



### **TRANSPORT**

2009 24(3): 218–224

# THE COMPARATIVE ANALYSIS OF ENGLISH AND LITHUANIAN TRANSPORT TERMS AND SOME METHODS OF DEVELOPING EFFECTIVE SCIENCE WRITING STRATEGIES BY NON-NATIVE SPEAKERS OF ENGLISH

### Valerija Marina<sup>1</sup>, Igor Marin<sup>2</sup>, Genovaitė Snuviškienė<sup>3</sup>

Vilnius Gediminas Technical University, Saulėtekio al. 11, 10223 Vilnius, Lithuania

<sup>1, 3</sup>Dept of Foreign Languages

<sup>2</sup>Dept of Construction Technology and Management,

E-mails: <sup>1, 3</sup>vvka@vv.vgtu.lt; <sup>2</sup>lynx\_114@yahoo.com

Received 1 December 2008; accepted 3 September 2009

Abstract. The paper addresses the problem of developing more effective strategies and skills of writing scientific and technical texts by non-native speakers of English. The causes of poor writing are identified and general guidelines for developing effective science writing strategies are outlined. The analysis of difficulties faced by non-native speakers of English in writing research papers is made by examining transport terms and international words which are based on different nomination principles in English and Lithuanian. Case study of various names given to a small vehicle used for passenger transportation in many countries is provided, illustrating the alternative ways of naming the same object of reality in different languages. The analysis is based on the theory of linguistic relativity. Differences in the use of similar international terms in English and Lithuanian, which often cause errors and misunderstanding, are also demonstrated. The recommendations helping non-native speakers of English to avoid errors and improve skills of writing scientific and technical texts are given.

**Keywords:** scientific and technical texts, text writing strategies, linguistic relativity, analysis of transport terms, routed taxi.

### 1. Introduction

In recent years, English has become a language of science and research all over the world. Most of scientific and technological achievements are described in this language. This means that science writing should be given special attention at higher technical schools. However, university teachers are faced with serious problems in this field, primarily, because writing has been considered a secondary skill and neglected at schools for a long time. Now, the situation is changing, though we think that, in Lithuania, like in Latvia (Forneste 2001), more than one-third of school-leavers admitted to universities had little writing experience in foreign language. Therefore, when they start their studies at university, they have insufficiently developed writing skills, especially, in writing research papers. According to Forneste (2001), only about 11% of students were taught how to write research papers at school. As far as we know, at the university level, a course of writing is taught only to third-year students of English in Vilnius University (Šeškauskienė 2001). I. Šeškauskienė is also a co-author

of a guideline to writing a research paper (Katkuvienė and Šeškauskienė 1999). However, this skill is required of senior and doctoral students, in particular. The question arises if the needs of the students in this area may be satisfied during their studies at a technical university. Let us consider the situation in Vilnius Gediminas Technical University. The course of study of English (as well as other foreign languages) is intended for one academic year. However, according to the research (Forneste 2001), teaching writing is a complex process and it cannot be completed even in a couple of years. Therefore, we can see that the possibilities of teachers are highly limited. In addition, students of engineering specialities begin studying their special subjects only in the third year of studies, which makes the achievement of the goal, learning scientific and technical writing by the students, even more difficult. Moreover, the groups are too big (numbering about 30 students instead of 15), which further complicates the situation.

The question arises, what can be really done in this environment? The answer is to read not very complicat-

ed special texts in great numbers with the students and teach them to summarize these texts (which includes paraphrasing, stating the aims, defining the methods of investigation, describing the results, etc.). This goal is reflected in the curriculum of the English language as a subject taught to students of transport specialties (in the modules developed), and practical work is organized towards achieving it. However, class work is not enough, and students should work independently, reading wellwritten authentic technical texts and their summaries, as well as some theoretical material about the requirements to summaries, their structure, patterns of organization and content. They can find the required material in the Internet. Students should be aware that writing can be learnt only through practice, real communication and reflection of its results and effects. Moreover, learners of a foreign language have to cope not only with linguistic, but also with cultural differences.

We think that a special course of scientific and technical writing should be introduced for doctoral students, who need it badly and are eager to learn. We hope that it will be implemented, when the economic situation allows it.

Now, quite a few postgraduates engaged in research, as well as professors and other staff members of the University write articles to scientific journals in English. The requirements to them are getting tougher from year to year. Therefore, the researchers need to increase their competence in writing about science and technology. The present paper aims to provide some guidelines and general recommendations as to developing effective writing strategies in the areas defined and to analyse some difficulties faced by the writers, identifying the causes of errors. The current work continues the analysis of difficulties faced by non-native speakers which lead to mistakes in science writing presented in the earlier article of the authors (Marina, Snuviškienė 2005). However, in the present paper, the analysis is focused on lexical rather than grammatical errors because the former (lexical errors) often cause misunderstanding, while grammatical mistakes do not. Besides, it should be noted that the amount of grammar mistakes in the articles published in the scientific journal (TRANSPORT) analysed in the above-mentioned paper has greatly decreased (though we are prone to give the credit for it to better editing rather than to the authors themselves).

### 2. Developing Strategies for Writing Effectively About Science and Technologies

To function in today's society – to improve career options, to pursue higher education degrees and effectively communicate their messages, students and researchers should have good writing skills.

Unfortunately, limited hours devoted to ESP study at the university do not allow the teachers of foreign languages to provide their students with effective training in scientific writing. Therefore, independent work in this area is of vital importance. Here are some guidelines for students and researchers which could help improve their

skills in scientific writing. First, causes of poor scientific writing should be identified and, then, the recommendations of how to improve your writing skills and to write more effectively could be given.

The present investigation is based on the analysis of the works by Boriskin (1992), Alley (2009), Funkhouser, Maccoby (1973), Miles (1990) and some others devoted to improving skills of writing about science and technology performed by Herring (1995) and the experience of the authors in editing and writing English technical texts

There is an opinion that scientific writing is often weak because most scientists never receive formal training in writing. However, poor scientific writing may be partially attributed to the fact that scientists do not make any efforts to make their writing more readable. They do not have the readers and their needs in mind when they compose. Sometimes, it seems that scientists use lots of special terms and long sentences to sound more scientific and to impress the reader rather than to communicate their messages.

Whatever its cause, the effect of poor writing is that it fails to effectively transmit the message to its target audience (which may be scientists in the same or different fields of science or even lay public).

These are some strategies suggested by various authors, which could help improve your writing skills and allow you to write more effectively about science and technology:

- 1. Do not focus your writing on results, present your work as a process and show the reader how you think and why you think so.
- 2. Do not present only the newest information on a subject. Place new information into proper context relative to old or understood information.
- 3. Make analogies to familiar actions / substances.
- 4. Use active voice. Active verbs render text more dynamic and more interesting to read.
- 5. Avoid too long sentences. A sentence is too long when its structure gets in the way of reader's understanding. Readers expect subjects to be followed closely by verbs. In too long sentences information is likely to be missed.
- Avoid scientific jargon and use acronyms sparingly.
- 7. Avoid using vague pronouns (e.g. it, they, that, this, etc.) which make it hard for the readers to understand what the author means.
- 8. Remember your audience. Pay closer attention to style whenever you find well-written text and write down clever techniques that you might use later in your writing.

These are general recommendations which equally apply to native and non-native authors of English technical and scientific texts. In particular, the main drawbacks of their style are verbose and awkward passages, poor sentence structure, the use of vague pronouns, long noun strings (often violating the rules of the English language) and too many passive structures. However, there are some errors typical only of Lithuanian-speaking peo-

ple, which occur due to the interference of their native language with the process of writing in English. These mistakes may be explained by the hypothesis of linguistic relativity put forward by F. Boas (1995), E. Sapir (1963), B. L. Whorf and J. B. Carroll (1969), which will be considered below in more detail.

## 3. Theoretical Background and the Analysis of Special Transport Terms and International Words Used in English and Lithuanian texts

To be proficient in a foreign language does not only mean to know the words of this language and grammar rules governing the formation of sentences. There is something more, which is called 'the spirit' of language and to grasp it is much more difficult for non-native speakers than to learn words and grammar structures. The theory explaining the peculiarities of languages from this perspective was developed by the American scientists F. Boas (1995), E. Sapir (1963), and B. L. Whorf and J. B. Carroll (1969) in the first half of the 20th century (cited here from later editions) and was called 'linguistic relativity'. Linguistic relativity deals with interrelation between culture, thought and reality and states that every language differently segments the reality and classifies real objects. According to the New Oxford Dictionary of English (Pearsall and Hanks 1998), relativity is the absence of standards of absolute and universal application. With reference to languages, it may be concluded that one 'absolutely correct' way of expressing the reality by language does not exist, and different linguistic patterns may be successfully used to denote the same 'pieces of reality' by various languages. This possibility is based on the fact that all objects have a great number of features (attributes), and different languages may choose different features of a particular object in giving the name to it. This makes any language a specific system different from others, though both nationally-specific and international patterns may be found in it. It also follows that word-for-word translation can hardly help to convey the meaning expressed by a foreign word, collocation (word combination) or sentence. Though the ways of expression may vary from language to language, every language successfully performs its communicative function. The choice of a particular feature of an object as a basis for giving a name to it depends on the culture, traditions and views of native speakers.

The awareness of these differences is essential in identifying and explaining the difficulties in learning a foreign language and the sources of errors made by non-native speakers in speaking and writing. The latter automatically transfer the patterns specific to their native language to a foreign language. This, in turn, results in grave mistakes and misunderstanding. Non-native speakers composing sentences should always ask themselves a question 'How do they put it in English?' and avoid word-for-word translation.

Viewing objects and situations from various perspectives may help to see possible ways of naming them and to guess the meanings of words and expres-

sions based on approaches to nomination typical of the speakers of a particular foreign language. However, the development of linguistic guess takes a long time and requires much effort. Now, the availability of the Internet is of great help in checking if the sentences composed by non-native speakers are correct.

To illustrate the above statements, a comparative analysis of English and Lithuanian words and expressions based on different approaches to naming things is made. The words and expressions analysed include special transport terms as well as generally used international words and phrases of scientific and technical texts.

Let us consider some English and Lithuanian transport terms based on different principles of nomination (because different features of the objects are used in their names): frost shield – *stiklo šildytuvas*; flexible transport – *transportas be bėgių*; finger-tip control – *mygtukinis (elektroninis) valdymas*; estate car – *automobilis universalas*, *furgonas*; energy-efficient – *taupus*.

Now, let us give some examples of genuine English phrases which should be used instead of word-for-word translation from Lithuanian: to study a possibility of ... = to make a feasibility study of ...; positive sides = advantages; large wear = heavy wear; the company has made neither profit nor loss = the company has broken even.

Even some international words are differently used in the considered languages (Marina 2008). For example, the same mathematical term is 'variance' in English and 'dispersion' (dispersija) in Lithuanian. The meaning of 'to duplicate' is expressed by 'to double' (dubliuoti) in Lithuanian. The above differences in naming things cause many mistakes, which may mislead the reader of technical or scientific text. Therefore, the terms of this type are called 'false friends'. There are also cases which may be referred to a special type of 'false friends' of the speakers of Lithuanian. The words of this group have meanings which are found both in English and Lithuanian and meanings found only in English. Being unaware of these specifically English meanings of the considered words, the speakers of Lithuanian use them only in the meanings known in their native language. This may cause errors and misunderstanding. Some examples of the terms of the considered type are given in Table 1.

The same applies to differences in classifying things. The theory of linguistic relativity states that a given experience is differently rendered and classified in various languages (Whorf and Carroll 1969). As a result of different approaches to classification, what is a single word in one language may be multiple names in another. A good example is naming of a connecting part or unit, which is called *mova* in Lithuanian, but has several names in English, such as 'coupling', 'clutch', 'sleeve', 'joint', 'muff', 'union', 'coupler', etc. To avoid mistakes of this kind in writing technical texts in English, one should be aware of the above differences between the languages in naming and classifying pieces of reality. Checking and revision of the written text as well as taking a scientific approach to writing may be of great help.

**Table 1.** A comparison of international words having similar and different meanings in English and Lithuanian

Words	Meanings found both in	Meanings found only in English	
	Lithuanian and in English		
agent	agentas	medžiaga	
aggregate	agregatas	užpildas	
block	blokas	daugiabutis namas, kvartalas	
finish	finišas	apdaila	
matrix	matrica	rišamoji medžiaga	
pilot	pilotas	bandomoji programa	
post	postas	stulpas, polius	
solid	solidus	tvirtas	
stress	stresas	įraža, įtempimas	
trace	trasa, kelias	pėdsakas, žymė, ženklas	

Now, at the age of information technologies, to check the composed sentences for correction, one might also use the Internet. For this purpose, it is sufficient to enter a particular expression into the computer and wait until it displays some examples of this phrase in various contexts, or writes that the considered expression was

not found (implying that it is not correct). It means that we are on the way to having computer-aided writing.

### 4. The Analysis of Terms Denoting a Small Vehicle for Public Transportation in Various Languages

Great variation in naming the same object in different languages may be demonstrated by different names of a small vehicle used for public transportation in various countries. The names of this vehicle used in various countries are taken from the Web encyclopedia (Website of Wikipedia 2009).

It is believed that routed taxis first appeared in the USA in 1910s as an alternative passenger transport and were called jitneys. The name jitney comes from an archaic, colloquial term for a five-cent piece in the US and meant a vehicle for rent. On the territory of the former Soviet Union the so-called marshrutnoe taksi [маршрутное такси] (routed taxi) appeared in 1930s in Moscow and was considered to be a faster and more comfortable means of transport compared to traditional buses, trolleybuses and trams. In Lithuania, the name maršrutinis taksi is still used though a colloquial (slang) form mikruškė or mikriukas also gained currency. The definitions showing the main principles of naming this vehicle are given below (see Table 2). Furthermore, the photos of some small vehicles used for passenger transportation in various countries are presented in Figs 1–10.

Table 2. Various names of a small vehicle for passenger transportation used in different countries

Country	Original name	Explanation (where required)
Algeria	Taxi collectif	From French 'collective taxi'
Albania	Furgon	From French <i>furgon</i> – wagon
Armenia, Belarus, Bulgaria, Kazakhstan, Kyrgyzstan, Russia, Ukraine, Uzbekistan	Marshrutka [Маршрутка]	The Russian word <i>маршрутка</i> is the colloquial form for <i>маршрутное такси</i> , which literally means routed taxi(cab)
Bolivia, Peru	Micro, combi	Combi is named after Volkswagen Kombi van model
Botswana	Kombi	Named after Volkswagen Kombi
Brazil	Táxi lotação, alternativo	<i>Táxi lotação</i> is 'shared taxi' in Portuguese, while <i>alternativo</i> means an alternative to buses and taxis
Colombia	Colectivo	Colectivo means 'minibus' or 'collective' in Spanish
Democratic Republic of Congo	Taxibus	A combination of taxi and bus
Estonia	Liinitakso, marsruuttakso, marsa	<i>Liinitakso</i> and <i>marsruttakso</i> can be translated as 'routed taxi(cab)' like <i>маршрутка</i> , <i>marsa</i> is an abbreviation and a slang term
Ethiopia	Minibus taxi	
Germany	Sammeltaxi	In German it means 'collective taxi'
Ghana	Tro-tro	From Ga language word <i>tro</i> , meaning three pence (pence being the penny coin used during Ghana's colonial days)
Haiti	Tap-tap cab or camionette	The name <i>tap-tap</i> is derived from the sound of sharp taps on the metal panel signifying a passenger's request to be dropped off, while <i>camionette</i> is named after a <i>Citroën</i> model
Hong Kong	Public light bus	
India	Share auto, phat-a-phat, 8-seater auto	Phat-a-phat in Urdu language means 'quick'

Continue of Table 2

Country	Original name	<b>Explanation (where required)</b>
Indonesia	Oplet, mikrolet, angkot, colt	Oplet is derived from Dutch for 'to flag down', Angkot is an abbreviation of Angutan kota (in Indonesian means 'city transport'), Colt is derived from Mitsubishi Colt van model
Iran	Savari	Savari in Persian means 'passenger'
Israel	Monit sherut	Monit sherut in Hebrew is 'service taxi'
Italy	Taxi collettivo	In Italian it means 'shared taxi(cab)'
Kenya	Matatu	From Kisuaheli language <i>ma tatu</i> , which means 'for three'. For three kenyan schillings one could travel on any route in colonisation times
Latvia	Maršruta taksometrs, mikriņš, maršrutnieks	<i>Maršruta taksometrs</i> means 'routed taxi', the other two terms are abbreviations and slang words
Lithuania	Maršrutinis taksi, mikruškė, mikriukas	<i>Maršrutinis taksi</i> means 'routed taxi', the other two terms are abbreviations and slang words
Madagascar, Central and Western African countries	Bush taxi	
Mexico	Pesero	<i>Pesero</i> could be interpreted as 'peso collector' because at first this form of transport charged a fee of one peso per ride
Philippines	Jeepney	The word <i>jeepney</i> is a portmanteau of 'jeep' and 'jitney'
Poland	Busik, minibus, mikrobus, nyska	<i>Nyska</i> comes from the name of the <i>Nysa</i> minivan which was manufactured in Nysa town
Puerto Rico	Guagua	Guagua is thought to be named after the sound of horns
Romania, Trinidad & Tobago	Maxi-taxi	
Rwanda	Taxi or twegerane	Twegerane means 'let's sit together' in the Kinyarwanda language
Senegal	Car rapide	In French language car rapide means 'fast bus'
South Africa	Minibus taxi or teksi	
Tanzania	Dala-dala	Derived from the Swahili word <i>dala</i> , jargon for 'five'. When <i>dala-dala</i> made their first appearance in the late 1960s, the standard fare for a trip was five cents
Thailand	Songthaew	In Thai language it means 'two rows'
Tunisia	Louage	In French language louage means 'rental'
Turkey	Dolmuş	In Turkish it means 'full', 'stuffed'
Uganda	Kamunye	Kamunye in Luganda language means 'eagle'
United Kingdom	Demand responsive transport (DRT)	Unlike an ordinary share taxi, <i>DRT</i> has to be pre-booked in advance
USA	Jitney, dollar van, circulator, share taxi	The name <i>jitney</i> comes from an archaic, colloquial term for a five-cent piece in the US (five cents was a common fare for the service, when it first came into use), <i>dollar van</i> comes from the fact that the ride would only cost about one dollar
Zimbabwe	Commuter omnibus or tshova	Tshova in Zulu language means 'pedal'



Fig. 1. Matatu share taxi near Afya Centre in Nairobi, Kenya



Fig. 2. Car rapide in Senegal



Fig. 3. Dala-dala in Zanzibar, Tanzania



Fig. 4. Green public light bus and a regular bus in Hong Kong



**Fig. 5.** *Jeepney* in Philippines



**Fig. 6.** *Mikriņš* in Riga, Latvia



Fig. 7. Maršrutinis taksi in Klaipėda, Lithuania



Fig. 8. GAZelle marshrutka in Moscow, Russia



Fig. 9. Jitney in Atlantic City, USA



Fig. 10. Tap-tap in Port-au-Prince, Haiti

As one can see, a wide range of characteristics of the considered vehicle are used as a basis for naming it. Generalizing them, we can single out the following main features characterizing a vehicle or a way of transportation by this mode of transport which are used as a basis of its name:

- 1. the type of the vehicle (van, large car, minibus)
- 2. collective use (sharing) of the vehicle;
- 3. fast movement (the name 'eagle' based on this feature is a metaphorical term);
- size, small or large (compared to conventional taxi or bus);
- 5. the standard original fare of a trip;
- 6. rental;
- 7. a specific sound produced by a passenger, e.g. a short tap on the metal panel as a request to be dropped;
- 8. the arrangement of seats in the vehicle;
- 9. a particular car model;
- 10. the way of hailing the vehicle (e.g. flagging down);
- 11. a function (to service passengers);
- 12. alternative mode of transport;
- 13. flexibility of public service;
- 14. the number of seats;
- 15. the type of locality where vehicles operate;
- 16. crowdedness;
- 17. passengers as users of this mode of transport;
- 18. arrangement of passengers (sitting together).

Some of the names of this vehicle are based on the unique principle of nomination (e.g. crowdedness, fast movement ('eagle')), while others rely on the same principle in several countries (e.g. fare, the number of seats, size, etc.). For example, Lithuanian slang name *mikruškė* is similar to *micro* used in Peru.

### 5. Conclusion

The problems associated with the development of more effective science writing strategies were considered. The situation with developing writing skills at school and technical university in Lithuania was highlighted. It is stated that the conditions for this are not favourable. In VGTU, the course of foreign language studies is too short (one academic year), academic groups are too large (about 30 students instead of 15) and students do not have special subjects in the first year when foreign languages are studied. Therefore, the teachers of foreign languages are faced with serious problems.

In this environment, independent work of students and researchers trying to write about research in English is needed. To achieve good results, they should be given the appropriate guidelines and recommendations. The analysis of the literature on the problem made by the authors, and their long-term teaching and editing experience allowed them to demonstrate the symptoms of poor writing and to provide some guidelines for maximizing effectiveness of writing about science and technology.

The recommendations given are of general character. However, non-native speakers of English make lexical errors, depending on the specific ways used in different languages for naming the same 'pieces of reality', which can be described by the theory of linguistic relativity.

The case study based on the analysis of different terms used in different languages for denoting a small vehicle for passenger transportation is presented. It clearly demonstrates the existence of the alternative ways of giving names to the same objects of reality in different languages, implying that word-for-word translation is often not adequate and should be used sparingly. Different use of the same international words in English and Lithuanian, which may be a source of mistakes, is also described. The use of the Internet for checking sentences composed by non-native speakers of English is discussed and references of the publications which may be helpful for improving skills of non-native writers of scientific and technical texts, be it students or researchers with a scientific degree, are provided.

Based on the present research, it may be concluded that a well-written scientific and technical text should be concise, precise and based on authentic English phrases, rather than sentences translated from the native language of the author. It is well known that very few foreign authors can achieve the level of native writers of scientific text. But it is possible to improve one's science writing skills considerably by following the rules and recommendations provided.

#### References

Alley, M. 2009. *The Craft of Scientific Writing*. 3rd edition, Springer. 304 p.

Boas, F. 1995. Race, Language and Culture. University of Chicago Press. 668 p.

Boriskin, K. A. 1992. Jarring Jargon, *Scientific American Magazine*, March, 1992. Available from Internet: <www.scientificamerican.com>.

Forneste, M. 2001. Some aspects of designing a course of writing at tertiary level, *Kalbų studijos=Studies about Languages* 1: 71–74.

Funkhouser, G. R.; Maccoby, N. 1973. Tailoring science writing to the general audience, *Journalism Quarterly* 50(2): 220–226.

Herring, D. D. 1995. Strategies for writing effectively about science and technology, *Optics & Photonics News* 6(8): 32–36.

Katkuvienė, L. E.; Šeškauskienė, I. 1999. Writing a Research Paper: The Student's Guide. Vilnius: Vilnius University. 44 p.

Marina, V. 2008. Linguistic relativity and its theoretical and practical value at the time of globalization, *Santalka* [Coactivity] 16(2): 57–66.

doi:10.3846/1822-430X.2008.16.2.57-66.

Marina, V.; Snuviškienė, G. 2005. Error analysis of scientific papers written by non-native speakers of English, *Transport* 20(6): 274–279.

Miles, T. H. 1990. Improving the readability of specialized language in emerging technologies, *Technical Communication* 37(2): 126–129.

Sapir, E. 1963. Language. London: Hart-Davis. 242 p.

Šeškauskienė, I. 2001. Peer review in teaching research paper writing, *Kalbų studijos=Studies about Languages* 1: 80–83.

Pearsall, J.; Hanks, P. 1998. The New Oxford Dictionary of English. Oxford University Press. 2176 p.

Website of Wikipedia. 2009. Available from the Internet: <a href="http://en.wikipedia.org/wiki/Share\_taxi">http://en.wikipedia.org/wiki/Share\_taxi</a>.

Whorf, B. L.; Carroll, J. B. 1969. Language, Thought and Reality: Selected Writings of Benjamin Lee Whorf. The MIT Press. 290 p.