

CRITICAL READING OF RESEARCH ARTICLES AS ORAL ACTIVATOR IN THE LANGUAGE CLASS

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ABSTRACT

This paper reports on an experience carried out with second course students of the School of Aeronautical Engineers at the Polytechnic University of Madrid in the subject class Modern Technical Language. In the previous years the problem in that class had been the scarce participation of the students in the oral practices. They seemed to be lead and exclusively represented by a few students when it came to oral participation. The students proposed tackling recent research articles in which opinions could be discussed. The reading of these articles has risen new elements that work as language activators in the language classroom: critical reading and thinking have developed participation in the oral activities and produced a noticeable influence on their scientific and humanist thinking and behavior. From this, we may extract the consequence that the experience is not only related to scientific knowledge, since it has made them better speakers or speaking-counterparts and more class-participating and collaborative, which implies that the human, scientific and linguistic factors progress at the same time through the critical experience. This way, the exposition of their critical ideas has developed both their humanism and scientific mind. These two facets which seem to belong to far away fields become a bond in our experience: the process is scientific since it tries to be a systematic study of the knowledge fleshed in written texts and it is also humanist because it fulfils the students need to grow up as persons, that is absorbing knowledge and processing it in order to produce a new personal approach to the world.

Keywords: Critics; reading; research articles; oral production; language class.

DELIMITATION OF THE PROBLEM

The starting point is the problem of the scarce participation of the students in the oral practice in class. The group described in this paper belongs to the second course subject called Modern Technical Language at the School of aeronautical engineers; at present the only one in Spain which offers this degree. There are three groups of students attending the aforementioned subject with 40 students following the classes regularly. Their ages are between 20 and 21 years old and the whole optional course takes 60 hours of class in a semester of the academic year. From what we see, the low participation in the oral practice class is not directly related to the students English level because a great number of students with high grades in English written examinations are not able to use this language with fluency, perhaps because they do not either have fluency in their native language.

On the contrary, there are others with poor grades in the same subject who lead oral activities: answering questions, interrupting, giving opinions, playing simulations...and these learners belong clearly to the communicative students in Spanish.

These may be fluent in communicating information, feelings, emotions...but lack style in both languages. In between, we find a group of proficient students in English who often participate in the class. This is an obvious example that linguistic fluency in a foreign language is directly related to having linguistic capacity in the mother language. Finally, on the other extreme of the scale there are some students who lack effective communication because they are not communicative in their own language and because they do not have a good knowledge of English grammar and vocabulary. The first and the latter group show anxiety in their oral practices and have a passive behavior in class: they prefer being listeners rather than speakers, although they find this activity very interesting because they like studying their classmates performance.

Our opinion is that the main reasons, in order of importance, for the lack of effective English communication in some of our pupils are:

- **their low command of communication strategies in their native tongue**
- **anxiety of the students in an oral environment**
- **motivation in the oral practices**
- **the number of oral practices**
- **the personality and good relation between teacher and students**

We consider the lack of communication in the classroom and also outside it, as a limiting factor for our students. As we have explained before, even some good students at writing are not too talented when it comes to talking, which we consider a problem for verbalizing the brilliant ideas they have. Sometimes we have seen the lack of correspondence between outstanding conceptual content and a poor linguistic framework, which has devaluated the global evaluation of the message. No doubt, linguistic expression is the first factor in the transmission of knowledge and culture:

'Language is culture in motion. It is people interacting with people...the most effective programs will be those that involve the whole learner in the experience of language as a network of relations between people, things and events' (Savignon, 1983:187).

After delimiting the problem, we decided to establish a discussion in class in order to discover, first of all, if our students agreed to the problem and, secondly, if they could offer some ideas to guarantee the active participation of the whole class in the oral activities. Negotiated learning among teacher and students is the most accepted tendency in foreign language teaching, in general, and in the teaching of discourse, in concrete (Misbrand and Gamoran,1991).

We follow Corder (1990:115) in that if the teacher focuses on the student, he himself plays a more important role: 'the teacher becomes more, not less, important. Tasks may involve relatively little in the way of written or spoken material. The talk which goes on in the classroom is the major source of input.'

Apart from the traditional factors which influence learning (syllabus design, methodology...), Long (1983) takes into account the learner as center of his own learning process; Breen (1984) considers the reinterpretation of the syllabus by the teacher and the student; Bartlett and Butler (1985) focus on the self-perception of the teacher's responsibility on all curricular tasks; and, finally, Allwright and Bailey (1991:28) add that learners also learn from extracurricular factors, as may be the things that happen in the classroom.

Brindley (1984) enhances the importance of the learner's choice with respect to the learning objectives, but we are cautious in this point since our general objectives are fixed by the Spanish Ministry of Education. In this point our students recognize the course objectives are sensible and pragmatic, reason for which they do not have a reason to be opposed to them. What we really try to do with our class discussion is to look for a negotiated via, and possible solution, to increase volunteer participation in the verbal action in class.

Once the problem was defined we explained our personal point of view to the learners, who found the subject of the conversation interesting. The dialogue began by the exposition of the five aforementioned points and the students admitted that oral communication in a native and foreign language are related so that the second one is a consequence from the first. In our student's opinion, and also my own, verbal power is not only related to a perfect grammar and vocabulary (linguistic skills) but also to personal qualities as being convincing through gestures and manners, having rapport with your audience... As it is not the object of the class to have students practice talking in Spanish and, anyhow, we would not have time for that purpose, we went on to the next point. Here the non-participate students hardly recognize they do not take part in the activities because they feel insecure, embarrassed...although some of them admit it. However, it is difficult for them to recognize this point perhaps because they feel slightly socially and communicative below the level of participated students. As the dialogue on this point seems to reach a dead-end because the students do not like talking about their personal privacy in a way that makes them feel different from other students, the attention focuses on motivation. Here the learners say that speaking and acting in the English class is fun and psychologically satisfying. Finally, three students suggested reading recent research articles as a means to activate discussion and most of the class agreed to the proposal.

In regard to the number of oral activities, one for text, the learners think it is all right since the skills of writing and listening cannot be left aside and time is a limiting factor. Undoubtedly, our students spend more time reading texts in English than producing their own discourses. Reading in English is an activity that occupies a lot of their English class time and also their homework time, since the teachers of aeronautical specialties recommends reading specific bibliography. However, outside the class we all talk more than write, so speaking is the basic skill for the native of any language, no matter how advanced it may be. This is a difference with respect to foreign learners of a language, because many of them just use this as a tool for reading bibliography, literature... or as a written communication tool, which represents a limited use of linguistic availability. In relation to the last point, the relation between teacher and student, the students agree to the teacher evaluation sheet which shows that it is good and that the teacher is accessible to the students.

ADVANTAGES AND DISADVANTAGES OF ORAL SIMULATIONS

Class discussion shows that the two handicaps which inhibit oral participation in our students are anxiety and motivation. However we have to implement new measures to provide verbal production in our school, because, according to Edelsky (1989:97), 'language is a socially shared system for making meaning'. Savignon (1987) states that communicative competence in a foreign language seems to be related to anxiety, which magnifies the problems in acquiring the target language. In Klippel's opinion (1984), the learner should participate in the learning process and, we do not want that some of our students behave as sheer spectators in oral activities. Schumann (1980) and Vivanco (2002) highlight the important role of affective or psychological components in learning a foreign language: attitude, motivation, empathy and liking towards the subject of study. It is the teachers must to develop these factors in the learning of a second language. In Curran's opinion (1972) many foreign language students feel anxious and nervous about learning a foreign language, negative factors which, undoubtedly, lead to worsening the output conditions in the classroom and, also, in the real word practice.

The attitude of the teacher is an essential point in the students' psychological and social behavior. Some solutions in order to develop a psychologically satisfying class may be, as Stern (1983) suggests, carrying out role-plays or dramatic activities in the class. Our opinion is that, in this way, students feel they are in somebody else's position, which diminishes anxiety and embarrassment because they are not evaluated as students of a second language, but as actors who are playing an imaginary role.

Enright and McCloskey (1988) have designed the Integrated Language Teaching (ILT), a teaching model for second language learners based on practical principles we try to apply:

- Language is greater than the sum of its parts
- The best way to learn a language is by using it, so practice is better than theory.
- Everyday language is most useful to students in their learning development.
- Students develop their second language skills at the same time.
- When learning a language, students use linguistic and non linguistic resources, as much as their acquired knowledge and previous experience of the world.
- Foreign language (and literacy) is developed by using it in many different situations, environments, with many different speakers and listeners, and for many purposes.
- A comfortable and relaxing atmosphere, the one which values the transmission of meaning more than form, is the adequate setting to develop language and literacy.

Many foreign language students, as Horwitz and Cope's (1991) indicate, feel stressed by language classes and cultural shock. It is our role as teachers to create a dialoguing atmosphere which permits the students feel at ease and be themselves, the same as in any other classroom.

In these cases, the class should take a learner centered approach which, takes into account and respects the individual differences among the students.

Living conveys relating with people, and that is why role-playing matches perfectly with life: it means listening, answering, agreeing, disagreeing, expressing surprise... Role-playing is perhaps the best way to be humanistic in the language class, because social relations are a need of the human being. People are usually defined by his or her relationships with others, so this implies that self-expression is only to first step to communication.

THE IMPORTANCE OF TEXTS AS ACTIVATORS OF THOUGHT

For Lotman (1988, 1990) texts have a univocal and a dialogical function and one or the other is the dominant in a certain context. The univocal function is usually taken as the central one, although the dialogical function becomes vital in the language class since it develops understanding creativity.

In an overall cultural system, texts fulfil at least two basic functions: to convey meaning adequately, and to generate new meanings. The first function is fulfilled best when the codes of the speaker and the listener most completely coincide and, consequently, when the text has the maximum degree of univocally. ... Since it is this aspect of a text that is most easily modeled with the means at our disposal, this aspect of a text has been the most noticed (Lotman 1988: 34-35).

From this we can see that the texts studied in class up to now had been univocal ones, whereas our students are demanding dialogic ones. We, then, proposed to exploit the dialogic function of the students' written texts in the classroom in order to implement critical thinking and talking. Generally, when the students write in class, they are mainly concerned with making clear what they mean. Our new purpose is that the dialogic text becomes a discourse initiator since it produces new meaning and generates a brainstorming for the students.

The activator of our purpose to introduce new texts and approaches to them was that our students had a surface approach to reading: they treated tasks as an external imposition, not as something motivating in which they were really interested in. At the same time, they tried to provide answers to the exercises without a previous deep reading of the text, which resulted in that they simply copied the sentence in question. As a consequence of this attitude, they could only answer to these points. Whenever a new question (one that did not appear on the exercise book) was brought out, they felt incapable of answering to it since they had focused on discrete elements, that is, the only ones that appeared in the content of the workbook. To sum up, we can say that if the objective of reading the text was reading comprehension, for our students this objective simply became answering the questions in a surface and quick way to satisfy the teacher and not to cover the discrete goal. When these texts were used as communication activator, learners showed static behavior and absence of body movement or gestures: they behaved in such aseptic way as the text did.

The second function of a text is to generate new meaning, which is linked with the previously acquired knowledge, with doubts, problems, disagreements, possible problems of the exposition. All these elements contribute to enhance critical thinking and, consequently, critical talking. From this point of view a text does not only convey written knowledge, but, also, potential knowledge. At the same time, the reader is not just a receiver, but an emitter of new recycled information.

Lotman (1990, 71) expands the concept of "the text as a meaning-generating mechanism" in *Universe of the Mind*:

'So the picture we have before us is that of organic interaction, of a dialogue, in the course of which each of the participants transforms the other and are themselves transformed under the action of the other; the picture is not one of passive transmission, but of the lively generation of new messages.'

The teacher's role in the foreign language classroom is that of dialogue-initiator by encouraging students' curiosity toward the text, challenging their opinions, making them more self-confident...

We also believe that at the same time that learners develop their critical thinking they become more satisfied with their social capabilities and with their academic skills. Different opinions create cognitive conflicts, a way to promote curiosity for learning and learning in itself. Thus an active understanding, one that assimilates the word under consideration into a new conceptual system, that of the one striving to understand, establishes a series of complex interrelationships, consonance's and dissonance's with the word and enriches it with new elements. ... it introduces totally new elements into his discourse; it is in this way, after all, that various different points of view, conceptual horizons, systems for providing expressive accents, various social "languages" come to interact with one another. The speaker strives to get a reading of his own word, and on his own conceptual system that determines this word, within the alien conceptual system of the understanding receiver; he enters into dialogical relationships with certain aspect of this system.

Obviously, texts in which the dialogic function dominates are more apt to develop learning potential, whereas univocal texts are simply a source of information (Lotman 1988, 1990). So our objective is to leave aside univocal texts, because they did not work as barnstormers and discourse-initiators, and to use dialogic texts as a tool to implement discussion in class.

CRITICAL THINKING AND CRITICAL READING

Previous studies on critical thinking had focused on the relation of this discipline with reading or writing (Bean,1996; Olson,1985; Turner, 1998).In our experience we depart from reading but, in our concrete case, this skill activates talking and not writing.

Critical reading implies the application of some criteria in order to obtain clarity and comprehension. Critical reading is the step beyond skimming (superficial and quick reading) and scanning (in-depth reading of a certain part of the text).

In order to make the class become critical readers, it was necessary to explain that they had to work with an open and objective mind in order to develop new ideas. This does not imply our students have become septic about everything they read, but simply that now they do not accept or absorb everything as a dogma. In fact, they have become a community of science practitioners since they derive concepts from observations (Moll, 1982).

The first step is to reflect about the title, which may provide some clues about the presentation of the topic: writer's approach and goals.

Secondly the content of the message, which should be read slowly, with the help of a dictionary, in case it is needed when it comes to students of English as a foreign technical language. Taking notes, underlining and highlighting the main points also become a need to improve comprehension and to store knowledge in the mental reservoir.

In Tierney and Pearson's opinion (1983), readers rely on past experiences to deduct meaning, which, for us, means that thinking interacts with reading. Reading is just reading, but reading critically implies comprehending information and processing it through thinking. Reading and knowledge of the world, in the sense of acquired information are the sources for critical thinking. Through the process of critical reading this 'old information' becomes changed or amplified. Critical thinking is the best way to develop high-level thinking (Neilsen, 1989), a necessity to become a competitive student and a decision-maker. Carr (1988) defines critical reading as 'learning to evaluate, draw inferences, and arrive at conclusions based on evidence'.

Also, as Sweet (1993) indicates, students read personally, actively and deeply. In this way, the common assumption that reading, as opposed to writing, is a passive skill becomes eliminated. Critical thinking supposes a habit for some of our students, but not for all of them. For the first group, it becomes easy to apply a feature of their personalities to reading skills, whereas for the latter, it is a discipline which should be taught in class, since this is not an innate characteristic. We associate the first students with the active ones in contrast to the second group, formed, in our opinion, by persons who accept things the way they come. Critical thinking presupposes a wide range of features that can be applied both in ordinary life as well as in critical reading:

First of all, our students should behave in a rational way, rather than emotional; this means they have to look for evidence and refuse what is not proven. From this point of view, they should become detectives or judges and only count on what can be measured and demonstrated, especially when it comes to a technical text.

Students must realize that this process does not have anything to do with becoming cold persons, but with impartiality, honesty and hard work since they have to be rigorous, exhaustive and concrete. To activate these qualities, they should have an open mind free from prejudices and take into account that their original opinions can change and improve because that is the path to learning. From this perspective, they become disposed to reassessing their personal established opinions, considering the problem from different sides, not just from the established one.

For this, we make our ESP students jot down the amplitude of data each perspective covers, the inconsistencies it shows, the applications and handicaps it may have...and, finally, they should relate the acquired knowledge to other fields inside and outside science and technology.

THE ATTITUDE TOWARDS CRITICAL READING

When we explained the concept of critical reading, some of our students understood that it consisted of criticizing the article's author, which they found an interesting thing to carry out in class. It was necessary to explain the concept a second time and to insist on that they had to assess the author's reliability and the means he or she used to support his or her ideas.

In fact, we, as teachers, thought that the most important thing for learners was to settle their previous knowledge in the subject matter and to develop new one by absorbing the author's ideas and passing and, recycling them (when necessary) in their mental reservoirs. This implies that learners can provide new points of view, and personal experiences to ratify, complete or refuse the content of the target text, that means that the text activates students and students activate the text.

We offered the following points as examples of concepts they had to apply to the critical reading of a text: argument; present state of the topic and quality and quantity of research; writer's background and the way in which it can influence attitude towards the topic; value assumptions and conclusions; author's purpose; scope of the argument; evidence (quantity and quality); fallacies; bibliography; up to dateless; graphic illustrations and statistical findings. A technical text uses language, images, graphs in order to transmit meaning with clarity. Visuals act as an explanation on the writer's part and as a help for the reader.

On the other hand, linguistic representation (Lexis, grammar and pragmatics) act as a transmitter of the author's ideology. The structure and divisions of the text convey central information about the intellectual process of writing: topic delimitation, introduction, development and conclusions. The information progresses from old to new in order to reach findings which must be objective and that can be measured according to the following linguistic parameters:

- Measurement of lexical neutrality:
 - Does the author use clear vocabulary? D
 - Does the author use metaphors or any other type of figurative language? D
 - Does the author use neologisms and, if this is the case, does he explain them? D
 - Does the author use compounds which help to pinpoint meaning? D
 - Does the author use acronyms decoding them in the first mention? D
- Measurement of syntactic clarity: M
 - Does the author use short or too long sentences? D
 - Does the author use too many relative clauses? D
 - Does the author use active rather than passive voice? D
- Measurement of pragmatic objectivity:
 - Is the author assertive, tentative or just neutral in the exposition?
 - Does the author omit well-known opinions?
 - Does the author offer a complete panorama of the state of the question?
 - Does the author criticize other colleagues opinions?
 - Has the author changed his mind with respect to his previous research? 128
 - Does the author use hidden connotations or associations?
 - Does the author use too many adverbial clauses of opinion?
 - Are causes shown before effects?
 - Do conclusions follow logically from arguments and evidence?
 - Does the author use too many modal verbs?

- Does the author write in first person singular or in second plural in order to attract readers?

Critical reading involves teaching students to think while reading. For critical thinking to occur, students must be taught from a problem-solving perspective--one which fosters inquiry. Teachers must design lessons that include pre-reading discussions and post-reading activities.

In the classroom, we try to create an atmosphere of reasoning (Beck, 1989), inquiry and mental research, so that our students produce value judgments. Flynn (1989) analyses an instructional model based on analysis, synthesis and evaluation: 'When we ask students to analyze we expect them to clarify information by examining the component parts. Synthesis involves combining relevant parts into a coherent whole and evaluation include setting up standards and then judging against them to verify the reasonableness of ideas.'

Another reason for enhancing critical reading is that many of our students are going to become science and technology researchers: reading is the first premise in research. In this way researchers amplify, improve, delimit, contrast, reassure or change their ideas through the interactive process reading-thinking. As a second step, they evaluate evidence, make inferences and draw conclusions (Riecken and Miller, 1990). Logically, the teacher must be helping them to identify purposes for reading, formulate hypotheses, and test the accuracy of their assumptions.

Our students got surprised because of the introduction of this model of working in the class, which, in contrast to common methods, did not accept the target text as an established truth. A second contrast was that, in this way, the classroom became student-centered, in contrast to other academic subjects in which the teacher is continually talking. Tarone and Yule (1989:9) stress that the teacher should play a less authoritarian role. However, the imposition of a learner-centered approach (Bolitho,1990) seems a contradiction, since it would be a show of the teacher's authoritarianism and the students would be affected by a new process of being despoiled and respelled (White, Martin, Smitten and Hog, 1991).

By the introduction of critical reading in the class, the student role is enhanced, not only because of the increase of participation in classroom activity, but, mainly, because this method develops the maturity and the importance of the student both as person and as intellectual and professional. In this way, students value their own thinking and they can become teachers for a while through the exposition of their own ideas. The techniques we use are formulating questions previously (to activate stored knowledge), simultaneously and after the reading takes place; predicting content and findings.

CRITICAL READING AS ACTIVATOR OF CRITICAL THINKING

After reading a technical passage in English, students were required to give a five-minute talk on the topic. In the introductory part, the students present the¹²⁹ article, situating it according to subject area, authorship, date and name of the journal. Then, they explain the discourse topic and the point to which is trying to reach. Next, comes the purpose of the article: description, persuasion, argumentation, explanation... and this point is usually linked to the measurement of Lexis or pragmatic objectivity and neutrality. Sources are also important, but, in this

case, our students generally tend to enumerate the number of citations and to say if they are updated or outdated.

The development is the longest and most interesting part because most of the students participate in it. This is also the part in which critical thinking fleshes in words. Sometimes some of our students have discovered some inconsistencies or weaknesses in the writer's reasoning, but, in other cases, they have agreed to the author's opinion amplifying their knowledge in their subject field. We have also noticed that some pupils are so excited about critical speaking that they tend to criticize any fact or experience the author writes about.

In these cases, we try to make them realize than being critical is also being cool and prudent: it implies processing ideas in the mind, not simply verbalizing them as they appear.

These activities are the real warming-up and training for the communicative part in which the pupils have to defend their own ideas from the point of view of critical reading and critical thinking. For Scott (1997:141) critical reading has the following features: 'It is assertive. It involves standing apart from information, it involves re-processing, generalization, forgetting, drawing inferences.' It is a type of attitude that all the persons, teachers and pupils, working in an academic environment develop day to day. Fostering this way of thinking among our students becomes a need in order to develop their research capability. This method tries to amplify the author's perspective of the subject from different, and perhaps more innovative, points of view. We have used these strategies to foster critical reading:

- identifying the author's point of view
- clarity in the development of the subject and the establishment of the parts (introduction, development, conclusion)
- level of interest for the reader: relevance, applicability, subject interest
- innovation
- difficulty in the processing of information from the reader's point of view: negative sentences, nominalizations, passive voice, compounding...

RESULTS OF THE APPLICATION OF CRITICAL READING OF RESEARCH ARTICLES IN THE CLASS OUTPUT

Our students found these innovative texts highly satisfying since they provided class discussion. They said that previous descriptive texts were convenient to know technical vocabulary and the conventions of the structure and syntax of a technical message, but did not act as elements to develop oral discussion. At the same time, research articles seemed to activate the learners' intention to understand since they caused a new interaction between students and content: this could be seen in their effort to examine, agree and disagree with the logic of the argument.

The students also said that research articles worked as previous knowledge activators and were useful to develop new knowledge both in English and in the¹³⁰ technical field, point which made them more interested and participate in their engineering classes. We also noticed a change in phonetics, the monotonous tone when they worked on descriptive texts changed to a vital and quick intonation and non-verbal behavior which made discourse attractive and full of feeling. And, finally, we believe the most important factor this experience has helped to develop

is collaborative working and a deeper knowledge of the classmates in a scientific environment which prepares our students to become future researchers.

Our opinion is that the students, through critical reading, have benefited from more aspects than they think and, as a result, they have improved in the following global points:

- Organization of knowledge
- Logical thinking
- Analysis of arguments
- Follow-up of logical evidences
- Considering different points of views
- Distinction between vital and superfluous information
- Distinction of markers of intention, emotional attitude and subjectivity
- Focusing on problems and solutions
- Relying on empirical evidence

In regard to oral expression, the students have experienced an evident improvement in the speed of the discourse since the interest for the subject matter has made them lose their inhibitions in the participation in the oral activities; we have also noticed a better intonation which has become richer and more lively when compared to the monotonous tone they had before the critical reading experience. But, apart from these linguistic factors, we believe that the exposition of their critical ideas has developed both their humanism and their scientific mind. These two facets which seem to belong to far away fields become a bond in our experience: the process is scientific since it tries to be a systematic study of the knowledge fleshed in written texts and it is also humanist because it fulfils the students need to grow up as persons, that is absorbing knowledge and processing it themselves in order to produce a new personal approach to the world around us. However, the experience is not only related to scientific knowledge, since it has made them better speakers or speaking-counterparts and more class-participating and collaborative, which implies that both the human and linguistic factors progress at the same time through the critical experience.

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