Towards Teaching ESP in Algeria: Difficulties in Writing on Scientific Topics and Appropriate Solutions Secondary School of Ain Merane- Chlef as a Case Study

في الجزائر محددة نحو تعليم اللغة الانجليزية لاغراض الصعوبات في الكتابة عن الموضوعات العلمية و الحلول المناسبة ثانوية عين امران - شلف كدراسة حالة

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Abstract

This study, which is classified under ESP discipline, aims at exposing the major difficulties that Algerian students face in writing on scientific topics and revealing the main reasons behind this problem. The findings of the two submitted questionnaires for both third year secondary students and their teachers showed that learners were unable to write coherent meaningful paragraphs and essays on scientific subjects. This handicap is undoubtedly due to a wide range of reasons such as: the lack of motivation and self -confidence , the need to master the different mechanics of language like grammar, spelling and punctuation, the teacher's role which is not motivating and the lack of the necessary scientific knowledge to read and generate ideas about scientific matters. To face the problem, a number of techniques and teaching writing strategies were implemented throughout the present study.

Keywords: writing ; scientific topics ; difficulties ; techniques ; strategies

Résumé

Cette étude, classée dans la discipline 'ESP', vise à exposer les principales difficultés rencontrées par des étudiants algériens sur des sujets scientifiques et à révéler les principales raisons de ce problème. Les résultats des deux questionnaires soumis pour les étudiants du deuxième cycle de troisième année et leurs enseignants ont montré que les apprenants n'étaient pas en mesure d'écrire des paragraphes et des essais pertinents cohérents sur des sujets scientifiques. Cette difficulté est sans doute dû à des raisons telles que: le manque de motivation et l'auto confiance, la nécessité de maîtriser les différentes mécaniques de la langue comme la grammaire, l'orthographe et la ponctuation, le rôle de l'enseignant qui n'est pas motivant et le manque des connaissances scientifiques nécessaires pour lire et générer des idées sur des questions scientifiques. Pour faire face au problème, un certain nombre de techniques et de stratégies d'écriture ont été mises en œuvre tout au long de la présente étude.

Mots clés: écriture ; thèmes scientifiques ; difficultés ; techniques ; stratégies

Introduction

Writing is an art; it is the act of transforming thoughts and ideas into written words. It is a form of expression and communication through which learners communicate ideas and express different attitudes in

a written mode. However, learning how to write is not an easy matter, especially when asking learners to deal with scientific topics because writing in the ESP (English for Specific Purposes) context poses more difficulties for the foreign-language learner who has to master the content vocabulary as well as use it in a meaningful context relying on specialized content, terminology and conventions. Writing then requires much efforts and enough competence to produce correct meaningful sentences in coherent paragraphs in well-structured essays. Therefore, it is considered as a complex skill to master even for natives.

In fact, the act of writing is acquired through practice and thanks to an effective learning process. Any failure in the process of writing is, undoubtedly, due to a whole host of reasons and interrelated factors that make learners unable to express themselves freely and correctly whenever they want. This is, indeed, the concern of the present work. Thus, the main purpose of this study is to reveal the major difficulties that secondary school pupils encounter when engaged in writing on scientific topics, and to expose their real needs in science essay production. To conduct an investigation in this field, three main questions are asked:

1- Why is it difficult for third year secondary school pupils to write on scientific topics?

2- What should be done to overcome this problem?

3- How to teach writing on scientific matters efficiently?

To answer these questions, one could raise the following hypotheses:

1-The pupils' difficulty in writing on scientific topics is because of the lack of scientific knowledge; that's to say, learners do not have the sufficient scientific culture to write on this kind of topics.

2- It is due to the role of teachers who do not motivate learners to deal with scientific matters.

3- The deficiency could lie in the pupils' difficulty in the different aspects of language- the lack of scientific vocabulary, the misuse of grammatical rules in writing, as well as other writing concerns.

4- The problem is in the learners' fear of treating scientific matters with a lack of motivation and self-confidence.

5- To solve the problem, teachers should motivate learners and apply efficient strategies in teaching writing on scientific topics.

To test the above hypotheses, two questionnaires were used to collect data:; one was submitted to a group of third year secondary school pupils, scientific stream whereas the other one was addressed to teachers who were supposed to know more about their pupils' deficiencies in writing.

Literature Review

1 - Describing Writing

Writing is a form of expression and communication which permits learners to communicate ideas, feelings and different attitudes in a written mode. However, it is a complex skill to master even for natives. It is not easy because it requires hard work and lengthy steps. Therefore, writing is more than joining words to form sentences or combine sentences to obtain paragraphs; it is rather a question of achieving coherence among the different parts of speech in a particular order and linked together in certain ways to hold a meaning. That's why everyone has his own way of writing and is free to choose his words, find out sentences and think of the way of arranging them by making a conscious effort. However, this does not mean that the act of writing is a spontaneous activity. On the contrary, there are some basic rules that should be respected and a given process which ought to be followed to develop one's competence in writing.

2-Writing Pedagogy

Writing pedagogy is an important element within the process of learning to write in the foreign language. It is concerned with presenting a wide range of approaches and methods on teaching writing techniques in a foreign language. In this respect, four main teaching approaches will be discussed .All of them have been applied in teaching the writing skill. They are as follow:

2.1- Product Approach

This approach, which is also named "the controlled approach", is based on the principle that teaching writing mainly involves teaching formal accuracy, vocabulary, sentence patterns and cohesive devices

(A.Pincas, 1982). It is mainly concerned with how well the writer knows the structure of the language According to Silva (1990), the product theory of writing highlights form and syntax and emphasizes rhetorical drills. This traditional approach emphasizes the mastery of grammatical rules and the memorization of long bilingual lists of vocabulary items. Learners are regarded as imitators to their teachers or to the tapes supplies. The final product, according to Hedge (1988), focuses on the following aspects: getting the grammar right, having a range of vocabulary, punctuating meaningfully, using the conventions of lay out correctly, spelling accurately, using a range of vocabulary, linking ideas and information across, to develop a topic, developing and organizing the content clearly and convincingly.

Not far from this context, Arndt (1987) argues that the importance of imitation and a model in this theory are not only for imitation but also for exploration of analysis. The advantage of this approach is to enable learners to study model texts and do many exercises that let them draw attention to relevant features of a text, and then replicate them in their own writing. However, this could cause a major problem since students may not be able to generalize into other contexts or write creatively as they have to rely upon rote-memory and form (Richards and Rodgers, 1986).

2.2- Free Writing Approach

Free writing is based on motivating learners to express themselves freely and creatively when writing about any suggested topic. It emphasizes content and fluency rather than form. (Briere, 1966), that's why it is considered as a means of promoting communicative competence .According to this approach, learners write on specific topics without placing too much emphasis on grammar or spelling (Mc Donough and Shaw, 1993) because they realize that there are no "rules" to worry about, such as style, grammar, specific organization, etc. However, with academic writing, students are faced with a whole host of worries like respecting strict guidelines, in format, mechanics, organization and style.

If the Product Approach is more helpful in reinforcing the basic skills of choosing appropriate vocabulary and correct sentence patterns, free writing approach works more with literary classes where learners are allowed to write extensively and use different registers: poetic, narrative, descriptive, expository, …etc.

2.3- Genre Approach

The notion of Genre Writing was introduced by (Swales, 1990) who says that the ability to use a genre structure effectively will develop students' abilities to learn successfully in academic contexts. For him, the genre theory is a class of communicative events and that the members of the communicative events share some set of communicative purposes which are identified by the expert members. This means that students learn to write their own texts trying to achieve similar communicative purposes by way of choosing the most suitable and expressive language means for that. Consequently, this approach is especially appropriate for students of English for ESP who need to consider a number of different factors when they write with a certain genre. They need to have knowledge of the topic, the conventions, and style of the genre and the context in which their writing will be read and by whom. According to (Grabe and Kaplan, 1996) Genre – based approaches perceive ways of writing as purposeful, socially situated responses to particular contexts and communities.

However, this approach has been criticized of not considering the process of producing a text, and regarding learners as passive (Badger and White, 2000).

2.4- Process Approach

The process writing involves generating ideas through brainstorming, having a purpose, ordering information and drafting through peers and continuous feedback (White and Arndt, 1991). In other words, it emphasizes certain procedures such as: pre-writing, drafting, evaluating and revising. For Hyland (2003), the process theory focuses on how a text is written instead of the final outcome. According to (Jordan, 1997) this approach takes into account the principles of learner-centeredness where individuals are encouraged to be more responsible for their own learning through discussion, tasks, drafting, feedback and revision.

3- Features of Writing on Science

Writing on science is not an easy task. The complexity of scientific concepts makes it difficult for readers to grasp what writers mean. This is on one hand, on other hand, the way of how to present information and thoughts through using the appropriate language is another obstacle for writing on scientific topics. Generally speaking, there are some characteristics of writing on science which distinguish this genre of writing from other genres i.e. teaching someone to write for science involves training them to respect three main features such as: conciseness, comprehensibility and correctness.

3.1- Conciseness

Being concise and precise, when dealing with scientific topics in writing, is more than a necessity. The writer is responsible for stating the facts in a way that is clear and concise. There is no place for personal thoughts or impressions in exposing or describing a scientific phenomenon. Consequently, any kind of romanticism or fiction is not allowed if not forbidden in this kind of writings. If someone is asked to write about a rainbow, he would say more about its colors and how it signifies all that is nice and beautiful about life. But a science writer cannot do the same. He has to write about the dispersal of the light spectrum under certain environmental and atmospheric conditions.

3.2- Comprehensibility

Any science writing should be easily understood not only by those who may share the knowledge about the topic designed for writing but as well by the general readers who just know how to read. So, it is more than a necessity to avoid complicated style and useless difficult expressions that impede clarity and comprehensibility. It is advisable to focus on conveying information through using simple language and appropriate tools. So, what matters in science writing is the content and not the language.

3.3- Correctness

Presenting wrong facts, when writing about scientific topics, is the biggest mistake in a science writing field. Therefore, a science writer should take care of any information he wants to convey to his readers because science is all about accuracy and preciseness. At the same time, he should not neglect using appropriate language with correct grammar and coherent style for the simple fact that thoughts and ideas cannot be clear and easily understood if they are not well-expressed and organized

3.4- Characteristics of Scientific Style

Generally speaking, there are both similarities and differences between scientific writing and other types of writing. Concerning similarities, it is a matter of paying attention to proper grammar, spelling, and punctuation, as well as taking care of coherence and structure. With regard to differences, it is a question of style. Scientific writing generally avoids the use of the first person singular or plural (I and we).There is much use of the third person and the passive voice. For instance, It is preferable to say: “the sickness is diagnosed” instead of saying: “I diagnose the sickness”. However, a paper written entirely in the passive voice would be difficult to read and remember, and it may put a reader to sleep. This is on one hand, on other hand; much passive may cause ambiguity by submerging responsibility for an action when a more open approach would be clearer to readers. In addition, inanimate objects (like proteins, genes etc) should be described in third person, not with possessive terms (e.g., instead of saying “its *att* site”, say “the chromosomal *att* site”). Another characteristic is that sentences should not start with numbers. For example, one should write “A100-Ml of acid was added instead of writing “50 mL of acid was added,”

The use of the appropriate tenses in writing about science matters is another important characteristic of scientific writing. In this respect, Burrough-Boenisch (2003) made a research about the present tense conventions in scientific texts. He discovered that the nonnative English speakers of her study used the present tense differently from the normal conventions of their scientific community. The result was that the present simple was used to express facts and truths whereas the past simple was used to speak about past processes and events. He concluded that it was difficult for those who were accustomed to regular science English conventions to understand their writing.

In any case, the easiest way for writers to minimize miscommunication about the generality or specificity of the information being presented, is to keep to the tense conventions in scientific English. This

is certainly the safest option for non-native speaker writers who may be unskilled in deploying other devices to signal the specificity or generality of information. (Burrough-Boenisch, 2003)

In scientific writing, it is preferable not to use phrases that do not contribute to understanding or add something new to meanings. For instance, there are some expressions that can be shortened or deleted without affecting the meaning of sentences as in the followings: "in order to" can be shortened to "to", the phrase "the fact that" should be deleted, etc. In brief, it is very crucial to avoid using words and expressions that do not serve to make things clear. A writer should also specify and chooses the right words to express the right meanings i.e. if the same word is modified by several expressions, they should be arranged in a way to clarify which explicit word they modify.

Another important characteristic of science is the use of singular and plural in writing. In this respect, mass nouns such as distances, times, masses, volumes and volts are used in the singular form because such things are measured in real numbers. For example, we say: "One hundred grams of flour." "Twenty five hours is not sufficient to do the job." However, integers are used in the plural. For instance, we say: "Fifty sheep were vaccinated." "Six species are dangerous"

4- Research Methodology Design

The present work is based on three main elements which are: the choice of the method, population and sampling and data gathering tools .All of these elements serve to better understand the third year secondary school pupils' difficulties in writing successful science essays.

4.1-The Choice of the Method

The choice of the appropriate method for any kind of research depends largely on many factors such as: the nature of the problem, the type of the needed data, the objective of the research work and the population.(Turney and Robb, 1971).

Taking into consideration all these factors, this study aims at describing a situation and carrying out an experiment i.e., it is based on a combination of descriptive and experimental approach which fits the purpose of this research. It is descriptive in the sense that it seeks describing the writing skill and stating the major facts related to the way learners deal with scientific topics in writing. It is experimental in the sense that it relies on testing the gathered data and confirming or disconfirming the findings of the study.

4.2-Population and Sampling

The present work relies on a group of thirty 3AS pupils who have a beginner intermediate level and an average age of eighteen years old. They live in a small town located in Ain Mrane and study in Belhadj Abdelhadi Charef Secondary School (wilaya of Chlef).These pupils are gathered, tested and questioned about their writing situation during their learning process so as to reveal the reasons behind their inability, reluctance, and fear from dealing with scientific matters in writing.

It should be noted that the learners chosen for this investigation are of different levels in English (brilliant, average and weak pupils).All of them belong to the same scientific stream class.

At the same time and for the sake of being more objective in this investigation, another group of ten(10) secondary school teachers are questioned about their learners' writing situation in tackling scientific matters. Their views are taken into account because they are the first to be aware of the pupils' needs in learning language and know more about the way to solve the problem.

4.3- Data Gathering Tools

In this study, two main tools of research are relied on. First, the most convenient tool that suits the objective of this research and the most effective way of gathering data from informants is to submit a questionnaire for the informants; i.e., pupils. Second, relying only on one questionnaire to get information from the population is not sufficient .That's why preparing another questionnaire for teachers is more than a necessity.

Findings

5- Analysis of the Pupils' Questionnaire

The pupils give their views on different points related to their learning process in writing on scientific subjects. Their responses are analyzed in details and interpreted so as to reveal their real deficiencies in writing.

5.1 – Learning Skills

Pupils are invited to opt for the most important skill for success in learning English. Their answers about the first aspect of investigation are illustrated in the following table.

Pupils 'interest in learning skills	Number	Percentage (%)
Speaking	18	60 %
Writing	02	6,66 %
Reading	05	16,66 %
Listening	05	16,66 %

Table 01: The Pupils' interests in English learning skills

The results above show that third year secondary school pupils are not interested in writing skill and do not like engage in writing process whatever are the topics suggested for discussion. Only 02 pupils out of 30 who think that writing is an important skill for success in English learning whereas 18 others see that speaking is the best skill for acquiring good English.

5.2 – Writing on Scientific Topics

Now , what about dealing with scientific topics which are their concern in written production in their learning process? The results in the table below answer question

Investigated points	Yes		No		Sometimes	
Preferring to write on scientific topics.	02	6.66%	06	20 %	22	73.33%
Preferring to write on literary topics.	12	40 %	10	33.33%	08	26.66%
Difficulty in generating ideas.	15	50 %	02	06.66%	13	43.33%
Difficulty in understanding the scientific vocabulary of the topics designed for wrtg	09	30 %	07	23.33%	14	46.66%
Listening to the teacher's instructions before starting to write.	08	26.6%	07	23.33%	15	50%
Students' need of more time for thinking.	06	20 %	11	36.6 %	13	43.33%

Table 02: Pupils Perceptions on Writing on Scientific Topics.

5.3 – Analysis

In order to reveal the learners' problem with writing on scientific topics, pupils are asked six precise questions that touch the core of the problem. From the beginning, pupils show their dislike to write on this kind of subjects (only 6.66%) and nearly 40 % of them prefer dealing with literary ones instead. In fact ,

this attitude explains the pupils' fear from tackling any scientific matter. Their first obstacle is the inability to generate ideas on this kind of topics (50 % of the pupils) and their failure to understand the scientific vocabulary of the topics designed for writing (only 23.33% of the pupils who are able to understand the scientific vocabulary items), the reason why , not many of them are interested in listening to the teacher's instructions before starting to write. (not more than 8 pupils out of 30). Besides, many pupils express their need for more time to think and write on such kind of topics.

5.4 – The Teacher's Role

Another investigated factor that may affect the pupils' reluctance in writing on scientific topics is the teacher who has a great responsibility in teaching the writing skill effectively. In this respect, many questions are asked on pupils and below are their responses in details :

Investigated points	Yes		No		Sometimes	
Warming up the topics of written expression.	20	66.66%	05	16.66%	05	16.66%
Explaining the scientific vocabulary items of the topics designed for writing .	19	63.33%	04	13.33%	07	23.33%
Providing clear instructions when writing on scientific topics.	06	20%	11	36.66%	13	43.33%
sufficient practice in the use of punctuation.	10	33.33%	11	36.66%	09	30%
sufficient practice in developing the grammatical part of writing.	13	43.33%	08	26.66%	09	30%
sufficient practice in spelling.	05	16.66%	17	56.66%	08	26.66%
Correction of pupils' written Production .	10	33.33%	07	23.33%	13	43.33%
Teacher's bad reaction towards errors.	04	13.33%	14	46.66%	12	40%
Providing feedback on the writing homework	17	56.66%	05	16.66%	08	26.66%
Providing extra help for the weak students	04	13.33%	24	80%	02	06.66%

Table 03: the Teacher's Role in Teaching Writing Skill

5.5 – Analysis

The results above show that although pupils recognize their teachers' efforts in brainstorming the topics meant for writing and explaining their vocabulary items, they don't hide that their teachers fail to provide clear instructions about the topics designed for writing. (Only 06 pupils out of 30 who really understand the teachers' instructions). In addition, many of the pupils state that teachers don't allow for sufficient practice of grammar, structures and particularly spelling in the writing sessions (only 05 pupils out of the group who think they are able to spell words correctly). Another important point which is investigated in this research is whether teachers correct their pupils written production .Accordingly; results indicate that one third of the pupils state that teachers neglect evaluating their works. Some teachers justify this by the overcrowded classes they teach, the time limit of the teaching sessions and the long syllabus to be covered. With regard to the teacher's attitude towards their pupils' errors, pupils state that they receive positive reaction towards their short comings but at the same time this positive reaction does not concern all the pupils as most of them (nearly 80%) do not get any extra help. This attitude, undoubtedly, make learners less motivated and not interested the skill of writing.

5.6 –The Difficulty in the Mechanics of Language

Writing on scientific subjects is not only difficult because of the nature of the topics (scientific) that seems difficult for the learners to deal with or the less motivating role played by teachers in teaching writing

but there may be other factors which are related to the different mechanics of language as shown in the table of findings below.

Investigated points	never		sometimes		always	
Using appropriate scientific vocabulary.	00	00%	12	40%	18	60%
Applying grammatical rules to writing.	04	13.33%	09	30%	16	53.33%
Expressing ideas in writing.	01	3.33%	21	70%	08	26.66%
Using correct punctuation	10	33.33%	08	26.66%	12	40%
Using correct spelling.	03	10%	10	33.33%	17	56.66%
Understanding writing instruction about scientific topics.	03	10%	18	60%	09	30%
Forming sentences.	05	16.66%	09	30%	16	53.33%
Establishing cohesion in writing.	00	00%	06	20%	24	80%

Table 04: The Pupils' Difficulty in the Different Aspects of Language

5.7 – Analysis

The data above demonstrates that expressing ideas fluently in writing through using appropriate scientific vocabulary, applying grammatical rules in writing, understanding writing instructions about scientific topics and establishing cohesion in writing are the most problematic area in the questionnaire.

The pupils show their handicap in thinking independently and expressing all that they have in mind easily. They suffer from a" lack of ideas». Consequently; they need a kind of guidance to develop their self confidence and belief in their ability to write. They are often unable to deal efficiently with academic or common every day topics.

The learners' limited scientific vocabulary (60%of the pupils) and the difficulty to use specific terms in writing and knowing how to connect them (cohesion) let them feel afraid of misspelling words that could impede their writing ability. In this respect, (Fageeh, 2003) has already stated that vocabulary is the kind of common problem faced by language learners, which may cause apprehension in their writing.(Grabe and Kaplan1996 and Hill 1986) also claim that language writing difficulties may involve in limiting vocabulary.

Concerning the application of the grammatical rules in writing, pupils feel the need of more extended work in grammar in order to improve grammatical knowledge (53%).The difficulty lies in using tenses appropriately and dealing with parts of speech. One possible reason for pupils problem with grammar is the teachers' unclear strategy of teaching it. Another is the pupils' inability to understand the complex grammatical rules they are taught.

Another obstacle in learning how to write on scientific topics that let pupils complain a lot is the inability to understand the writing instructions provided by teachers, i.e., learners find it difficult to comprehend the teachers' questions meant for writing on scientific topics.(only three pupils out of thirty who can understand the teacher's writing instructions).

5.8 – Psychological Problems

The previous findings show that the third year secondary pupils don't like dealing with scientific topics in writing and some of them prefer to write on literary subjects instead. Certainly, there are some psychological factors behind this reluctance. What is coming next is an attempt to shed light on the main psychological reasons that impede learners from writing on scientific matters. The table below summarizes the results of this aspect of investigation.

Psychological problems	Number of pupils	percentage
Fear and anxiety	15	50%

Lack of confidence	03	10%
Lack of motivation	10	33.33 %
No psychological problem	02	06.66%

Table 05: The Pupils' Psychological Problems in Writing on Scientific Topics.

5.9 – Analysis

Writing on scientific topics is not only difficult for the learners because of the teacher's role which is not motivating or the bad mastery of the different aspects of the scientific language , but there are other psychological factors which are related to the learner himself. The fear from writing on scientific subjects takes the biggest part in the pupils psychological state (50%) . The fear from making mistakes and failing to write coherent meaningful essays through using the appropriate scientific vocabulary makes the pupils unable to engage in writing tasks. This fear lets them less motivated and less self-confident to tell what they know about scientific issues in a written form. The graphic display below illustrates the pupils 'affective state towards the act of writing on scientific topics.

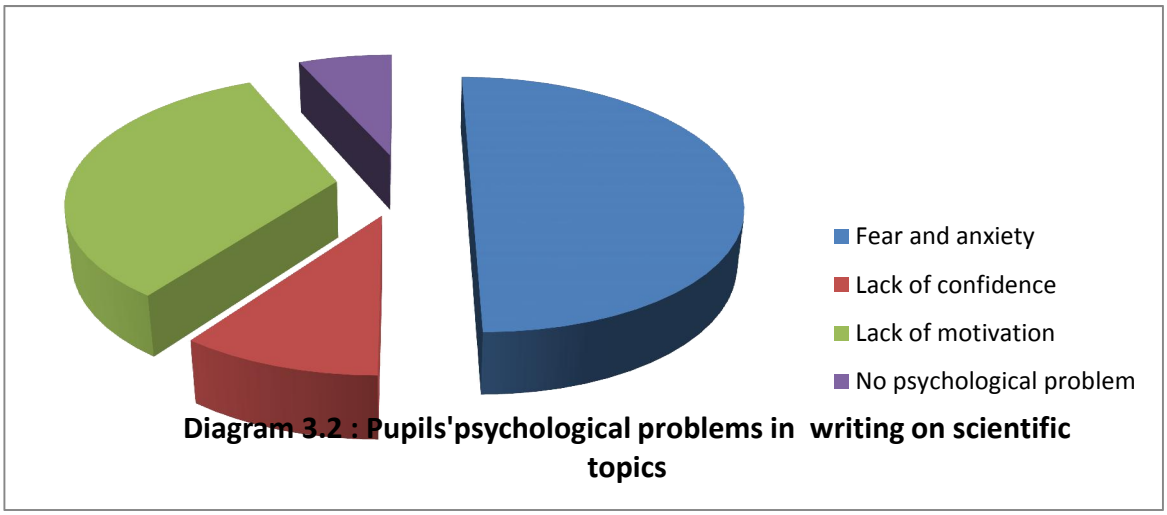

Diagram 3.2 : Pupils'psychological problems in writing on scientific topics

This diagram presents the different psychological problems that let pupils unable to write on scientific topics. As it is mentioned, fear and anxiety takes the biggest part in the pupils' affective state followed by a lack of motivation then a lack of self-confidence.

5.10-Interpretation

In conclusion, the findings indicate that learners fear the act of writing on the whole and the fact of dealing with scientific topics in particular. They don't hesitate to show their dissatisfaction with their teachers' role in teaching writing skill since most of them see that their teachers fail to provide clear instructions about the subjects meant for writing and this is, indeed, a great problem. How can a pupil write about a given topic if he is not well-informed about what to write about? This is in one hand, in other hand, the no correction of the pupils' written production and the neglect of the weak pupils who don't receive any extra help make them less motivated and unwilling to write. Besides, the pupils' limited scientific vocabulary and their lack of an efficient strategy of generating ideas and applying grammar in writing worsen more and more the situation. All these factors added to other psychological reasons such as: fear and anxiety, lack of self-confidence and motivation lead to the pupils' difficulties in writing on scientific topics.

6-The Teacher's Questionnaire

Another questionnaire is submitted for a group of 10 secondary school teachers. With regard to their professional career, all of the ten teachers have a license degree and an average experience not less than ten

years in the field of teaching. They teach English for different streams; literary, scientific, mathematic and technical streams.

In practice, they are asked about four main aspects that touch the pupils' difficulties in writing on scientific subjects. Their answers are shown in the table below:

Aspects of investigation		yes	No	Sometimes
1) Pedagogy	**1-**The programme of English fits the pupils' levels.	00%	70%	30%
	2-The syllabus designer allows teachers to use their own teaching strategies.	20%	00%	80%
	3-Teachers receive regular training in teaching writing skill.	00%	90%	10%
	4-The training made at the university was sufficient for teachers to teach.	00%	80%	20%
2)-Writingon scientific topics	**1-**Writing on scientific topics is difficult because of the text-book in use.	30%	30%	40%
	2- Writing on scientific topics is difficult because of the approach and the techniques use.	20%	10%	70%
	3- Writing on scientific topics is difficult because of the learner's lack of motivation.	80%	00%	20%
	4- Writing on scientific topics is difficult because of the teacher's classroom methodology.	20%	20%	60%
3)-The teacher's role	**1-** Teachers encourage pupils to write on scientific topics.	50%	20%	30%
	2-Teachers explain the scientific vocabulary items of the topics designed for writing.	70%	00%	30%
	3-Teachers provide clear instructions when writing on scientific topics.	60%	00%	40%
	4-Teachers provide sufficient practice in developing grammar.	50%	10%	40%
	5-Teachers provide sufficient practice in spelling.	10%	70%	20%
	6-Teachers allow for sufficient practice in the use of punctuation.	30%	10%	60%
	7-Teachers evaluate the pupils' written production.	50%	10%	40%
	8-Teachers give feedback to the pupils' writing attempts.	50%	10%	40%
4)-Pupils' psychology	**1-**Pupils fear the act of writing on scientific subjects.	70%	10%	20%
	2-There is humour in teaching the lesson of writing.	20%	40%	40%
	3-Teachers shout on their pupils when they make mistakes.	00%	80%	20%
	4-Teachers let pupils correct themselves when they make mistakes.	50%	00%	50%
	5-Teachers praise pupils when making progress in writing.	80%	00%	20%

Table 06: Teachers' Perceptions on Pupils' Difficulties in Writing on Science

6.1- Analysis of The teacher's Questionnaire

From the beginning, teachers admit that learners do not only have difficulties in writing on scientific subjects but they are weak in the act of writing on the whole. Although the designer of the third year secondary school syllabus puts so much focus on developing the skills of reading and writing (08 teachers out of 10) to prepare the learners for the Baccalaureate Exam , pupils still have difficulties if not tremendous weakness in written production , particularly writing on scientific issues. This noticeable failure is due to a wide range of reasons in the eyes of teachers who are the most acquainted of the learners needs in the field.

The first obstacle that teachers encounter when teaching their pupils writing on scientific topics is the English syllabus that should be applied and respected. Most of the teachers (70%) see that this programme

does not really achieve the intended objectives and the learning goals set by the ministry of education because of its length and vague strategy.

At the level of pedagogy, most of the teachers (nearly 90 %) state that they receive no training in teaching writing skill, the reason why they use their own appropriate techniques in teaching. Consequently, the results are not very satisfactory. Let alone the training they made at the university which was not really sufficient (08 out of 10 teachers who admit that).

With regard to the linguistic level, teachers are asked about their role in providing their learners with the different aspects of teaching writing on science topics i.e. their duty in explaining the scientific vocabulary items of the topics designed for writing, their competence in providing clear instructions and their responsibility in developing the grammatical part of writing (tenses punctuation, spelling, …).

The results of the questionnaire show that most of the teachers if not all of them are doing their job in developing the pupils' linguistic side of writing on scientific matters while the reality indicates that learners do suffer from most of these aspects. The only exception that teachers raise is the fact of teaching spelling which is not given enough interest due to the absence of a clear technique in teaching this aspect of language (not more than10% of teachers who allow for sufficient practice in spelling) . Indeed, teaching spelling especially the scientific items is very necessary for the learner to enable him to memorize words correctly and use them appropriately. Thus, one of the efficient ways to do that is to encourage dictation.

Concerning the pupils' affective state in dealing with scientific matters, teachers agree that fear and other psychological factors like anxiety and the lack of motivation play an important role in pupils' reluctance in writing.70% of the teachers see that pupils fear writing on scientific topics and 80% of them regard the lack of motivation as the most important factor of the learners' psychological state. However , these factors do not seem to be the only unique reasons , there are other causes like the need to provide learners with the right feedback on their written production and praise them when they make progress in writing.

6.2-Interpretation

The results of the second questionnaire reveal that teachers bear some responsibility about the pupils' deficiencies in writing. Indeed, teachers have problem with the application of the English syllabus which seems to be long and unclear. It is vague because of the contradiction between what is learnt and what is tested, that's to say, teachers use Competency -based Approach in teaching but apply old classical methods in testing their learners. As a result, this attitude does not serve to achieve the designed educational goals of the ministry.

At the level of pedagogy, teachers receive no training sessions in teaching writing, the reason why some of them ignore how to apply the new Competency -based Approach in writing. Consequently, most of them use their own techniques and personal strategies in teaching the skill of writing. As a result of this individual attitude, they have a problem with teaching spelling which is not given enough time and interest due to an absence of a clear strategy of teaching this aspect of language.

Finally, concerning the last aspect of investigation in the teachers' questionnaire, the pupils' good psychological state is very important for the success of any learning process. However, the teachers' responses reveal that learners do suffer from a lack of motivation and fear from depicting any scientific matter in writing.

7- Solutions and Recommendations

As mentioned before, the pupils' difficulties in writing on scientific topics lie in a number of reasons which are interrelated and cannot be treated separately. Thus, proposing any remedial work to overcome the problem is based on the final results obtained in the investigation .Therefore, and as a matter of fact, the findings indicate that there are four main factors which make third year secondary school pupils unable to treat scientific topics in their writings.

The first factor has to deal with the pupils themselves who lack the necessary scientific knowledge and the ability to generate ideas about scientific subjects. The suggested solution to this difficulty is to provide learners with efficient learning strategies in order to enrich their lexical stock with sufficient scientific culture which is needed to depict any science matter in writing.

The second reason is related to the teacher who does not motivate learners to write about scientific issues. He does not play his role in providing his pupils with the right feedback in their writing attempts. This is due

to the lack of training sessions and the ignorance of applying the Competency Based Approach; the new teaching approach in writing. To solve this problem, teachers should receive regular training about how to teach writing skill and how to benefit from the principles of the new teaching approach. They should be also involved in designing their pupils' syllabus and why not contribute in drawing the general educational policy in teaching.

Concerning the third reason; the pupils' difficulty is in the use of the different mechanics of language in writing as in the case of grammar, vocabulary, spelling, punctuation and capitalization, coherence etc… To solve the problem, much emphasis has to be made on teaching these aspects through submitting efficient strategies and a well-determined methodology of teaching writing.

Finally, the pupils' fear and their lack of motivation to deal with scientific topics can be solved through developing their writing habits and satisfying their interests by choosing the writing tasks which amuse them and make them emotionally and intellectually satisfied i.e., being aware of the variety of tastes and interests that pupils have.

Conclusion

After testing the hypotheses through submitting questionnaires for both learners and teachers, the findings indicate that the major reasons behind the pupils' reluctance in writing on scientific issues can be summarized as follow: The first reason is related to the scientific knowledge; that's to say pupils are not able to generate ideas on scientific issues. They find it difficult to think in English and rely on themselves to write independently, the reason why, they always need guidance from their teachers who, most of time, ignore how to provide them with efficient techniques and appropriate strategies in teaching writing skill. The second reason concerns the language itself i.e. pupils face difficulties in the different mechanics of writing starting from applying grammatical rules correctly in their written production , using appropriate vocabulary items, respecting punctuation and capitalization norms and spelling correct English words. The third factor is related to the teacher's role in teaching writing skill and dealing with scientific topics in particular. Here, the findings indicate that teachers do not play their major role in motivating learners to tackle scientific matters in their writing. This is due to the insufficient training sessions they receive and the absence of a clear strategy in teaching writing. The last factor is related to the learner himself who is, most of the time, not ready to write because of the lack of motivation, the absence of self-confidence and the fear that haunts him when asked to write on science. Therefore, the hypotheses raised for the present work are confirmed, and it is obvious that the factors behind the learners' reluctance in writing on scientific topics are interrelated and cannot be separated, the reason why the pupils' poor production in writing is a reality that should be taken into account.

Taking all these factors into consideration and for the sake of solving the problem, whole hosts of teaching writing strategies are suggested and a wide number of efficient learning techniques are proposed. Among them, learners ought to read more scientific texts and develop their scientific culture. They have to expose themselves to different writing situations and produce coherent paragraphs in well-organized essays. They are also required to engage into extensive writing tasks in order to improve their style and gain enough confidence in building their writing habits. With regard to teachers, they are responsible for developing the pupils' mechanics of writing, especially grammar, spelling and punctuation. They should also devote more writing practice about scientific matters and motivate their learners to engage into successful writing attempts. At the level of pedagogy, teachers should receive more training sessions about how to teach writing skill competently. They ought to know and apply the latest fruitful teaching methods and the most appropriate techniques in teaching writing. Finally, designing a convenient learning syllabus for the pupils and determining clear learning goals are important factors that should be taken into account to obtain satisfactory results At the end, although the findings of this investigation confirm all the hypotheses raised previously about the pupils reasons behind their reluctance to write on scientific topics, the subject matter still remains open for discussion and research especially in a country like Algeria, which is known by its socio-cultural diversity, and where the ability of learning foreign languages is different from one region to another.

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