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Students' Attitudes Towards Coined/Borrowed Technical Arabic Terms

مواقف الطلاب تجاه المصطلحات العربية التقنية المصوغة/ المستعارة

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Abstract

With the recent technological and educational developments, which have taken place in the Arab world, a need has arisen for the transfer of the technical and scientific concepts into Arabic in many fields. Introducing new terms into a language as such is called neologisms that are imperative in the development of any language. This state of affairs creates two different claims: the first one favours the use of coined terms i.e. neologisms, whereas the second supports the use of Arabized or borrowed terms. This study aims at studying the attitudes of Algerian students, more precisely at Constantine 2 University, towards the use of borrowed and coined technical terms in the fields of science and technology. Mainly, it investigates the students' perception of coining/borrowing of English technical terms in their study. The data obtained from this study have identified students' attitudes, feelings and perceptions and underscored their clear inclination to use borrowed technical terms.

***Key words*:** Attitudes, coining, neologisms, Arabization, borrowing

ملخص البحث:

تزامنا مع التطورات التكنولوجية والتعليمية الحديثة التي حدثت في الوطن العربي، برزت الحاجة إلى نقل المفاهيم التقنية والعلمية إلى اللغة العربية في العديد من المجالات، هذه العملية يُطلق عليها إدخال مصطلحات جديدة في اللغة. وعلى هذا النحو تم استحداث مفردات جديدة وهي عملية ضرورية في تطوير أي لغة. وفي ضوء ما تقدم فإن هذه الحالة تخلق ادعاءين مختلفين: الأول يفضل استخدام المصطلحات المصاغة، أي المصطلحات المستحدثة، بينما يدعم الادعاء الثاني استخدام المصطلحات المعربة أي المستعارة. وبمجموع ما تقدم فإن هذه الدراسة تهدف إلى بيان مواقف وتوجهات الطلاب الجزائريين، وبشكل أدق طلاب جامعة قسنطينة 2، تجاه استخدام المصطلحات التقنية والعلمية المستعارة والمصاغة في مجالات العلوم والتكنولوجيا بشكل أساسي، وعليه فإن هذه الورقة تبحث عن موقف الطلاب حول عملية صياغة أو استعارة المصطلحات التقنية الإنجليزية في دراستهم. حيث أن هذه الدراسة حددت ورصدت، من خلال البيانات التي تم الحصول عليها، مواقف الطلاب ومشاعرهم وتصوراتهم فأكدت على ميلهم الواضح لاستخدام المصطلحات التقنية المستعارة والمعربة.

الكلمات المفتاحية: المواقف، المصطلحات المصاغة، المصطلحات المستحدثة، التعريب، المصطلحات المستعارة.

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Introduction

Arabic language faces serious challenges in many academic fields, mainly due to the lack of scientific and technical terminology. Mehdi (1987) describes this challenge as "the problem of present-day Arabic" (p.1). He also contends that there is a considerable lack of scientific and technical terminology in most branches of science and technology. For this reason, Constantine 2 university has opted for using foreign languages to teach students in these fields, in order to overcome the problem of lack of neologisms in the students' mother tongue, Arabic. Thus, students in scientific and technical fields have had to learn foreign languages, like French and English, used during classes by both teachers and students.

The use of either Arabic, the mother tongue, or foreign languages in teaching has been a controversial issue for a long time. Students' low-level proficiency in English and French affects the learners negatively in terms of competence in the fields of science and technology because of the obscure nature of the jargon in the scientific and technical discourse. Hence, learners find it very difficult to attain higher academic performance, achievement and contribution. According to Strevens (1976) education of scientists and technologists requires the understanding of a great many concepts and the ability to read, listen, talk and write about them. Moreover, he argues that when science is studied in a foreign language; the level and type of concept formation is different from when students study science entirely in their mother tongue. In the same vein, Strevens claims that there is a strong need for changing the strategies employed for learning and teaching science in the developing countries. Accordingly, in this research, we strive to shed light on students' attitudes towards the use of Arabic scientific and technical terms, referred to as 'coined terms'.

IN this work, we investigate the attitudes of students towards the use of borrowed vs coined scientific terms in the fields of science and technology at Constantine 2 University. The main questions of research have been chosen to be:

1. Are students' attitudes towards the use of Arabic Neologisms positive?
2. Do students of technical and scientific fields prefer using coined terms rather than the borrowed ones in learning?
3. Is coinage an effective solution to help students of technical and scientific fields overcome the difficulties of learning caused by the use of foreign languages as a vehicle of instruction?

As far as the research method is concerned, a questionnaire has been administered. A sample of 56 first year Master students at Constantine 2 University have been targeted with the devised questionnaire. Both the English and Arabic versions have been given to the students. The collected data have been statistically analysed.

1. Background and Neighbour Works

Before shedding light on the topic of this research and related works, we need first to define some key concepts, namely: Attitudes, Neologisms and Arabization.

1.2 Attitudes

Since the present study is concerned with the examination of the different attitudes that students could hold towards the use of coined EST Arabic terms in learning, it is worth to discuss the definition of the term "Attitude"; which is considered important in this study because of its nature and place in social psychological studies. In an attempt to define the term "Attitude", Crystal states that it is: "a term used in sociolinguistics for the feelings people have about their own language or the language(s) of others" (2008, p. 266). Feelings affect our thinking and behaviour, and they profoundly shape our perception and determine our choices. Oundo, Poipoi & Were suggest that it refers to "a favourable or unfavourable

evaluative reaction towards something or someone exhibited in one's beliefs, feelings, or intended behaviour" (2014, p.148). Based on this, determining students' attitudes reflects a significant role on students' behaviour, achievement and future reaction regarding particular issues. In 1992, Baker argued that "The notion of attitudes has a place in psychology, sociology, anthropology, education, history, human geography and creative arts" (p. 1). In view of that, attitudes are a household term used continuously by laypeople and specialists though with different rates of precision and shades of meaning. Here lies, therefore, its importance; it is an indelible part of our daily language and thought. Furthermore, earlier works on attitudes claim that the concept of attitude was considered as a crucial component in the field of social psychology (Allport, 1935, cited in Garrett, 2010).

1.3 Significance of Attitudes Investigation

The 'attitudinal dimension' in this study is fundamental in understanding students' problems and difficulties in scientific and technical fields. Baker (1992) argues that "Where a language is fighting for survival, encouraging positive attitudes becomes crucial" (p. 97). Currently, the immense paucity of scientific and technical terminology in Arabic is a good example to illustrate Baker's argument; its native speakers are forced to use foreign languages as alternatives in many fields. It is also believed that "Unless we know the psychological need which is met by the holding of an attitude, we are in a poor position to predict when and how it will change" (Katz, 1960, p.170). Accordingly, it is important to know students' attitudes in order to know about the warning signs of potential challenging problems in their studies. Furthermore, attitudes have a significant influence on peoples' actions and behaviour (Maio & Haddock, 2009). Hence, this study intends to achieve a better understanding of students' attitudes towards the use of English for Science and Technology (EST) translated Arabic terms as an instructional tool.

2. The Modern Terminological Crisis of Arabic in Technical and Scientific Fields

Since the decline of the Arab civilization, invention has become scarce in the Arab world. As a result, Arabic language has suffered from a significant lack of terminology in the fields of science and technology. Thus Arabic has become unable to compete with other foreign languages in this context, mainly with English which has become the global language of science and technology. Mehdi (1987) argues that "The Arab world has been brought to such a state of apathy and paralysis that little or no initiative was shown in the field of scientific productivity" (p. 4). In order to face the challenge of transferring technology and scientific knowledge, a need has arisen to transfer terms in those fields into Arabic, and this task requires the mastery of foreign languages. The channels through which these terms are introduced into Arabic are "Neologisms / word-coinage" or "Borrowing / Arabization".

2.1 Neologisms/Word-Coinage

In our attempt to define the term "Neologisms", we found out that there is a lack of a standardized definition of what neologism is. Nevertheless, many linguists, lexicographers and terminologists have attempted to define this phenomenon from different perspectives. In all their definitions, they speak of it as a lexical unit that forms a new word with a new meaning. Peter Newmark (1988) defines neologisms as "newly coined lexical units or existing lexical units that acquire a new sense" (1988, p. 140). In addition, he lists the types of neologisms as: "old words with new senses, new coinages, derived words, abbreviations, collocations, eponyms, phrasal words, transferred words, acronyms and pseudo-neologisms" (pp.141-149).

Arab linguists, like in many other languages, have opted to use word-coinage, which is a process of word-formation, which usually takes place when a natural equivalent of the

foreign concept or term is missing. Most often, Arab scholars try to give native-word names to new scientific and technical terms because of the lack of natural and standard equivalents in the host language. In doing so, they utilize a number of techniques. Mehdi (1987) said that the main techniques of coinage which are used by scholars to create technical terms are derivation, compounding, and semantic expansion. However, other Arab scholars, referred to as 'the innovators', offer to use Arabization or the literal borrowing of terms from foreign languages.

2.2 Arabization/Borrowing

Due to the lexical gaps across languages, rendering new concepts embodied in new terms has always been a challenging issue for many linguists and scholars. English, nowadays, has become the medium of instruction in the fields of science and technology in many institutions. Therefore, it dominates over other languages of the world. Technical and scientific terms and concepts are translated mainly from English to other languages such as Arabic. To achieve this objective, some Arab scholars chose to borrow terms from source languages to bridge the gap between Arabic and other languages, especially English.

Borrowing terms has been an interest to various fields of linguistics for some time. They are terms that occur across language boundaries. According to McArthur (1992) borrowing is taking "a word or phrase from one language into another, or from one variety of a language into another" (p. 141). In other words, there is a donor and a recipient language where scholars take terms from a source language into their native one. These written borrowings, as stated by Mehdi (1987), maintain their spelling and some particularities of their sound form no matter how hard work is needed to suit them to the phonological and morphological structure of Arabic. Mehdi (1987) adds that some purists even consider that borrowing foreign terms is a sign of inadequacy and imperfection.

3. Related Works: Studies on Language Attitudes

The study of language attitudes has been an active field of research in sociolinguistics and social psychology. We briefly present some of the studies already conducted in the field. Shuy & Fasold (1973) examined attitudes that are considered to be reflected in the actual behaviour of the individual. Their work highlighted the subjective reactions to language (language attitudes, beliefs, values, etc.). The contribution of this study was that it served as a model for exploring this area of language research. Other writers showed interest in attitudes and the different varieties of language. For example, Howard Giles published an article in 1970 about *evaluative reactions to accents* in which he concluded that a speaker may be judged favourably or unfavourably according to the prestige of the dialect or language he speaks. Herman (1961) in his study, *Explorations in the social psychology of language choice*, found that language choice could be dictated by group preferences or social adjustments. His study also presented information about the implications of language choice in language learning.

North African studies in the field of attitudes and social psychology in general are few and mostly insignificant. Some researchers carried out surveys in this field like the one of Abbassi (1977). His study included a questionnaire about language attitudes. However, he seemed to be mainly concerned with comparing attitudes to the two varieties of Arabic and Berber. He also described the attitudes of Moroccans towards French with their attitudes to other foreign languages rather than with their attitudes to Arabic. A close study to this research, entitled '*A linguistic study of the development of scientific vocabulary in standard Arabic',* was conducted by Abdul Sahib Mehdi Ali (1987). In this study, the author focused

on attitudes towards the techniques of neologism-formation and the way of using technical vocabulary.

According to Albarracín et al, a recent search for the term attitude in the American Psychological Associations' comprehensive index to psychological and related literature (PsycINFO) yielded "180,910 references" (2014, p. vii). This huge growing number clearly demonstrates both the stance and the shift of interest of researchers towards the role and the importance of attitudes and their relation with different Domains.

4. Objectives of the Study

In this work, we aim at fulfilling the following objectives:

- Exploring students' attitudes towards translated EST Arabic terms, because there is a need to understand and explain the role of attitudes and how they affect their choices.
- Determining whether the language of instruction in technical and scientific fields is part of the comprehension problems and difficulties that students face in their learning process.
- Proving that the study of attitudes, which can be seen as needs analysis, is essential in designing syllabi and curricula for better achievements.
- Checking whether knowing attitudes would help to predict when and how they will change.

The study of attitudes provides the community with the necessary knowledge about the warning signs of potential challenging problems. Besides, understanding students' attitudes, means understanding their problems and only then one could remedy them.

5. The Study

Constructing a relevant questionnaire is a complex task. Questionnaires are not merely a list of questions chosen at random, they should be efficient in extracting the needed information helping to reach out the problem solution. In fact, using questionnaires is one way of primary data collection in this research. Due to the attitudinal nature of this study and in order to answer the research questions, stated above, a five-point Likert scale questionnaire was designed, piloted, then, administered to gather the required data. "Likert scales are frequently used in asking for opinions and attitudes" (Cohen, Manion, & Morrison, 2007, p. 571). This Scale was named after Dr. Rensis Likert (1932), a sociologist at the University of Michigan, who developed the technique and published it in his report: *A Technique for the Measurement of Attitudes* in 1932.

The choice of the Likert technique in designing the questionnaire is motivated by its previous successful applications by researchers besides its advantages. Through this scale, data could be gathered quickly and with high reliability. The acquired data could also be calculated and interpreted with a variety of means (Keeves & Watanabe, 2003). Accordingly, the aim of the devised questionnaire is to examine the attitudes of students towards translated EST Arabic terms and to answer the research questions. It comprises 25 attitudinal statements using a five-point Likert scale. The responses to every question are: "agree", "strongly agree", "uncertain", "disagree" and "strongly disagree".

5.1 The Hypothesis and the Research Questions

The questions we are trying to answer in this research paper are:

1. Are students' attitudes towards the use of Arabic Neologisms positive?
2. Do students of technical and scientific fields prefer using coined terms rather than the borrowed ones in learning?
3. Is coinage an effective solution to help students of technical and scientific fields overcome the difficulties of learning caused by the use of foreign languages as a means of instruction?

On the basis of these research questions, we have hypothesized that "using coined technical terms in teaching sciences and technology would receive acceptability and positive attitudes from students. This would also improve their comprehension of technical terms and maximise their success rate".

5.2 The Sample

The selection of the sample of students in this study was based on their high exposure to scientific and technical terms in their field of study, computer science. Students at the department of computer sciences are in constant interaction with new scientific and technical terms on a regular basis. It is one of the most active fields of research nowadays, and its jargon is growing up constantly. Hence, students are required to be familiar with its developments and its new vocabulary. For these reasons, the questionnaire is administered to a population of 56 first year Master students at the Department of fundamental Computing and its Applications, in the Faculty of New Technologies of Information and Communication, at Constantine 2 University, Algeria.

5.3 Statistical Analysis and Interpretation

In our questionnaire, the Likert scale has been used. In order to analyse the data obtained from this questionnaire, we have used Microsoft Office Excel which is a popular and advanced software used for data analysis. As we have used a five-point Likert scale, we have given the numbers from 1 to 5 to the points from 'strongly disagree' to 'strongly agree', in that order. The response continuum for each statement in this scale is linear. It indicates the extent to which respondents agree or disagree with each statement. For example, a generic response continuum is:

- 1 = "strongly disagree"
- 2 = "disagree"
- 3 = "undecided"
- 4 = "agree"
- 5 = "strongly agree"

In order for the statistical equation in MS Office Excel to work, and give us adequate scores, we replaced the responses with numbers. Then, we calculated the average-item scores, that is, the score of the respondents in each individual statement divided by the number of items constituting the scale creating a mean-item score for each statement. Each score, eventually, falls within the range of the values for the response continuum options which is between 1 and 5. All items comprising a scale are assumed to have equal weight when calculating the average. The average scores are shown in Tables 1.1 and 1.2 below. The scores in these tables are related to the values of the responses and are interpreted accordingly. For example, if one of the scores of one of the questions is "2". Then, it is in the range of the response "disagree" and it shows the attitude students hold according to the content of that question.

5.3.1 Analysis

Table 1.1 represents the average scores of students regarding the use of coined terms. Only a selection of questions are discussed in order to preserve space in the present paper. In question number 3 the respondents have a 2.912 as scoring average, whereas in question number 2 it is equal to 3.85. In question number 3 students were asked to specify their level of agreement about the statement; "*coined terms are more convenient in comprehending technical terms*". We find that their average score is in the range of the "disagree" Likert scale response. Respondents expressed their clear refusal to use coined terms alone. However, in question number 2, their attitudes concerning the statement; *"teachers of technical terms should use coined terms to explain obscure items",* are found to be different as *their* average score is in the range of the "agree" response. The outcome shows that

although students have a negative attitude toward the use of Arabic coined terms alone to comprehend technical terms, they have a positive attitude towards using them as a secondary tool to explain the foreign terms they encounter in their fields of study. In other words, students disagree with using Arabic terms in learning because of their familiarity with foreign languages even if they face difficulties in those languages. Also, Arabic has never been used as a primary tool of instruction in scientific fields due to the reasons we have mentioned above, in the theoretical part of this study.

Questions	Strongly Agree	Agree	Uncertain	Disagree	Strongly disagree	Average Scores
1	5	16	16	13	6	**3.21428571**
2	18	24	4	8	2	**3.85714286**
3	4	9	25	16	3	**2.912280702**
4	8	12	20	10	5	**3.14545455**
5	9	15	15	12	5	**3.19642857**
6	3	14	24	12	3	**3.03571429**
7	8	26	14	4	3	**3.58181818**
8	9	15	12	5	5	**3.39130435**
9	10	15	10	14	7	**3.125**
10	16	22	11	6	2	**3.77192982**
15	8	17	13	11	7	**3.14285714**
19	3	17	27	6	3	**3.19642857**
20	4	22	24	4	1	**3.43636364**
21	2	16	30	6	1	**3.21818182**
22	11	23	15	3	3	**3.65454545**
24	3	13	21	15	4	**2.928571429**
Average of Total Scores	**7.555555556**	**17.38888889**	**16.77777778**	**9.055555556**	**4.5**	

Table 1.1: students' Scores Regarding Coined Terms

The average score in question number 24 is 2.928 and it is related to the "disagree" response. This question is very clear and straightforward since the respondents were asked to tell their level of agreement with the statement: "I prefer coined terms". 15 students said that they disagree with the use of these terms whereas 13 students chose to agree on utilizing them. As the numbers indicate, there is a small verge between the number of respondents regarding the two responses. the disagreement in this question can be explained because of the conceptual nature of the statement. Coined Arabic terms are rarely used in scientific publications and books. Students in the developing countries resort to foreign languages in writing their research papers, they are obliged to disagree with a statement as such although a portion of them has agreed to use coined terms to comprehend scientific texts.

The average scores in questions number 7, 10 and 22 are 3.58, 3.77 and 3.65, respectively. The scores in these questions are above 3.5 which is close in range to the response "agree" with regard to the standard deviations of the sample's responses average. In other words, these scores will shift to indicate the fourth and even the fifth-degree responses in the Likert scale when we discuss the standard deviation which is a measure of the amount of variation or dispersion of a set of values. This statistical phenomenon shows that a high standard deviation indicates that the values are spread out on a wider range. Accordingly, these scores demonstrate students' positive attitudes towards the use of coined terms. Question number 10 is the one with the highest average score. It states that "*if we keep on using borrowed terms, Arabic will not have a future in scientific fields*". It is obvious that students want their mother tongue to survive its terminological crisis which we have discussed before in the theoretical part of this paper. Hence, Scholars put at hand the choice of coining terms since we don't have the means to make scientific contributions in the world of science and technology. It is evident that students support the idea of using coined terms in their studies because they have no negative perception about the use of such terms. However, the scores that represent their attitudes towards the use of borrowed terms show otherwise.

Questions	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree	**Average Scores**
11	20	28	4	3	1	4.125
12	9	15	21	10	1	3.375
13	12	23	18	2	1	3.76785714
14	9	25	16	4	2	3.625
16	6	8	8	14	20	**1.239285714**
17	14	30	8	4	0	3.96428571
18	11	24	11	8	2	3.60714286
23	17	27	8	3	0	4.05454545
25	9	29	13	4	1	3.73214286
Avg. of Total Scores	**11.889**	**23.2222**	**11.8889**	**5.77778**	**3.1111**	

Table 1.2: Students' Scores Regarding Borrowed Terms

Table 1.2 demonstrates students' attitudes towards the use of Arabic borrowed terms. A high portion of the scores in this figure is above 3.5 which refers to the "agree" Likert scale point. For instance, the average scores in questions number 11, 13, 14, 17, 18, 23 and 25 are 4.12, 3.76, 3.62, 3.96, 3.60, 4.05 and 3.73, respectively. In these questions, students were asked to specify their level of agreement concerning the use of borrowed terms in their classes. As the scores indicate, their preference is clearly oriented towards the use of such terms. For example, in question number 11, which represents the highest average score in this sets of data, respondents were asked to provide their level of agreement with the statement "*students' familiarity and the adequacy of borrowed terms ensures a better understanding of technical terms".* They responded positively as their score suggests 4.12. The same thing happened in question number 23 where they also responded positively about the statement "u*sing English or any foreign language can greatly facilitate and enhance terminology acquisition and its understanding.",* their score in this question is 4.05. The scores in both questions are the highest in average as shown in Tables 1.1 and 1.2, and they indicate that the respondents favour using borrowed technical terms rather than the coined ones. The purpose of these questions is to measure the students' acceptance or refusal of the

use of technical terms of a foreign nature. As a matter of fact, foreign terms are part of the problems and difficulties that students face in their fields of study because learners have to work on improving their foreign language competencies to ensure a better understanding of the content.

Furthermore, in question number 16 respondents were asked to provide their degree of agreement concerning the statement *"English should not be a medium of instruction in scientific fields in our universities."* The point is to have an idea about the respondents' perception concerning using foreign languages. Their average score in this question falls within the limits of the response "disagree". This question seeks to find out whether students are aware of the drawbacks and difficulties posed by using foreign languages, especially English. Its second objective is to understand the strength of their attitudes regarding using foreign languages. The response of the students shows that they agree on using English despite all the difficulties they encounter.

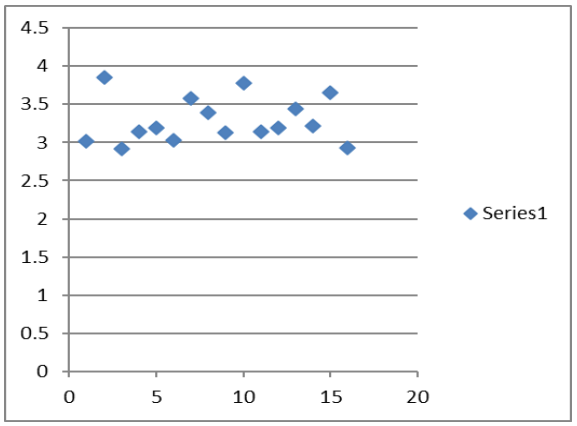
5.3.2 Analysis of the Average of Total Scores in Tables 1.1 and 1.2

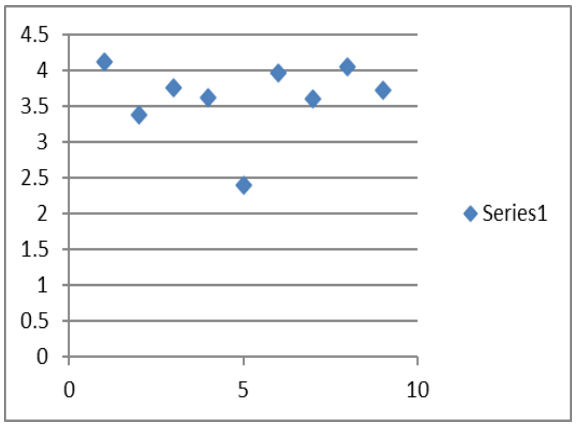
If we take the neutral case or the undecided portion of the respondents who chose the "uncertain" response, we find that the average score of students who were uncertain about choosing coined technical terms is 16.77. It is clearly higher than the one of those who were undecided to choose borrowed technical terms which is 11.88. These results suggest that students maintain a positive attitude regarding the borrowed terms because their total average score is very low in comparison to the one they have with respect to coined terms.

The same thing is found in "the "disagree" response. For instance, the average score of the respondents who "disagree" with the use of coined technical terms is 9.05 and the one of those who "strongly disagree" is 4.5 whereas the average score of the students who "disagree" on the use of "Borrowed terms" is 5.77 and the one of those who "strongly disagree" is 3.11. The average of the total scores proves, undoubtedly, that students hold a negative attitude towards the use of coined Arabic terms.

5.3.3 Analysing the Scatterplot of the Data Obtained from the Likert Scale

Having the analysis of tables 1.1 and 1.2 in mind, we analyse the statistical data of the Likert scale by displaying it on a scatterplot graphical presentation. Figures 1.1 and 1.2 are, simply, diagrams with markers that compare the pairs of values of our two variables. Coined technical terms are represented in plot number 1.1 and borrowed technical terms are represented in plot number 1.2.





Figures 2.1 and 2.2: The Scatterplots of the Data Obtained from the Likert Scale (Coined on the left and borrowed on the right)

For a better understanding of the obtained data, we have modelled the scores in a scatterplot in order to have a thorough analysis and extract a clearer conclusion. According to Friendly & Denis (2005) a scatterplot is a diagram that represents "two variables, x and y, measured independently to produce bivariate pairs" (p. 2), the average scores of each statement is displayed as an individual point on a coordinate grid typically defined by horizontal and vertical axes. The use of this tool in this research paper helps to compare our two variables as it demonstrates a general overview of them based on their visual distribution.

Our central concern at this stage is on the coordinates that signify the values at the topmost and the bottommost axes of the diagram. The display of the coordinates of the two variables in both diagrams shows clearly that there is a relative difference regarding the distribution of dots. If we compare the highest and the lowest dots in the diagrams, we find, noticeably, that most the scores of the second variable are higher than the ones of the first one. In terms of strength, it is clear that students' attitudes towards borrowed terms are stronger than the ones they have towards coined one in terms of agreement.

Consequently, this supports the claim that although students hold positive attitudes towards the use of coined technical terms, they have much more strongly positive views about the use of borrowed technical terms, which is the same conclusion that we have reached by analysing the median number of the responses from the questionnaire.

5.3.4 Interpretations, Pedagogical Implications and Study Limitations

Investigating students' attitudes towards translated English Scientific and Technical Arabic Terms in this study reveals that students hold a positive attitude towards coined Arabic terms but they are more inclined to use borrowed terms. The quantitative data obtained from the questionnaire show that students have strong positive attitudes towards the use of borrowed terms rather than the coined ones and in our attempt to interpret these results we conclude that:

- Students are familiar with borrowed terms as they are taught using English and French.
- Students understand the difficulties they face when they don't use their mother tongue.
- Students are asked to write their research in foreign languages. Therefore, using foreign technical terms is compulsory.
- The scientific and technical knowledge students search for in order to write their research papers is mainly available only in foreign languages.

The implications of our study are as follows:

- The study of students' attitudes is crucial; therefore, we believe that it needs to be conducted on larger samples from different universities to have conclusive results.
- Other studies on the implementation of Arabic in scientific and technical fields should be taken to find solutions to the linguistic challenges faced by students in these fields.
- The frequent use of Arabic coined terms in different scientific journals and research papers will increase their popularity among students. Hence, their attitudes towards them will change positively. In turn, this would maximize their success rate and enhance their proficiency as scientists and technologists.

Finally, the limitations of this study include examining students' attitudes regarding coined Arabic terms in technical and scientific fields is an attempt to contribute to knowledge and better understanding of students' difficulties in these fields. This study has served to illustrate the types of attitudes related to our two research variables, the main concern here, has been to make a preliminary exploration of students' attitudes regarding Coining vs. Borrowing. There are, undoubtedly, many shortcomings in the present investigation that future studies should be addressed by studying them on a larger-scale basis. Also, we believe that there is a need to scrutinize the actual situation of Arabic Language and how to implement Arabic coined terms. We assume that Arabic coined terms would help students overcome the difficulties they encounter in their fields of study and also enrich Arabic vocabulary with new terms of linguistic Arabic nature.

Conclusion

Language, like any organism, continuously adjusts itself to cope with the changes in social, political, cultural, and economic variables. In the present technological fast-pace world, neologisms are created in various fields. In order for these neologisms to survive, they must be used intensively in scientific journals and books. In this study, students' Attitudes towards the use of coined terms are found to be not strong enough as they have favoured the use of borrowed terms. The Analysis suggests that although learners have a positive attitude to use coined Arabic terms, their attitudes are stronger regarding the use of borrowings. Of importance, the use of borrowings could be a

threat to excluding Arabic language from the fields of science and technology and to entirely rely on the use of foreign languages. Currently, Borrowings are a safe resort for Arab researchers but if we want to present Arabic as a language of science that is used as a vehicle of instruction at Algerian universities, we need to study the Algerian students' attitudes towards coinage and try to understand their nature to explain and even work to alter them.

Appendix: Questionnaire

The Students' Questionnaire

The following questionnaire is formulated to find out the necessary information needed for the accomplishment of our research work. We will be immensely grateful and thankful for you if you could fill it in. Please, tick off (√) the right box or give a full statement when necessary.

	Strongly Agree	Agree	Uncertain	Disagree	Strongly disagree
1. Students in technical fields should use coined terms *(rendering new terms into a language regarding its linguistic form)* in translating technical terms.					
2. Teachers of technical classes should use coined terms to explain obscure items.					
3. Coined terms are more convenient in comprehending technical texts.					
4. Coined terms can help students of technical fields to learn better.					
5. It is better to keep Arabic language isolated from foreign new vocabularies and focus only on using coined terms.					
6. Coining is the way to reject versions of the self-imposed terms from the outside.					
7. Coning sustains and enriches Arabic without changing its identity.					
8. Coining would be the way to enrich Arabic with native neologisms *(new native terms)* without making it a burden on learning in technical fields.					

9. The use of foreign terms in translating scientific and technical fields is a new manifestation of neo-colonialism.					
10. If we keep on using borrowed terms, Arabic will not have a future in scientific fields.					
11. Students' familiarity and the adequacy of borrowed terms ensure a better understanding of technical items.					
12. Borrowings *(borrowing terms directly into another language regardless to its linguistic nature)* will make Arabic a healthier language as it will stop the decline in certain specialized registers and discourse**.**					
13. Non-native English students are troubled with the lack of technical terms so borrowings would help them overcome the difficulties they encounter and keep them closer to the source texts.					
14. Borrowings are the solution to the actual problems faced by students concerning the way in which vocabulary is used in technical writing today.					
15. At times, I fear that by using borrowed terms in translating technical terms I will become like an expatriate.					
16. English should not be a medium of instruction in scientific fields in our universities.					
17. The use of borrowed terms is not a threat to Arabic; it is one of					

the most crucial factors for a better understanding of the new terms.					
18. An academic language rises or declines according to the amount of new information and vocabularies it contains.					
19. Arabic neologisms are easy to pronounce and use by the native speaker of Arabic.					
20. Arabic neologisms stimulate Arabic native speakers' imaginations by using their native language, and provide them with native resources and references**.**					
21. Coined terms are in conformity with the structural moulds and patterns of Arabic. Therefore, they are easy for the students.					
22. Every effort should be made to provide education in the mother tongue.					
23. Using English or any foreign language can greatly facilitate and enhance terminology acquisition and its understanding.					
24. I prefer coined terms.					
25. I prefer borrowed terms.					

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