

# Effectiveness Of Methods Of Using Professional Terms In The Process Of Teaching English To The Students In The Field Of Natural Sciences

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***Abstract:*** *The education of specific terminology related to natural sciences in foreign language classes can be difficult to deal with because of the complex vocabulary. However, with the right teaching methods and techniques, this objective can be met successfully. The following article discusses the ways to teach science students the relevant terminology and concepts in language classes.*

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Science is more than a body of knowledge and a way of accumulating and validating that knowledge. It is also a social activity that incorporates certain human values. Holding curiosity, creativity, imagination, and beauty in high esteem is certainly not confined to science, mathematics, and engineering—any more than skepticism and a distaste for dogmatism are. However, they are all highly characteristic of the scientific endeavor. In learning science, students should encounter such values as part of their experience, not as empty claims.

Introducing new scientific language to students can cause considerable confusion, particularly when the students may have established a different understanding of the terms from their everyday use. Careful thought needs to be given to the selection of new scientific terms, the choice of language used in definitions and the implications of prior understandings based on everyday use.

As an example, young students are already very familiar with the term ‘gas’ as one used to describe a range of combustible fuels (for example LPG camping gas, BBQ gas bottles or LPG motorcar fuel). The term may also be used to describe the natural gas used in homes for cooking or space heating. The word ‘gas’ in all of these contexts is used to describe a flammable fuel that is burnt to generate heat. It is reasonable to expect this common usage of the word to lead to some confusion when the scientific use of the word is introduced. It is well documented that of the three general states of matter, gases are least well understood by primary students. When most students are asked to give examples of a gas they invariably provide only uses of gases, i.e. they make strong connections with gas flames and combustion.

Students (up to the age of 12) often do not define air as a gas because a gas is seen as something that is combustible and air is not.

Children learn from their parents, siblings, other relatives, peers, and adult authority figures, as well as from teachers. They learn from movies, television, radio, records, trade books and magazines, and home computers, and from going to museums and zoos, parties, club meetings, rock concerts, and sports events, as well as from schoolbooks and the school environment in general. Science teachers should exploit the rich resources of the larger community and involve parents and other concerned adults in useful ways. It is also important for teachers to recognize that some of what their students learn informally is wrong, incomplete, poorly understood, or misunderstood, but that formal education can help students to restructure that knowledge and acquire new knowledge.

#### Teaching Should Take Its Time

In learning science, students need time for exploring, for making observations, for taking wrong turns, for testing ideas, for doing things over again; time for building things, calibrating instruments, collecting things, constructing physical and mathematical models for testing ideas; time for learning whatever mathematics, technology, and science they may need to deal with the questions at hand; time for asking around, reading, and arguing; time for wrestling with unfamiliar and counterintuitive ideas and for coming to see the advantage in thinking in a different way. Moreover, any topic in science, mathematics, or technology that is taught only in a single lesson or unit is unlikely to leave a trace by the end of schooling. To take hold and mature, concepts must not just be presented to students from time to time but must be offered to them periodically in different contexts and at increasing levels of sophistication.

#### Deemphasize the Memorization of Technical Vocabulary

Understanding rather than vocabulary should be the main purpose of science teaching. However, unambiguous terminology is also important in scientific communication and—ultimately—for understanding. Some technical terms are therefore helpful for everyone, but the number of essential ones is relatively small. If teachers introduce technical terms only as needed to clarify thinking and promote effective communication, then students will gradually build a functional vocabulary that will survive beyond the next test. For teachers to concentrate on vocabulary, however, is to detract from science as a process, to put learning for understanding in jeopardy, and to risk being misled about what students have learned.

Teaching science as an English teacher comes with its own unique set of challenges. For starters, you can't teach it the same way you'd drill other vocabulary words because science is meant to be understood, not memorized. And this means that you need to come up with a way to demystify complex theories, break down difficult words and teach science in a simplified, "Explain It Like I'm Five" manner.

It has been said that, if you can't explain a difficult concept to a six-year-old, you don't have a good understanding of it yourself.

While you don't have to be Einstein to teach science vocabulary, it does help to have a working knowledge of the material you're covering. That way, you'll be better equipped to break it down into digestible chunks and explain it in a way that your students can relate to.

There are several ways of effectively teaching science related content in language classes:

Use a picture glossary to teach scientific terms.

Infographics have become so popular because many of us are visual learners. When we see complicated content presented in pictures and illustrations, it's easier for us to understand.

Similarly, picture glossaries are perfect for teaching those challenging science vocabulary words without overwhelming students with long, technical definitions. Instead of trying to translate in their head what words like "osmosis" mean, they can look at a picture and associate that image with the English word and definition.

Provide real-world videos of science vocabulary in action.

A good way to reinforce the material you cover in a lesson is by giving your students a chance to see the things they're learning being applied in the real world.

The best thing about teaching science vocabulary is that this is incredibly easy to do with YouTube. Incorporating real-world material into your lessons is as easy as finding videos that coincide with the science vocabulary you've been teaching your students. Since channels like National Geographic and the Science Channel have a seemingly endless supply of interesting videos covering astronomy, biology, chemistry, physics, technology and a number of other topics related to science, finding the perfect examples has never been easier.

Teach prefixes and suffixes of science terminology.

Your students are more likely to remember science vocabulary if they have a good understanding of root words. For example, photosynthesis can be broken down into smaller words and taught as: photo = light, synth = make and isis = process. That way, your students will be more likely to remember that photosynthesis has something to do with light and the process of making something.

Teach the root of scientific words. Same as teaching prefixes and suffixes, breaking down the meanings of root words also goes a long way in helping your students recognize and understand scientific vocabulary.

Ditch complex science resources.

Unless your students are advanced English speakers who are capable of breezing through a TOEFL or IELTS exam, they shouldn't be learning from English-language science textbooks that correspond with their grade level.

Instead, you should try to use science books designed specifically for ESL students whenever possible. And remember, if you must use academic textbooks made for native English speakers, go a few grade levels below your students' English proficiency level.

Include props and hands-on activities in your vocabulary lessons.

People tend to learn better when they get hands-on experience, so why not include experiments and hands-on activities in your classroom?

For most science-oriented vocabulary lessons, this is incredibly easy to do. If you're teaching anatomy, bring in a model skeleton and have students touch the different bones and muscles. For geology, you can have them handle different rocks and minerals.

The idea is to make your students learn through experience, not just memorization. This will not only create a fun learning environment, it'll also make your students more likely to remember the vocabulary covered in their lessons.

Get hands-on with science-themed arts and crafts.

Do drawing and coloring activities with young students. The beauty of working with young learners is that they're always happy to break out the crayons, glue and scissors for an art project. So when you're covering basic concepts like weather, plants, animals and geology, all you need to do is having them color, label and cut out pictures relating to their topics.

For adults/advanced learners, it's a little trickier. Not everything can be drawn and colored, and older students aren't always as keen to do arts and crafts. But they can still have some fun with hands-on activities like making and labeling models or dioramas, or making diagrams with poster boards. Anything from chemical compounds to the anatomy of a cell can be taught in this fashion.

Have students write science research papers, following the steps scientific method.

Research projects are a great way to help teach science vocabulary while giving your intermediate and advanced students a reading-based and writing-based assignment.

If you want to incorporate some of your vocabulary words into the activity, choose a topic based on the content you're currently teaching and give the students a list of vocabulary words they must include in their papers.

Do interactive science projects together.

You don't have to have a lab to do fun science projects. All you need is some basic arts and crafts materials and then you can do something exciting like build a volcano or create a model of the solar system with your class.

Just make sure to pre-teach vocabulary before doing a project with your students. As you can see, teaching science vocabulary isn't as hard as it looks. With a little bit of hands-on activity and outside-the-box thinking, you'll have your students throwing around words like deoxyribonucleic acid in no time.

#### Naming processes (nominalisation)

Nominalisation is the process of forming nouns from other word groups. Nominalisation is one of the most distinctive linguistic features of scientific writing (Banks, 2008; Halliday, 2004). This is because scientific texts are often highly condensed, and frequently contain abstract ideas and concepts. In Science, verbs are often nominalised to create the names of processes. This can be done by: creating a gerund (by adding the [-ing] suffix). For example, weather can be nominalised to

weathering (e.g. chemical weathering) adding noun forming suffixes such as (-al), [-ce], [-ion] and [-ment). For example, when [-ion) is added to the end of the verb, stagnate, the nominalised form is produced: stagnation

Adding a noun forming prefix such as [ante-), [fore-), [macro-), [maxi-), [micro-), [mid-), [mini-), (pre-) and (post-). For example, when [sur-) meaning 'extra' is attached to the front of the verb charge, the noun surcharge is formed.

Similarly, adjectives can be nominalised by adding noun suffixes. For example, noun density is formed by adding the morpheme [-ity] to the adjective, dense.

Educating students about regular noun forming suffixes (morphemes) is one way to introduce students to nominalisation. The tables below show how verbs and adjectives are nominalised in Science using a selection of regular noun suffixes.

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