Reading Comprehension and Translation Performance of English Linguistics Students of Hung Vuong University: A Correlational Study

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ABSTRACT

The study aimed to correlate the reading comprehension and translation performance of English linguistic students, then inform some pedagogical implications for the teaching of reading comprehension in translation classes in order to enhance the translation quality performed by the students. To this end, 45 junior students of English linguistics specialization of Hung Vuong University, including 5 males and 40 females, aged from 20 to 22, were subject to a TOEFL reading comprehension test and a translation performance test (ATA guidelines, 2011). Data were analyzed using the Pearson Correlation, SPSS version 20.0. The coefficient correlation of students' reading comprehension and their translation performance was noted 0.721 at the significant level of 0.01. It was found that the Reading comprehension was closely related to translation performance. Along the reading comprehension question types, translation performance was affected by the ability to determine gist and main ideas of the text, identify the vocabulary, infer the implied meanings and identify the writer's style and attitudes. The results were discussed, and implications for teaching reading comprehension to enhance translation performance were presented.

1. Introduction

During the translation process, the reading comprehension of the source text, i.e. the discovery of the meaning, though being cited different terms to name, is always the first stage of the translation process (Nida and Taber, 1982; Larson, 1984; Newmark, 1988). According to Newmark (1988) the first job involving in translation is to read the original (the source text). He explains the two purposes of the source text reading: first, to understand what it is about; second, to analyze it from a translator's point of view. The assumption on this base is that reading comprehension skill plays a crucial role in determining the translation quality (Farahani and Siyyari, 2015).

The role of reading comprehension in translation has further been researched and caused controversy in the field. On the one hand, there have been a number of researches conducted and further confirmed the relationship between reading comprehension and translation. ILR, Interagency Language Roundtable (2011) gives three abilities needed in translation in which reading ability is the one. According to ILR (2011), a weakness of this ability will influence translation performance and have negative impact on the utility of the product. The study conducted by Nitaya & Tipa's (2009) revealed one of the two major sources of translation errors was the translators' poor reading skill as it is one of the major and foremost components in the translating process, which involving the source text reading and the interpretation into the target language. Rahemi et al.'s (2013) and Galina and Ligija's (2009) further claimed that reading comprehension skill strongly influences the translation ability of the learners, thus, the problem of translation is closely confined to reading skill. On the other hand, in a recent research, the results of the experiment study conducted by Farahani and Siyyari (2015) contradict with the above assumption. In the case of Iranian EFL learners, although there was an increase in the translation quality of the students after the treatments on their reading comprehension, the correlation between reading comprehension skills and the translation quality was not significant.

So far, in the literature, there has just been a long discussion on the correlation between reading comprehension and translation performance, but not on the association between each reading comprehension skill and translation, though it is a generally accepted that reading comprehension skills form the reading comprehension performance (Lunzer et el., 1979). It raises a question of whether all the reading comprehension skills may have effects on the translation quality of the students or not.

The above-mentioned research reviews form the basis for the present study that it is vital to reconsider the role of reading comprehension in the translation process, especially investigate the relationship between reading comprehension skills and translation performance. Furthermore, the current study stands as significant contribution to reveal their association in Vietnamese EFL context. Therefore, the present study correlates the reading comprehension and translation performance of the perspective translators, studying at Department of Foreign Languages, Hung Vuong University, Vietnam. Based on the score of the reading comprehension and translation performance test, data were correlated in order to infer some useful pedagogical implications.

2. Literature Review
2.1 Reading Comprehension

The key goal in reading is to make meaning from text. That is, to comprehend the information that is conveyed in the text. Reading comprehension is not only the product of language comprehension skills and decoding skills as meaning is not in the word on the page (Knutt & Jones, 1991). Full reading comprehension, therefore, must be the process of working out the meaning of the reading text. In this process, the readers have to try their best on the reading passage to "extract the required information from it as efficiently as possible" (Grellet, 1981, p.3).

In the same view, Duke and Person (2002) research variety of viewpoints about reading comprehension and claim that reading comprehension is not only understanding the words in the text, but more importantly, the meaning hidden under the words that the authors want to convey to the readers.

Generally speaking, reading comprehension is understanding a text that is read, or the process of constructing meaning from a text. The construction process, reading comprehension, involves all of the elements of the reading process working together as a text is read to create a representation of the text in the reader's mind (Kruidenier, 2005).

2.2 Reading Comprehension Skills

Skill is the ability to do something well (Oxford Learner's Dictionaries, 2017). On this basis, reading comprehension skill is defined as the ability of a person used when interacting with the written text in order to well comprehend the text.

Researchers classify reading comprehension skills differently. Davies (1968) classified reading skills into five groups including identifying word meaning, drawing inferences, identifying writer's technique, recognizing mood of passage, and finding answers to the questions. Meanwhile, Munby (1979) lists the following as the basic reading skills needed: recognizing script of language, deducing meaning and use of familiar lexical items, understanding the explicit and implicit information, the conceptual meaning, the communicative value of sentences, and the relations within sentence and between parts of text, recognizing discourse indicators and main information, basic reference skills, and skimming and scanning.

In the light of this study, the researcher supports the following five research-supported skills as the most critical keys for the reading comprehension. They are word meaning in context, literal comprehending, inference drawing, metaphor interpreting, main idea finding, and judgment forming (Lunzer et el., 1979, Nuttal, 1992).

2.3 Translation

The term 'translation' as "an incredibly broad notion" can be understood in many different ways (Shuttleworth and Cowie, 1997, p.81). Translation may be defined as the replacement of textual material in one language (source language) by equivalent textual material in another language (target language) (Catford, 1965, cited in Zargatbashi, 2013). Nida (1969, p.12) defines translation as "reproducing in the receptor language the closest natural equivalent of the source language message, first in terms of meaning and, secondly in terms of style". House (1982, p.29-30) introduces a definition that adds a pragmatic aspect to translating when looking at textual equivalence. In his opinion, translation is the replacement of a text in the source language by a semantically and

pragmatically equivalent text in the target language. Meanwhile, Newmark (1988, p.5) defined translation as the process of "rendering a written text into another language in the way that the author intends in the text". In his viewpoint, translation is related with written word from one language into another and texts translated vary from a simple to a more complicate one. The translator's job is not only rendering the exact meaning of the text without omission and addition, but also rendering the author's intention. Furthermore, Bell (1991, p.xv), who favors in a systematic functional paradigm, stresses on the importance of 'equivalence' connected with the functional roles of the source text. He informally defines translation as "the transformation of a text originally in one language into an equivalent text in a different language retaining, as far as possible, the content of the message and the formal features and functional roles of the original text".

The viewpoint raised in this study is the combination of these above definitions. Translation can be considered as transferring meaning from the source language to target language in written texts to give the sense of the original and the naturalness of the expressions. By 'sense of the original,' it refers to the transfer of meaning of the text and the ideas that the author wants to convey through the text and serve the purpose of the translation. On the other hand, 'the naturalness of the expressions' means that the translation must reflect the language style and other extra-linguistic elements in the translation.

2.4 Some Related Studies

Rahemi et al. (2013) investigated the effect of comprehensibility in reading on senior English major students' translation ability. The result of the study revealed that there was a significant correlation between students' reading comprehension and their translation ability, those students who gained high scores in reading comprehension, also performed better in translation test.

Khanmohammad & Kehtari (2015) conducted a study to examine the relationship between writing and reading in English, separately and translation ability. Their study showed that, like writing, reading comprehension could be used as a factor predicting the translation ability of the students, and the proficiency in reading contributed to their translation performance.

Moreover, Fanahami and Siyyari (2015) investigated the effect of teaching reading comprehension on translation ability. Result of the study showed that there was no correlation between the reading comprehension and translation ability of the students. Although the translation quality showed a sign of improvement, the correlation between reading comprehension skills and the translation quality presented the insignificant relationship between the two variables.

3. Methodology

Starting from the assumption that the translation performance of the students may be affected by the reading comprehension of the source text, the paper aimed to correlate the reading comprehension performance and translation performance, then give some implications for the teaching of reading comprehension in the translation classes in order to enhance the translation performance in the case of perspective translators at Hung Vuong University.

Respondents involved in the study were the 45 students of English linguistics specialization of Department of Foreign Languages, Hung Vuong University, Vietnam. At the time of the study, they were in the third year of an English linguistics course. They included 5 males and 40 females, and most of them aged from 20 to 22. The reasons for selecting this group were that they had been studying the reading comprehension skill subjects (Pre-intermediate, Intermediate and Advanced level) and the translation subjects including Translation Theory and Translation Practice 1, and were therefore considered suitable for contributing to the present study.

The reading comprehension test and the translation performance test were adapted for the data collection. The reading comprehension test aimed at testing the reading comprehension level of the respondents. It is extracted from the TOEFL paper test, reading comprehension part (See *Longman Preparation Course for TOEFL* by Deborah Phillips, 2000, Diagnostic test). It consisted of five passages; each passage was followed by a set of multiple-choice questions that focus mainly of testing sub-skills, including Main Idea Skill Questions, Detail Skill Questions, Inference Skill Questions, Vocabulary Question, and Overall Review Questions. The main idea skill questions required the reading for gist and main ideas, the Detail skill questions for text basic information reading, vocabulary
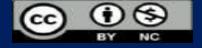
questions check the identification of new words and expressions, inference skill questions test the intended meanings expressed by the authors, and the overall review questions ask about writer's style (persuasive, argumentative, scientific, …) and writer's attitude. The test was selected regarding the respondents' age-appropriateness, interest, and background. The fifty questions were categorized into five groups as following:

(1) Main idea questions: 05 questions (11, 13, 31, 40, 43)

(2) Detail questions: 16 questions (2, 5, 6, 9, 16, 19, 26, 27, 33, 34, 37, 38, 39, 44, 48, 49)

(3) Inferences questions: 11 questions (8, 10, 15, 18, 20, 22, 25, 36, 42, 45, 47)

(4) Vocabulary questions: 11 questions (3, 4, 7, 14, 17, 23, 24, 28, 32, 35, 46)

(5) Overall Review questions: 07 questions (1, 12, 21, 29, 30, 41, 50)

The translation test requires the respondents to translate a text from English into Vietnamese. It adopted the sample translation text provided by ATA (2011). It was part of the introduction of a traveler's guide to Madagascar with 270 words, requiring the translators to translate it for an interested reader who is planning a trip to Madagascar. In addition to the text to be translated, each included translation instructions, specifying the context within which the translation was to be performed (text source and translation purpose, audience, and medium) (ATA Guidelines, 2011).

The reason in choosing the tests was that they were both standardized tests, and while the reading comprehension test helped activate all the reading comprehension skills needed in order to reach a full understanding of the reading text, the translated text related to the topic of tourism, which was one of the main topics the respondents had studied during the Translation Practice 1. To further make sure that the tests were suitable for the respondents, they were piloted for validation through the two steps following Suskie's (1996) guidelines. The first step involved the 'Informal pilots' and the second step was 'Accompanied interviewing'.

The data gathering procedure involved the explanation of the purpose of the study, then the administration of the reading comprehension test in fifty-five minutes (as TOEFL test guidelines), 15-minute break, and the administration of the translation test. For the translation test, though it allowed 45 minutes to complete, the respondents could have more than that in order to be able to complete the translation.

The reading comprehension test was scored by counting the number of the correct answers in total, and then grouped according to the types of questions. The translation test outputs were evaluated by the two translation teachers from Department of Foreign Languages, Hung Vuong University using the ATA guidelines (2011).

SPSS, Version 20.0, was used to analyze the data. Mean and SD were utilized to measure the reading comprehension and translation scores. Correlation analysis (Pearson Product Moment Correlation) was used to test the relationship between reading comprehension and translation performance. All the hypotheses were tested at .05 level of significance.

4. Data Analysis and Discussion

4.1. Reading Comprehension Test and the Translation Performance Test

Table 1 presents the lowest score, highest score, mean and SD of the reading comprehension test in term of question types and total score. Glancing at the Table, the total reading comprehension score gains mean score of 26.44, with the lowest score earned of 17 and the highest of 36. Along each reading comprehension question type, detail questions obtain the highest mean score, followed by vocabulary questions, inference questions, overall review questions, and main idea questions with mean score of 10.97, 4.93, 4.71, 2.97, and 2.84, respectively.

Also in Table 1, the result of the translation performance test is shown. The lowest score is 4 while the highest is 16. The total score mean gains at 10.56 with SD of 3.17.

Table 1: Results of Reading Comprehension and Translation Performance Test

Dimension	Lowest Score Earned	Highest Score Earned	Mean Score	SD
Main idea questions	1.0	4.0	2.84	0.82
Detail questions	7.0	14.0	10.97	1.97
Inference questions	2.0	8.0	4.71	1.51
Vocabulary questions	2.0	8.0	4.93	1.52
Overall Review questions	1.0	5.0	2.97	0.99
Total Reading Comprehension Score	**17**	**36**	**26.44**	**4.87**
Translation Performance Score	**4**	**16**	**10.56**	**3.17**

4.2.   Correlation   between   reading

comprehension and translation performance

Table 2 presents the correlation between the translation performances of the respondents with the total reading comprehension score. At .05 level of significance, the Pearson r exhibited a significant result. This shows that reading comprehension ability of the students is significantly related to their translation performance. It can be said that reading comprehension affects their translation performance. Those with better reading comprehension ability perform with better translations. The findings of the present study support researches conducted by Rahemi et al.'s (2013) and Khanmohammad & Kehtari (2015). However, it contradicts the study results of Fanahami and Siyyari (2015) which claims that there is no relationship between reading comprehension skill and translation quality of the respondents.

Of the five question types, four types of questions namely main idea, inference, vocabulary and overall review questions are found to have significant correlation with the translation performance of the students. The ability to get the main ideas, to identify the meaning of words/expressions, to infer the intended meanings expressed by the authors, and to identify the author's style and attitude is significantly related to the translation performance. Being able to determine the gist and main idea of the source text helps the students provide successful translations as the main points of the source text are transferred into the target text. In addition, identifying the vocabulary helps students in finding the most appropriate words, collocations, expressions, and terms to express in the translated text. Meanwhile, full understanding of the intended meaning that the author wants to convey in the source text facilitates students in the transfer of meaning and sense of the source text into the target one. Moreover, when the style and attitude of the author impressed in the source text are identified, the translator can successfully transfer them into the target, thus, being able to keep the sense of the text but still appropriate with the writing style in the target language.

Table 2. Correlation between Students' Translation Performance and Reading Comprehension.

	Prob.	Translation Performance
Main idea questions	Pearson Correlation	.478**
	Sig. (2-tailed)	.001
	N	45
Detail questions	Pearson Correlation	.290**
	Sig. (2-tailed)	.054
	N	45
Inference questions	Pearson Correlation	.716**
	Sig. (2-tailed)	.000
	N	45
Vocabulary questions	Pearson Correlation	.667**
	Sig. (2-tailed)	.000
	N	45
Overall Review questions	Pearson Correlation	.462**
	Sig. (2-tailed)	.001
	N	45
Total Reading Comprehension Score	Pearson Correlation	.721**
	Sig. (2-tailed)	.000
	N	45

**. Correlation is significant at the 0.01 level (2-tailed)

4.3. Implications for the teaching of translation

As reading comprehension has been identified as one of the steps in translation (Newmark, 1988) and has been confirmed by the results of the present study and others (Netanya & Tipa's, 2009; Galina & Ligija's, 2009; Rahemi et al.'s, 2013; Khanmohammad & Kehtari, 2015), it can be absolutely seen that the reading comprehension stage cannot be ignored during the translation teaching classes.

Correlation analysis between translation performance along reading comprehension question types further shows that in order to enhance the translation ability of the students, the reading comprehension skills to determine the gist and main ideas, identify the vocabulary, infer the intended meanings and identify the author's style and attitude should be developed in the translation classes. On the base of the source text, translation teachers can design some reading comprehension activities to help students understand deeply about the text, thus, enhancing the translation quality. Following are some suggested activities of such kind.

(1) Getting the gist and main ideas: Teachers can ask students to survey the text then form group discussion to determine the main ideas and give a brief summary of the text. Otherwise, translation teachers can design an activity that provides students with a given summary paragraph including blanks, students are required to read the text and fill in the blanks.

(2) Familiarizing with difficult vocabulary: Teachers can design vocabulary exercises to focus students on new words, collocations, expressions, and terms. These exercises can be in various forms; one is to ask students to find or match with the synonyms or antonym; others may be
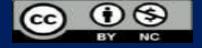
finding the equivalents in the target language or providing the source text with full of blanks asking the students to find the proper terms, collocations, or expressions to fill in.

(3) Inferring: Teachers can focus students on the inference ideas in the text, then design multiple choice questions or simply ask students to say out or write the ideas the author wants to convey using their own words.

(4) Identifying author's style and attitude: This can be done by designing multiple choice questions focusing students on identifying the author's style and attitude. Another is asking students to work in groups and find out the adjectives to describe the author's style and attitudes in writing the text and giving the clues that help them determine.

5. Conclusion

Reading comprehension is closely related to the translation performance. Those who are better at English reading comprehension perform better translation. Further, along the reading comprehension question types, translation performance was found to have correlation with main idea, vocabulary, inference and overview question. Those who got high scores along these question types also got high scores in translation. Students who were able to determine the gist and main ideas of the text, able to identify the meaning of the words/expression, able to infer the intended meaning, and identify the author's style and attitude in writing the text translated better.

References

American Translators Association. Website accessed June 9, 2016: http://www.atanet.org/certification/aboutexams_overview.php)

Bell, R.T. (1991). Translation theory; where are we going?, *META, 31*(4) 403-415

Davies, F.B. (1968). Research in comprehension in reading, *Reading Research Quarterly,* 3, 499-545.

Duke, N.K. & Pearson, P.D. (2002). Effective practices for developing reading comprehension. Retrieved on December 6, 2015 from http://www.nationalgeographic.com/ngextremeexplorer/pdf/effectivepractices.pdf

Farahani, M.V & Siyyari, M. (2015). The effect of teaching reading comprehension skills on translation quality of Iranian EFL learners, *International Journal of Applied Linguistics & English Literature, 4*(1), 50-59, DOI: 10.7575/aiac.ijalet.v.4n.1p.50

Galina, K. & Ligija, K. (2009). Proficiency in reading, writing and translation skills: ESP aspect, *Vertimo Studijios,* 2, 171-184.

Grellet, F. (1981). Developing reading skills, Cambridge, Cambridge University Press.

House, J. (1982). A model for translation quality assessment, Tubingen, Gunter Nan.

Intaragency Language Roundtable (2011). Retrieved from http://www.govtilr.org/skills/AdoptedILRTranslationGuidelines.htm

Khannohammad, H. & Kehtari, M. (2015). Relation between writing with translation from native to foreign, and reading with translation from foreign to native languages, *ELT Voices, 5*(4), 29-45.

Knuth, R.A. & Jones, B.F. (1991, February, 2nd). *What does Research Say about Reading*? North Central Regional Educational Laboratory. Retrieved from http://www.info@ncrel.org.

Kruidenier, J. (2005, September, 5th). Research-based principles for adult basic education reading instruction. *Partnership for Reading Publications.* Retrieved from http://www.nifl.gov/partnershipforreading

Larson, Mildred L. (1984). Meaning – based translation, University Press of America.

Lunzer, E. & Gardner, K. (Eds). (1979). The effective use of reading, London, Heinemann Education

Munby, J. (1978). Communicative syllabus design, Cambridge, Cambridge University Press.

Newmark, P. (1988). A textbook of translation, Prentice Hall.

Nida, E.A. (1969). Science of Translation, *Language,* 45: 483-98.

Nida, E. A. and Taber, C.R. (1982). The theory and practice of translation, Leiden, E. J. Brill.

Nitaya, S. & Tipa, T. (2009). Lost in translation: How to avoid errors in translation from English, *Translation Journal,* 13(1). Retrieved from journal URL http://translationjournal.net/journal/47errors.htm

Nord, C. (1991). Skopos, loyalty, and

translational conventions, *Target* 3 (1): 91-109.

Nuttal, C. (1992). Teaching reading skills in a foreign language, London, Heinemann Educational Books.

Rahemi, E.F., Jufri, & Ardi, H. (2013). The Correlation between Reading Comprehension and Translation Ability, downloaded from https://www.academia.edu/263243 98.

Shuttlworth, M. & Cowie, M. (1997). Dictionary of translation studies, St. Jerome, Manchester.

Skill (n.d). In *Oxford learner's dictionaries*. Retrieved from http://www.oxfordlearnersdictionar ies.com/definition/english/skill?q=s kill

Suskie, L. A. (1996.) Questionnaire survey research: what works, Tallahassee, FL: The Association for Institutional Research.

Zargarbashi, M. H. (2013). The criteria Iranian instructors use for assessing students' translations compared with theorists' opinion, *Journal of Education,* 2(1), 73-81.

Appendices: A Reading Comprehension Test (Short Sample)

In this test, you will read 5 passages. Each one is followed by approximately ten questions about it. For questions 1-50, choose the one best answer, (A), (B), (C), or (D), to each question. Answer all of the questions following a passage on the basis of what is stated or implied in that passage.

Questions 1 through 12 are based on the following passage

Algae is a primitive form of life, a single-celled or simple multiple-celled organism that is able to conduct the process of photosynthesis. It is generally found in water but can also be found elsewhere, growing on such surfaces as rocks or trees. The various types of algae are classified according to their **pigmentation**, or coloration.

Blue-green algae, or *Cyanophyta,* can grow at very high temperatures and under high-intensity light. This is a **microscopic**
5 type of algae, and some species consist of only one cell. Blue-green algae is the oldest form of life with photosynthetic capabilities, and fossilized remains of this type of algae more than 3.4 billion years old have been found in parts of Africa.

Green algae, or *Chlorophyta,* is generally found in fresh water. It reproduces on the surfaces of enclosed bodies of water such as ponds or lakes and has the appearance of a fuzzy green **coating** on the water. In large quantities, this type of algae may reproduce enough to give a green color to an entire lake.

10 Brown algae, or *Phaeophyta,* grows in shallow, temperate water. This type of algae is the largest in size and is most recognizable as a type of seaweed; kelp is a type of brown algae that has grown to lengths of up to 200 feet. Its long stalks can be enmeshed on the ocean floor, or it can float freely on the ocean's surface.

Red algae, or *Rhodophyta,* is a small, delicate organism found in the deep waters of the subtropics, where it often grows with coral. This type of algae has an essential role in the formation of coral reefs: it secretes lime from the seawater to foster the formation
15 of limestone deposits.

1. What is the author's main purpose?
A. To show what color algae is
B. To differentiate the various classifications of algae
C. To describe where algae is found
D. To clarify the appearance of the different types of algae
2. Which of the following is NOT true about algae?
A. All types have only one cell.   B. It can be found out of water.
C. It can use photosynthesis.   D. It is not a relatively new form of life.
3. The word "pigmentation" means
A. size   B. shape   C. composition   D. color
4. The word "microscopic" is closest in meaning to
A. mechanical   B. tiny   C. visual   D. bacterial
5. Algae remnants found in Africa are
A. still flourishing   B. photogenic   C. extremely old   D. red in color
6. Green algae is generally found
A. on the ocean floor   B. on top of the water
C. throughout ponds and lakes   D. surrounding enclosed bodies of water
7. The word "coating" could best be replaced by
A. clothing   B. covering   C. warmth   D. sweater
8. Brown algae would most likely be found
A. on trees   B. near green algae C. on rocks   D. in the ocean
9. According to the passage, red algae is
A. sturdy   B. huge   C. fragile   D. found in shallow water
10. It can be inferred from the passage that limestone deposits serve as the basis of
A. coral reefs   B. red algae   C. subtropical seawater   D. secret passages
11. How is the information in the paragraph organized?
A. Various details supporting a theory are explored.
B. Various classifications of a specific life form are described.
C. Various stages of the chronological development of a life form are presented.
D. Various elements that compose a certain life form are outlined.
12. This passage would most probably be assigned reading in a course on
A. chemistry   B. physics   C. botany   D. zoology

Appendices: A Translation Test

Read the instructions carefully and then translate the following text into Vietnamese
Instructions: *A U.S. publisher specializing in tour guides intends to publish one of its most successful products, a traveler's guide to Madagascar, in various countries. The text below is part of the introduction. It should be translated for an interested reader who is planning a trip to Madagascar. Translate the following text for the specified purpose.*

Of remote Madagascar, the wider world holds two principal landscape impressions. One is a land utterly denuded of vegetation by human activity, a parable of reckless and irreversible destruction. The other is a tropical paradise of lush forest and unparalleled high rates of endemism in both flora and fauna.

Both impressions reflect realities. On the one hand, the island is a lesson in how badly humans can misuse resources in a short time. People have been there less than 2,000 years, and have been largely responsible for the removal of some 85% of the original forest cover. On the other hand, in that remaining forest cover (including the dry spiny forest of the island's southeast) the fauna and flora are truly rich, and an excursion to any of the country's protected areas is likely to reward the visitor with breathtaking encounters with lemurs, chameleons, and other species found nowhere else on earth.

But there is another dimension of Madagascar little known to the world outside, and even to most Malagasy people: the underground landscape of caves and associated karst features. Karst refers to the characteristic surface and subterranean landscape that develops in limestone, including sinkholes, caverns, sinking streams and other features. Many of the island's caves are home to unique wildlife, and also have considerable significance in the cultural histories, economies and belief systems of local peoples.

Most of the country's roughly 35,000 square kilometers of karst terrain occur in an interrupted band down the west coast. Due to the island's poor transportation infrastructure, some of the cave areas are extremely difficult to visit, even in the best of circumstances.