

## Teaching Technical English at the Algerian Institute of Petroleum: An Experience

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### Introduction

In the present paper, we try to report on a teaching experience at the Algerian Institute of Petroleum (I.A.P: Institut Algérien du Pétrole). This experience is specifically related to the teaching of English (E.S.T) and deals with:

- The institution (I.A.P) and the kind of training it provide(s/d);
- The trainees and the teachers' profiles;
- The teaching of English: Methodology and remedial work.

### 1. The institution (I.A.P)

The I.A.P. is an institution under the aegis of the Ministry of Energy.

#### 1.1 The different institutes and the kind of training

There are four Institutes of Petroleum in Algeria: Arzew, Boumerdès, Hassi- Messaoud and Skikda; but there used to be a fifth one: Es-sénia / Oran which closed down in 1992. However, one section from this I.A.P still exists 'Maintenance et Sécurité Industrielle' and is part of the 'Faculty of Technology' / University of Oran-Es-sénia.

Each I.A.P. is specialised in terms of subject-orientation, degree and language medium.

- Arzew: trained technicians (T.S.) in the field of 'Gas Treatment and Transport' for a period of two and a half years. All the subjects were taught in English, together

with teaching the module of English, to reinforce the use of the language.

- Boumerdès: trained technicians and engineers (Ingénieurs d'Etat) in the field of 'Petroleum' and 'Gas Treatment/Transport'. The training period for technicians was two and a half years (30 months). Engineers are trained during three years for 'cycle court' and five years for 'cycle long'. The medium of instruction is either French or English depending on the speciality taught. The speciality 'gas liquefaction' is taught in English, whereas 'gas transport', 'Petrochemicals' and 'Oil Refining' are taught in French, and English is taught as a separate subject.
- From 1999, Boumerdès has trained engineers (Ingénieur spécialisé), and students who come from the university to prepare a Master's Degree in oil or gas fields.
- Hassi-Messaoud: trained technicians through the French language for a period of two years. The speciality is: 'Geology / Refining and Drilling', focusing mainly on kinds of wells, etc.
- Skikda: also trained technicians through the French medium for a period of two years.
- The speciality is 'Petrochemicals / Refining'.
- Es-sénia / Oran: trained technicians (T.S.) and engineers (Ingénieurs d'Application) in the field of 'Petrochemicals' and 'Safety' (Pétrochimie et Sécurité Industrielle).

The training period at the I.A.P. (Es-sénia) for:

- Technicians was two years;
- Engineers (Ingénieurs d'Application): two years with a degree of T.S.

- The teaching medium was French, and English was taught as a subject only.

The training at the I.A.P. was three-fold:

- Theory: it represented 40% of the whole training;
- Practice (through tutorials): it represented 60% of the whole training;
- One month training in one of the oil industry plants: LNG, the Refinery, etc. to study one process.

However, nowadays (since 2000), Arzew, Skikda and Hassi-Messaoud train students for a D.E.U.A (Diplôme d'Enseignement Universitaire Appliqué).

## 1.2 Admission (conditions)

In the 1970s and early 1980s, students were admitted at the I.A.P. without the 'Baccalauréat', but with a condition to pass a test. These students first attended lectures at the IAP for 3 months at the end of which they had a test called 'Examen Barrage' (see also Derbala, 2007: 7). Only students who passed, could carry on their training. They then got appointed a post at SONATRACH (in one of the oil / gas plants) for a future career.

From 1985 onwards, the 'Baccalauréat' was required to join the I.A.P.

The training period varied/varies depending on the kind of degree. The table below summarises all the information given above.

Institute	Arzew	Boumerdès	Es-Sénia <sup>1</sup>	Hassi-Messaoud	Skikda
Speciality	Gas Treatment & Transport	Oil Refining & Gas Treatment / Transport	Petrochemicals & Safety	Geology / Refining & Drilling	Petrochemicals & Oil Refining
Degree Period of study	T.S <sup>2</sup> (2 and ½ years)	T.S. (2 and ½ years) Engineers 3 yrs (C.C) <sup>3</sup> 5 yrs (C.L) <sup>4</sup>	T.S (2 years) Engineers (2 years)	T.S (2 years)	T.S.(2 years)

Table 1: The main specialities taught at the I.A.P.

## 2. The trainees and the teachers' profiles

### 2.1 The trainees' profile

As there were two kinds of degrees, therefore there were two kinds of trainees.

#### a. Technicians

The trainees came from different secondary school fields (scientific and technical), as well as workers from the industry who joined the IAP for retraining and updating their knowledge (recyclage).

#### b. Engineers

The IAP trained two kinds of engineers: "Ingénieurs d'Application" and "Ingénieurs d'Etat."

<sup>1</sup> The Institute of Es-sénia closed down in 1992.

<sup>2</sup> T.S : Technicien Supérieur

<sup>3</sup> C.C : Cycle Court

<sup>4</sup> C.L : Cycle Long

- Ingénieurs d'Application: were trainees who had got their degree of T.S some years before, had worked for the oil company and who joined back the IAP for another 18 months' training to get their 'Ingéniorat d'Application' degree.
- Ingénieurs d'Etat: To register on such a course and for such a degree, the students need to have their 'Baccalauréat' and they then had to study for three years (short-term training/ Cycle Court) and five years (long-term training/ Cycle long).

The trainees follow their courses in their specialism either through the English or French medium, depending on the institute they have joined.

The main objectives of the trainees while joining the I.A.P were to pass the test and be appointed a post at SONATRACH. However, before reaching that stage, the trainees faced the following problems. Being non-native speakers of English, the trainees will have had no previous experience of studying the subject, since it is not part of a secondary school curriculum, and cannot be assumed to have any knowledge of either the subject itself, or the specific terms associated with it

### 2.2 The teachers' profile

There are two kinds of teachers at the IAP:

#### a. Teachers of the speciality (Subject-specialists)

These are teachers with engineering background, and they are specialists in one of the fields under study i.e. petrochemicals, geology, chemistry, etc.

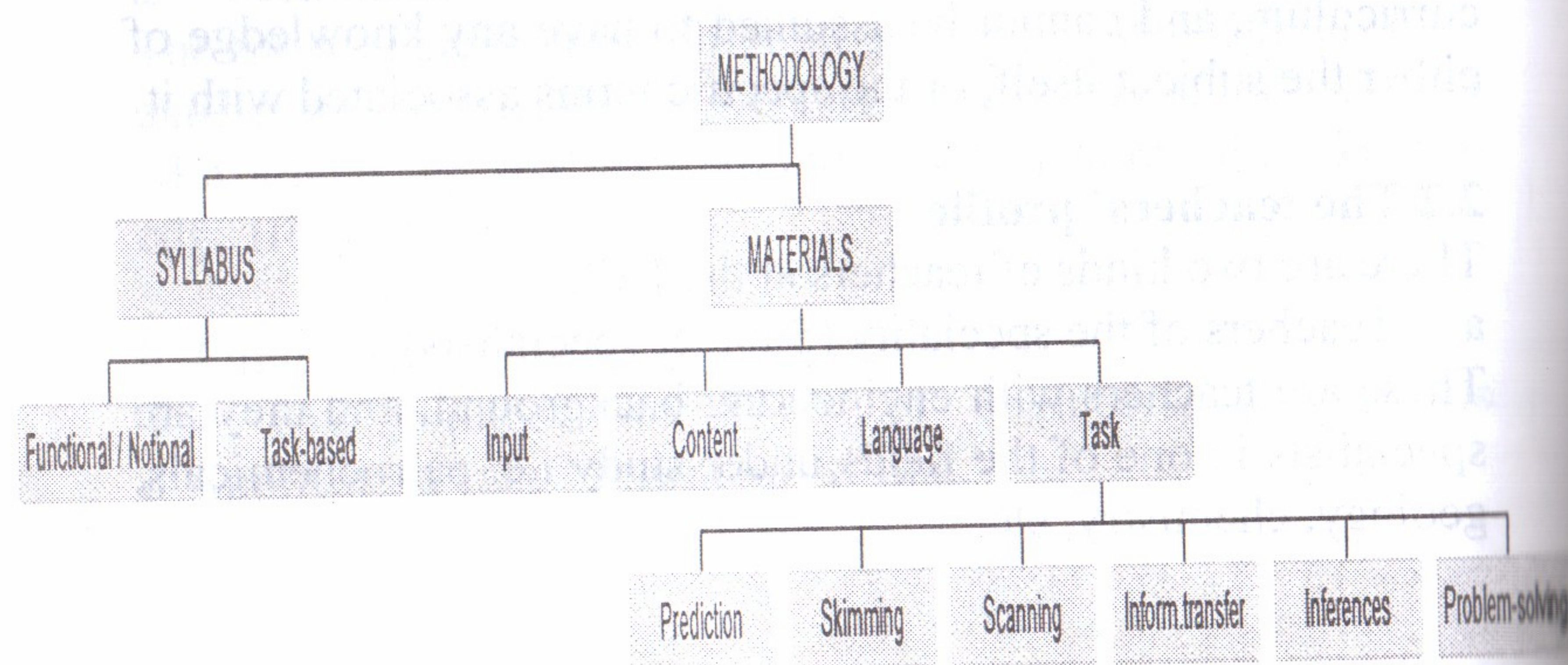
### b. Teachers of English

These are teachers of the English language, generally with a B.A. degree and newly qualified, and with almost no real technical training, except some basic knowledge of the field.

As it has already been mentioned in the 'Introduction' of this paper, we will focus on the methodology used for teaching English at the institute e.g. I.A.P/ Es-Sénia, where English was not the medium of instruction.

### c. The methodology

The content of the English course was based and developed on the speciality syllabus i.e. 'Petrochemicals'. We were well aware that a parallel investigation through the speciality content develops in complementarity and homogeneity with the overall efficiency of the English course. Therefore, the methodology for teaching English consisted of the following components as represented in the diagram and explained in the text.



**Diagram :** The methodology used for teaching English at the I.A.P

### 3.1 The syllabus

As E.S.T courses are necessarily subject-matter oriented, decisions about the choice of language content relate both to subject matter and linguistic matter based on a needs' analysis.

#### 3.1.1 Needs' analysis

In any ESP / EST situation, a needs' analysis of the target learners is a prerequisite for any syllabus design. However, at the IAP where the subjects are taught through French, and where English is taught as a separate subject, the learners' general needs are already specified by the 'Ministry of Energy' who states that "by the end of the English course, learners should be able to read and understand technical literature written in English." So, as the institution specifies the learners' needs and as such the skill (the reading skill), the teacher will focus mainly on developing the reading skill, together with some writing activities. Before the teacher of English can start to teach a group of learners, he must make an analysis of what the learners already know in English and the subject-speciality. He should operate on the principle of working from the known to the unknown. According to Hutchinson and Waters "he [the teacher] will use what the learners already know in order to explain, simplify and contextualise the new information that he has to convey." (Hutchinson and Waters, 1980: 2)

#### 3.1.2 Kind of syllabus

The kind of syllabus for teaching E.S.T mainly used in the 1970s and 80s was the functional/ notional syllabus. As such, at the IAP, it generally evolved around the following functions and notions:

- Definition;
- Classification
- Description with its two kinds:

- a. Process description including: sequence and cause & effect;
- b. Physical description including: Shapes;

Size;

Qualities;

Location;

Movement;

Measurement: quantity, proportion, tendency and probability)

- Comparison and contrast (could be “*a separate rhetorical function or can also fit with description because things are classified according to similarities and differences.*” (Lecture notes, Boumerdès, 1982)
- Prediction

### 3.2 The materials

Because E.S.P / E.S.T courses are necessarily subject-matter oriented, the teaching materials should be subject-specific i.e. including knowledge of both the subject-matter (petrochemicals) and the language (English). Therefore, the materials were organised in terms of: *input / content / language and task* (Hutchinson and Waters, 1987: 108-109).

1. **Input:** input material could be a text, a diagram, etc. It was drawn from different sources:
  - Technical manuals;
  - Science books;
  - Sample texts; and
  - Notes from lectures given in Es-sénia, Arzew and Boumerdès.
- **Content:** The content had to be specific in order to convey technical information. As such, the materials were organised into 12 units (6 units dealt with the main machines

used in petrochemicals, and 6 units dealt with the main processes) and were represented as follows:

Machines and Materials	Processes
- Pumps	- Drilling
- Compressors	- Refining
- Turbines	- Distillation
- Engines	- Liquefaction
- The derrick	- Water treatment
- Metals and Corrosion	- Safety: Hydrocarbon hazards

**Table 2:** The Teaching Units

- **Language:** to enable learners to develop their knowledge about the language, the teaching focused on both ‘lexis’ and ‘grammar’.
- **Lexis** (general, technical and semi-technical terms). The trainees study how language works and practise putting it back together again through texts and / or description of diagrams, graphs, etc.

### Grammatical structures of E.S.T

The most frequent grammatical structures of E.S.T are:

- Compound nouns and adjectives
- Tenses
- Modals
- Verbals (gerund and participles)
- Prepositions
- Relative Clauses.

Depending on the trainees’ level and the item difficulty, teachers explained these grammatical structures either implicitly or explicitly.

- **Tasks:** As language learning is language use, students were presented with simple technical problems that they must solve

by using English, rather than tasks about the use of English. The tasks were designed to build up a body of knowledge both in the speciality and in the use of the language. They generally go from easy (predicting text content, skimming/scanning texts, information transfer, etc.) to more complex, where students had to make a presentation to the class in order to:

- Describe a process,
- Report on an experiment (in chemistry),
- Draw and explain a diagram or a flow chart, etc.

As the teaching groups were generally small at the IAP, the trainees worked in pairs or in groups in order to do these tasks and transmit the information to their peers orally.

#### 4. Evaluation and remedial work

##### 4.1 Trainees

In the preceding part, we have dealt with the methodology adopted in order to teach technical English to non-native speakers of English to cope with their present academic life at the IAP, together with some effects on their future professional life. This training was accompanied by evaluation. Trainees were evaluated through written tests throughout the year. Remedial work (including more exercises and activities) was provided to borderline trainees.

##### 4.2 Teachers

This part tries to shed light on the teacher, and the problems mentioned previously in 'Part 2.2/ b'. In general, the EST teacher often does not know enough about the subject matter to be able to handle this sort of situation. Therefore, in the case of the IAP, the institution provided the technical back up needed to do so by:

1. Attending technical lectures in French or in English;
2. Description of an apparatus, a machine or an engine by a specialist and problem-solving;

3. Visit of the derrick;
4. Visits to plants (Arzew refinery, LNG plant, etc.);
5. Attending conferences on E.S.T teaching.

Teachers were evaluated by the 'Head of Department' throughout the year by checking the English course content and progression. Teachers were also evaluated once a year by the administration through 'la prime de Rendement' which at the I.A.P. was called 'le 13ème mois' i.e. the thirteenth month pay.

#### Conclusion

In this paper, we have tried to share a teaching experience at the I.A.P. We have summarised the kinds of problems met by both the trainees and the teachers of English, and we have then specified the methodology adopted for teaching English (E.S.T) to non-native speakers. Although this experience took place in the 1980s and the 1990s, it can still be adopted and adapted by developing it using new technologies in language learning.

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