The aim of this study was to investigate the language and strategies used by Syrian postgraduate medical students at the ESP Centre, Damascus University, when translating English medical texts into Arabic. Students were asked to translate into Arabic English medical texts taken from authentic medical journals without being taught any principles about translation and schools of translation. The procedure was repeated several times, and the data collected were based on students’ edited drafts, students’ introspection, final exam papers and the teacher’s analysis of the target texts. The results show that, although individuality of translated texts was a common feature of students’ translations, micro-text processing and macro-text processing were two main techniques followed by students in translating the assigned texts. Mistranslating was attributed to several factors, such as the translator’s lack of knowledge of the principles of translation and the already translated materials. It is recommended, therefore, that students be exposed to translation techniques and possible occurrences of mistranslating. Further recommendations are given based on target text analysis and the survey conducted by the American International Health Council asking Arab doctors in the United States about their experience concerning arabizing medicine in Syria.

With the Syrian experience of arabizing medicine that started about 70 years ago, several pros and cons arouse unearthing grave under-estimations of Arabic being a poor medium for science, not taking into consideration that this pioneering experience could be successful within the limitations it has been facing. Limitations such as the already translated materials, translators and receptors of translated texts, rather than Arabic itself, did narrow down the scope through which improvement should have occurred a long time ago. Since medicine was taught in Arabic in the Syrian universities, students have depended on either the translated material, which was in some cases well-done, in others misleading, redundant and distorted, or the original medical text, whose language most of them did not master or even learn well – or sometimes they depended on both. If this has influenced them, which to some extent has, then it has negatively influenced their reading comprehension and their translation of the source text vis-a-vis the target text. However, to identify areas of weakness and seek solutions, I had to observe their performance while translating, without teaching them about
translation, and then analyze their product. This research, in point of fact, was conducted to investigate the language and strategies used by Syrian postgraduate medical students at the ESP Centre, Damascus University, when translating English medical texts into Arabic and thus to seek some practical recommendations to avoid mistranslating English medical texts into Arabic.

Thirty-eight postgraduate medical students at the ESP Centre, Damascus University, were involved in this study. In the reading comprehension sessions it was noticed that some students misinterpreted some of the thematic clues they were asked to provide their classmates with when discussing some authentic medical articles. And, as argument between students reached a high peak, I had to ask the involved students to re-express their ideas in Arabic, which drew my attention to a clear incompetence in translating an English text in addition to widely various, and sometimes semantically distorted, answers given by them due to misunderstanding and, consequently, mistranslating. It was also noticed that students could supply a literal translation of the text, which, however, was not in all cases concordant with the original English one. All this helped me determine how to approach students’ translations and translating techniques to find out in the first place why students have failed to give a correct answer of a particular event, even when asked to rephrase it into Arabic. Such phenomena are indicative of a) the existence of translating problem areas - the activity rather than the tangible object (Bell, 1991: 13) and b) students’ lack of knowledge of texture and thematic progression in a text (Hatim and Mason, 1990: 192, 234) because they reflect the way students approach a text, understand it, analyze it, and then transform it into the target language using their own understanding of its semantic, linguistic and pragmatic interrelations.

it seems indisputable that … the translator must know (a) how propositions are structured (semantic knowledge), (b) how clauses can be synthesized to carry propositional content and analyzed to retrieve the content embedded in them (syntactic knowledge), and (c) how the clause can be realized as information-bearing text and the text decomposed into the clause (pragmatic knowledge).

Lack of knowledge or control in any of the three cases would mean that the translator could not translate. Without (a) and (b), even literal meaning would elude the translator. Without (c), meaning would be limited to the literal (semantic sense) carried by utterances which, though they might possess formal cohesion (being tangible realizations of clauses), would lack functional coherence and communicative value. *(Bell, 1991: 36-37)*

The first step, therefore, was to choose several English medical texts to be translated by students in class using monolingual English dictionaries. Since students work with words and phrases as their raw materials, dictionaries are bound to take place at the ‘word level’ or ‘text
level’ (Hatim and Mason, 1990: 180). Students had also to write their introspection of the mental and physical processes they underwent as they went through translation because

if we accept that we have a responsibility to attempt to describe and explain the process and that process itself is, essentially, mental rather than physical, we are committed to undertaking the investigation within the disciplines of psychology and, more specifically, within the framework of psychological studies of perception, information processing and memory; cognitive science. 

(Bell, 1991: 13)

Students’ notes were written on the right margin next to the translated sentences and the process was repeated several times.

Text A:

Text A is a medical text whose content students should be familiar with. Students at this stage had to translate the text into Arabic and to write their introspection while translating it. The main concern here, however, is students’ translations of sentences (3) and (4) in addition to their introspection, which was translated from Arabic into English by the present writer for comparative purposes. Students’ translations (a) are written first below the introspection and afterward are back translations (b) by the present writer.

1) Care of the biliary catheter after external drainage involves routine daily irrigations to retard sediment or encrustations and attention to the metabolic effects of prolonged biliary diversion. 

2) Thus hyponatremia may appear after several days drainage with clinical symptoms of lethargy and attered mental status. 

3) In such cases, prompt parenteral electrolyte replacement will be required. 

4) Replacement of lost bile salts is a more difficult problem. 

5) Liquid bile is generally not palatable orally, and refeeding of bile requires creation of a feeding jejunostomy or insertion of a nasogastric tube on a long-term basis. 

6) Feeding (6) and/or desiccation (7) of bile are less commonly employed alternatives.

Text A: (Anonymous)

**Text A1**

Student Introspection (see Appendix 1)*:

1) I read the text several times and looked up some odd words or asked my colleagues for their meanings.

2) The text is generally comprehensible.

* Students’ introspection was written in Arabic and translated into English by the present writer.
3) Some sentences and clauses were literally translated. I could not link them to preceding or following sentences.

Translation of sentences 3 and 4:

و في مثل هذه الحالات نحتاج لتعويض بعض الشوارد عن طريق الحق الفوري. و المشكلة الأكثر صعوبة هي تعويض الأملاح الصفراوية الضائعة. (a)

Back translation:

(b) And in such cases, we need to compensate for some electrolytes by immediate injection.

[And] The most difficult problem is the replacement of lost bile salts.

It is apparent that the translator of Text A1 has resorted first to macro-text processing as he read the text several times. But this should not delude us and thus prevent us from noticing that micro-text processing is used, too. Looking up words to build up the general meaning of sentences and then the text is the second side of the coin that should be noticed.

Sentence 3: The student uses the ‘we’ form, i.e. active voice, instead of the passive voice (Translating Genre).

S/He adds ‘some’ to the sentence.

S/He drops out the word ‘parenteral’.

Sentence 4: The student reverses the ‘theme’ with ‘rheme’.

S/He uses the superlative form instead of the comparative.

There is some relationship between the linear ordering of the elements and their FSP functions in both ST and TT.

Text A2: (see Appendix 2):

Student Introspection

1) Reading the first sentence.

2) Trying to understand its general meaning.

3) Looking up difficult words and finding suitable equivalents to them.

4) Finding a general formula to the sentence concordant with Arabic as much as possible.

Translation of sentences 3 and 4:

و في مثل هذه الحالات نحتاج إلى علاوة سريعة للشوارد عبر الوريد. إن تعويض الأملاح الصفراوية المفقودة تشكل مشكلة أكثر صعوبة. (a)
Back translation:

(b) In such cases, we need a quick replacement of electrolytes through the vein. Replacement of lost bile salts forms a more difficult problem.

In Text A2, however, a clear line could be drawn between the two techniques, i.e. micro and macro processing of the text. At the sentence level, as noticed in item 1, reading the first sentence is a macro-text processing used by the translator to help him/her predict the meaning of words and make it possible for him/her to decide on the word entry in the dictionary. On the other hand, moving from the sentence level to the text level is micro-text processing.

Sentence 3: The translator uses the ‘we’ form, i.e. active voice, instead of the passive voice (Translating Genre).
   S/He uses ‘through the vein’ instead of ‘parenteral’.
Sentence 4: The translator uses the verb ‘forms’ instead of ‘is’.

There is some relationship between the linear ordering of the elements of both sentences and their FSP functions in both ST and TT.

Text A3 (see Appendix 3):
Student Introspection
1) I started reading the text and stopped at the word ‘irrigations’, so I looked it up.
2) Then continued translating and stopped at ‘encrustations’ and I looked it up.
3) Next, I wrote down the translation until ‘diversion’ (of sentence 1).
4) I continued reading until ‘status’ and I translated it … etc.

Finally, I read the text in Arabic to make sure sentences are coherent.

Translation of sentences 3 and 4:

(a) في مثل هذه الحالات إن الإعالة الفورية للشوارد عن الطريق غير الفموي مستطيلة هنا. و إن
   إعالة أذلاح الصفراء الضائعة مشكلة بغاية الصعوبة.

Back translation:

(b) In such cases, prompt replacement of electrolytes non-orally is recommended here.
   [And] Replacement of lost bile salts is a too difficult problem.

In Text A3, the translator starts looking up words as soon as s/he starts reading and encountering them, applying first the micro-text processing to build up the meaning of the
whole text and second the macro-text processing to predict or decide on the appropriate meaning of the word. After doing so, s/he reads the whole target text to make sure that the sentences are coherent, which may to some extent be macro-text processing.

Sentence 3: The translator changes will be required into is recommended.

S/He uses ‘recommended’ instead of ‘required’.

S/He adds the word ‘here’.

Sentence 4: The translator uses a ‘too’ form instead of the comparative one.

There is some relationship between the linear ordering of the elements and their FSP functions in both ST and TT.

Text B

Text B is another medical text that students were required to translate and to write their introspection of the mental and physical processes they underwent during the translation process (see Text A for instructions). Only sentence (1) is compared in two products of students’ translations. Both, the translated sentence into Arabic and its translation back into English, are provided, too, under student introspection.

---

(1) Research to identify and understand the molecular underpinnings of human genetic diseases is accelerating at a breathtaking rate. (2) Formerly intractable diseases such as cystic fibrosis (CF), neurofibromatosis, Duchenne muscular dystrophy (DMD), Huntington’s disease, and many others not only dominate medical news but are becoming part of the everyday medical vocabulary. (3) Several key advances in technology, the growth and impetus behind the US-sponsored Human Genome Initiative to map and determine the base sequence of all the genes in the human cell, and a general push to identify important landmarks along human chromosomes are some of the forces driving a rapid buildup of knowledge and awareness.

Text B: (Anonymous).

Text B1 (see Appendix 4):

Student Introspection

1) I read the first sentence to perceive and understand the topic and content.

2) Then I tried to translate it, which was not difficult.

3) Next, I read the second sentence where I came across two words that I looked up in the dictionary. There was some difficulty constructing the sentence.

4) The third sentence, however, was really difficult (I mean to perceive the meaning), and, after giving it a thought, I decided on the main points required in the sentence in addition
to the translation of the difficult words and the attempt to find a suitable Arabic formula leading to a final wording.

Translation of sentence 1:
(a) إن الأبحاث التي تهتم بدراسة البنية الجزيئية للأمراض الوراثية عند الإنسان تقدم بسرعة.

Back translation:
(b) Research concerned with studying the molecular underpinnings of human genetic diseases is accelerating quickly (at a breathtaking rate).

Similarly, the translator of Text B1 uses two techniques in approaching the text, namely micro and macro text processing. First, at the sentence level, the translator uses the macro-text processing to predict the meanings of words. Second, at the text level, the translator reads sentences individually, as in items 1, 3 & 4, to understand the whole text, which is a micro-text processing, of course.

Sentence 1: ST and TT are almost identical. There is as well some relationship between the linear ordering of the elements of the sentence and their FSP functions.

Text B2 (see Appendix 5):
Student Introspection
1) First, I read the text as a whole to understand the general meaning.
2) Then I underlined words that I did not know.
3) After reading, I came back (to the first sentence) to look up unknown words.
4) Then I started translating sentences individually.
5) I sometimes found difficulty in literal translation.
6) Therefore, I replaced literal translation with my own which I find conveying the same meaning.

Translation of sentence 1:
(a) لقد تسارعت الأبحاث لفهم و اكتشاف الأساس الجزيئية للأمراض الوراثية.

Back translation:
(b) Research to understand and discover the molecular underpinning of genetic diseases has accelerated.
Unlike previous ones, the present translator relies mainly on the macro-text processing, as it is clear in his introspection (item 1). Then s/he makes a shift into micro-text processing at the sentence level when s/he starts looking up words to translate sentences and at the text level when s/he starts linking sentences to structure the whole text.

Sentence 1: The translator uses the present perfect instead of the progressive.
S/He replaces ‘to identify and understand’ with ‘to understand and discover’.
S/He drops out the adverb.

There is as well some relationship between the linear ordering of the elements of the sentence and their FSP functions.

It could be noticed that no one method was used by students while approaching a text for translation, though it was sometimes possible to draw a line between the two techniques, i.e., micro and macro text processing. In point of fact, reading the text, understanding the intended meaning, looking up words, then translating and finally reading to check coherence and cohesion was the macro-text processing that students followed. On the other hand, scanning the text for words to look up in the dictionary, translating and finally reading the whole text to check coherence and cohesion is the micro-text processing. A close look into all the analyzed texts shows that both methods were mixed up with focus on one of them in some aspects – focus shifts as the technique used changes. Sometimes a line could be drawn between the two techniques and points where the two infuse and become difficult to separate. Analysis, however, shows that both techniques tend to integrate rather than overlap. Unaware of what they were doing, it seems, students tended to choose meanings of words in terms of their contextual occurrence in the text rather than in terms of reading all the entries of the word in the dictionary since

The appropriateness of particular items can only be judged in the light of the item’s place within the overall plan of the text. The plan will involve a multitude of complex relations between texture, structure and the context of discourse.

(Hatim and Mason, 1990:180)

Nevertheless, many students did not show proper knowledge of texture (Cohesion, Theme and Rheme) and translating genre as they approached the text, which, since they were not taught any principles about translation, may reflect many students’ unawareness of many of the principles of translation. Since genres can be literary or non-literary, linguistic or non-linguistic (Hatim and Mason, 1990: 69), translators should not fail to preserve the genre of the
ST in the TT if they have been exposed to that genre. Students’ translations in the present case support the hypothesis that a system or curriculum that does not expose students to a wide range of genres is unlikely to equip them to handle genres other than the most demonstrative (Hatim and Mason, 1990: 161). This is very clear in students’ products where a change of tense aspect (e.g., passive into active) or forwarding/backwarding an item (e.g., a proposition) can be noticed. Sometimes a medical text suffered a loss of meaning that was due to improper styles shifting the genre away from the medical one (see Appendix). Students’ own understanding of the ST was the medium of transferring this non-linguistic entity, namely comprehension, into the TT, which was mainly affected by their understanding and, possibly, misunderstanding, if any, of the ST. This could be highly noticed in students’ final exam papers, which were analyzed in comparison with the ST.

Given permission to go back to student’s Final Exam papers, I photocopied 150 papers, the translation question only. Thirty-two papers were excluded because of either very bad hand writing or leaving the question blank. The following step was divided into several stages:

1. Analyzing sentences 1 & 2 of the ST (Text C) and categorizing students’ papers according to some criteria such as thematic progression and texture.
2. Matching sentences 1 & 2 of the TTs with those of the STs.
3. Categorizing vocabulary according to word-class and the way students used them in the TT taking into consideration that dictionaries were not permitted and thus not used.
4. Matching some verbal phrases in TT with ST.

**Text C**

| (1) Limited data were available for risk factors of men after the survey. | (2) All analyses were thus carried out with data on smoking from the 1974 questionnaire. | (3) It is likely that the habits of some men changed after the survey. | (4) It is difficult to predict how these changes might affect the risk estimates, as more men might have stopped smoking whereas others started or restarted. | (5) The approximate nature of the data on smoking also adds uncertainty to the investigation of effect modification of radon by smoking. | (6) Longitudinal data were available for silicosis, and were used in the analyses of that risk factor. |

Text C:

1) Limited data were available for risk factors of men after the survey.

- There is some relationship between the linear ordering of elements in this sentence and their FSP (Functional Sentence Perspective) Functions.

- Past/Active/Simple sentence (subject + verb + complement + prepositional phrases 1+2+3).

2) All analyses were thus carried out with data on smoking from the 1974 questionnaire.

- There is some relationship between the linear ordering of elements and their FSP Functions.

- Past/Passive/Simple sentence (subject + verb + prepositional phrases 1 + 2 + 3).

3) (It is likely) that the habits of some men changed after the survey.

- Linearity and function do not coincide (a later element is brought to the fore in this anticipatory ‘it’ sentence). However, it can be rendered into the following:

1) The habits of some men are likely to have changed after the survey.

2) [The fact] that the habits of some men changed after the survey is likely.
‘The fact’ is a general noun signaling that what will come is a restrictive change.

- Simple Present/Past/Active/Cleft sentence (It is…).

4) It is difficult to predict how these changes might affect the risk estimates, as some men might have stopped smoking whereas others started or restarted.

- Linearity and function do not coincide (a later element is brought to the fore in this anticipatory ‘it’ sentence). However, it can be rendered into the following:

```
How these changes might affect the risk is difficult to predict, as some men might have stopped smoking whereas others started or restarted.
```

- Simple Present/Past/Active/Cleft sentence: (clef + how clause (sub + verb + object) + conjunction + subject + verb + object + conjunction + sub + v1 + v2).

5) The approximate nature of the data on smoking also adds uncertainty to the investigation of effect modification of radon by smoking.

- Linearity coincides with function.
- Simple Present/Active/Simple sentence: (subject + verb + object + prepositional phrases 1+2+3+4).
6) Longitudinal data were available for silicosis, and were used in the analyses of that risk factor.

- Linearity coincides with function.
- Simple Past/Active – Passive/Compound sentence: (subject + verb + complement + prepositional phrase + conjunction + subject (ellipsis) + verb + prepositional phrase).

Students’ translations were analyzed and the following three passages were selected to trace students’ mistranslating and points of weakness. The Arabic translation is provided below then it is translated back into English (by the present writer) for comparative and contrastive reasons. (NB: I hope that some of my pitfalls and intentional highlighting of students’ mistranslating, where I imitate their style and technique and fluctuate between literal and word-for-word translations, are overlooked.)

**Text CI:** Arabic → English (Appendix 6)

(1) لقد كانت المعطيات المتاحة حول عوامل الخطورة عند الرجال بعد نهاية الاستقصاء محدودة.

The available data for risk factors of men after the survey were limited.

(2) وقد تم تنفيذ كافة التحاليل حسب معطيات استبيان عام 1974 حول التدخين.

(And) All analyses were carried out according to the data of the 1974 questionnaire on smoking.

(3) يبدو أن عادات التدخين عند بعض الرجال قد تغيرت بعد الاستقصاء.

It seems that the habits of some men have changed after the survey.
It is difficult to predict how these changes have affected the expected risk factors since it is possible that some men have stopped smoking whereas some others started or restarted after stopping.

The sentence, like a text, is composed of a series of elements that serve some rhetorical purpose.

When we first approach a text, we identify series of words, phrases, clauses, etc., in the order in which they appear on the page. But the linear progression of these text elements does not tell the whole story. We are conscious that each element is active in fulfilling a rhetorical function. That is, each element enters into a discourse reaction with other elements. The discourse relations enable us to identify sequences of elements that ultimately make up the unit text. (Hatim & Mason, 1990: 165)

There is no linear progression in this sentence and thus some of the rhetorical function may be lost when the discourse relations do not enable the translator to identify the hidden structure or the real sequence of elements. Themes/sub-themes and Rhemes/sub-rhemes overlap in this
sentence, which is clear in the students’ handling of the thematic progression and the rhetorical function of each of the elements (e.g., changing the perfect modal into ‘it is possible that some men have stopped’) and of the actual occurrences of sentence elements in relation to Theme/Rheme (e.g., ‘how these changes’ as sub-theme and ‘might affect the risk estimates’ as sub-rheme both in the Theme of the sentence in which Rheme is forwarded – brought to the fore – for some rhetorical function).

The approximate nature of the analyses of smoking adds doubts to the investigation of the modified effect of Radon by smoking.

The available vertical data on Silicosis were used well in order to analyze it (Silicosis) as a risk factor.

It is taken for granted that exchanging the ‘Theme’ with the ‘Rheme’ is indicative of mistranslating. The student, in sentence 1, exchanges the two adjectives (limited: pre-modifier of the head standing as ‘Theme’/ and available: subject complement standing as ‘Rheme’). In so doing, the translator produces a confusion that does not affect the proposition of the sentence or even its structural composition to a reader of the target text only, for the message sounds reasonable, but rather a confusion to a reader of both texts since the information is mistranslated and the semantic mistranslating is made clear. Which is to say, sentence 1 to a reader of both texts is not correct, not in terms of the pragmatic or syntactic knowledge but in terms of the semantic one as well.

The second sentence confuses meaning. In Text C, ‘data’ were ‘on smoking’ and were taken from ‘the 1974 questionnaire’. In Text C1, however, the ‘1974 questionnaire’ was ‘on smoking’. This confusion of the ‘part’ and the ‘whole’ may be a result of confusing prepositional phrases by forwarding and backwarding parts of the sentence affecting thus the propositions presented. There is still yet some relationship between the linear order of elements and their FSP function.

The third sentence is marked with a deviation from the source text. The anticipatory ‘it’ sentence of Text C – It is likely – becomes ‘It seems’ and the sentence loses the meaning it
should possess. In the fourth sentence, however, the translator uses an anticipatory ‘it’ sentence, as in the ST, to convey the same meaning, but mistranslating is clear in changing verbs, tenses and consequently the explicit and implicit meaning. For instance, ‘might affect’ becomes ‘have affected’, and the structure of the clause ‘as some men might have stopped smoking’ is rendered into ‘since it is possible that some men have stopped smoking’; from a simple into a cleft sentence implying possibility. Sentence five is indicative of the translator’s failure to fully grasp the meaning of the second part of the sentence (effect modification of radon), which s/he translates as the ‘modified effect of radon’. Using ‘analyses’ instead of ‘data’ may refer to the translator’s weakness at choosing the appropriate equivalent in Arabic.

Sentence six is another failure as the translator confuses Rheme with Theme and combines them both to be post-modifiers of the head ‘data’. Mistranslating ‘longitudinal’ as ‘vertical’, adding ‘well’, and reducing the sentence into a simple one are all signs of incompetence in translation. ‘Silicosis’ is transcribed as ‘silicose’ + ‘disease’ (the risk material + the translation of the suffix indicating inflammation or disease) rather than the whole word being translated into Arabic.

Text C2: Arabic ➔ English (Appendix 7)

1. توفيرت المعطيات المحددة عن عوامل الخطورة عند الرجال بعد المسح.

The definite data on risk factors of men after the survey were available.

T R

OR:

The definite data were available for risk factors of men after the survey.

T R

(The structure of this sentence is equivalent to that of the source text)

2. وهكذا أجريت كل التحليل مع معطيات التدخين من تحري عام 1974.

[And] so, all the analyses were carried out with data on smoking from the 1974 investigation.

T R

3. من المحتمل أن عادات بعض الرجال تغيرت بعد المسح.
It is probable that the habits of some men changed after the survey.

It is difficult to predict how these changes affect risk estimates, as some men may stop smoking whereas some others may start smoking or return to it.

This sentence can be rendered into the following:

How these changes affect risk estimates is difficult to predict, as some men may stop smoking whereas some others may start smoking or return to it.

The approximate nature of smoking data also adds uncertainly to the investigation of the modification of the effect of Radon by smoking.

Lengthy facts on Silicosis were available and used in the analyses of this dangerous factor.
The translator of Text C2, sentence 1, changes ‘were available’ (verb to be + subject complement) into a verb in Arabic ‘توفرت’، which has no equivalent in English but the previously mentioned formula, which may accept in several adjectives; though it could be translated word-for-word into Arabic as in ‘كانت متوفرة’. Disregarding the wrong translation of the word ‘limited’ (into ‘definite’), we can notice that the structure of the sentence renders almost the same meaning of the source one. However, two possible English translations of the student’s Arabic translation are available: the first does not match the ST in terms of Theme/Rheme; the second does. Anyhow, the Arabic translation (as it is) matches the ST, structurally speaking. To a reader of both texts, semantic knowledge, syntactic knowledge, and pragmatic knowledge are tangible in the translation. Besides, there is some relationship between the linear ordering of elements in the sentence and their FSP functions.

The second sentence almost matches the source sentence except for the connective used ‘thus’, which the translator replaces by ‘and so’. In the third sentence, s/he keeps the structure but mistranslates ‘likely’. Likewise, sentence four does match, structurally speaking, the source one. However, the translator changes the probability into a declaration using the simple present to state a fact, as when s/he uses ‘affect’ instead of ‘might affect’ and ‘may stop’ instead of ‘might have stopped’. This may be indicative of a problem in translating the modal verbs. Other changes are of a slight importance. The fifth sentence actually does match the source one. The sixth, however, is semantically a total mess as the translator mistranslates ‘longitudinal’ for ‘lengthy’ and ‘risk factor’ for ‘dangerous factor’. In terms of structure, sentences five and six do match the ST sentence.

**Text C3: Arabic → English (Appendix 8)**

(لا يوجد إلا بعض المعطيات المحدودة عن عوامل الخطورة عند الرجال بعد الدراسة.)

There were not available but some limited data on risk factors of men after the study.

The Linear ordering of the elements of the sentence and their FSP functions do not coincide because a later element is brought to the fore. This negative sentence can be rendered into:

| Some limited data on risk factors of men after the study were available. |
|-----------------------------|-----------------------------|
| T                           | R                           |
Therefore, all analyses were taken from the 1974 questionnaire on smoking.

It is probable that the habits of some men changed after the study.

The change of the habits of some men after the study is probable.

It is difficult to predict the howness of the effect of these changes on risk factors estimates.

Predicting how these changes affect risk factors estimates is difficult.

Predicting the howness of the effect of these changes on risk factors is difficult.

The approximate nature of the data taken about smoking also adds doubts to the effect of Radon modification by smoking.

(2) ولهذا فقد أخذت جميع التحليلات من استبيان عام 1974 عن التدخين.
(3) ومن المحتمل تغير عادات بعض الرجال بعد الدراسة.
(4) ومن الصعب التنبؤ بكيفية تأثير هذه التغييرات على تقييم عوامل الخطأ.
(5) كما تضيف الطبيعة التقريبية للبيانات المأخوذة عن التدخين شكاً إلى أثر تعديل الرادون بالتدخين.
(6) أُتيت بيانات طولانية عن داء السيليكيز واستخدمت في تحليل عامل الخطورة هذا.
Longitudinal data on silicosis were available and used in the analysis of this risk factor.

Unlike previous translations, sentence 1 of Text C3 introduces another equivalent translation using a negative structure. Syntactically speaking, sentence 1 matches the ST sentence. It could be also rendered into *some limited data were available*, which is another matching sentence. The translator, however, adds ‘some’ to the Theme to retrieve the negative sense of the Arabic sentence. It is worth noting that the Arabic sentence is negative passive where the linearity and FSP functions of the elements of the sentence do not coincide because the subject complement is brought to the fore. Instead of saying متوفرة معلومات محدودة, where Themes and Rhemes match, the student uses the negative particle *lam* with the exclusive particle *illa* giving a sense of partial exception in لـم متوفرة إلا بعض المعلومات, thus forwarding Rheme over Theme.

The latter sentence is unlike the previously mentioned one, though in two sentences of them the verb متوفرة is heading the sentence. It is different from the other two sentences because it is negative using the exclusive particle (*partial exception*), whereas the former ones are positive. لـم متوفرة إلا بعض المعلومات can be rephrased with retrieving the negative sense through ‘some’ and ‘only’ to be متوفرة بعض المعلومات فقط.

Sentence 2 is passive as in the ST. The student only mistranslates ‘carried out’. In sentence 3, ‘likelihood’ is changed into probability, which certainly affects the semantic dimension of the message. Sentence 4, however, is marked by a change in the structure for the how-clause of the ST disappears to appear in the TT as a noun phrase. The sentence can be also rendered into ‘the mechanism … is difficult to predict.’ In sentence 5, a common mistranslating problem area could be noticed in the translation of the prepositional phrase ‘to the investigation of effect modification of radon by smoking’, which was noticed to be very frequent in students’ translations. The sixth sentence almost matches the ST sentence except for the fact that reversing ‘data were available for silicosis’ to be ‘data on silicosis were available’ can affect the Theme/Rheme ordering of elements. The student also uses the passive voice in his Arabic translation whereas the English sentence consists of verb to be and a complement.
So far three texts have been chosen from the students’ exam papers to highlight areas where students failed to obtain the right translation when there was more than one way to do it, however. Sentences one and two of students exam papers will be analyzed and categorized to investigate all the varieties students have had to find out about matches and mismatches of students’ products with the ST. Below are all the occurrences of sentence 1, which is *Limited data were available*. Students’ Arabic translations are listed below on the right and are translated back into English by the present writer to match them with the ST.

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Arabic Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- The available data were limited.</td>
<td>لقد كانت المعطيات المتاحة محدودة.</td>
</tr>
<tr>
<td>2- Limited data were/information was available.</td>
<td>معلومات محدودة كانت متوفرة.</td>
</tr>
<tr>
<td>3- Little information could be obtained. <strong>OR</strong> It was possible to obtain little information.</td>
<td>القليل من المعلومات كان بالإمكاني الحصول عليها.</td>
</tr>
<tr>
<td>4- There was not available but some limited data.</td>
<td>لم يتح إلا بعض المعطيات المحدودة.</td>
</tr>
<tr>
<td>5- There was not available but/except limited information.</td>
<td>لم يتوفر سوى المعلومات محدودة.</td>
</tr>
<tr>
<td>6- Limited information was available.</td>
<td>لقد تم الحصول على المعلومات محدودة.</td>
</tr>
<tr>
<td>7- The available data were limited.</td>
<td>المعطيات المتوفرة كانت محدودة.</td>
</tr>
</tbody>
</table>
They were categorized as follows:

a) The available data were limited. Sentences 1 & 7
b) Limited data were available. Sentences 2, 6 & 8
c) There was not available but some limited data. Sentences 4 & 5
d) Little information could be obtained. Sentence 3
e) The definite data were available. Sentence 9

In so doing, we are able to decide which Arabic sentences are possible correct renderings of the English ST.

It is quite clear now that sentences 2, 3, 4, 5, 6, & 8 are all possible translations. Sentence 1 confuses Rheme and Theme, and so does sentence 7. Whereas other sentences are indefinite (limited data/information), sentence 9 is definite (the definite data) and the wrong translation of ‘limited’ is being used.

Below are all the occurrences of sentence 2, which is All analyses were thus carried out with data on smoking from the 1974 questionnaire.

1- All the analyses thus came from the information about smoking in the study that took place in 1974.

Past/Active/ Complex sentence

2- Therefore, all the analyses were taken from the 1974 questionnaire on smoking.

Past/Passive/ Simple sentence
3- Therefore, all the analyses were concluded from the information about smoking in the investigation that was carried out in 1974.

Past/Passive/ Complex sentence

4- All the analyses did cope with the information that was obtained on smoking through the 1974 investigation.

Past/Active - Passive/ Complex sentence

5- All the analyses were carried out according to the data of the 1974 questionnaire about smoking.

Past/Passive/ Simple sentence

6- All the analyses adopted the information on smoking from the 1974 investigation.

Past/Active/ Complex sentence

The analyzed information on smoking was concluded from the raised matters in 1974.

Past/Passive/ Simple sentence

8- All the analyses were thus carried out with data on smoking from the 1974 investigation.

Past/Passive/ Simple sentence

They were categorized as follows:
a) All the analyses came from … (1) 
did cope with … (4) Active
adopted … (6)
b) All the analyses were concluded from … (3)
The analyzed information were thus carried out … (7)
c) All the analyses were carried out … (5) Passive
All the analyses were thus carries out … (8)
d) All analyses were taken from … (2)

It is quite clear now that sentences 5 and 8 are the best translations of the ST because they retrieve meaning with no distortion in the semantic message they should convey though the Arabic translation of sentence 5 is not passive but can only be translated into English in the passive form. Which is to say, sometimes the equivalent meaning can be rendered in a different structure (Newmark, 1988 & Nida, 1964). Thematic progression is also well retained and the syntactic knowledge is preserved in the TT.

Like all language users, translators work with aspects of both syntactic form and rhetorical function in dealing with a given element of text. It is this form-function interplay which defines the element in terms of its discursive relationships. (Hatim & Mason, 1990: 174)

Some translators of the previous texts, since they were not taught any of the principles of translations, referred in their introspection to the rhetorical function that they tried to make sure it is preserved in their translations. To do so, they depended on the lexico-grammatical units fulfilling the task (Hatim & Mason, 1990: 173). Semantic translation thus requires skillful manipulation of syntax in a way to produce the closest possible translation with minimal distortion of structure and rhetoric. If these two are not maintained, the translation is said to be incorrect or lacking, let alone the inappropriate selection of vocabulary that may affect the meaning (the semantic and sometimes the pragmatic knowledge even when the syntactic receptacle is well retained.

In an attempt to investigate about the vocabulary that medical students have and use in the process of translating and to know more about how they choose their lexis, several keywords were chosen from the students’ exam papers and listed according to word-class (see Appendix 9). It was found, depending on analysis of the list only, that most of the students did not know the exact meaning of most of the non-medical Lexis though almost all the keywords
are common in the medical field. Students, it seems, mainly depended on predicting meaning out of the context; unless they knew the right meaning. In their translations of the only medical word detected in their exam papers, ‘silicosis’ (see Table 1), students’ translations varied between transcription of the word (silicosis: مسيلوكسيز), partial transcription + partial translation (silicos + is: داء السيليكوز/السالسلات) and the wrong translation (silicosis: إيقاف التدخين). In point of fact the majority of students transcribed the word. Why? Was it because they all the time came across it this shape? Or was it because they do not have the right to create their own neologisms? Newmark (1988: 15) states it clearly that ‘in a non-literary text, there is a case for transcribing as well as translating any keyword of linguistic significance.’ The existing problem at the moment, I believe, is not whether we can transcribe a keyword or not but it is that, in case there are several translations of the same word, how we can decide on one, provided it is closest, clearest and it stands for a translation. In our example above, 11 broad but possible translations were given to the word ‘silicosis’.

In the table below, 11 keywords are provided with their translations into Arabic as they appear in students’ exam papers; their word-class, if different; and the translation of the Arabic words back into English to measure the deviation of meaning from the ST words, if we allow for a slight tolerance to occur. One verb only is being detected (carried out: passive); therefore, classifications of the verb under passive/active are provided, in addition to other pitfalls on the part of students as when they translate the noun into an adverb (e.g., uncertainty: لا يمتد غير محدد).

<table>
<thead>
<tr>
<th>Were compared</th>
<th>Passive</th>
<th>Silicosis (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>deducted</td>
<td>=</td>
<td>Silicosis</td>
</tr>
<tr>
<td>concluded</td>
<td>=</td>
<td>مسيلة</td>
</tr>
<tr>
<td>carried out</td>
<td>=</td>
<td>سيلوس + is:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Disease of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Silicos</td>
</tr>
<tr>
<td>collected</td>
<td>=</td>
<td>جمعت</td>
</tr>
<tr>
<td>studied</td>
<td>=</td>
<td>درست</td>
</tr>
<tr>
<td>carried out</td>
<td>=</td>
<td>نفدت</td>
</tr>
<tr>
<td>built</td>
<td>=</td>
<td>بنينت</td>
</tr>
<tr>
<td>deduced</td>
<td>=</td>
<td>استثجنت</td>
</tr>
<tr>
<td>taken from</td>
<td>=</td>
<td>أخذت</td>
</tr>
<tr>
<td>discovered</td>
<td>=</td>
<td>اكتشفت</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stopping smoking</td>
</tr>
</tbody>
</table>
The American International Health Council (AIHC) has recently conducted a survey in the US to ask Arab medical doctors about their experience of arabizing medicine and the problems they have been facing in this regard. It was reported that the majority of students were graduates from Damascus University and very few students from Aleppo University, Syria. The majority had no difficulty in understanding arabized medical terms, but difficulty, if any, was attributed to the ‘accuracy and simplicity of the translated material’ as ‘participants stressed that verbatim translation, translation by unqualified authors, and the use of old, uncommon Arabic terms’ did significantly contribute to the ambiguity of some translated university materials.

Some of the AIHC’s suggestions were:

Translation requires fine skills, deep understanding of the original text, and the capacity to transform the text into an easy, strong, well-understood, and grammatically correct text …

Committees should exist to evaluate and monitor the quality of translation … and others to ensure the presence of acceptably updated teaching materials.

Although unifying translated medical terms is of paramount importance, translators should simplify and modernize medical terms and avoid using uncommon, difficult ones.

(Shahrour, 1997: 61)

To conclude, students usually follow two techniques when approaching a text, namely, micro-text processing and macro-text processing. They, however, tend to mix the two as they use one when they move from the word level to the sentence level to the text level and use the other when they move from the text level down to the sentence level and the word level. In
point of fact, reading the text, understanding the intended meaning, looking up words, then
translating and finally reading to check coherence and cohesion was the macro-text
processing that students followed. On the other hand, scanning the text for words to look up in
the dictionary, translating and finally reading the whole text to check coherence and cohesion
is the micro-text processing.

Students’ main weak points were traced out in translating prepositional phrases and
perfect modals in reference to sentence structure and in translating the rhetorical function of
elements in sentences where there is some sort of forwarding the Rheme over the Theme or
any sort of confusion of the thematic progression of the propositions of a text or even a
sentence in reference to the FSP functions of the elements of a sentence. This sort of
mistranslating may be due to the fact that students were not taught any principles about
translation.

Based on the analysis of the lexis picked out from students’ exam papers, it was found
that the majority of students did not know the exact meaning of many of the key words, which
negatively affected their understanding of the text and thus translating it properly into Arabic
(no dictionary use in this stage). It was also noticed that students had many sources as
references during their undergraduate stage, which was detected in translating the medical
terminology ‘silicosis’ of which students gave many different translations.

Last but not least, Arabic is really a good carrier and receptacle of sciences and the
existing problem of translation can never be attributed to the language itself but rather to the
translator and the receptor of the translation only. It is believed that

The suitability of Arabic to accommodate the medical sciences is evident. It would be
superfluous to argue about the capacity within Arabic for new word formation: derivation,
construction, and analogy, as well as its flexibility. The real obstacle that Arabic faces lies in
the deeds of those who, for one reason or another, do not believe in arabization.

We should stress that we are also committed to teaching foreign languages. True
arabization does not mean staying secluded from foreign scientific sources. Because of this,
our university curricula require the student to study a foreign language – and to be tested on
it – for five academic years. During postgraduate specialization, the student is examined in
English in two medical courses from his or her field.

(Murtada, 1997: 58)

Recommendations

Based on the findings of the present study, the following recommendations are given:

1) There must be a real Arabic medical library containing high-quality, updated books,
which students should be encouraged to rely on – as we guarantee their updatedness
and clarity.
2) Medical students should learn more about translation and principles of medical translation at their undergraduate stage if we want to have good medical books. Having a dictionary all the way students go is not a substitute for teaching translation.

3) Medical students should be exposed to complexities arising from translating expressions and successive prepositional phrases (e.g., ‘to the investigation of effect modification of radon by smoking’ – Text C).

4) Teams concerned with translations should consist of specialized doctors and specialists in both Arabic and English.

5) Having a medical society to authenticate all the translated books and to unify all the terms is an important step. (NB: Some people may say that medical dictionaries unify terminology, but, I say, with the existence of several medical dictionaries in the market, it is difficult to agree on one term or equivalent; e.g., students’ many translations of ‘silicosis’ – Text C)

6) Medical students translate semantically and they violate meaning and structure, Theme and Rheme. Therefore, teaching English for Arab medical students is not only teaching the language for academic or specific purposes but also teaching a science that is foreseen in the appropriate transferring of English medical texts into Arabic and, at a later stage, vise versa.

1) Students should be taught about genre and translations of genre, scientific translation, sentence length and word order (e.g., using the passive instead of the active voice).

2) With the existence of varied translations of the same key word in the same class, an urgent attempt to unify terminology at the level of teaching the curriculum is needed. Solving the problem should not stop at the dictionary or interlingual glossary team level but should rather exceed the written word to lectures and conferences and even the medical media.

Finally, I would like to emphasize the fact that arabizing medicine is, and will always be, a positive step towards shifting focus from English into Arabic in regard to our publications. In countries where books are written in English for English readers, readers in this case are receptors Type I; in countries where English is a foreign or second language, readers of English books are receptors Type II; but in countries like Syria, where English books are to be translated into Arabic for our readers, then such readers are receptors Type III. The solution is not to read directly updated books in English but rather to write our own books in Arabic to be, like writers of English books and their primary readers, receptors Type I.

Since this research was carried out on students without teaching them any principles of translation, it is recommended that future studies introduce translation theories and principles
in class to draw student’s attention to their possible pitfalls and weaknesses to investigate what helps them more to improve and what they really lack to be refilled.
### Students’ Translation of Several Keywords in The Final Exam, 1997

<table>
<thead>
<tr>
<th>Were carried out (v) (passive)</th>
<th>Uncertainty (n)</th>
<th>Investigation (n)</th>
<th>Silicosis (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were compared Passive</td>
<td>Deduced</td>
<td>Based on</td>
<td>Written down</td>
</tr>
<tr>
<td>= deduced /concluded =</td>
<td>= استنتاج =</td>
<td>= عدم الثقة =</td>
<td>= استقصادات =</td>
</tr>
<tr>
<td>= carried out =</td>
<td>= أجريت =</td>
<td>= غموضا =</td>
<td>التحريات = = Silicos + is : Disease of Silicos =</td>
</tr>
<tr>
<td>= collected =</td>
<td>= جمعت =</td>
<td>= عدم الثقة =</td>
<td>التحقيق = Silicosis =</td>
</tr>
<tr>
<td>= studied =</td>
<td>= درست =</td>
<td>= شكوكا =</td>
<td>Silicosis = = Silicosis =</td>
</tr>
<tr>
<td>= carried out =</td>
<td>= نفدت =</td>
<td>= impreciseness =</td>
<td>Silicosis = = Disease of silicosis = = سيليكوس السالسيات =</td>
</tr>
<tr>
<td>= built =</td>
<td>= نتيجة =</td>
<td>= Indefinitely (adv) = = محدد =</td>
<td></td>
</tr>
<tr>
<td>= deduced =</td>
<td>= استثبتت =</td>
<td>= Not proved (adj) =</td>
<td></td>
</tr>
<tr>
<td>= taken from =</td>
<td>= اخذت =</td>
<td>Silicosis = = التدقيق في السلاليات =</td>
<td></td>
</tr>
<tr>
<td>= discovered =</td>
<td>= اكتشفت = = كشفت =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= neglected /excluded =</td>
<td>= تجاهل =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= carried out =</td>
<td>= تم جمع =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= deduced =</td>
<td>= استخلاص = = استدعت =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is born =</td>
<td>= تحمل =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adopted =</td>
<td>= Active =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Included =</td>
<td>= تضمنت =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cope with = = تتماشى =</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were collected =</td>
<td>= تم جمع =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were obtained = = تم الحصول =</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were taken = = تم أخذها =</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written down = = مدونة =</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on = = معتمدة =</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deduced = = مستقلة =</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

First, the translation into Arabic is provided; second, word-class, if needed; and third, the translation from Arabic into English is given.
<table>
<thead>
<tr>
<th>Modification (n)</th>
<th>Questionnaire (n)</th>
<th>Survey (n)</th>
<th>Estimates (n)</th>
<th>تغير / تعديلات</th>
<th>تواصل</th>
<th>المقالة</th>
<th>Enhancement</th>
<th>تعزيز معدات</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
<td>Study</td>
<td>Study</td>
<td>Percentage of averages</td>
<td>تعديل / تعديلات</td>
<td>تساؤل</td>
<td>البحث</td>
<td>زادت</td>
<td>زيادة</td>
</tr>
<tr>
<td>Modification Modifications</td>
<td>Inquiry</td>
<td>Articale</td>
<td></td>
<td>معالجة</td>
<td>البحث</td>
<td>البحث</td>
<td>تعزيز</td>
<td>زيادة</td>
</tr>
<tr>
<td>Modified (adj)</td>
<td>Investigation</td>
<td>Research</td>
<td></td>
<td>تعديل معالجة</td>
<td>استضافة</td>
<td>البحث</td>
<td>تعزيز</td>
<td>زيادة</td>
</tr>
<tr>
<td>Increasing (adj)</td>
<td>Tests</td>
<td>Exposure</td>
<td></td>
<td>تعديل معالجة</td>
<td>فحوصات</td>
<td>البحث</td>
<td>تعزيز</td>
<td>زيادة</td>
</tr>
<tr>
<td>Improved (adj)</td>
<td>Sample</td>
<td>Survival</td>
<td></td>
<td>تعديل معالجة</td>
<td>عينة</td>
<td>النجاح</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Exposure</td>
<td>Questionnaire</td>
<td>Survey</td>
<td></td>
<td>تعديل معالجة</td>
<td>استطلاع</td>
<td>النجاح</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Belittlement</td>
<td>Researchers</td>
<td>Investigation</td>
<td>الاستقصاء</td>
<td>تقليرات</td>
<td>الباحثين</td>
<td>الاستقصاء</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td></td>
<td>Questions sheet</td>
<td>Curing</td>
<td></td>
<td>متغيرات</td>
<td>استمارة</td>
<td>الشفاء</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Deduced information</td>
<td>Observation</td>
<td>مراقبة</td>
<td></td>
<td>تقدير</td>
<td>معلومات</td>
<td>المتداولة</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Date</td>
<td>البحت</td>
<td>المراقبة</td>
<td></td>
<td>تقييم</td>
<td>البيانات</td>
<td>المتداولة</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Questions sample</td>
<td>Survey</td>
<td>دراسة</td>
<td></td>
<td>قيمة</td>
<td>نموذج استطلاع</td>
<td>الدراسة الاحصائية</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td></td>
<td>Statistical study</td>
<td>الاحصائية</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Raised question</td>
<td>Investigation</td>
<td>الاحصائيات</td>
<td></td>
<td></td>
<td>الاحصائية</td>
<td>الاحصائيات</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Inquiries</td>
<td>Service</td>
<td>الخدمة</td>
<td></td>
<td>نتائج</td>
<td>تسالات</td>
<td>الخدمة</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Investigation</td>
<td>استضافة</td>
<td>المعالجة</td>
<td></td>
<td>تحديد</td>
<td>استطلاع</td>
<td>المعالجة</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Investigations</td>
<td>Surived (v)</td>
<td>البقاء على قيد الحياة</td>
<td></td>
<td>مقدرة</td>
<td>استطلاع</td>
<td>البقاء على قيد الحياة</td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Magazine</td>
<td>مجلة</td>
<td>Expected (adj)</td>
<td></td>
<td>متوقعة</td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Responsible smokers</td>
<td>المدخنين المسؤولين</td>
<td>Definite (adj)</td>
<td></td>
<td>محددة</td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Participant</td>
<td>مشارك</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Investigator</td>
<td>مستشار</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Research</td>
<td>بحث</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Survey</td>
<td>استطلاع</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Question sheet</td>
<td>استطلاع</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Investigation</td>
<td>استطلاع</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Smoker</td>
<td>مدخن</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>People</td>
<td>الشخص</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Volunteers</td>
<td>متطوعين</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Reports</td>
<td>تقرير</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Investigative Questions</td>
<td>أسئلة البحثية</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Question</td>
<td>سؤال</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Case</td>
<td>حالة</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Facts</td>
<td>حقائق</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Files(records)</td>
<td>سجلات</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>School sample</td>
<td>المندوج المدرسي</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>معاء</td>
<td>زيادة</td>
</tr>
<tr>
<td>Available (adj)</td>
<td>Approximate (adj)</td>
<td>Longitudinal (adj)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>------------------</td>
<td>--------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valuable</td>
<td>Obtained</td>
<td>Future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available</td>
<td>Probable</td>
<td>Long</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suitable</td>
<td>Approximate</td>
<td>Longitudinal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abundant</td>
<td>Successive</td>
<td>Lengthy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliable</td>
<td>Common</td>
<td>Theoretical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Related</td>
<td>Expected</td>
<td>Parallel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Considerate</td>
<td>Available</td>
<td>Long-term</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ready</td>
<td>Approximate</td>
<td>Concerned</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate</td>
<td>Absolute</td>
<td>Lung-specific</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possible</td>
<td>Abnormal</td>
<td>Widened</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changeable</td>
<td>Untrue</td>
<td>Valuable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available</td>
<td>Sample (n)</td>
<td>Handled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accompanying</td>
<td>Cultural</td>
<td>Logical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Able to evaluate</td>
<td>Deduced</td>
<td>Required</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We have used the gathered complete data for our study. The gathered data was contained in a sample of the different groups. Further analysis showed that the gathered data was related to the previous findings. The gathered data was also compared with the obtained data in previous studies. The gathered data was shown to be different from the previous findings. Further analysis showed that the gathered data was consistent with the previous findings. The gathered data was also compared with the obtained data in previous studies. The gathered data was shown to be different from the previous findings.
References:


