The Effect of Some Non-Linguistic Factors on the Development of Technical Arabic Lexicon

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Summmary

Lexical change is a linguistic fact caused by both internal and external factors. Internal change can mean the adaptation of both the meanings and forms of existing words and phrases through such factors as assimilation, elision, and reduction. External change includes the borrowing of words, which may be occasional and minimal, or frequent and massive, as with the flow foreign terms into Arabic.

In the study of new items of technical lexicon in Arabic, the effect of other languages such as English, French and Spanish in modern technical Arabic lexicon has not been efeciently studied yet. As a result, this paper is devoted for investigating this realm.

Although the linguistic characteristics of any newly adopted term are very important, there are other factors to be considered in the procees of dissiminating the new suggested vocabulary. Among these are four factors mentioned in this paper. Obviously it is rather impossible to cover all the details of this huge subject in the span of this paper; yet, the light has been shed on the most important factors usually neglected by people working in this field. These factors are:

a. the preexistence of the foreign terms in general use, and the slow operation of the LPAs,
b. the LPAs lack of authority and resources, and poor distribution of the suggested Arabic terminology,
c. the coexistence of internationalisms vs. native coinages, and
d. the effect of some conextual difficulties.

These factors must be carefully reconsidered, then remedies should be pinpointed. Later on, long-term plans must be put by the authorities, governmental and scientific institutions, and scholars interested in the topic to have a unified perspective concerning this problem; otherwise, the linguistic diversity among different Arab countries, and even within every country, will enormously expand.

1. Introduction

1.1. The Language Change and Dialectology

Theoretically speaking, there is some sort of overlapping between language change and dialectology. Dialectology can be designated as the study of dialects, and it focuses on variation most commonly occurs as a result of relative geographic, social or *linguistic isolation*. Crystal (1997:114), among others, believes that: “Any LANGUAGE with a reasonably large number of speakers will develop dialects, especially if there are geographical barriers separating groups of people from each other, …”

therefore, the isolation resulted from geographical barriers may affect the vocabulary, features of grammar, or pronunciation or all these of a certain lanjuage; whereas language change covers the areas of phonology, morphology, syntax and semantics; yet, it represents what might be somewhat a different linguistic phenomenon

since it depends on *linguistic relationships* rather than linguistic isolationTo restrict the scope of the topic, only the effect of some non-linguistic factors on the development of the lexical aspects of technological vocabulary in Arabic have been chosen for investigation in this paper. The development of Arabic lexicon, like any other lexicon, is subject to some extra or non-linguistic factors (henceforth NLFs) which results in lexical change during the span of time. This change can be attributed to different NLFs. Yet, both the Arabic Linguistic Academies, (henceforth ALAs), in Arabic 'مجامع اللغة العربية', and language planning agencies (henceforth LPAs) usually treat this phenomenon so slowly and present disjointed suggestions that there is an ever expanding gap between the already established and traditional Arabic lexicon and everyday
life demands. Therefore, this paper is devoted to shedding light on this problem. It will be rounded off with some recommendations and solutions..[1]

1. 2. Causes of language change:

Language change can be attributed to the following factors:

a) The Societal Factor: Sociolinguists usually emphasize the societal factors in linguistic change. for instance, Coates (1991:56) describes linguistic change as occurring in the context of linguistic heterogeneity, then she adds that:

"Linguistic change can be said to have taken place when a new linguistic form, used by some sub-group within a speech community, is adopted by other members of that community and accepted as the norm."

In Arabic countries, the context of linguistic heterogeneity is a clear and evident phonomenon; therefore, there are several sub-groups within the same speech community and these do not show a unifed response towards the new technical terms.

b) Economy: Speakers tend to make their utterances as efficient and effective as possible to reach communicative goals. Purposeful speaking therefore involves a trade-off of costs and benefits.

c) Analogy: This is the process of regularization which affects the exceptional forms in the grammar or lexicon. It is supposed that in Arabic this factor has to play a vital role in adopting new foreign technical vocabulary because Arabic has so many lexical formulae which might enable speakers to devise new Arabic forms used as equevalents to the new foreign technical forms.

d) Language Contact: This factor takes several forms such as language shift, language spread and language diffusion. Recently Arabic has had interrelationships with several other languages such as English, French and Spanish and these languages have given Arabic so many the chnical items.

e) The Medium of Communication: The medium of communication refers to the functionally distinct dimensions in which a message is transmitted of which the basic media speech and writing.

([1]) For further reading on dialects, dialectology and language change, see the following:

a) Bolinger, Dwight (1975) *Aspects of Language*. Harcourt Brace Jovanvich INC. New York. P. 332 passim.

b) Lyons, John (1981) *Language and Linguistics: An Introduction*. Chicago University Press, Chicago. pp. 24-7 passim; and pp. 179-213 passim.

c) Aitchison, Jean (2001) *Language Change: Progress or Decay?* Cambridge University Press, London. Pp. 27.

f) Cultural Environment: Groups of speakers will reflect new places, situations, and objects in their language, whether they encounter different people there or not. For Arab speakers, these objects are new technological and medicinal innovations imported from foreign countries and they require using special technical lexicon.

1.3. Lexical change:

The study of lexical changes forms the diachronic portion of the science of onomasiology. The ongoing influx of new words in the English language, for example, helps make it a rich field for investigation into language change, despite the difficulty of defining precisely and accurately the vocabulary available to speakers of English. For example, throughout its history, English has not only borrowed words extravagantly from other languages but has re-combined and recycled them to create new meanings, while losing some old words. McArthur (1998) states that: "… lexical change is caused by both internal and external factors. Internal change can mean the adaptation of both the meanings and forms of existing words and phrases through such factors as assimilation, elision, and reduction, as with the conversion of *Saint Audries* in *Saint Audries lace* into *tawdry* (cheap and ill-made, originally referring to the quality of the lace sold at St Audrey's Fair in Ely, England). External change includes the BORROWING of WORDS, which may be occasional and minimal (as with LOAN WORDS taken into English from Turkish) or frequent and massive (as with the flow into English of French, Latin, and Greek words)."

In the field of new technical lexicon, the same thing is largely true concerning the effect of other languages such as English, French and Spanish in modern Arabic.

2. Brief Description of the Situation of Scientific and Technological Terminology

2.1. The Lack of Scientific and Technological Terminology:

One of drastic changes that Arabic has undergone over the last few decades is the lack of a scientific system for designating new inventions and findings. Therefore, Arabic could not gain a unified updated scientific and technological terminology which can meet the ceaseless permanent need for designation of new inventions and discoveries in nature and thought as well. According to Crane, L. Ben, et.al. (1981:205) this fact is mentioned not to blame Arabic itself since the problem originates in the social and historical conditions. It is commonplace that those who do not participate actively in the process of producing and shaping recent civilization can hardly add to this type of terminology in their own langaues.

Ever since the establishment of the ALAs in Baghdad, Cairo, Damascus, Amman, and then in most of other Arabic countries, these academies, together with the LPAs, has undertaken the responsibility of finding, creating, translating, Arabizing, and disseminating the technical vocabulary needed in different fields of technology and epistemological disciplines. However, the terms presented by both ALAs and LPAs have not been sufficient, both in quantity and quality, to solve this problem because of the body of the vocabulary suggested by the above mentioned institutes and some other individual scholars is not always agreed upon or accepted by language community. The reasons of this phenomenon are organizational in nature and they can be outlined as follows:

1. The hasty development of technological products and epistemological progress and the tardy work, and hence production, of both ALAs and LPAs.

2. The various channels of the sources of new terms, English, French, German, Russian, etc. which make the solution of the problem much more difficult.
3. The lack of efficient collaboration between different members of ALAs and LPAs, and the absence of a unified language policy adopted by all Arab countries.

Although the situation seems rather gloomy, this paper is trying to participate in the discussion of the problem and give a sort of solution for it.

2.2. Some Contextual Difficulties:

a) When an Arabic term is newly introduced in the everyday language to designate a new concept or production, the speakers will be either already using another term, or they have not used any other term yet. The problem is that the first possibility is almost always the case. Therefore the newly suggested Arabic terms will always find their rival foreign terms. This is one of the prerequisite condition which might be the most difficult barrier in front of Arabic terms. When speakers are not using any other term prior to the introduction of the Arabic one, i.e., the concept of the object (referent) to be designated is not previously known by the community, the acceptability and then the usability of the Arabic term will be much higher. Whereas when there is already a foreign term in use,[1] the introduction and use of the Arabic term will be much more difficult. This is so because of the great role played by time in gaining currency for new terms since old habits die hard. This can be illustrated by two recent words borrowed from English: one of them is /satala:it/, (satellite), and /neğğa:l/ (mobile phone) which are used in Iraqi Arabic. These two inventions have only recently become familiar and they are used a large scale in Iraq since 2003. As for lexical representation, the way they are treated is different. In the first case, /satalaayit/ is the only term used to designate the whole system with its component parts, i.e. the dish and receiver. Here, it is noticed that the foreign terms for the whole system and its parts are Arabized and not translated. Therefore, we have in Arabic Iraqi colloquial /diš/ and /risiifer/ or /risiiver/ for dish and receiver respectively. This situation seems permanent despite the existence of Arabic equivalents suggested to replace the three foreign terms: /ğamar şina: ʒı:/ for satellite, /şahn/ for dish, and /ʤihaz istiğba:l/ for receiver respectively. But in case of /nağğal/, or mobile phone, there has been only one rival foreign term. That is /mubail/ which has been in general use later on. The only possible explanation for this situation is that introducing the product and the term designating it in Iraq for the first time has not been accompanied with any sort of translation, as a result, the Arabized version of the term is adopted, and it has become more and more dominant even among educated people. Thus, the English terms gained currency through the span of time. Therefore, the tardy efforts to disseminate the Arabic terms through press and television has failed.

b) It is quite difficult to impose the use of Arabic terms when the long-standing foreign equivalents exist. Although Arabic terms are used in some official contexts, their foreign rivals are still dominant in the public conversations and within the *register* of

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[1] - Foreign terms are not the only confrontation to the proposed Arabic vocabulary terms. There is also a kind of competition, albeit on smaller scale, between standard colloquial terms. The speakers usually do not wait until they are told by academics or language authorities what terms they should use.

those who sell, buy and use the new product, or repair it. Unfortunately, there is usually a foreign term in use by the time the new Arabic one is introduced. This might accelerate the

problem. Commenting on this point, Lexđar ĝeza:l (1993:102-121) notes that the total number of technical terms coined by all LPAs in all fields of science and technology does not exceed 100,000 terms. This number is very small if it is compared with the huge number of the new products. To shed light on this point, he examines the way two European languages have treated this problem in the English-French—English dictionary of technology by Kertridge. But in Arabic, the lexicon of geology published by an Arabic Academy in 1963 has been only 5,500 terms at that time. He also comments on the viewpoint presented by some scholars that even the languages of more developed nations have also terminology problems by saying that the problem for the latter languages is to develop newly specialized technical terms relating to, e.g. missiles and satellite systems, while the Arab scholars and users are still looking for basic names for technology which appeared during the Industrial Revolution, and still do not have the means to differentiate between types of nails and screws unless they use their foreign names!

2.2.1. The Lack of Authority and Resources:

Checking the history of this problem shows that LPAs lacks the authority and resources to fulfill their difficult and complicated tasks. Therefore the distribution of the new terminology is still very poor. To make the products of ALAs and LPAs in the field of new terminology reach the language community, power of sanction must be granted to these scientific bodies or else their work will remain non-mandatory and void. Moreover, there has been the absence of efficient means of public distribution of their work. If a newly coined vocabulary is to be successfully introduced and used by the language, it should be properly disseminated among the target potential language users of both specialists and general public. It is the responsibility of the ALAs and LPAs to make sure that their products reach the target sector in the first instance, and all the users of the language in the second. Producing lists of terms and keeping them on the high shelves, or in their official journals will never bridge the gap that exists in the field of technical vocabulary in Arabic.

2.2.2. The Tardy Role of the State:

It is vital for any state to adopt and implement whatever terminology coined by the ALAs and the LPAs in its linguistic borders since this terminology is one of the most essential part of the language policy. The situation is particularly so in Arab counties because there is a kind of close interrelationships between them in this field. But there is some doubt as to whether the political authorities in the Arab countries really believe in putting a unified plan to treat this problem methodologically. Accordingly, they never give the ALAs and the LPAs enough assistance nor they play their role to disseminate the suggested new vocabulary among the users of Arabic in higher education or in general public media. As neutral observers, we doubt the credibility of the Arabic governments in helping along the process of Arabicization or translation of scientific and technological terminology. Experience in the field of establishing this type of terminology has proved that Arab governments efforts to implement what the ALAs and the LPAs have suggested is rather void because it is not serious enough. To enhance this proposition, we can here quote what the former Tunisian Prime Minister al- ħadi Nwera has said in this respect:

"… the golden rule which Arab universities must follow is to give the utmost attention to foreign languages so that our students and researchers can read science in its original language. Translating into Arabic is neither enough nor very useful. Therefore, to save time effort, and in order to guarantee success, sciences must be taught in their languages."[(1)]

Although this speech was delivered at one of meetings of The Arab League Educational, Cultural, and Scientific Organization, or the A.L.E.C.S.O, no substantial changes have occurred to show that a new policy concerning this problem has been advocated. In fact, this sincere statement is rather rare, yet, the real factors and policies show that no true efforts have been introduced to find out a unified Arabic plan for solving this problem.

2.2.3. The diversity of the Educational Systems:

It is a well known fact that the educational systems in different Arab counties are not unified. In fact, they have been diverse in nature and procedure. Yet, the educational curriculum may be the most effective factor for disseminating the newly suggested vocabulary. This role can be accomplished by adopting a strategic perspective concerning this problem.

However, the activeness of the educational curriculum can be counter-productive since the loan terms used in curriculum in early stages of education are difficult to be replaced later on by newly coined Arabic terms. It is for this reason that terms like /iliktru:n/, electron, /naitru:ʤi:n/, nitrogen, /tirmu:metr/, thermometer, /tilisku:b/ telescope, and some other terms are the only terms known and actually used, while the suggested Arabic equivalent terms: /kuheirib/, /al-muxaššib/, /miħrar/, mirǧab/ respectively have failed to gain currency and replace the foreign ones. Thus, it is important to use Arabic vocabulary in the first place rather than foreign terms intended to be used temporarily. The effectiveness of the educational curriculum in introducing the new Arabic terminology is that even when terms considered unacceptable because of their various shortcomings are included in text books they can be successfully introduced and used. This, of course, is not to suggest that any poorly coined terms should in fact be included and used, but rather to illustrate the power of the educational curriculum as a tool for introducing new technical vocabulary.

2.2.4. The Role of the Mass Media:

Mass media channels play a vital role in the dissemination of the suggested Arabic terminology as publicly wide as possible. To show the importance of role played by press, Evans (1972; 16) states that:

"No professor of linguistics has as much influence on the language as the desk man who edits the news".

This is so because of their very nature, i.e. mass media are the most widely read, heard, or seen sources of language. The influential role of mass media extends to the structural, stylistic, and lexical features of language. This is largely true concerning Arab people and Arabic language.

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[1] - Consult the following: al-Maζmuuri, M. A. and al-ĝazali, S. (1983) *teʔəi:r teζli:m al-luĝa:t al-aʤnabiyah fi: taζalum al-luĝah al- ζarabiyah.* Tunis. P. 7. ff. 14.

Although stylistic aspect is the most obvious one, the lexical aspect is what is relevant in this paper. Again, the role of governments is very important in Arabic countries since most of media are government controlled. Mass media can be divided into the following: (i) press, (ii) T.V. stations and radio stations, (iii) specialized journals and periodicals.

2.2.4.1 press:

Press includes newspapers and magazines which can play an important role in the process of disseminating newly suggested technical vocabulary because newspapers and magazines constitute the most wide spread sources of written Arabic. It is evident that people will be aware of terminology used in the papers and magazines that they usually read. Nobody expects that these readers have to look for the Arabic equivalent of some foreign terms they find in the papers. Our experience shows that whatever written in these sources is taken as a norm or standard by the majority of the readers. Here, the disturbing fact is that most of the technical vocabulary used in the leading Arabic news papers is still foreign, even when Arabic equivalents exist and are used in other written sources. A close examination of these papers reveals the extent to which foreign vocabulary is unnecessarily used in the Arabic press.(1) The role played by the press in introducing new technical vocabulary is not a new phenomenon, and some of well-known vocabulary in Arabic has been introduced by journalists and writers operating outside the ambit of any LPA. Words like: /bari:d/ “post”, /ba:xirah/ “ship”, /ha:filah/ “bus”, /jari:dah/ “newspaper”, /mu?tamar/ “congress”, /mintad/ “ballon” have been reported to be introduced by a single writer, Fa:ris al-Shidyaaq, particularly in his paper *al-Jawa:?ib.* Other important contributors have been Rifa:ζah a-Ťattaawi, Abdullah al-Ndi:m, Adi:b Isħa:ğ, Muħammed Abdah, Ibrahim al-jaziʤi, Butrus al-Bustani.

If the press is to have a positive effect on the development of technical vocabulary in Arabic, there must be a kind of cooperation and assortment between the LPAs and different press publications.

2.2.4.2. TV. and Radio Stations:

While different newspapers have played a significant role in introducing new technical vocabulary, particularly in the period between the end of the 19th century and the first half of the 20th century, TV and radio station are the leading means nowadays, moreover, they are enhanced by the introduction of satellite systems to the Arab world in the last few decades. It commonplace that people who watch TV are more than those who read newspapers or magazines. Also it is noticed that people spend much more time in front of TV screens than the time in reading. The type of technical vocabulary which may be heard on TV or radio is similar to that which occurs in the press, i.e. general technical vocabulary of common use (specialized terminology is usually used on a large scale in specialized

periodicals and publication). Contrary to the recommendations of the Arabic TV channels for a short while is to realize the extent of the foreign vocabulary being used. Disturbingly, in many cases the foreign vocabulary used is neither very technical nor

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[1] - The term “mobile phone” is not widely used in Libya where I have been living for 8 years. However, there are Arabic equivalents for this term which are widely used in other Arabic countries such as: /ʤawwa:l/, /maħmuul/, /hatif alʤaib/, and /alhatif alxalawi/. This is only one example of the variation and non-unified terminology common in Arabic today.

specialized. Even where there is an Arabic term suggested to replace it, it is often followed by an English or French one as if the Arabic terms were not sufficient to be understood. Although it is true that a foreign term is sometimes needed either because there is no Arabic equivalent for it or because the equivalent is felt to be somehow imprecise, it is sometimes noticed in the case in which other instances of using foreign terminology by TV broadcasters and speakers to show that they are well-educated and able to speak foreign languages: the prestige of English and French is clearly based in these instances on the expense of Arabic.

2.2.4.3. Specialized Journals and Periodicals:

These are obviously the richest source of technical and specialized terminology. Contrary to the fact that these publications have relatively few readers, they are potentially the most important type of printed materials as far as new technical and scientific terminology is concerned. In realty, however, these publications are problematic not only because some of them do not usually adhere to the Arabic terminology, but also because they are used by a very limited community. It is also noticed that such publications have been usually put forward as unquestionable examples by those opposing the use of Arabic in scientific fields. However, this is the fault of the language users rather than of the Arabic language itself. The production and publication of specialized periodicals in Arabic is the responsibility of people in different branches of science, yet most of these people do not use the Arabic terms in their daily activeties.

3. International VS. Native Coinages:

Competition between international and native terms can be very tough. It is therefore not an easy task to create native neologisms to replace such terms. The advantage of using international terms is of twofold: (i) it avoids the difficulty of introducing native terms for what are already widely accepted ones, (ii) although there is a language barrier results from the fact that each language has an individual and distinctive system, it has a structure and is not a mere list of names, adopting international terms can still help to facilitate communication both within the scientific community since these terms constitute bulky component of the jargon used by this community, and among people in general since they are associated with their experience. It should be noticed here that difficulty in replacing these international terms differs from the above mentioned posed by the prestigious terms mostly come from English and French. In the latter case, it is the language as a whole that has an effect on the speakers rather than particular terms. In the former case, the speaker may not be able to speak more than one language, but the term is internationally recognized and understood and this will give it a better chance to spread publicly. It is futile to try to coin equivalents out of words like television and radar which are used in a large number languages with some sort of phonological and morphological modification. In Iraq, though the ALA has recommended the Arabic term /iðaaζah mar?iyah/ (إذاعة مرئية) for “television”, yet this term is very rarely used except when the use of foreign terms is forbidden by law! Moreover, it is diffcult to coin a verb from this suggested Arabic term whereas there is an available verb /jutelfiz/ (يتلفز) which, although taken from the foreign term “television”, is identical with lexical formulae in Arabic. Some linguists believe that there is a global trend towards adopting international terms for several reasons. For example, Sager and Nkwenti-Azeh (1989:24) note that:

"the growing socio-economic interdependence between countries of diverse linguistic backgrounds makes the preference of internationalisms over existing or new autochthonous terms a more positive step towards effective communication."

Consequently, he presents some examples of internationalisms which are being adopted and preferred over indigenous coinages in some developing countries. In Indonesia, for example, international technical terms have been chosen to replace indigenous terms, i.e., the words "nitrogen", "mathematics", "cancer", "biology" have been used instead of the following national terms: /zatelmas/, /ilmu pasti /, /kankar /, /ζlum ħaia:t/ respectively. He also concludes that LPAs are aware of the fact that accomplishing linguistic purification by insisting on using indigenous terms can effectively decrease the richness and the overall efficiency of the language. Moreover, the Sager and Nkwenti-Azeh (1989: 168-166) state that:

"Identical [or rather similar] vocabularies can facilitate everyday communication between members of different language communities: have a multitude of applications in foreign language acquisition and teaching: yield information on the historical and cultural contacts between different peoples : can be interpreted as the vocabulary of pan European culture: and make an important contribution towards a differentiation of the discussion on foreign borrowings."

Nedobity (1989: 168-176) presents reasons for the adoption of internationalisms similar to those of Sager and Nkwenti-Azeh. He concentrates on the advantages of adopting this type of vocabulary in 'technology transfer'. Under the title "Advantages of an International Terminology" he states:

The advantages of a unification and thus an internationalization of concepts and terms are quite obvious: the understanding of subject can be improved because a reading knowledge of technical texts in a foreign language can be easily acquired: the number of mistakes made in the translation of texts can be reduced tremendously because the problem of *faux amis* [deceptive foreign words] and the like can be eliminated. As a further consequence, terminology and information transfer would no longer b hampered by communication barrier."

Pinchuk (1977: 185) also presents a detailed discussion of the advantages and importance of technical language. He insists that since science and technology are international phenomena, and they are dependent on communication for their progress, the jargon of the scientists should be unified by adopting internationalisms.

Though these reasons for adopting internationalisms sound rather logical, they can not be accepted because they might lead to the false notion that Arabic is rather a dead or an archaic language whereas it is one of the most vivid ones. They might also lead to an increasing diversity between Arabic dialects spoken in different Arab countries.

In the case of Arabic, advocates of the international languages in science and technology have sometimes argued that using a language of wider communicational potentialities, such as English or French, as a medium of instruction will help our scholars in maintaining contacts with their fellow scholars around the world. However, this argument can easily be refuted on the grounds that the number of people who constitute such international scholars is extremely small, i.e., it would be a question of sacrificing the interests of the majority for the sake of tiny minority. On the other hand, this argument has some merits: knowing international languages and terminology is

certainly an advantage, but this should not be used as a justification for excluding Arabic and its capability to produce efficient terminology in the field of both science and technology. To recapitulate what has been said so far, the adoption of internationalisms is a positive step towards enriching the technical vocabulary of Arabic, provided that this is not taken too far. As far as this paper is concerned, replacing such internationalisms with native coinages can be a difficult task, and it is therefore more appropriate to keep them and fully integrate them into the Arabic system of naming.

To show how the situation is truly complicated, following are some randomly chosen international terms and their equivalents used in Arabic. They give a clear idea concerning numerous attempt to replace them with indigenous ones.

a) Psychology Terms:

1. /al-ʤiîtalt/ "Gestalt", the suggested native equivalent (henceforth the SNE): /şı:ĝah/,
2. /halwasa / "hallucination", the SNE: /haðayaan/,
3. /libı:du/ "libido", the SNE: /al-ğuwah al-ħayawiyah al-da:fiζah/,
4. narʤisiyah/ "narcissism", the SNE: /ζiîğ að-ðat/,
5. /îizofrı:niyah/ "schizophrenia", the SNE: /infişa:m al-îaxşiyah/, or /fuşa:m/,
6. /telepaθi/ "telepathy", the SNE: /taxa:ŧur/, or /al-iħsa:s ζen buζd/,

b) Diplomacy terms:

1. /arîi:f/ "archives", the SNE: /da:r al-maħfuđa:t/, or /al-sijila:t/,
2. /kunfidraliyah/, "confederation", the SNE: /itiħa:d taζa:hudi:/,
3. /kuminwilθ/ "commonwealth", the SNE: /ra:biŧat al-îuζu:b/,
4. /brutuku:l/ "protocol", the SNE: /al-?uşu:l al-dibluma:siyah/ or /al-mara:sim/,

c) Banking and Finance Terms:

1. /bank/ "bank", the SNE: /meşrif/,
2. /mani:fiest/ "manifest", the SNE: /baya:n al-biđa:ζah/,
3. /tranziet/ "transit", the SNE: /muru:r/, or /ζubu:r/,

d) Computer Science Terms:

1. /biesik/, "BASIC", No Arabic equivalent,
2. /kobol/, "COBOL", No Arabic equivalent,
3. /fortraan/ , "FORTRAN", ", No Arabic equivalent,
4. /kampyuuter/, "computer", SNE: /ħaasuub/,
5. /ra:m/, "RAM", the SNE: /ða:kirah ða:t nafa:ð intiğa?i/,
6. /skaner/, "scanner", the SNE: /ma:siħ/
7. /soft wer/, "software", ", SNE: /anđimat al-bara:miʤ/.[1]

e) Medical and Medicine-related terms:

1. /anθra:ks/, "anthrax", the SNE: /al-ʤamrah al-xabi:θah/,
2. /al-anθrubuluʤiyah/, "anthropology", the SNE: /al-?ina:sah/,
3. /bakti:riyah/, "bacteria", the SNE: /jara:θi:m/,
4. /bayulu:ʤi:/, "biology", the SNE: /ζilm al-ħaya:h/,

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[1] - It should be noted here that most of the abbreviations used in computer science are of foreign source and shape mostly taken from English, and they are used in Arabic almost without any change. This is due to two possible reasons: either there are no Arabic equivalents for some of them, or the suggested Arabic equivalents are clumsy.

5. /kabsu:lah/, “capsule”, the SNE: /miħfađah/,
6. /ku:listru:l/, “cholesterol”, the SNE: /taxaθθur ad-dam/,
7. /di:na:mi:/, “dynamic”, the SNE: /ħereki:/,
8. /gluku:z/, “glucose”, the SNE: /sukkar al-ζinab/,
9. /hi:muglubi:n/, “hemoglobin”, the SNE: /jaħmu:r/,
10. /mala:riyah/, “malaria”, the SNE: /al-berda:?/,
11. /mikru:b/, “microbe”, the SNE: /al-ħay al-miʤhari:/,
12. /binkiria:s/, “pancreas”, the SNE: /muζeθkalah/,
13. /albrosta:t/, “prostate”, the SNE: /al-mu:θa/,
14. /fairos/, “virus”, the SNE: /ħumma/.

4. Conclusion

Now, according to what has been said so far, it is safe to conclude that the mere creation of new technical terminology is not the only thing needed to bridge the gap of technical terminology in Arabic, nor the concentration on the linguistic features of the terms to be coined. Although the linguistic characteristics of any newly adopted term are very important, there are other factors to be considered in the procees of dissiminating the new suggested vocabulary. Among these are four factors mentioned in this paper. Obviously it is rather impossible to cover

all the details of this huge subject in the span of this paper; yet, the light has been shed on the most important factors usually neglected by people working in this field. These factors are:

a. the preexistence of the foreign terms in general use, and the slow operation of the LPAs,
b. the LPAs lack of authority and resources, and poor distribution of the suggested Arabic terminology,
c. the coexistence of internationalisms vs. native coinages, and
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These factors must be carefully reconsidered, then remedies should be pinpointed. Later on, long-term plans must be put by the authorities, governmental and scientific institutions, and scholars interested in the topic to have a unified perspective concerning this problem; otherwise, the linguistic diversity among different Arab countries, and even within every country, will enormously expand.

Table 1. Phonetic Symbols Used to Represent Arabic Vowel Sounds

Arabic long Vowels	Phonetic Symbol
ألف	/a/ أو /a:/*
واو	/u:/
ياء	/j/ أو /ı:/*
Arabic short Vowels	Phonetic Symbol
فتحة	/e/
ضمة	/u/
كسرة	/ı/

* In Arabic, the two phonetic symbols /a/ and /a:/ may represent the same long vowel (ألف) because these are considered only allophones of the same phoneme by Arab grammareans. The allophone /a/ uaually occurs initially in Arabic words like (ساحل), or /saħil/ , which mean س(coast); whereas the allophone /a:/ is represented by words like (قائد), or /ǧa:?id/, which means (leader).

Table No. 2. Phonetic Symbols Used to Represent Arabic Consonant Sounds

rabic Consonant Sound	Phonetic Symbol	Arabic Vowel Sound	Phonetic symbol
ب	/b/	ت	/t/
ث	/θ/	ج	/ʤ/
ح	/ħ/	خ	/x/
د	/d/	ذ	/ð/
ر	/r/	ز	/z/
س	/s/	ش	/ŝ/
ص	/ş/	ض	/đ/
ط	/ŧ/	ظ	/đ'/
ع	/ζ/	غ	/ĝ/
ف	/f/	ق	/ğ/
ك	/k/	ل	/l/
م	/m/	ن	/n/
هـ	/h/	الهمزة	/?/

** In Arabic, the two phonetic symbols /j/ and /ɪ:/ may represent the same long Arabic vowel (ياء) because these are considered only allophones of the same phoneme by Arab grammareans. The allophone /j/ occurs initially in words like (يوم), or /ju:m/, which means (day); whereas the allophone /ɪ:/ occurs in words like (عيد), or /ζɪ:d/, which means (feast).

References:

al-Maζmuuri, M.A. and al-ĝezali. S.(1983) *tei:r taζli: m al- luĝa:t al- aʤnabiyah fi:taζallum al-luĝah al-ζarabiyah.* Tunis.

Braun, Peter (1989) 'Internationalisms: Identical Vocabularies in European Countries' in Coulmas, F. (ed) *language Adaptation*. Cambridge. Cambridge University Press.

Coates, Jennifer (1992) *Women, Men and Language*, 2nd edn, Essex.The Academic Pres.

Crane, L. Ben, et.al. (1981) *An Introduction to Linguistics*. Boston, Little, Brown and Company.

Crystal, David, (1997) *A Dictionary of Linguistics and Phonetics*. Oxford, Blackwell publishers.

Evans, H.(1972) *Newsman's English Book one*. New York. Holt-Rinehart and Winston.

Hartmann, R. R. K., and F. C. Stork (1972) *Dictionary of Language and Linguistics*. London. Applied Science Publishers LTD.

Lexđar ĝeza:l , (1993) 'at-tarʤamah: tawfi:r al-Musteleħa:t al-ζilmiyah wa đabŧha wa tawħi:diha wa taζmi:miha' in *ğađa:iya istiζma:l al-luĝa al-ζarabiyah fi: al-maĝrib*. pp. 115-137 al-Rabaŧ. Kingdom House for Publications.

Lyons, John (1981) *Language and Linguistics: An Introduction*. Chicago University Press, Chicago.

Nedobity, Wolfgang, (1989) 'International Terminology' in Coulmas, (ed) *Language Adoption*. pp. 168-76. Cambridge. Cambridge University Press.

Pinchuk, Isadore, (1977) *Scientific and Technical translation*. London, Andre Duetsch Ltd.

Sager, J. C. and Nkwenti-Azeh, Blaise (1989) *Terminological Problems Involved in the Process of Exchange of New Technology between Developing and Developed Countries.* Paris. France, UNESCO Publications.