homogeneity of the students and their language levels before implementing the treatment, whereas the post-test is given to find out the results of the teaching process in the three groups and to know the learning outcomes after the treatment. Accordingly, the improvements between pretest and post-test are compared and they are used to draw the conclusion to the purpose of the study.

3.2. Population of the Study:

The first level students and English teachers at 21 September UMAS in the academic year 2023 are the population of this study. The total number of the population is (384), distributed across nine majors as is shown in the following table:

Table (1) Distribution of Students in 21 September UMAS –General System

No.	Department	No. of students
1	Human Medicine	60
2	Clinical Pharmacy	40
3	Nursing	40
4	Medical Administration	64
5	Anesthetics	40
6	Operations Technology	40
7	Radiology	40
8	Labs	38
9	Midwifery	40
	Total	384

3.3. Sample of the study:

This study used a sample of 120 students divided into three groups. The researcher employed a simple random sampling technique to ensure the sample's validity and representativeness. The key reasons for choosing this method were:

- It gives every individual in the population an equal and independent chance of being selected.
- It allows for the measurement of estimation errors, making the results more statistically reliable.
- It ensures the sample will have similar characteristics to the overall population (Kothari, 2004).

To illustrate the process, the researcher provided a simplified example: from a population of 9 departments (N=9), they randomly selected a sample of 3 (n=3) using a lottery method (Kothari, 2004). From the 28 possible combinations, the departments of Anesthetics (f), Radiology (g), and Operations Technology (h) were selected. These were then randomly assigned to the three study groups:

- First Experimental Group (DM): Anesthetics (f)
- Second Experimental Group (GTM): Operations Technology (h)
- Control Group (LM): Radiology (g)

3.4. Instruments of Collecting Data:
The instruments utilized in the present study are as follows:
- Test (pretest and post-test)
- Interview (semi-structured)

3.4.1. Test
Test is one of the instruments used to collect the data and information needed in this research. The test features different questions designed to measure the language proficiency level of the students in terms of reading skills. It was intended to find out the students' ability before and after the treatment was carried out. Specifically, the tests were used to find out the students' achievements in terms of reading skills. The pre-test is given before the treatment to determine the students' knowledge of the material that would be taught. It was also given to measure the homogeneity of the students. The post-test is given to find out the results of the teaching process in the three groups and to know the achievement of learning after the treatment. Accordingly, the improvements between pretest and post-test were compared and they were used to draw the conclusion to the purpose of the study. Therefore, the pre-test and post-test of all groups were similar.

3.4.1.1 Types of the Questions:
3.2.1.1.1. Reading skill:
It consists of three types of questions drawn from unit (3), *Nursing (1) Book, Oxford English for Careers* (Grice, 2011). They were as follows:
a. True or false (comprehension): there are 6 items and each item was scored 5, so the total score of this type was 30.
b. Matching (vocabulary): there were 7 items and each item was scored 5, so the total score of this type was 35.
c. Multiple choice: there were 7 items and each item was scored 5, so the total score of this type was 35.

3.4.1.2. Test Validity
The test of this study is validated by 10 university professors who have long experience and interest in teaching English at the undergraduate and postgraduate levels in English departments at the universities of Sana'a, Aden, Taiz, Thamar, Hajah, Al-Baidah and Al-Razi. They were requested to give their viewpoints and comments on the appropriateness to the reading tests whose aims were to examine the linguistic content. They agreed on the validity and suitability of the tests. After making some revisions, a pilot test was conducted on 20 students before conducting the main study. Then, the exams became validated to be applied to the research sample.

3.4.1.3. Test Format
The test format is built in the light of student's book and practice file, (*Nursing -1- Book, Oxford English for Careers*). The test features different types of questions such as:
3. True or false
4. Matching
5. Multiple choice

Furthermore, the comments of English professors and experts at the universities of Sana'a, Aden, Taiz, Thamar, Hajah, Al-Baidah and Al-Razi were taken into account when preparing the test.

3.4.1.4. Test Instructions:
Clear instructions are given to students. The clarity of instructions affects the examinee's results. In this regard, a number of experimental researches investigated the effect of test instruction transparency and clarity and all concluded and came to the point that the more unclear the test instructions are the more negative results the test produces. Accordingly, the items and instructions were introduced clearly in the test application.

3.4.1.5. Test Correction
Scores earmarked to items in reading skills are as follows:

a. True or false (comprehension): there were 6 items and each item was scored 5, so the total score of this type was 30.
b. Matching (vocabulary): there were 7 items and each item was scored 5, so the total score of this type was 35.
c. Multiple choice: there are 7 items and each item was scored 5, so the total score of this type was 35.

3.4.2. Interview:

The researcher conducts a semi-structured interview, which is perhaps the most common type of interview used in qualitative researches. In this type of interview, the researcher wanted to know specific information which could be compared and contrasted with information gained from each interviewee (Dawson, 2002). To do that, the same questions needed to be asked in each interview. However, the researcher also wanted the interview to remain flexible so that other important information could still arise. For that type of interview, the researcher produced an interview schedule and questions.

The researcher conducted a semi-structured interview with teachers at 21 September UMAS for the purpose of evaluating the satisfactory level of EMP teachers about GTM and DM of teaching reading skills. To that end, all of the 10 teachers at 21 September UMAS voluntarily took part in the interview which contained 6 questions for obtaining information about the GTM and DM as well as their attitudes toward the teaching of those two methods. They were asked to express their opinions about the importance of GTM and DM and their improvements in teaching reading in medical sciences. All of them were interviewed in English by the researcher during 4 days. 3 teachers preferred to be interviewed at the library room, while others preferred to be interviewed in the staff room. 20 minutes was dedicated to every interview. Because of being fazed or nervous by the presence of a tape-recording, all ignored to be audio recorded. So, the researcher was only allowed to take notes during the interview.

3.5. Pilot Study

The pretest and post-test in their final formats are ready to be applied to the pilot study subjects who were selected from department of midwifery to participate in the pilot study application. They were 20 students. So, the pilot study was conducted to:
1. Eliminate any ambiguous or confusing items.
2. Determine the test reliability.
3. Investigate the exact time for the test.
4. Determine the adequacy of time frame for task completion.

3.6. Reliability:

The tests were administered to the pilot study subjects in order to ensure reliability. So, **Cronbach Alpha** was conducted to estimate the reliability of the designed tests as in the following tables:

Table (2) Reliability of the Test

Cronbach's Alpha	No. of Items
.868	20

3.7. Teaching materials

The materials used in this study contained an English course book as EMP with exactly similar content taught by two different teachers in three different teaching methods, namely DM, GTM and LM. The researcher also used teacher's resource book as a guide in the teaching process. So, the books used for conducting the treatment are:
- Student's book, "*Nursing (1): Oxford English for Careers*" by Tony Grice, unit three " Hospital Admission" (2011).
- Teacher's resource book, "*Nursing (1): Oxford English for Careers*" by Tony Grice, unit three " Hospital Admission" (2011).

3.8. Variables of the study:

3.8.1. **Independent variables:** It had three methods of teaching, which were as follows:
a- Direct Method
b- Grammar Translation Method

c- Lecture Method

3.8.2. Dependent Variables: They were as follows:

  a- Students' results of pre and post-tests of reading skills (students' learning achievement).

3.9. Techniques of Statistical Analysis

A number of statistical techniques were used to analyze the research data. All of the data in the exams were processed by SPSS software, version 22, and they were analyzed by the researcher statistically. So, the researcher used various statistical formulas as follows:

- **Mean**
- **Standard Deviation**
- **Cronbach Alpha** was conducted to estimate the reliability of the designed exams.
- **Paired t-test:** The researcher used *paired t-test* (or what is known as difference test) for judging the significance of the mean of difference between pretest and post-test.
- **ANCOVA:** The ANCOVA technique of analysis was used to determine the impact of the effect size of teaching methods on students' performance scores as shown in tables 10 and 11. It also shows how the post-test scores differed statistically and significantly among the three groups when compared to the pre-test data.
- **Bonferroni's Test**: a test for multi-comparisons that was used to reveal and identify the source of the differences among the methods.

3.10. Procedures of the study:

The goal of the present research was to investigate DM and GTM in comparison with the traditional method of teaching reading skills in medical sciences to know the most effective one concerning students' achievement scores. For this end, 120 students of 21 September university were chosen randomly and participated in the research. The study lasted for two months, three days a week, starting from November 2024 to the end of December 2024, in the second academic term at 21 September UMAS. In short, the researcher has followed the following procedures during conducting the research:

1- Reading up on the previous studies related to the research.
2- Reading up on the books that were taught and conducted in the study as well as getting to know the units of the book well.
3- Choosing the unit that was applied in the treatment by DM, GTM, and LM.
4- Preparing the teaching plans for the selected unit in accordance with DM, GTM and LM.
5- Getting an official consent (Permission) for conducting the study at 21 UMAS.
6- Coordinating with the official departments of the targeted samples, and getting them to know the plan of exams and teaching.
7- Conducting the pretests for each group separately before the treatment.
8- Conducting the treatment.
9- Conducting the post-tests of the three groups separately after the treatment.
10- Correcting the post-tests.
11- Listing and tabulating students' scores.
12- Analyzing and discussing the results, then suggesting the recommendations accordingly.

4. Data Analysis:

1.1. Quantitative Analysis (Tests):

1.1.1. Analysis of Results Related to the 1st Hypothesis - Testing the 1st null hypothesis:

There are no statistically significant differences at the level of 0.05 between the means of pretests and post-tests within each method in reading skill of medical English.

4.1.1.1 First Experimental Group (Direct Method):

After listing the names and the scores of the first experimental group (DM), the sums of pre-test and post-test scores were calculated. The results showed that the sum of pre-test was 2230 while that of post-test was 2870. Clearly, there was a difference between the sum of the results of the post-test and the results of the pretest, with the sum of the results of the post-test being greater. In order to measure the incidence of improvement in the scores of pre-tests and post-test, the paired t-test (aka the

difference test) was used to measure the significance of the mean of difference between the scores of the pretest and post-test. This includes descriptive statistics such as mean, std. deviation of the pre-test and post-test.

Table (3): Descriptive Statistics of Pretest and Post-test Results of Reading Skill – First Experimental Group (DM)

Paired Samples Statistics				
Test	Mean	No.	Std. Deviation	Std. Error Mean
Pre-test	55.75	40	8.05032	1.27287
Post-test	71.750	40	10.83383	1.71298
Paired Samples Correlations				
Correlation			Sig.	
.492			.001	

According to table (3), the mean of the post-test is greater than that of the pre-test, and the mean differences on the pretest and post-test are significant with P-value of (0.01). This indicates that the students' performance has fairly improved after using the DM to learn medical English.

In order to make sure whether the difference was significant or not, a paired sample T-test was employed for the pre- and post-tests of the first experimental group. The results of *t*-test on pretest and post-test of DM are displayed in table (4).

Table (4) Results of T- test on Pre and Post-test of First Experimental Group (DM)- Reading Skill

Paired Samples Test				
Test	Paired Differences	T	df	Sig. (2-tailed)
	95% Confidence Interval of the Difference			
	Upper			
Pretest and Post-test	-12.85977	-10.306	39	.000

Based on table (4), the data analysis revealed that the mean difference of scores between the pretest and post-test showed that the DM was significantly different with p-value (.000) in teaching reading.

According to table (4) and table (5), the first experimental group (DM) made significant improvements as the mean differences of the scores of the pretest and post-test were significant. This entails the rejection of the null

hypothesis – i.e., there is no significant difference between the pre- and post-test mean scores obtained by the students studying through the DM – and the acceptance of the alternative hypothesis, that is, there is a significant difference between the pre- and post-test mean scores obtained the students studying through the DM.

4.1.1.2. Second Experimental Group (Grammar Translation Method):

After encoding the scores of the second experimental group (GTM), the researcher calculated the sums of the pre-test and the post-test scores, which are 2220 and 3080, respectively. So, there were differences between the sums of the results of students in which the results of the post-test were greater than the results of the pretest-test, as can be seen in table (5).

Table (5): Descriptive Statistics of Pretest and Post-test Results of Second Experimental Group - Reading Skill (GTM)

Paired Samples Statistics			
Test	Mean	N	Std. Deviation
Pre-test	55.50	40	9.04405
Post-test	77.00	40	7.90975
Paired Samples Correlations			
N	Correlation		Sig.
40	.461		.003

As shown in table (5), the mean of the post-test is greater than that of the pretest. So, the differences of the mean scores between pretest and post-test are significant with p-value (.03 < .05). This result indicates that the participants in the second group (GTM) make a significant improvement in reading skill after studying through GTM.

Hence, to know whether this difference is statistically significant or not, the researcher employs another paired sample T-test for pretest and post-test. The results of T-test on pretest and post-test of the second experimental group (GTM) are displayed in table (6).

Table (6) Results of *T*-test on Pre- and Post-test of Second Experimental Group – Reading Skill (GTM)

Paired Samples Test				
Test	Paired Differences	T	df	Sig.
	95% Confidence Interval of the Difference			

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	Upper			
Pretest and Post-test	-18.66712	-15.351	39	.000

Based on table (6) above, the data analysis reveals that the mean difference of scores between pretest and post-evaluations shows that the GTM is significantly different when comparing pretest and post-test scores with P-value = 0.00.

According to table (5) and table (6), the GTM makes considerable improvements as the mean differences of pretest and post-test scores were significant. This entails that the null hypothesis be rejected while the alternative hypothesis be accepted.

4.1.1.3. Control Group (LM):

After writing the names and the scores of the control group (LM), the researcher found out the sum of the pre and post-tests scores. The results showed that the sum of the pre-test was 2260 while the sum of the post-test was 2635. So, the data showed that there were differences between the sums in which the results of the post-test were better than the results of the pretest-test. In order to measure how much improvement achieved in terms of reading skills, descriptive statistics were conducted as shown in table (7). So the following table shows a number of descriptive statistics such as mean, std, deviation, etc. of the results of the pre and post-tests.

Table (7): Descriptive Statistics of Pre and Post-tests Results of Control Group (LM)- Reading Skill

Paired Samples Statistics				
Test	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Pretest	40	56.5000	7.77900	1.22997
Post-test	40	65.8750	8.76235	1.38545

Paired Samples Correlations				
		N	Correlation	Sig.
Test	Pretest and post-test	40	.892	.000

As can be seen in table (7) – the mean of the post-test is greater than that of the pre-test. So, the differences of means on the pre- and post-tests are significant with p-value (0.00). This simply indicates that students accomplished enough after studying through LM.

In order to make sure whether the difference was significant or not, the researcher employed a paired samples *t*-test for pre and post-test of LM group. The results of *t*-test on pre- and post-test of LM are displayed in Table (8).

Table (8) Results of the *t*-test on the Pre and Post-tests of Control Group (LM) – Reading Skill

Paired Samples Test				
Test	Paired Differences	t	df	Sig. (2-tailed)
	95% Confidence Interval of the Difference			
	Upper			
Pretest and post-test	-8.11082	-15.000	39	.000

Table (8) shows a significant difference between the mean scores on the pretest and post-test, with a p-value of .000.

According to tables (7) and (8), the control group demonstrates notable improvement, as the mean differences between the pretest and post-test scores are significant. This leads to the rejection of the null hypothesis, which posits that there is no significant difference between the pretest and post-test mean scores of the students studying through the traditional method. Conversely, the significant difference entails the acceptance of the alternative hypothesis.

4.1.2. Analysis of Results Related to the Second Hypothesis:

- Testing the second null hypothesis:

There are no statistically significant differences at the level of 0.05 among the means of students' post-test scores in terms of reading skills in medical English by using the DM, the GTM, and the traditional method (LM)

Table (9) Means and Std. Deviations of Achievement Scores on Pre- and Post-tests of the Three Groups in Reading Skills

Group	No. of students	Pretest		Post-test	
		Mean	Std. Deviation	Mean	Std. Deviation
First Exp. Group	40	55.75	8.05	71.75	10.83
Second Exp. Group	40	55.50	9.04	77.00	7.90
Control Group	40	56.50	7.77	65.87	8.76

Table (9) above shows the differences among the mean scores of the students who are taught medical English by means of the DM, the GTM, and the LM. Clearly, there are significant differences among the means of the post-tests of the three groups as follows:

- GTM (Mean= 77, SD=7.90)
- DM (Mean= 71.75, SD=10.83)
- LM (Mean= 65.87, SD=8.7)

To clarify, the analysis shows that the students who are taught by GTM are better in comparison to the students taught by DM and LM. That is, the results show that GTM comes first with 77.75, DM comes second with 71.75, and LM comes third with 65.87.

To know the difference between the means of the three groups, ANOVA is used to determine whether that difference was significant. The following table shows the results obtained.

Table (10) (ANOVA) - Mean Differences of Post-test Scores among the Three Methods in Reading Skill

Variance Source	Sum of Squares	df	Mean Square	F	Sig.
Pretest	3517.041	1	3517.041	62.816	.000
Groups	2776.691	2	1388.346	24.796	.000
Error	6494.834	116	55.990		
Total	626675.000	120			

The ANOVA technique of analysis is used to determine the impact of teaching methods on students' performance as shown in table (10)

above. The post-test scores differ statistically and significantly across the three groups when compared to those obtained on the pretest, with an F-statistic of 24.79 at a significance level of 5%. (p.005). So, there are statistically significant differences among the three groups and the P- Value is ≤ 05, entailing the rejection of the null hypothesis – i.e. there are no significant differences among the three groups.

Table (11) Effect Size of Methods (Eta Squared)

Scores and Methods	Eta	Eta Squared
	.422.	.176

According to table (11), the Eta Squared value is .176 which indicates a large effect size. This means that the independent variables (GTM and DM) explain 17.6% of the total variance in the dependent variable (scores). This represents a substantial and meaningful relationship where the GTM and DM have a significant impact on reading scores.

In addition, the researcher calculates the adjusted means in order to show the differences among the methods of teaching and the following table shows the obtained results.

Table (12) Adjusted Means of the Three Groups in Reading Skill

Group	Means	Std.
First Experimental Group (DM)	71.860[a]	1.183

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Second Experimental Group (GTM)	77.275[a]	1.184
Control Group (LM)	65.490[a]	1.184

Table (12) shows the differences among students taught English through the three methods in reading skill. The analysis illustrates that there are significant dissimilarities among the adjusted means of the three groups in which the second experimental group (GTM) comes first, the first experimental group (DM) comes second and the control group (LM) comes third. So, the first and second experimental groups are better than the control group.

To identify the source of those differences, Bonferroni's test for multiple comparisons is used to reveal that.

Table (13) Bonferroni's Test for Multi Comparisons among Means of the Three Methods in Teaching Reading Skill

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.[b]
DM	GTM	-5.415[*]	1.673	.005
	LM	6.370[*]	1.674	.001
GTM	DM	5.415[*]	1.673	.005
	LM	11.785[*]	1.675	.000
LM	DM	-6.370[*]	1.674	.001
	GTM	-11.785[*]	1.675	.000

Based on the comparison shown in table (13), the statistical findings call for the rejection of the first null hypothesis and its substitution with an alternative one is accepted, stating that there are statistically significant differences among the means of the three methods in reading skill. It is shown that the mean differences between DM and GTM are statistically significant in favor of the latter. It also shows that there are differences between LM and GTM in favor of the latter. Similarly, there are differences between the DM and LM in favor of the former. Accordingly, the GTM comes first, the DM comes second, and the LM comes third. On the whole, GTM and DM are better than LM in teaching reading of EMP.

4.1. Qualitative Analysis (Interview)

The interview data is analyzed qualitatively by going over the writings and searching answers that corresponded to certain questions from the interview questions. The results demonstrate that all the interviewees, in varying degrees, agreed that GTM is more effective than DM in teaching reading skills in medical environment. Nine teachers emphasize using GTM in teaching EMP, with only one teacher disagreeing with that. The justifications provided by the nine teachers are in the same line with the previous studies that advocate GTM; they are summarized as follows:

1- GTM is of great value to the L2 classroom as it is germane to improving students' ability to claim the form and meaning of the language, as well as to communicating a message appropriately. So, the act of translating gets learners to understand errors, and address them at a higher cognitive level.

2- There is a positive effect of using Grammar Translation Method on English as a foreign language acquisition. So, it was noticed that the students who are taught using Grammar Translation Method improved in grammar and achieved greater self- confidence and accuracy.

3- By using GTM, the learning process gets meaningful and better comprehension. It is useful because the learning process is clearer, and accuracy is acquired by students. In addition, the use of translation will contribute to the use of the target language effectively.

4- The students who are taught by GTM obtained better achievement because they need more teachers' translation in the learning process because they have difficulties in understanding the words of the texts, and they are not able to guess the meaning of some words in sentences correctly.

5- GTM is a useful method in English learning which gets students interested in learning medical English.

6- GTM has a positive and facilitative role, as students learn consciously and explicitly, which should reduce language interference. In addition, students become active participants, which helps achieve meaningful learning.

7- GTM can help the students to improve their levels in comprehending the texts in medical environment. In addition, the teaching-learning activities run quite well. By applying this method, the students could understand the new vocabulary (medical terms) better as they are introduced in their mother tongue.

5. Discussion:

Regarding the discussions of the findings related to reading skill, the researcher summarizes them as follows:

- The analysis reveals that there were significant differences among the mean scores of students taught by the GTM (M=77), students taught by DM (M=71.75) and students taught by LM (M=65.87). The analysis shows that the scores obtained by the students taught by GTM are better as compared to those obtained by the students taught by DM and those taught by LM. Regarding the sum of scores and the means, GTM comes first with 77, DM comes second with 71.75 and LM comes third with 65.87. Accordingly, the students who are taught by GTM secure better achievement because they need more of the teachers' translation in the learning process, they have difficulties in understanding the words of the texts, and they are not able to guess the meaning of some words in sentences correctly. So GTM proves itself as a beneficial one in the L2 classroom to help students improve form and meaning of the language, as well as allowing them to transfer a message correctly.

- According to the comparison shown in tables (11) and (12), the statistical findings call for the rejection of the null hypothesis and the acceptance of the alternative one, which (i.e., the alternative hypothesis) states that there are statistically significant differences among the mean differences of the three methods in reading skills. It is shown that the mean differences between DM and GTM are statistically significant in favor of the latter. It also shows that there are differences between the LM and GTM in favor of the latter. Similarly, there are differences between the DM and LM in favor of the former. Accordingly, GTM comes first, DM comes second, and LM comes third.

- Regarding the interview data, there is a common perception among the teachers with regard to the importance of GTM in teaching reading skills in medical environment. The interview findings are consistent with the results of post-tests, which indicate that the majority of respondents considered GTM the most effective one in teaching reading skills. So, it is important in teaching EMP, as the teachers believe that it is a necessary learning aid that should be utilized in EMP classes. The teachers' attitudes are also in line with the previous studies that support GTM and they are listed, in short, as follows:

1- GTM is a beneficial method in the L2 classroom that helps students improve their levels in reading skills, as well as allowing them to transfer a message correctly. The act of translating enables learners to understand errors and address them at a higher cognitive level, instead of eliminating them in their language output.

2- There is a positive effect of using Grammar Translation Method on English as a foreign language acquisition.

3- By using GTM, the learning process gets meaningful and better comprehension. Grammar Translation Method is useful because the learning process is clearer, thus accuracy will be acquired by students and the use of translation will contribute to the use of the target language effectively.

4- The students who are taught by GTM obtained better achievement because they need more teachers' translation in the learning process because they have difficulties in understanding the words of the texts and they are not able to guess the meaning of some words in sentences correctly.

5- In Yemen, we teach English as a foreign language not as a second language. When we teach it as a foreign language, we teach it for different purposes, in particular, scientific

one. GTM is used for scientific purposes while DM is used for communicative Purposes. GTM helps students improve their accuracy and when the teacher translates some medical terms, the students feel comfortable.

6- GTM can help students improve their levels in comprehending the texts in medical environment. In addition, the learning activities run quite well. By applying this method, the students could understand the new vocabularies (medical terms) better as they are introduced in their mother tongue.

7- GTM enhances the competence and right performance of the language for students. In short, it is a preferable method for both teachers and students, and using the L1 alongside the L2 fulfills the needs of the students.

Accordingly, it is worth noting that the findings of this study are also in line with previous studies concerning students' achievement scores and the teachers' opinions regarding the adequacy of the GTM. According to Liao's study, Taiwanese university students' attitudes toward using the GTM in classrooms were positive (2006). Regarding the use of L1 in the L2 classroom as one of the typical features of the GTM, Schweers (1999) reported similar results in a study of Spanish students at the University of Puerto Rico, who expressed a preference for this method. As Schweers' study revealed, 88% of students agreed with using L1 in EFL classes, especially in the explanation of difficult content. Tang also reported a similar finding conducted on 100 Chinese EFL students. Statistically, about 97% of students preferred their teachers' using L1 in their EFL classroom (2002).

In the light of the quantitative and qualitative analyses, the interview findings are consistent with the results of post-tests. They indicate that the GTM is more effective than the other two methods.

Accordingly, the GTM excels in translating technical vocabulary and other EMP (English for Medical Purposes) contexts primarily because its core principles are directly aligned with the needs of reading specialized texts and acquiring precise terminology. Its effectiveness stems from three core strengths:

1- Precision in Vocabulary: It emphasizes the direct and accurate acquisition of domain-specific terminology, minimizing ambiguity (Larsen-Freeman & Anderson, 2011).

2- Focus on Written Texts: EMP often has the primary goal of enabling learners to read journals, manuals, and research papers in a foreign language. GTM is inherently designed for developing reading and writing skills, making it highly applicable to this purpose (Richards & Rodgers, 2014).

3- Use of the First Language (L1): It uses the learner's native language as a reference point, allowing for a clear, analytical comparison of grammatical structures and vocabulary Celce-Murcia, 2014).

To sum up, this study reveals that, given their majors and language proficiency levels, the students of medicine achieve great scores in the GTM, which ranks first, followed by the DM, which ranks second, but they do not achieve great scores in the LM. That means the application of a teaching method such as the LM is not preferred among the students and English teachers across the different faculties at 21 September UMAS.

6. Conclusion:

This study investigated the impact of Grammar Translation Method and the Direct Method on the development of reading skills of the first-year medical students at 21 September University for Medical and Applied Sciences in Sana'a. Based on the findings of the study, it can be inferred that the Grammar Translation Method and the Direct Method are more effective than the lecture method in teaching reading skills in the medical field. The findings of the interview along with the improvements observed in the post-tests revealed that students taught by the GTM and DM outperform those instructed using the lecture method, demonstrating improvements in their reading skills, including comprehension, vocabulary, and grammatical accuracy.

The study has some limitations that should be addressed in future research. First, the sample

was drawn from a single Yemeni university, which may limit the generalizability of the results to other medical education contexts. Second, the intervention period was limited to 42 hours. To address these limitations, future studies should be conducted across a wider range of medical institutions and over a longer duration. Furthermore, future research could investigate the impact of various teaching methods on medical students' reading skills in diverse medical contexts.

7. Recommendations:
- The outcomes of this study have significant implications for medical English education. The findings may be valuable to educators, academics, and teachers who teach English for medical purposes. The results indicate that GTM is highly effective, as it yielded the most positive outcomes in this context.
- Universities where medical English is taught, including 21 September UMAS, are advised to encourage teachers to use the GTM for teaching EMP.
- EMP teachers are advised to integrate GTM and its various strategies into their classrooms to increase students' engagement and motivation to learn.
- To implement GTM effectively, teachers should create an active learning environment in the classroom.
- Supervisors should support EMP teachers by organizing practical workshops. These workshops would provide guidance on the principles and effective application of GTM.
- Researchers should conduct further studies about GTM and the other methods in teaching EMP in all faculties of medicine at Yemeni universities.

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