English for landscape designers. Specific learners, specific materials

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- Analysis of teaching materials in ESP lessons for students of landscape design
- Illustration of readability formulas in combination with an English Vocabprofiler for designing ESP materials
- Hands-on insights into the process of material selection

1. Rationale

English for specific purposes (ESP) plays a pivotal role with regard to preparing learners of English "to use English within academic, professional, and workplace environments" (Basturkmen, 2006, p. 17). In light of the fact that ESP is not about "merely passing an English class or exam" (Smoak, 2003, p. 27), but aiming at successfully performing real-life tasks "relevant for [the students'] work or specialist study" (Robinson, 1991, p. 3), ESP exhibits an essentially practical facet. English teaching in an ESP course is, thus, not only explicitly aware of the learners' needs, but also considers the (future) professional background of these learners (Johnson & Johnson, 1998, p. 105). This, then, results in "teaching English to specified people" (Robinson, 1991, p. 5).

The Austrian educational system comprises a wide range of school types with different specializations, resulting in a great variety of 'specified' students. For example, many curricula of colleges of engineering ('HTL') feature ESP courses like 'English for technical purposes', whereas commercial high schools ('HAK') offer classes such as 'English including commercial language' ('Englisch einschließlich Wirtschaftssprache'). Austrian agricultural vocational colleges ('HBLFA'), to cite another example, teach ESP courses focusing on silviculture, horticulture, or bio- and food technology. This diversity of specialized English lessons in the Austrian educational system needs ESP educationalists, who are more than 'just' teachers. In particular, three fundamental tasks need to be fulfilled by ESP instructors in advance of designing and teaching an ESP course, namely (a) identifying the learners' needs, (b) acquiring specialized content knowledge to a reasonable extent so that successful teaching of language is guaranteed, and (c) material development. These "additional demands" (Basturkmen, 2010, p. 9) on ESP educationalists manifest themselves in "*more* experience,

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additional training, *extra* effort, a *fresh* commitment, compared with being a teacher of General English" (Strevens, 1988, p. 43, original emphasis).

Based on a case study carried out as part of my diploma thesis, this contribution takes a close look at the third aspect mentioned above, namely material development. The manifold types of ESP courses in the Austrian educational system provide a vital component in national ELT, however, the very different professional disciplines taught require highly individualized and often locally designed ESP teaching materials. Hence, ESP instructors need to be prepared to create and compose teaching units, worksheets, and multimedia resources autonomously and according to the school's specialization, the local group of learners, and their particular needs with regard to English learning. It is the aim of this contribution to provide hands-on insights in this regard.

2. Research question

When selecting and preparing ESP teaching materials, ESP educationalists need to decide on two fundamental issues. On the one hand, the "carrier content" (Dudley-Evans & St John, 1998, p. 11) must be specified, i.e. the topics and profession-related knowledge, while on the other hand the "real content" (Dudley-Evans & St John, 1998, p. 11) needs to be particularized. Here, the facets of language teaching gain ground, i.e. the type of vocabulary and language skills that have to be taught. For example, in an ESP course on horticulture, one unit may use the topic of soil bioengineering[1] as carrier content with the aim of providing the learners with the language of various plant materials and adverse geological as well as meteorological phenomena, i.e. the real content. This interplay of content- and language-related didactic decisions is highly likely to result in English language teaching precisely to the horticultural ESP learners' needs and to contribute to both their content knowledge and linguistic proficiency.

Since ESP teaching in general often focuses on vocabulary teaching (Xhaferi, 2010, p. 236), the selection of suitable input texts is of great importance. ESP only becomes effectively vocabulary-centered and thus successful when ESP instructors recognize different degrees of lexical technicality when selecting reading texts. This lexical awareness facilitates the integration of textual resources into the overall course design due to the specification of which text might be appropriate at a certain step in the course of teaching. Based on the study described in the following section, light is shed not only on how to determine degrees of lexical technicality, but also on the effects of various vocabulary types on readability. The following research question is the analytical point of departure:

[1] Soil bioengineering is a technology that uses living plant material as well as materials like rock or geotextiles in order to control, for instance, surficial erosion or the adverse consequences of floods via e.g. live cribwalls, willow walls, or live staking.

RQ

To what extent do texts used to teach horticultural English feature general, academic, and technical English words and in how far do such words affect readability?

3. Study description

The case study (Creswell, 2003; Dörnyei, 2007) at hand was carried out at one of Austria's agricultural colleges where six consecutive lessons (50 minutes each) of the ESP program 'Horticultural English' were videotaped right at the beginning of the school year 2015/16. Apart from investigating the videographed and transcribed classroom discourse as well as the interaction between the ESP teacher and her students during specialist vocabulary explanations, the study's aim was to measure the extent of both general and technical vocabulary in horticultural reading texts. The quantitative approach presented here paves the way for discussing the selection process of ESP teaching materials in detail and for providing a hands-on roadmap for ESP instructors with regard to preparing materials.

3.1 Sampling and participants

The observed ESP class 'Horticultural English' is attended by prospective landscape designers at the age of 16 to 18. The participating students were in grade level 11 and had experienced EFL teaching for at least six years, if they began their school education in Austria. While a substantial amount of EGP (English for general purposes) proficiency can consequently be expected from the pupils (level B1 at the beginning of the seventh year of formal English learning), their exposure to ESP-teaching has been limited. In fact, 'Horticultural English' represented the first discipline-related English class for the vast majority of the students.

3.2 Methodology

The close investigation of four horticultural teaching materials is based on a sample of materials that represents the entire school year (3rd class / grade 11) and includes topics like worm compost ('Worms at work'), 'Herbs', 'Redwoods', and 'Plants at the Sequoia National Park'. All materials were developed by the ESP educationalist herself, based on non-adapted textual resources such as gardening magazines (e.g. 'Worms at work') or online and multimedia resources (e.g. 'Plants at the Sequoia National Park'). Hence, all materials are, at least from the students' perspective, quite demanding in terms of both content-related, i.e. horticultural, knowledge and English level. It was the aim of this research project to analyze these textual and linguistic demands by laying emphasis on levels of readability as well as lexical manifestations. The concepts of Flesch-Reading-Ease (FRE) and of Flesch-Kincaid-Grade-Level (FK) as well as the vocab profiler available on www.lextutor.ca were the methodological bedrock of this enterprise.

3.3 Instruments

First, the readability formulas Flesch-Reading-Ease (FRE) and Flesch-Kincaid-Grade-Level (FK) were applied, aiming to determine in how far a certain textual structure requires a specific level of reading ability. The "reading ease" (Flesch, 1948, p. 225) is calculated by a formula

comprising word length and sentence length[2]. The FK-score, in contrast, assigns a certain American grade level to an analyzed text and highlights the years of English learning that might be necessary to understand a particular text. In general, readability formulas do "*not* [serve] as indicators of comprehension" but "work as a check on difficulty of words and sentences" (McGee, 2010, p. 136, original emphasis). This checking function can make readability formulas serve as a "red flag" (Redish, 2000, p. 136) for unintelligible or less readable texts. For example, if a text analysis yields a remarkably low FRE-score, this might be an indication that a substantial group of readers will struggle with reading this text, which again is important when it comes to planning, for instance, ESP lessons or achievement tests[3]. The FRE and FK readability calculations were made with the Flesh application available at http://flesh.sourceforge.net, which is a useful resource and can be downloaded for free.

In a second step, the distribution of general, academic, and technical words was calculated by using the vocab profiler on www.lextutor.ca. Focusing on the degree of both high and low frequency vocabulary, this analytical tool compares a text at hand with the first (1k types) and second (2k types) thousand levels of the most frequent words of English and a list of academic words (academic word list types) (cf. Coxhead, 2000; Browne et al., 2013). The remainder is called "offlist" (Cobb, 2016) and is very likely to feature a high degree of technical words, i.e. words "that occu[r] in a specialist domain" (Chung & Nation, 2004, p. 252) and thus are unknown by the word lists. This comparative analysis can be done with just one click and is thus highly recommendable for regular lesson preparations.

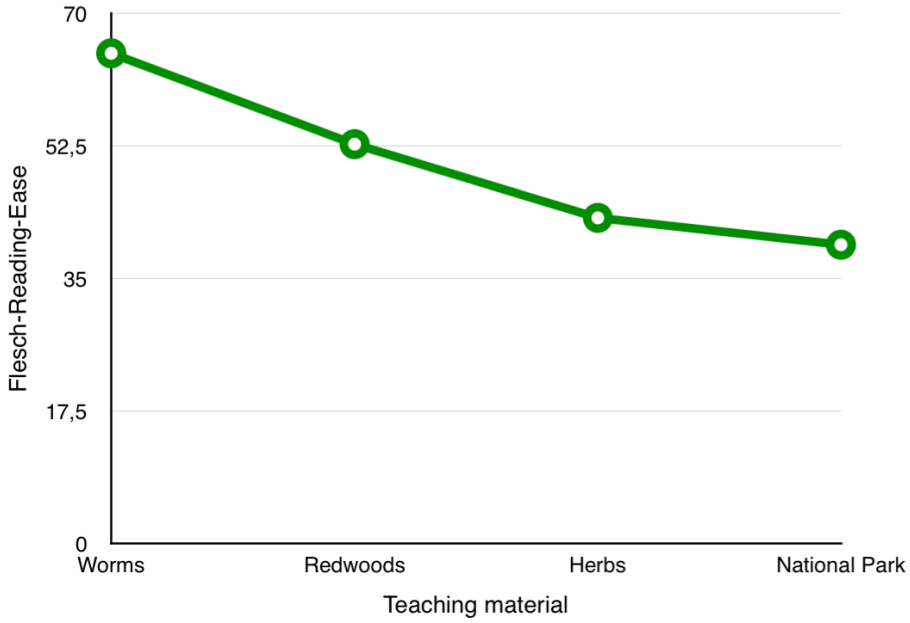
3.4 Data analysis

The calculations of both the FRE- and FK-score provide a detailed picture of reading ease in the four analyzed teaching materials ('Worms at work', 'Herbs', 'Redwoods', and 'Plants at the Sequoia National Park'). The teaching material 'Worms at Work' displayed the easiest readability level when compared to the other three texts (see Diagram 1, next page). Its FRE-score is 64.74, which classifies it as a "standard" text (Flesch, 1948, p. 230). 'Redwoods' is more challenging to read since it exhibits an FRE-score that is typical of quality magazines (52.74), which, however, are by tendency still easier to read than academic journals (Flesch, 1948, p. 230). The teaching materials 'Herbs' and 'Plants at the Sequoia National Park' distinctly belong to this academic realm proposed by Flesch (1948, p. 230), featuring low FRE-scores of 43.02 and 39.47 respectively.

[2] For detailed information on the constants in the FRE formula, interested readers are referred to Flesch (1948).

[3] In the seminar 'EFL Testing & Assessment' at the Department of English, University of Vienna, the use of readability formulas as methods for assessing the readability level of teaching materials is actively promoted (Platzer, 2015).

Diagram 1: Comparison of the FRE in teaching materials (Finker, 2016, p. 67)



Moreover, the textual analysis showed that declining FRE-scores correlate with rising Flesch-Kincaid-Grade-Levels (FK). Thus, the FK-score of 'Worms at Work' is considerably low with a grade level of 9.30, which means that this text features a large amount of characteristics of other texts found in the classroom of 14- to 15-year-olds (grades 9 to 10 in the U.S.). As already shown by the FRE, 'Plants at the Sequoia National Park' is substantially more difficult to read, which is also expressed by its high grade level of 13. Given this sharp jump in the results of 'Worms at Work' and 'Plants at the Sequoia National Park', it seems definitely advisable to teach the latter (as well as 'Herbs') at a later stage in the 11th grade at the examined agricultural college or even to postpone it to the 12th grade.

As regards the degrees of lexical technicality in the reading texts, the words of Cobb's "offlist" (2016), identified by the vocab profiler on www.lextutor.ca, need to be considered. As an example, the analysis showed that the text 'Plants at the Sequoia National Park' contains the highest number of off types (18.78%), which in turn exhibits a substantial amount of terms clearly relating to the field of horticulture and botany. This holds also true for the reading text 'Herbs' (16.49%). On the other hand, the text 'Redwoods' is 'less horticultural' (number of off types: 14.25%), but still rather technical, since it includes a considerable amount of vocabulary from forestry and climatology, together with botanical technical terms. Finally, 'Worms at Work' was found to be the least discipline-specific reading text, containing a high number of general English words and only showing little horticulture-related vocabulary (10.94%).

4. Findings

In sum, the results show the complete gamut of specificity of the ESP texts at hand. Diagram 2 illustrates how a quick textual analysis of FRE-scores and vocabulary profile provides insights into readability levels of potential teaching materials. Of course, this analytical method needs to be linked to the ESP instructor's teaching experience and knowledge of his/her students and their educational *status quo* in order to unlock the full potential of calculated readability levels in class.

Diagram 2: Correlation of FRE scores and the degrees of off types (Finker, 2016, p. 75)

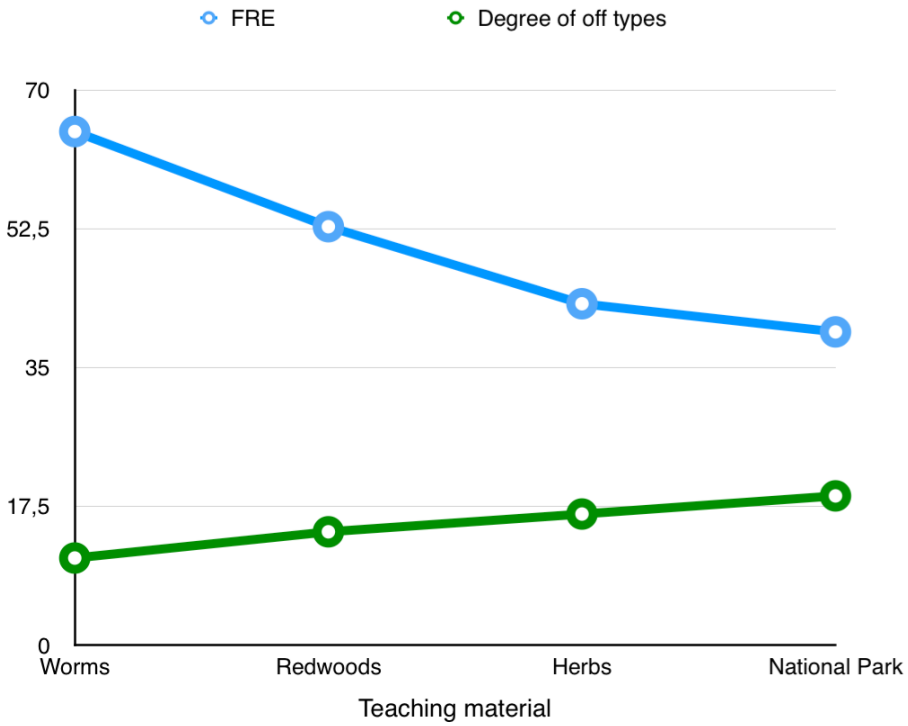


Figure 2 presents the striking example of how the teaching of ESP can be fine-tuned with regard to students that have just begun receiving exposure to specialized English lessons but who already possess horticultural expertise encoded in their L1. Based on these findings it seems plausible that the horticultural ESP program at the examined agricultural college begins its teaching with 'Worms at Work' and then gradually turns to more specific texts over the course of two terms, so that 'Plants at the Sequoia National Park', the most difficult and most technical text, is successfully dealt with close to the end of the first year of ESP.

In what follows, the analytical procedure of calculating the value of potential teaching materials is summarized. These steps are meant to facilitate the stage of material selection when preparing ESP lessons.

Application Box

- Choose reading materials you want to use in class, e.g. non-adapted texts from online resources or magazines.
- Download the Flesh application available at http://flesh.sourceforge.net and follow the instructions.
- Compare the calculated Flesch-Kincaid-Grade-Level (FK) with your intended group of learners. Are they at the same grade?
- Compare the calculated Flesch-Reading-Ease (FRE) with the FRE scores below (see Table 1) and receive a first impression of the appropriateness of the reading text for your class.
- Insert the reading text into http://www.lextutor.ca/vp/eng/ and follow the instructions.
- Take a close look at the "off list" (words in red). Which semantic field does the majority of these words belong to? Is it the one you want to focus on in your teaching?
- Reconsider the grade level (FK), the readability level (FRE), and the technical vocabulary at hand ("off list") and decide if the analyzed text is (a) too general/specific and (b) too easy/demanding for your intended ESP lesson and your group of learners.

"Reading Ease" Score	Description of Style	Typical Magazine	Syllables per 100 Words	Average Sentence Length in Words
0 to 30	Very difficult	Scientific	192 or more	29 or more
30 to 50	Difficult	Academic	167	25
50 to 60	Fairly difficult	Quality	155	21
60 to 70	Standard	Digests	147	17
70 to 80	Fairly easy	Slick-fiction	139	14
80 to 90	Easy	Pulp-fiction	131	11
90 to 100	Very easy	Comics	123 or less	8 or less

Table 1: The range of Reading Ease Scores (Flesch, 1948, p. 230)

Following the above steps effectively supports the processes of selecting, composing, and teaching ESP units. Based on the results yielded by the textual analysis, adequate pre- and while-reading activities can be designed more easily, considering the linguistic and content-related demands of a certain text highlighted by the analytical steps. All in all, the influence of specialist vocabulary on readability levels of texts needs to be taken into account by ESP teachers in order to provide their students with comprehensible, but motivating specified teaching materials.

Acknowledgment

The author thanks Prof. MMag. Dr. Elisabeth G. Weber and her class whose participation made this study possible.

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