



Problematika němých písmen v anglickém jazyce pro české rodilé mluvčí

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The Problem of Silent Letters in English for Czech Native Speakers

Bachelor thesis

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- 3) **CELCE-MURCIA, Marianne. 1996. *Teaching Pronunciation: a Reference for Teachers of English as a Second or Foreign Language*. Cambridge: Cambridge University Press.**
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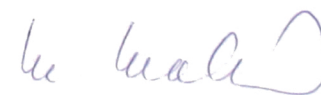
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Současně čestně prohlašuji, že tištěná verze práce se shoduje s elektronickou verzí, vloženou do IS STAG.

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Anotace a klíčová slova

Tato bakalářská práce se v teoretické části zabývá definicí němých písmen, vysvětlením důvodů jejich výskytu v Anglickém jazyce a také stručně nastiňuje jejich historický vývoj. V práci jsou dále představena jednotlivá němá písmena společně s pravidly a vzorci popisujícími jejich typický výskyt. Teoretická část také vysvětluje, proč by měla anglickým němým písmenům být v České republice věnována speciální pozornost.

Praktická část je založena na lekci a sérii cvičení vytvořených s cílem prozkoumat a posléze rozšířit znalosti o němých písmenech u studentů. Cvičení byla vytvořena s ohledem na aktuálnost slov, která byla užita v příkladech. Jako rozhraní pro cvičení byl zvolen již zavedený univerzitní internetový kurz. Samotným cvičením předcházela diagnostický test, který zjišťoval úroveň znalostí studentů v oblasti němých písmen.

Klíčová slova

Němá písmena, výslovnost, ortografie, shoda grafému a fonému, pravopis

Annotation and Key Words

In the theoretical part, the aim of the thesis is to define silent letters and explain the reasons for their appearance in the English language, as well as to briefly outline their historical development. Distinct silent letters are then introduced alongside with rules and patterns which describe their typical occurrence. The theoretical part also explains why there is a need for Czech learners of English to pay special attention to the problem of English silent letters.

The practical part is based on an online lecture and series of exercises which I created with the aim of examining and subsequently helping students to improve their level of knowledge concerning silent letters. The exercises were created with regard to the currency of the words used as examples. For the examining and practising the interface of the university's already established e-learning course was chosen. The exercises were preceded by a diagnostic test, which was used to ascertain the students level of knowledge about silent letters.

Key words

Silent letters, pronunciation, orthography, grapheme-to-phoneme correspondence, spelling

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List of abbreviations

BNC - British National Corpus (BNC)

CD - Cambridge Dictionary (CD)

COCA - Corpus of Contemporary American English (COCA)

OCC - Oxford Corpus Collection (OCC)

OLD - Oxford Learners Dictionary (OLD)

TUL - Technical University of Liberec (TUL)

CEFR - The Common European Framework of Reference for Languages (CEFR)

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1 Introduction

At first, it may seem of lesser importance what our native language is while learning a foreign one. After all, we must all learn the same structure and rules of that particular language which we decided to study. Although we all, indeed, learn the same grammatical rules and pronunciation patterns of that language of our choosing, the mother tongue affects the learning process. The importance of the differences in certain features of our native language and the targeted language varies significantly.

Some languages, like Czech for example, have rather substantial grapheme-phoneme correspondence, which means that they are close to having a phonemic orthography. Even though Czech has features affecting the pronunciation of some letters in certain positions, such as the effect of regressive assimilation in the word *svatba* /**svadba**/, there is far greater correlation between phonemes and graphemes than there is in many other languages. The vowel sounds in Czech, for example, always correspond to vowel letters. Generally speaking, in Czech the spelling of a word, in most cases, reliably suggests its pronunciation.

At the same time, there are also languages where letter-to-sound correspondence is not nearly as dependable as it is in the Czech language. One of the most vivid examples is the English language. It is therefore difficult for a native speaker of a language with a high degree of letter-to-sound correspondence to learn a language where the rules which the speaker is used to do not apply.

A common mistake, which is only natural for students while learning another language, is to apply the pronunciation rules of their mother tongue to the foreign one that they decided to study. In Czech, every letter in a word is usually pronounced, which leads to an obvious problem. When a Czech learner of English encounters an

English word, they naturally tend to pronounce it as they would while speaking Czech. Among other rules of Czech pronunciation which are commonly applied to English, there is the tendency to pronounce every single letter in a given word. Not every letter in some English words, however, should be pronounced. In this thesis I focus on the problems which this inconsistency causes to Czech native speakers of English. To explain the issue and to bring some order into this seemingly nonsensical feature of English, I want to define what these so-called silent letters are, describe how they emerged and explore the functions they have in the language.

The theoretical part is mainly based on reading books on the historical development of the English language as well as books dealing with contemporary grammar and spelling system. The ultimate goal of the practical part of the thesis is to create a lecture covering the topic and provide students with several exercises enabling them to practice listening and to get aware of the problem in general. In order to create relevant materials, I decided to include a diagnostic test, the results of which would help to determine the content of the lecture. The research should therefore answer the following questions.

1. How did silent letters emerge in the English language?
2. What is their function and why is it important to be aware of them?
3. Do silent letters really cause students any exceptional difficulties?
4. Is it possible to specify a set of rules, which would enable students to unmistakably recognize when a letter is silent?

2 Theoretical part

One of several reasons why learning the English language can be particularly difficult is its spelling system, or the difference between its spelling system and pronunciation, to be more precise. There are many exceptions and irregularities in the English spelling patterns which confuse foreign learners. One of them is its lack of direct grapheme to phoneme correspondence, which is especially complicated for learners whose mother tongue is one of those which have a greater letter to sound correspondence. However, in many cases it may be difficult for native speakers as well. It is supported by a study by Philip H.K. Seymour, Mikko Aro and Jane M. Erskinesuggest (2003, 143), who suggest that to develop at least basic decoding skills in English by its native speakers is more difficult and time-consuming than to achieve the same level in different European languages by their native speakers. This difference is still more evident when compared directly to a language with shallow orthographic depth, in which the written language only slightly deviates from the direct letter–phoneme correspondence. Finnish, in reality, is considered to have the shallowest orthographic depth and therefore the most dependable letter to sound correspondence (Seymour, 2003, 146) .

One of the reasons for this inconsistency of spelling and pronunciation is the fact that there are more sounds in English than there are letters to represent these sounds. Having only 26 letters of the alphabet to represent 44 distinct sounds means that some of the letters must be used to represent more than one sound, or that a sound must be represented by a combination of letters. It can be clearly represented in the following examples. The letter <a> may be pronounced as /æ/ in the word *cap* /kæp/, or as /ɑ:/ as in the word *bark* /bɑ:k/. Other possibilities for its pronunciation are /eɪ/, /i:/, /e/, or /ɔ:/, as in *fake* /feɪk/, *eat* /i:t/, *many* /'meni/, *all* /ɔ:l/. It can also represent

the phoneme /ə/, known as schwa, which can be illustrated with the word *again* /ə'geɪn/. Similarly, the letter <t> can be pronounced as /t/ in the word *transparent* /træn'spærənt/, or as /θ/ when it precedes the letter <h> as in the word *thick* /θɪk/, or as /ð/ in the word *that* /ðæt/. To make the matter even more complicated, distinct phonemes may be represented by multiple different letters or their combination. For instance, in the words *sail* /seɪl/ and *cell* /sel/, where the phoneme /s/ is represented by the letters <s> and <c>, or *plaque* /plaɪk/, *cotton* /kɒtn/ and *keep* /ki:p/, where the phoneme /k/ is represented by three different forms of spelling.

Another cause of the difference between the pronunciation of words and their graphemic representation is the tendency of the English language to borrow words from other languages and, in some cases, to maintain their original spelling patterns or pronunciation. Such an example is the phrase *faux pas* /fəʊ 'pɑː/ or the word *denouement* /der'nuː.mənt/. Modern English, apart from many other contributing languages, mainly constitutes of Anglo-Saxon and French, which are based on completely different pronunciation and spelling systems. This is all supported by the need to create new words to name new inventions and discoveries and by the process of globalization of the English language, as it is spoken by non-natives as a second language and very often used as the lingua franca in the scientific community. Consequently, words from Italian, Spanish, German, Dutch, Latin, Greek, Turkish, Arabic, Chinese, Japanese, Russian and Hindi were gradually added to English, thus diversifying its spelling system even more by their different spelling systems (Brookes, 2011).

It is also necessary to take into consideration that throughout history, the English language was, and still is, simultaneously evolving in many parts of the world, in some

cases even independently from each other. As a result, there is a variety of accents with differences in their pronunciation and spelling rules.

Among many of these inconsistencies between English pronunciation and its spelling system, which in some cases are very difficult to become accustomed, there is the phenomenon known as silent letters. English, however, is not the only language in which this phenomenon can be found. It may not seem so, but nearly every language contains some letters which, on certain occasions, may be silent (Fulford, 2012, 136). This is mostly dependent on the spelling system of the language, the pace of speech and also the punctuation. What makes the English language stand out is the quantity, that is the number of letters which may be silent, and the frequency of their occurrence in everyday situations. The issue is, what exactly the term silent letter means. More precisely, how a silent letter can be defined in the English language.

2.1 Definition of silent letters

In this part, it is defined what exactly a silent letter is and explained why a single definition of the term is not suitable for every situation, as some of the available definitions are bound to cause more difficulties to learners of English than the others.

Probably the simplest definition of the term that is available is this following. “A word contains a silent letter if the letter is not sounded when the word is pronounced.” (Brookes, 2011, page 24) Many books, even those dealing explicitly with spelling and English grammar, such as *Does Spelling Matter* or *The Complete Guide to English Spelling Rules*, seem to be content with this definition. After all, it conveys the most important piece of information about the issue, which is enough in most cases. Therefore many authors do not further classify silent letters. As a result, there are very few linguists who analyse the definition of this phenomenon in detail, which means that there are even fewer publications and text-books covering it.

However, in some cases this may not be enough as several interesting questions might arise. The first may be what exactly the expression “is not sounded,” means. It is unclear whether it means that the letter is not directly represented by any phoneme or that it does not affect the pronunciation at all. Consider the words *handsome* /'hænsəm/ and *tape* /teɪp/. The letter <e> at the end of the word *tape* changes the pronunciation of the letter <a> from the monophthong /æ/ to the diphthong /eɪ/. Compare the pronunciation of *tape* /teɪp/ and *tap* /tæp/. It is therefore possible to hear the effect which the letter <e> has on the pronunciation of the word. However, this is not true for the letter <d> as in *handsome*. So the definition “is not sounded” is adequate to explain fully what a silent letter is.

A different approach is to treat the term as a more generic phrase which needs to be further specified. Although a more detailed classification is not completely unanimous among linguists, it is usually based on the function of these letters in given words. That is, according to how they affect the pronunciation of a word. Edward Carney (2014, 40) actually defines three main kinds of silent letters.

The first kind is called *auxiliary letters*. This term is used when two combined letters represent a single phoneme, i.e. digraphs. The words *thief* /θi:f/, *sing* /siŋ/, *phase* /feɪz/, *accommodate* /ə'kɒmədeɪt/, *black* /blæk/, *bread* /bred/ and *fine* /faɪn/ all belong to this category as each of these pairs of graphemes <th>, <ng>, <ph>, <cc>, <mm>, <ck>, <ea> and <i_e> represents only one phoneme.

The second category consists of so called *inert letters*. These are not classified according to their relation to letters close to them as it was with auxiliary letters. The difficulty is that inert letters do not have any phonetic counterpart nor do they affect the pronunciation of other graphemes in the word. However, in certain cognate words they do have direct phonetic representation. For instance words like *damn* /dæm/, *sign* /saɪn/ and *phlegm* /flem/ all contain an inert letter. The cognate words *damnation* /dæm'neɪʃn/, *signature* /sɪɡnətʃə/, and *phlegmatic* /fleg'mætrɪk/ do not.

The third category is called *empty letters*. The letters assigned to this category do not represent any phoneme as in words *debt* /det/, *subtle* /sʌtl/ or *answer* /ɑ:nsə/. Carney also suggests (2014, 42) that apart from phonetic counterparts, empty letters do not have any distinctive function as inert or auxiliary letters have.

Very often it is difficult to decide to which specific category a silent letter belongs because, among other factors, it also depends on how precisely one is willing

to study the etymology of a particular word in which it occurs. The letter in the word *debt*, for example, is considered to be an empty letter. However, if the etymological connection with the word *debit* /'de**bit**/ is explained, the letter in *debt* is an inert letter. (Carney, 2014, 41-42) The silent letters most relevant in this thesis are empty and inert letters as well as some specific kinds of auxiliary letters such as those in digraphs <ck>, <gu> and <ea>, because from the research, these seem to be the most difficult to learn.

2.2 Development of silent letters

In this part the most important milestones in the development of English from the perspective of silent letters are presented and briefly explained, which is followed by an explanation of what caused their emergence. This part is not intended to introduce the complex history of English in general, not even the changes in the language which are relevant for the relationship between the pronunciation and the spelling system of English, which means that many important historical events will be simplified for the sake of clarity.

During the beginnings of the Old English period, the runic system of writing was gradually being replaced by the Latin alphabet brought by monks when spreading Christianity (Horobin, 2013, 39). Although during this period English was already affected, or was being affected, by Celtic, Latin, Anglo-Saxon, Danish and Old Norse, the spelling system quite accurately represented the pronunciation. This means that throughout this period each letter was pronounced. (Crystal, 2014, 25)

The most significant changes, not only in spelling and pronunciation but also in the meaning of words, came during the Middle English period as a transition from Old English to the time when the first printed books started to emerge. These changes began with the arrival of the Normans who, although they had already been assimilated by the French from the perspective of both culture and language, brought with them the peculiarities of the Norman French dialect. After that, three languages were spoken in England. English was used by common people; Latin was mostly used by the Church; and French, or rather Anglo-Norman French, was mainly the language of nobility and the government. (Algeo, 2004, 123 and 125)

Since French was considered to be the language of aristocrats while English was spoken predominantly by uneducated peasants, some letters were even added into many words, which in some cases were not of French origin at all, to make them look more like French. This can be illustrated by the word *colour*, which is of Latin origin and was changed into the present form by adding the letter <u>, which is not pronounced. (Dubosarsky, 2009)

The Middle English period could be also described as an age of dialects. There were many different dialects emerging from English, now greatly influenced by Latin and French, since English, as a language, was not officially established nor regulated in any way. The differences between these regional dialects were, in some cases, so enormous that one dialect was almost incomprehensible to a speaker of a different one. A peasant in Yorkshire, for example, would not have been understood by his counterpart in Cornwall. It is also important to mention that individual authors usually wrote in their own dialects during those times. This situation lasted until the Chaucer's dialect of London emerged as something close to being the standard dialect. Although it rather meant that the London dialect to some extent affected the other dialects, which at the same time retained some of their different features. (Algeo, 2004, 131).

A feature which was common to all these dialects was that, the spelling was generally much closer to the contemporary way of pronunciation (Upward, 2011, 75-76). However, this was far from an ideal situation. As there was no official language valid throughout the whole of England, this period was also noted for having no standard writing convention. People simply wrote what they heard in the way that they themselves felt was appropriate (Crystal, 2004, 241). As a result, it was not unusual to encounter different ways of spelling of the same word within a text by one author, even within the same paragraph. The word *day* was, for example, commonly spelt as

dai, day, daye, dæi, daie, deai, dey, dei, or dawe (Crystal, 2004, 261). According to John Algeo, it was quite common to find within a few sentences spelling variations such as *watter, water* or *trees, treese* (2004, 131).

During the fifteenth century came a turning point for the English language from the perspective of its orthography. William Caxton introduced the printing press into England, which was the first step in creating a standard in the spelling system. However, Caxton himself as well as other subsequent printers did not base their new spelling norm on the contemporary pronunciation, but on late medieval manuscripts, which even at that time were outdated (Algeo, 2004, 157). Consequently, every new piece of writing was printed using spelling which did not reflect the pronunciation typical even for those times. Another problem was that for some words, the printers themselves or some well-educated men had to decide how to spell them. Unfortunately, these learned men seemingly preferred an archaic spelling whenever it was possible. Moreover, they spelled many words according to their etymology, thus inserting letters which were not pronounced into words in accordance with their Latin origin. For example, the words *debt* and *doubt* were originally spelled as *det* and *dout*. In order to draw attention to their relation to the Latin words *debitum* and *dubitare*, the letter was needlessly added (Algeo, 2004, 156, 158). These were not the only attempts to reform English spelling of this kind. During the sixteenth century, people very often used etymology in an attempt to regulate spelling, which, unfortunately, resulted in even more irregularities represented by silent letters. (Crystal, 2014, 106)

In addition, some letters which are now silent were not silent in the past. However, the spelling system was established in the time when they were pronounced, thus they maintained their original spelling form, although the pronunciation has since then changed. For example the word *knight*, which is now a homophone with the word

night /**nart**/ was originally pronounced more like /**knicht**/, which changed during the late seventeenth century.

While the spelling system was thus standardized, the pronunciation was still changing at a rapid pace. The fifteenth century was not a turning point only regarding the spelling system. It was also the time when The Great Vowel Shift started. This was a radical change in pronunciation of long vowels. (Algeo, 2004, 160) As a result, these sounds were later made higher and further forward in the mouth. The following graph and table summarize the changes in the long vowels.

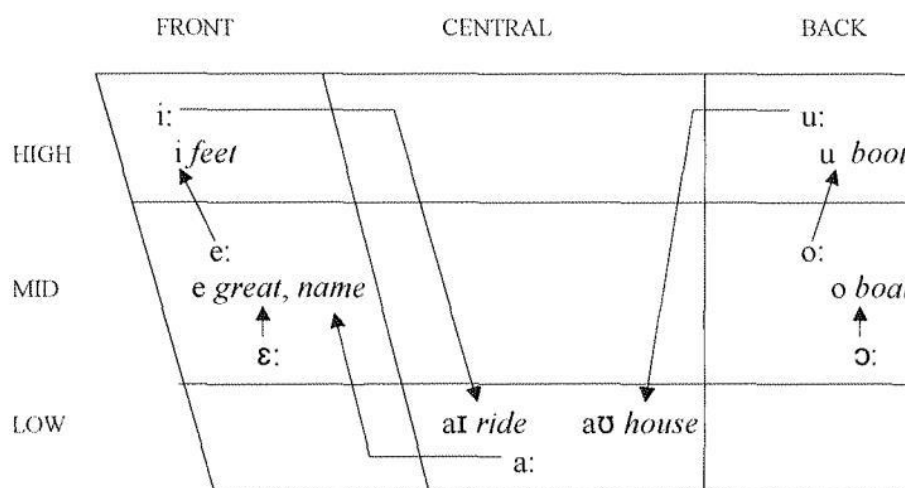


Figure 1: Diagram of The Great Vowel Shift (Algeo, 2004, 161)

Late Middle English	Early Modern English	Later English	
/ aɪ / name	/ æɪ /	/ ɛɪ /	name / neɪm /
/ eɪ / feet	/ i /		feet / fi:t /
/ ɛ / greet	/ e /		great / greɪt /
/ iɪ / ride	/ əɪ /	/ aɪ /	ride / raɪd /

/ o: / boote	/ u /		boot / bu:t /
/ ɔ / boot	/ o /		boat / bəʊt /
/ u: / hous	/ əʊ /	/ aʊ /	house / haʊs /

Figure 2: Summarization of the changes in long vowels (Algeo, 2004, 160)

Although that linguists cannot agree on what exactly caused this remarkable change, the consequences seem to be unmistakable. It further increased the difference between the pronunciation of words and their orthographical representation. It also extended the number of irregularities which nowadays cause many difficulties to students of English. For example, the pairs of words *entice* /ɪn'taɪs/, *police* /pə'li:s/ or *decline* /dɪ'klaɪn/ and *routine* /ru:'ti:n/ are pronounced with a different vowel sound simply because the latter in each pair came into the language after the Great Vowel Shift and therefore was not affected. (Crystal, 2014, 92)

Another issue is that the spelling of some words did change in accordance with the change in pronunciation; however, the majority of words remained their original spelling. To make the matter even worse, The Great Vowel Shift did not occur in all accents simultaneously. The changes emerged gradually throughout all the accents present in England at the time, which means that in some cases a word with the new pronunciation was spelt in multiple different ways or it, in some regions, even preserved its original pronunciation. Example? (The History of English)

2.3 Individual silent letters

This part deals with individual silent letters. Therefore, it focuses on analysing their typical position, alongside the rules for their occurrences and provides examples of words which contain them.

To begin with, it is necessary to determine which letters actually may appear in a position where they are not sounded. Unfortunately, this is much more complicated than it might at first seem. Whether a letter may be silent depends on factors like pace of speech, the accent of the speaker and, as stated in the part dealing with the definition of silent letters, on what exactly an author considers to be a silent letter. Ian Brooks suggest that apart from the letters <f>, <j>, <q>, <v> and <x> every letter of the English alphabet may become silent (2011, 25). This claim, however, does not seem to take in consideration words like *halfpenny* /**hɛɪpni**/, *rijsttafel* /**raɪs,tɑːfəl**/, *racquet* /**rækɪt**/, *savvy* /**sævi**/ or *Sioux* /**sux**/. According to both Richard Lederer (1989, 124) and Edward Carney (2014, 40) every single letter of the alphabet can become silent in certain circumstances, which seems to be more plausible an explanation as it is possible to find an example word for each letter to prove it. Consider that even as much as two thirds of all English words contain such a letter (Lederer, 1989, 24). Some silent letters simply occur so rarely that they do not pose a problem to students because they may never encounter them. This raises the question whether teachers of English should present these to students.

2.3.1 Functions of silent letters

At first, it may seem that silent letters are in many cases redundant and therefore could be omitted. This is a misunderstanding of the word ‘silent’, at least for most cases. Even though some silent letters indeed have no real function in present-day

English, which refers to the category of so called dummy letter, i.e. inert and empty, these are invaluable from the etymological perspective. Silent letters perform a variety of functions.

- Silent letters help to distinguish homophones, thus preventing them from becoming homonyms, e.g. the homophones *flue* /**fluː**/ and *flu* /**fluː**/.
- They help us to understand the meaning of words or origin of compounds, e.g. *vineyard* /**vɪnjəd**/.
- In some cases they modify the preceding vowel or make more complex graphic units and distinguish them from other graphemes. (Carney, 2014, 40) In other words, they address the inadequacy of the Roman alphabet to express all the sounds present in English. The phoneme /θ/, for example, is represented by the digraph <th>.
- They also suggest the relation with other words, where the particular letter is still sounded, e.g. *sign* /**sain**/ and *signature* /**signətʃə**/.
- They suggest the stress in certain words. Such as the final <fe> in the word *giraffe*, which suggests that the stress should be on the second syllable. (Carney, 2014, 43)
- In some situations, they suggest the way of pronunciation of the preceding grapheme, which, for instance, helps to determine when to pronounce the grapheme <g> as /g/ and not as /dʒ/. An example might be <u> in *guest* /**gest**/.

- Silent letters suggest a word etymology as well. For example <t> in the word *debut* /**dɛɪbjʊt**/ directs us to the French word *début*.

2.3.2 The Letter A

The letter <a> in an unstressed position is usually only pronounced in reduced form. Nevertheless, it optionally may be realized as silent, which is typical for forming adjectives or adverbs from words ending in <ic> by adding suffixes *ical* and *ically*. For example the words *artistically* /**ɑː'tɪstɪkli**/, *logically* /**lɒdʒɪkli**/, *musically* /**mjuːzɪkli**/, *romantically* /**rəʊ'mæntɪkli**/ or *stoically* /**stəʊɪkli**/.

In some words it is silent but it performs a certain function such as distinguishing homophones or marks a compound word. For instance, the words *bread* /**brɛd**/ and *aisle* /**aɪl**/ where the letter <a> helps to distinguish the words from homophones *isle* and past tense of *breed*, *bred*. Another such example is the word *extraordinary* /**ɪk'strɔːdnri**/ where it helps to recognize two parts of the compound, *extra* and *ordinary*.

In other words, it, however, does not appear to perform any function apart from suggesting the etymology of the words, which makes it especially difficult for learners. Consider the words *archaeology* /**ɑːki'ɒlədʒi**/, *aesthetic* /**ɪs'θetɪk**/, *parliament* /**pɑːlɪmənt**/ or *jealous* /**dʒeləs**/.

2.3.3 The letter B

The letter is typically silent in the combination <mb> at the end of words. For example, *bomb* /**bɒm**/, *crumb* /**krʌm**/ *catacomb* /**kætəkʊm**/, *succumb* /**sə'kʌm**/, and similar words. It is commonly silent in the <mb> combination in the middle of words, especially when it is in the same syllable. The words, *comber* /**kəʊmər**/ and

bomblet /bɒmlət/ may be used as examples. However, there are some exceptions such as *crumbly* /krʌmbli/ or *rhombic* /rɒmbɪk/.

It is also generally silent before the letter <t> as in *debt* /det/, *doubt* /daʊt/ or *subtle* /sʌtl/. Other words in which it is not sounded exist, which, as in the case of above-mentioned exceptions, students must simply memorize. Luckily, words like *subpoena* /sə'pi:nə/ or *bdellium* /delɪəm/ are by no means a part of everyday vocabulary.

Technically, the letter is also silent when it is doubled as in *robbery* /rɒbəri/. This is true for all doubled consonants, therefore it will not be further emphasised for each distinct consonant letter.

2.3.4 The letter C

The consonant letter <c> is often pronounced as /k/, which means that the combination of letters <ck> creates a doubled consonant sound /kk/. The same is valid for <c> when followed by the combination <qu>, which is typically pronounced as /kw/. C is therefore considered as silent in this position. For example *acquire* /ə'kwɪər/, *acquit* /ə'kwɪt/ or *stuck* /stʌk/. It is sometimes silent before the letter <t> as well when these letters are in the same syllable, e.g. *indict* /ɪn'dɪkt/ or *victuals* /vɪtʃlz/.

As the letter <c> is commonly pronounced as /s/, it is not sounded when it is between the letters <s>/<e>, <s>/<i>, <x>/<e> or <x>/<i>. This can be illustrated with words like *scent* /sent/, *science* /saɪəns/, *excel* /ɪk'sel/ and *excite* /ɪk'saɪt/. C is also silent in initial position when followed by <z>. This is potentially very confusing

for learners of English. However, there are only very few such words. A typical example is the word *czar* /zɑː/.

The grapheme <c> is also often silent when used in between the letters <s> and <h>. This combination is then pronounced as <sh> /ʃ/, as in the word *schedule* /ʃedjuːl/ in Standard British Accent. It often occurs in words of German origin. This can be illustrated in the words *schnapps* /ʃnæps/ or *schlep* /ʃlep/.

In addition, it is silent in other words, which students have to remember because there does not seem to be any specific pattern. Such words are, for example, *muscle* /mʌsl/ or *scythe* /saɪð/.

2.3.5 The letter D

D may be silent when preceding the letters <g> or <j> as in the words *dredger* /dredʒə/ or *adjacent* /ə'dʒeɪsnt/. It is dependent on the speaker, although the majority of speakers of English do not pronounce it (Fulford, 2012, 136).

It is also not sounded in words *sandwich* /sænwɪtʃ/, *handsome* /hænsəm/, *handkerchief* /hæŋkətʃɪf/, *grandprix* /grɑː'priː/ or *Wednesday* /wenzdeɪ/. In words like *grandson* /grænsʌn/, *grandfather* /grænfɑːðə/, *blindness* /blaɪnəs/, *kindness* /kaɪndnəs/, *landscape* /lændskeɪp/ or *windscreen* /wɪndskriːn/, the pronunciation of grapheme <d> is optional with the goal to make speech more efficient (Pospíšilová, 2014, 14).

2.3.6 The letter E

E is typically not sounded at the end of words, where it performs the function of the second element in a discontinuous digraph, which means that it changes the previous vowel sound. Sometimes terms like 'sneaky e' or 'magic e' are used instead

of the term “silent *e*” to indicate this function. The words *cat* /kæt/ and *Kate* /kɛt/ illustrate this function. As a result, the silent <e> turns the vowel phoneme into the sound of the letter of the alphabet representing the sound. It also suggests the pronunciation of the preceding consonant letter. Compare *rag* /ræg/ and *rage* /reɪdʒ/.

The silent letter *e* may be difficult for students as there are many exceptions to the previously stated rules. Consider words like *imagine* /ɪ'mædʒɪn/, *come* /kʌm/ or *love* /lʌv/. In some cases, it is not even silent, like in the word *café* /kæfeɪ/.

2.3.7 The letter F

This grapheme is extremely rare in a position where it does not have a phonetic counterpart. One such example is the word *halfpenny* /heɪpni/. However, some dictionaries that it may be also pronounced as /hɑːfpeni/.

2.3.8 The letter G

When positioned before <n> at the beginning of a word it is always silent. For example, *gnome* /nəʊm/, *gnaw* /nɔː/, *gnat* /næt/ and many other words. It may also be silent before <n> at the end of a word or even in different positions as long as it is in the same syllable. It is obvious when we compare the words *benign* /brɪ'naɪn/, *champagne* /ʃæm'peɪn/ or *feign* /feɪn/ with the word *insignificant* /,ɪnsɪg'nɪfɪkənt/, where the letters <g> and <n> when the word is divided into syllables *in-sig-nif-i-cant* are not positioned in the same one. Other similar words are *magnet* /mægnət/, *ignite* /ɪg'nart/, *ignore* /ɪg'nɔː/, etc. Similar rules are for the letter <g> being silent before the letter <m>, as in words *phlegm* /flem/ or *diaphragm* /daɪəfræm/.

There is also an abundance of words, where the whole digraph <gh> is silent. It is very often in words where the digraph follows the combination of graphemes <au>,

<ou> or grapheme <i>. Such words are, for example, *caught* /kɔ:ɪt/, *daughter* /dɔ:tə/, *through* /θru:z/, *though* /ðəʊ/, *light* /laɪt/ or *neigh* /neɪ/. This is especially difficult for students, as there are many exceptions where the digraph represents phonemes /f/, /k/ or where there is a small pause between /g/ and /h/ and it is therefore not silent. Words like *draught* /draɪft/, *laugh* /lɑ:f/, *cough* /kɒf/, *lough* /lɒk/ or *hough* /hɒk/.

2.3.9 The letter H

H is the most common one among all the silent letters and it appears in many different positions, very often preceding a vowel (Fulford, 2012, 135). Apart from the combination with g mentioned above, it is generally silent when it follows the letters <g> or <r> at the beginning of a word or in the same syllable. Words such as *ghoul* /gu:l/, *ghetto* /getəʊ/, *gherkin* /gɜ:kɪn/, *ghastly* /gɑ:stli/, *spaghetti* /spə'geti/, *rhythm* /rɪðəm/, *rhyme* /raɪm/ and *rhubarb* /ru:bɑ:b/ illustrate this situation.

It is always silent at the end of words, as in *monarch* /mɒnək/, *tempeh* /tempeɪ/, *yeah* /jeə/, *hookah* /hʊkə/ or *myrrh* /mɜ:/. Often it is silent when following graphemes <sc> at the beginning of a word, as in the words *school* /sku:l/ or *scheme* /ski:m/. However, this is not always reliable because, as it was already mentioned, sometimes it makes /ʃ/ typical for the combination of graphemes <s> and <h>. Similar rules may apply when a word begins with <ch>, as in *chemistry* /kemɪstri/. In initial position it is silent in some words, e.g. *honest* /ɒnɪst/, especially when it forms a diphthong or a triphthong as in words *hour* /aʊə/ and *heir* /eə/. Otherwise, it is not silent in initial positions.

When the letter <h> follows <w>, it is mostly silent as well. Students are likely to encounter this combination on a daily basis. Exemplary words are *when* /wen/, *why*

/waɪ/, *where* */weə/* and *white* */waɪt/*. It is also typically silent when it follows the letter <x> or when it is between two vowel letters, e.g. *exhibition* */ɛksɪ'brɪʃn/*, *exhaust* */ɪg'zɔɪst/*, *vehicle* */vi:əkl/*, *annihilate* */ə'naɪələɪt/* and *vehement* */vi:əmənt/*. There are also other words in which it is silent and for which there is no special pattern. The words *khaki* */kɑ:ki/*, *thyme* */taɪm/* or *Afghanistan* */æf'gænistɑ:n/* may serve as examples.

As all these rules are very complex, it is potentially difficult for students to become accustomed to them. The fact that in Czech the phoneme */h/* is voiced, whereas in English it is voiceless, further complicates this problem.

2.3.10 The letter K

The rules for the letter <k> are uncomplicated. It is always silent in initial position when followed by the letter <n>. However, it is pronounced when the letters <k> and <n> are in different syllables, as in *banknote* */'bæŋknəʊt/*. Although there are many words with letter <k> silent, it should not be so problematic for students to learn the correct pronunciation as the rules are so simple. The words *knob* */nɒb/*, *kneel* */ni:l/*, *knock* */nɒk/* or *unknown* */ʌn'nəʊn/* serve as examples.

2.3.11 The letter L

When preceded by graphemes <a>, <o>, or <u> and at the same time followed by the grapheme <k>, the letter <l> is usually silent. To illustrate this we may use words like *walk* */wɔ:k/*, *folk* */fɔ:k/* or *baulk* */bɔ:k/*. It is also typically silent when positioned after <a> and followed by <f>, <m> or <v>. This can be illustrated on words *calf* */kɑ:f/*, *salmon* */sæmən/* or *halve* */hɑ:v/*. Although the rules are not

especially complicated, students are likely to encounter some exceptions, such as the word *hulk* /hʌlk/.

Students should be also aware of the silent <l> in words *could* /kəd/, *should* /ʃəd/ and *would* /wʊd/. There are even more such words, which students simply have to memorize, some of them may be encountered very often, e.g. *almond* /ɑːmɒnd/ or *Lincoln* /lɪŋkən/.

2.3.12 The letter N

A typical position in which the letter <n> is silent is in the final sequence <mn>. In some cases, this sequence may be silent in other positions, provided that it is in the same syllable. *N* is silent for example in words *condemn* /kən'dem/, *column* /kɒləm/, *autumn* /ɔːtəm/ or *damned* /dæmd/.

2.3.13 The letter P

P is regularly not pronounced at the beginning of a word when followed by <n>, <s> or <t>. These words are often beginning with prefixes psych, pneu or pseudo. Such words are typically of Greek origin. Words such as *psychology* /saɪ'kɒlədʒi/, *pneumonia* /njuː'məʊniə/, *psalm* /saɪm/ or *pseudonym* /sjuːdənɪm/ may be enumerated as examples. There are other, rather difficult words, which had to be memorized. For example, the words *coup* /kuː/, *corps* /kɔː/, *receipt* /rɪ'siːt/, *raspberry* /ræz'bəri/ or *cupboard* /kʌbəd/.

2.3.14 The letter R

R used to be pronounced in every position, but over course of the seventeenth and eighteenth century it became a standard not to pronounce it when followed by a consonant. Nowadays it is silent in Received Pronunciation and other non-rhotic

accents unless it is followed by a vowel (Pospíšilová, 2014, 14). This may be very confusing because students in The Czech Republic are commonly exposed to a non-rhotic accent at schools, but they encounter the rhotic ones on a daily basis via the Internet and television.

2.3.15 The letter S

There are not many words where the letter <s> is silent. As a pattern may be considered that it is silent in some words when following the letter <i>. These being *island* /aɪlənd/, *aisle* /aɪl/, *isle* /aɪl/, *debris* /debrɪz/ or *viscount* /vaɪkaʊnt/. It is also not pronounced in other words for which there is no pattern, e.g. *rendezvous* /rɒndɪvuː/, *apropos* /æprə'pəʊ/, *corps* /kɔː/, *bourgeois* /bɔːʒwɑː/ or *fracas* /frækɑː/.

2.3.16 The letters I, J, M, O, Q, V, Y

These graphemes are silent only in very few words, which makes it easy to remember them. Students may encounter the words such as *business* /bɪznəs/ and *Sioux* /suː/, mnemonic /nɪ'mɒnɪk/, *marijuana* /,mæɹə'waɪnə/, *people* /piːpəl/, *colonel* /kɔːnəl/, *jeopardy* /dʒepədi/, *leopard* /lepəd/, *racquet* /rækɪt/, *savvy* /sævi/, *mayor* /meə/ and *prayer* /preə/. It is simply necessary to draw students' attention to them.

2.3.17 The letter T

Most importantly, the letter <t> is usually silent before <ch> at the end of words or in the same syllable, such as *match* /mætʃ/, *touch* /tʌtʃ/ or *crutch* /krʌtʃ/. In other words, <tch> in these circumstances represent the same sound as <ch>. There is also the tendency not to pronounce <t> when it is positioned between the letters <s> and

<l>. Such words are, for example, *bustle* /bʌsl/, *nestle* /nesl/, *wrestle* /resl/ or *jostle* /dʒɒsl/. Similarly, it is silent when between <t> and letters *en*, e.g. *fasten* /fɑːsn/ or *listen* /lɪsn/. These words are often very similar and the pattern is easy to follow.

Unfortunately, the silent letter <t> is to be found in many other words, where there are no dependable patterns. Such examples may be words *debut* /deɪbjʊ/, *ballet* /bæleɪ/, *asthma* /æsmə/, *depot* /depəʊ/, *rapport* /ræ'pɔː/ or *mortgage* /mɔːgɪdʒ/. These words are often of French origin.

2.3.18 The letter U

U is commonly not sounded when it is preceded by <g> and followed by a vowel. In this position, it often functions to indicate the pronunciation of the letter <g>. Therefore it is obvious that *guest* is pronounced as /gest/ and not as /dʒest/. It is sometimes silent in the combination of graphemes <que>, as in words *antique* /æn'tɪk/ or *Basque* /bɑːsk/. However, it is silent in other words as well. The words such as *circuit* /sɜːkɪt/, *biscuit* /bɪskɪt/ or *build* /bɪld/ are typical examples.

2.3.19 The letter W

When it is in the initial position followed by <r> the letter <w> is always silent, which may be illustrated in the words *wrong* /rɒŋ/, *wrap* /ræp/ or *wrist* /rɪst/. It is very often silent when positioned at the beginning of a word and followed by the letter <h>. Words *who* /huː/, *whose* /huːz/, *whom* /huːm/ are typical examples. There are also other words, for which there are probably no special rules. These are, for instance, *answer* /ɑːnsə/, *knowledge* /nɒlɪdʒ/, *lawn* /lɔːn/ or *sword* /sɔːd/.

2.3.20 The letters X and Z

The silent realization of these letters occurs almost exclusively in some loan words like *faux pas* /fəʊ'paɪ/, *Bordeaux* /bɔɪ'dəʊ/, *roux* /ruɪ/, *Sioux* /suɪ/, *Grand Prix* /grɑː'priː/, *rendezvous* /rɒndɪvuː/ and *laissez-faire* /leɪsɛɪ'feə/.

3 Practical part

The practical part is based on the presumption that to learn irregularities and exceptions in spelling represented by silent letters is especially difficult for Czech students of English as well as for speakers of many other languages. Moreover, the topic of silent letters represents only a very small part of all the matters which are dealt with in subjects related either to English grammar or pronunciation. Consequently, there is not enough time to study silent letters in depth. This means that students are heavily dependent on self-studying and their own listening experience in this matter.

Unfortunately, there are not many publications covering this topic in depth available on the market. Although some of the books such as *Does Spelling Matter* (Horobin, 2013) or *Survey of English Spelling* (Carney, 2014) explain the topic in detail, other books often contain only simplified explanation. Good quality textbooks and exercise books dealing with this problem are even rarer. *Collins Webster's Easy Learning English Spelling*, for example, dedicates only about four pages out of two hundred and thirty to this subject (Brookes, 2011). One of the aims of the practical part of the thesis is therefore to provide students of Technical University of Liberec (TUL) with materials which would enable them to study and practise using silent letters on their own at the pace which suits their needs.

Thus, the main purpose of this section is to create a Moodle lesson which would provide students in the English teacher training programme at Faculty of Science, Humanities and Education at Technical University of Liberec with theoretical explanation of the phenomenon of silent letters, and which would also give them the opportunity to practise listening and using of words which contain them. This lesson is meant to be a part of the Phonetics and Phonology course, which is not only a

compulsory one but also one of the first courses which the students undergo during their studies.

3.1 Preparing materials

The first and the most important task of the practical part of the thesis was to prepare a list of silent letters which could be later used to prepare exercises. Initially, it was expected to find such a list anywhere on the internet or in some of the books about spelling which can be borrowed in any library. Sadly, though, not a single list of silent letters could be found which could be described as complete or at least sufficient. Why is it so when there are so many educational resources addressing the English spelling system? From my research, it appears that forming such a list a very difficult task. There are several reasons for this.

The first reason is the enormity of the English vocabulary itself. For instance, The Second Edition of the Oxford English Dictionary, which consists of twenty volumes, contains more than 171 000 words, excluding derivational and obsolete words (Simpson, 1989). Even more immense is the Complete and Unabridged Edition of the Collins English Dictionary, which consists of more than 700 000 words. Thus, it is not surprising that it is particularly difficult to designate all the silent letters among all these words.

The second reason is the fact that English – as any other language – is in the never-ending process of development and therefore the pronunciation, and even the relationship between the pronunciation and the spelling, of words changes over time. For example, words *knave* /**nev**/, *knead* /**nɪd**/ and *knee* /**ni:**/ used to be pronounced with the /**k**/ sound at the beginning, which have changed in the early seventeenth

century and the letter *k* is now silent in these words (Algeo, 2004, 167). So every list would sooner or later become outdated.

The third reason is that the pronunciation of many English words is highly dependent on the accent of the speaker, as well as the speaker's preferences. Both of the dictionaries mentioned above contain multiple variations of pronunciation for distinct words. The /t/ sound in the word *often*, for instance, is commonly pronounced in a Canadian and a North American accent, whereas in British English it remains, according to both Cambridge Dictionary (CD) and Oxford Learners Dictionary (OLD), only optional and it is not as common. Still, some British people may prefer to pronounce the /t/ sound. Consequently, many words contain silent letters only in specific accents, which means that to create a complex list would mean to take into consideration the differences in individual accents. This is, in combination with the reasons mentioned above, a very difficult objective to achieve.

There is one more reason, which is more related to the study of the English language than to the characteristics of the language itself. It is the inability of many authors of contemporary books dealing with English spelling and grammar in general, to agree even on the definition of silent letters, which was already mentioned in the theoretical part.

For these reasons, it was necessary for me to combine many different resources in order to make a list of words containing silent letters which students are most likely to encounter, and which may be difficult for them to remember. An article on the web of Professor Vivian James Cook's, who is a professor of applied linguistics at Newcastle University in the United Kingdom, was used as one of the main sources, alongside with an article posted at Learning English Online and one at My English

teacher (Ilyas, 2014). The list I compiled was then gradually expanded over the course of the following few months by adding words taken from multiple books dealing with spelling, a list of which can be seen in the resources. The process of extending the list was in progress during whole the time of working on the thesis. When the lesson and exercises were uploaded to e-learning, it consisted of almost four hundred words, but had the collecting of words continued, the list would certainly be longer. Only few words with the silent letter <r> when it is not followed by a vowel and the letter <e> when it is at the end of a word were included as examples because there are too many of them, and – as it was already mentioned – the rules for their occurrences are quite straightforward. A simplified version of the list can be found in Appendix 3.

The subsequent step was to add a phonetic transcription for each of the words accompanied by the enumeration of the silent letters it contains, as some words included in the list contain two to three letters, and by a hyper-link to a web-page with a recorded example of its pronunciation. The pronunciation and spelling of each word added to the list were compared using OLD, CD, Macmillan Dictionary and Collins Dictionary. For each of the words, its rank in the Corpus of Contemporary American English (COCA) was added in order to indicate the frequency of its usage in the contemporary language. This was very important because the exercises were to be based mainly on the words which students would encounter most often. The COCA was preferred to British National Corpus (BNC) simply because it contains more than five times more words than BNC and it also contains more words taken from fiction, newspaper and popular magazines and fewer samples of academic English. The ranks were obtained from Mark Davies', an American linguist and the main creator of COCA, web-page, which is based on COCA and which provides a list of sixty thousand currently most used words in the corpus (Davies).

3.2 The initial research

An entry diagnostic test and its examination served as the most important methods in the initial research of this thesis. Such research was necessary in order to provide information about the students' knowledge regarding the topic, which would later help with the creation of exercises in the course. The goal of the initial research was to ascertain the students' acquaintance with some of the most frequent words, which are used in contemporary English, containing silent letters and to find out which of them were the most problematic ones. A diagnostic test was chosen mainly because it is a simple, yet very effective way to examine the students' familiarity with the words chosen. Another reason was that such tests are well supported by the university's already established e-learning management system. For this reason, it was a suitable solution to reach most of the students in the programme by means of an online application which they were expected to be already familiar with.

3.2.1 The diagnostic test

Although it was already decided that the test would be offered to students via the university's e-learning system, there were many much more important things to consider in order to prepare the test itself. These were the time and place in which the test would be presented to students, the form of the test itself, the necessity to choose the appropriate group of students and – most importantly – the need to select a set of suitable words which would provide the clearest and easily understandable results.

Concerning the students which were to be exposed to the test, the most suitable solution was to present the diagnostic test to those attending the phonetics and phonology course (FO1BE) during the first semester of their studies. It was also very important to expose the students to the test before they actually started to study this topic throughout the course. This was crucial in order to ascertain their level of

knowledge about the topic of silent letters, which would help to adjust the exercises on silent letters to their needs. The feedback provided would also help them with preparation for the credit test. There was, however, a disadvantage of offering the test to the students so soon. At that time, they were not quite confident in using phonetic transcription and therefore it could not be used in the test.

Initially, the test was meant to be presented only to the students of standard full time undergraduate programme FO1BE. However, after consultation with Mrs. Nicola Karásková, who currently teaches Phonetics and Phonology courses at TUL, it was decided to include part-time students studying similar course (FO1K). There were two reasons for this: it increased the number of respondents; and the teaching material which I prepared for these students as well helped them with the preparation for their end-of-term test.

The next step was to choose the words which were to be used in the test. There were some fundamental requirements for these words. They had to be contemporary, not archaic, useful to students, and they had to vary in difficulty so that the test would not be too easy nor too difficult. To ensure that the chosen words would be contemporary, their previously recorded ranks in COCA, which were noted on the 20th October 2017, were used. A limit was established that only words with rank within the first ten thousand words may be used in the test.

It was also necessary to choose the form of questions in the test. The form was limited to the options offered by the university's e-learning system, which include many possibilities, such as multiple choice questions, true/false questions, drag and drop, matching questions, ordering questions or questions with short, one-word answers.

No theoretical questions were included in the diagnostic test because the students would study the theory during their lessons. Moreover, theoretical part of the problem would be also addressed in the prepared course, which they would be able to study at home. The test itself addressed the students' ability to distinguish silent letters which they can hear on a daily basis and write words which contain them correctly. Theoretical questions would also suggest what the test was about and it would draw their attention to this specific feature of spelling, which could influence the results of the test. As it was inconvenient to use phonetic transcription at the time, only questions/activities based on listening or identifying of silent letters in words could be used. The test therefore consisted of 3 parts, each presenting a different form of questions.

The first set of questions was in the form of multiple choice and students had to choose a word containing a given silent letter. There were multiple correct answers possible and it was also possible to obtain negative points for each individual question in this part. The final formulation of the question was "Choose the word in which the letter "A" is typically not pronounced (more than one answer may be possible)." The overall aim of this type of question was to encourage students to consider the link between spelling and pronunciation.

The second type of question used in the test was based on the students' ability to recognize the letter which is silent in the given word. . . To choose the form of short answer for these questions seemed to be the most suitable solution as this would allow Moodle to evaluate the results. In the end, the question was formulated as follows.

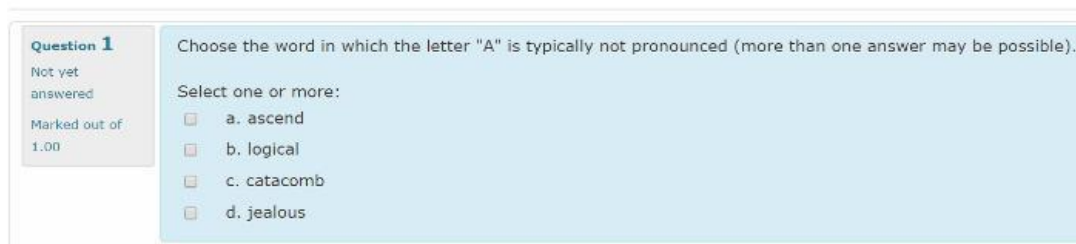


Figure 4: An example of multiple choice question

"Write down the letter which you usually do not pronounce in the word 'word'." In the

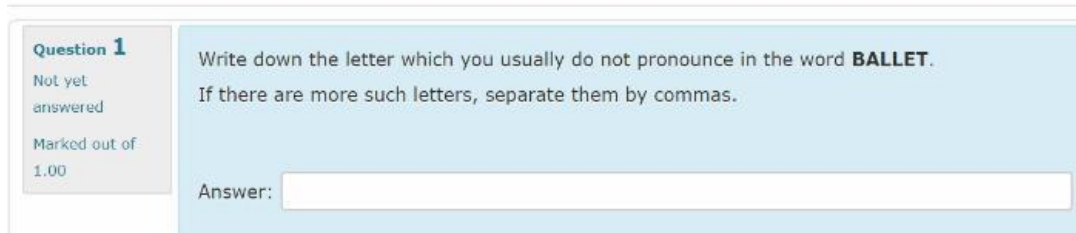


Figure 3: An example of short answer question

example in the figure 4, the letter <t> is silent. It is true that there is a silent <l> as well. The correct answer was therefore <t>, <l> or both of them because at this stage the aim was to make students simply aware of the fact that some letters are not pronounced.

The last part of the test was based on a listening activity, where the students had to listen to a provided recording of a word and write down the word which they thought they had heard. This was the most demanding part of the test to prepare. Not only because it was necessary to obtain or create recordings of the words but because the Moodle system does not sufficiently support batch processing in the procedure of creating new questions. Therefore, each question had to be created on its own and one by one assigned an audio file containing the demanded recording. This final part of the test was most time consuming and took about 3 weeks to prepare and 2 weeks to implement.

As already mentioned, the original list of silent letters was joined by a hyper-link to a record either in the CD or the OLD for each individual word. The main reason

for using just these dictionaries was that both the CD and OLD offer access for students without any charge. For that reason, it initially seemed very convenient to use the recordings available on these servers instead of attaching files with audio recordings directly to each question. The problem was, though, that attaching a link to an external web-page for each of the questions was not exactly the most suitable solution as it would take a lot of time to complete the test and students would have to work in multiple windows/workspaces at once. Using the provided interface, it is also not possible to restrict students' access only to the pronunciation of a word without seeing its correct spelling, which made this solution infeasible.

Another option was to contact the support staff of the individual dictionaries and request the permission to use their recordings for educational/academic purposes in this thesis, which would include granting access to the required files on their server so that the files could be downloaded and later used in the test and then even for learning materials for students at Technical University of Liberec. Eventually, apart from the dictionaries mentioned above, Macmillan Dictionary's support centre was contacted as well. With the exception for addresses and some links related to each dictionary, the same letter was used to reach all the support centres either via e-mail or the contact forms available on their web-pages, in case of CD, both the ways were used. The letter which was used to contact the companies can be seen in Appendix 1.

Unfortunately, even after four weeks no response was forthcoming either from the CD nor from OLD. Macmillan dictionaries reacted with an email, informing that in principle they would be willing to grant permission, provided that they would be in advance informed about which words precisely would be used and that the e-learning course would be password protected. A copy of their reply is in Appendix 2. To meet both of Macmillan's requirements was not an obstacle as only students and staff at the

university are able to sign in e-learning courses. However, after several days of corresponding with Fabrizio Luccitti, a member of Macmillan dictionaries support team, it was clarified that the permission would only be given to use the translation and phonetic transcription and that publishers would not be able to provide the audio files themselves. In consequence, this idea of using existing professional recordings had to be abandoned and another means of obtaining the recordings had to be found.

After consulting my supervisor about the issue, she, as a native speaker of English, offered to record all 374 - words as there would not be enough time to wait for a response about granting the recordings from another institution, and I could not be sure I would be given permission anyway. The recordings were conducted by Radislav Šplíchal, and later edited in a programme called Audacity. In which the individual files were later prepared as well. These recordings made it possible to finish the last part of the diagnostic test, which consisted of fifty-two questions based on listening to individual words, all containing silent letters. However, since there were so many words, I realised to create a test using all these would prove to be too time demanding. Since the students were supposed to do it at home without any supervision it might have been discouraging for them to spend too much time doing this one task. Therefore, the first two parts of the test containing the questions in which students were asked to choose a word in which a certain letter was not pronounced and to write down the letter they usually do not pronounce in a given word were eventually cancelled and only the last part containing the questions based on listening was used since it was the most important part of the diagnostic test.

The test had to be piloted before I gave it to the students. The purpose was: to weed out any mistakes in the creation of the Moodle test; to improve the rubrics so that the instructions were immediately clear; and to allow me to estimate the

appropriate amount of time needed for the students to complete the test. This feedback on my pilot test, which was provided via e-learning system, from other students working on their thesis under the supervision of Mrs. Karásková helped me to change the structure of the test and to estimate the recommended time for the students. It turned out that such a test would take in the region of 15 minutes, which was important for me since I did not want students to spend more than 20 on this task as I wanted them all the complete it.


During the test, the students were not limited on time so as not to put any stress on them. However, they were informed about how long it should take, approximately, to finish the test because I wanted them to know what time commitment would be expected. Not giving a time limit was crucial in order to ensure that any potential mistakes would indeed be caused by the students' problems with identifying silent letters. so they had to have an opportunity to listen to the provided recordings multiple-times. Since I did not want to compromise the results, the students were encouraged to leave a blank space and not to guess the word if they did not know how to spell it correctly. The instructions, in which an example was included, were presented at the beginning of the test and these may be seen in the following figure.

SPELLING TEST

In this test you will hear recordings of 52 words.

1. Play the recording of each word.
Then write down the word you hear into the space provided below the recording.
You may listen to the word as many times as you want.
2. If you don't know the word, **do not** guess how to spell it.
Don't write anything. Just leave the space blank.

Example:



The answer is: **technology**
(If you don't know the word technology, do not write anything in the space provided.)

3. It does not matter if you use CAPITALS or small letters but make sure you spell the word correctly.
4. This exercise is not timed, but please complete it in one sitting so that I can see how long it takes students to complete this activity. It should take a maximum of 20 minutes.
5. Once you have finished, don't forget to click "submit all and finish". The confirmation box will appear. Then click "submit all and finish" again.
6. The results will be available immediately after the exercise has been completed. You may repeat the test as many times as you want.

Thank you.

Figure 5: Instructions for the test

3.2.2 Evaluation of the diagnostic test – the FO1BE group

There were ninety-four participants from standard present programme FO1BE and seventeen participants from the group of part-time students studying course FO1K. For the sake of clarity, the groups will be evaluated separately.

As the test consisted of fifty-two words which were all, at that time, among the top ranks in the frequency of usage, students may encounter them on a daily basis. Some of the words are even enlisted in the Oxford 3000 list, which enumerates 3000 most important words in the English language. These words are selected according to their frequency of usage based on the BNC and Oxford Corpus Collection (OCC). To qualify, the words must also be frequent in different types of text. Thus, these words must occur in various types of writing to ensure that they are not used in only one narrow area, such as newspapers or fiction books (Oxford Learner's Dictionaries,

2017). As examples we may list words like *bomb* /**bɒm**/, *climb* /**klaɪm**/, *doubt* /**daʊt**/ or *calm* /**ka:m**/. Students should therefore recognize these words and be able to pronounce and spell them correctly. However, the results of the test prove that students really do have problems with identifying silent letters even in routine words such as the word *debt* /**det**/or *subtle* /**sʌtl**/.

The average score in the test was 61.82 %, which is quite insufficient, concerning that the prerequisite for entering into the study course is to achieve at least B2 standard in The Common European Framework of Reference for Languages (CEFR). An interesting fact is that individual results varied significantly, especially expressive was the range between the ten best results and the 10 worst results. The best result in the test was achieved by a single student with the score 96.15 %, which means that the student made only two mistakes. On the other hand, the least successful was a student with the score 26.92 %, which means only 14 correct answers out of 52. The complete results showing the number of students within different ranges of success may be seen in the following graph.

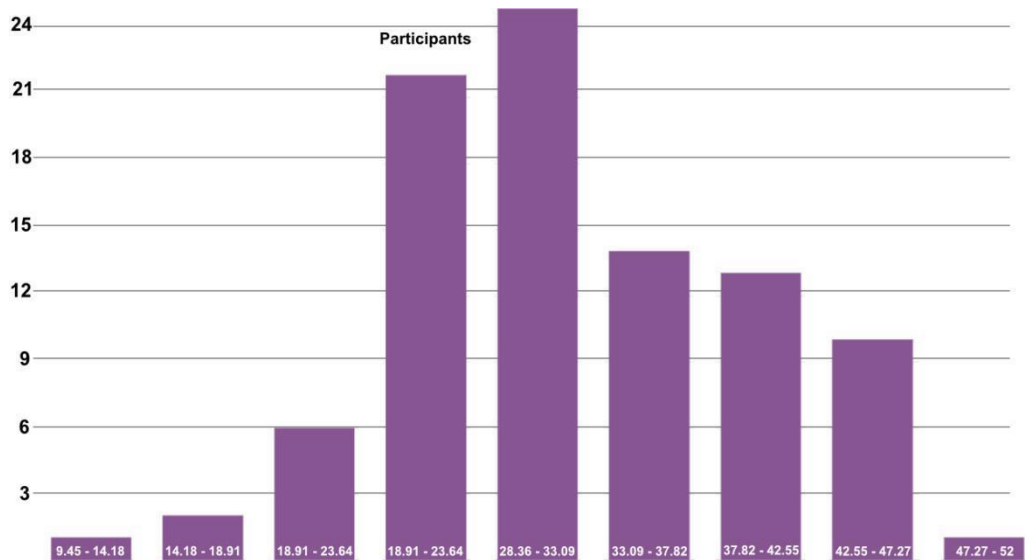


Figure 6: The Results of FO1BE

As the students were not limited by time, the results were very diverse from this perspective as well. It is worth mentioning that the test with the highest score was also finished in the shortest time, finishing only in 6 minutes and 56 seconds. The average time, however, was 45 minutes and 47 seconds. It suggests that many of the students really did have problems to identify certain sounds. It is also possible that they tried to consult someone else or even some dictionaries, albeit they were explicitly informed that the test did not affect their grade and that they should skip words which they would not be able to identify. Such an approach would have been rather difficult because it would involve guessing of the correct spelling and clarifying using a dictionary. It would, on the other hand, explain the differences in the time necessary for the test.

To measure the difficulty of each question/word for students, Moodle system uses so called facility index, which shows the percentage of students who answered the question correctly. Only one word was spelled correctly by everyone, the word *listen* /lɪsn/, which is among the Oxford 3000. Some other words from this list, like *talk* /tɔ:k/, *knife* /naɪf/, *answer* /ɑ:nsə/ and *people* /'pi:pl/ were successfully spelled by more than 80 % of the students. One may presume that the facility index of each

word would be, at least in most of the cases, in direct proportion to the frequency of its usage. Assuming that the Oxford 3000 and COCA may be recognized as authorities in this field, this is certainly not the case. For example, the words *climb* /**klɪɪm**/ and *debt* /**det**/, which are also among these key words had a considerably lower success rate, with facility indexes 57.45 % in the case of *climb* and only 15.96 % for the word *debt*, which was the lowest facility rate among all the words. Strangely, some of the less often occurring words such as *raspberry* /**rɔ:zbəri**/, *exhaust* /**ɪg'zɔ:st**/, *extraordinary* /**ɪk'strɔ:dnri**/ or *vehicle* /**vɪɔ:kl**/ had significantly better facility index. The complete list of all the words used in the test with their facility index can be seen in Appendix 4.

It is necessary to mention that although the test confirms that silent letters are a problematic topic for many students, the low success rate in the test may be caused by other problems as well. It is clearly demonstrated on the word *debt*. The omission of the letter was not the only kind of mistake which students made. Some of the students wrote *dad* /**dæd**/, thus confusing the short vowel sound /e/ for the short vowel sound /æ/ and voiceless alveolar plosive /t/ for voiced alveolar plosive /d/. Other incorrect spelling, which was also among the most frequent ones, was *dead* /**ded**/, again confusing /t/ and /d/. Twelve students also wrote *death* /**deθ**/, confusing /d/ with voiceless dental fricative /θ/. The students confused the word *lawn* /**lɔ:n**/ with words *loon* /**lu:n**/ and *loan* /**ləʊn**/ as well, substituting long vowel sound /u:/ or closing diphthong /əʊ/ for long vowel sound /ɔ:/. A parallel mistake was to spell the word *tomb* /**tu:m**/ as *tune*, which in American English may be pronounced as /**tu:n**/. The students either did not hear the difference between the voiced bilabial nasal /m/

and voiced alveolar nasal /n/ or they were not aware of the silent letter in the word and tried to guess its spelling.

Another mistake worth mentioning and which a lot of students made was confusing the word *salmon* /sæmən/, which contains a silent letter with the word *summon* /sʌmən/, which does not. According to Tereza Hladíková, this is a mistake typical for Czech learners as the sound /æ/ is usually not used in Czech, which results in the tendency to replace it with one of these sounds /e/ or /ʌ/ (2017, 27). Therefore, this particular mistake could not be attributed to the problem of Czech learners of English with silent letters, because it is probable that the students simply thought that they heard the word *summon*, which does not in any way prove whether they were aware of the silent letter in the word *salmon*.

The same difficulty was with the words *dumb* /dʌm/ and *damn* /dæm/, which both contain a silent letter. In this instance, 22.34 % of all the students spelled the word correctly and 38.30 % of the students spelled the word incorrectly as *dumb*. The difference, however, is that from this case it is possible to infer that the students were, at least to some extent, aware of the topic of silent letters, even though approximately 40 % of the students spelled the word in yet other ways.

On the other hand, there were some mistakes which clearly suggested that the students were mostly not aware of the silent letter in a particular word. For example, the words *asthma* /æsmə/, *acquire* /ə'kwɪə/, *sovereign* /sɒvrɪn/, *government* /gʌvənmənt/, *folk* /fəʊk/ or *colleague* /'kɒliːg/. In these words, the majority of mistakes was caused simply by the omission of the silent letter, sometimes in combination with other mistakes, such as substituting the letter <a> for the letter <e>

in the word *acquire*, thus affirming the students' difficulties with recognizing silent letters in many words.

3.2.3 Evaluation of the diagnostic test – the FO1K group

This part is dedicated to analysing the FO1K students' results achieved in the diagnostic test. There were considerably fewer participants in this group, therefore the result is not as conclusive as the one from the previous group. Nonetheless, the conditions for both the groups were identical. The differences in age, experience and social background of the students in these distinct groups were not taken into consideration. This fact could prove very important, because in the group of part-time students, there is, presumably, the potential for higher diversity in this regard.

Contrary to the expectations, the results bore a striking resemblance to those of the FO1BE group. The average scores in the test were very similar. The part-time students' achieved the average grade of 63.12 % in comparison to the present students'



Figure 7: The results of FO1K

61.82 %. The individual results ranged from 36.54 % to 90.38 %, which means that the highest score is only 5.77 % lower in comparison with FO1BE group, whereas the lowest score is 9.62 % higher. The complete results may be seen in the following graph.

Three most difficult words, which had exactly the same facility index of 17.65 % were *descend* /dɪ'send/, *debt* /det/ and *tomb* /tu:m/. The mistakes which the part-time students made in these words were very similar to those in the first group. They even spelled the words *debt* /det/ and *tomb* /tu:m/ in the same incorrect ways as *dead* /ded/, *death* /deθ/, *dad* /dæd/ and *tune* /tju:n/. The ten words with the lowest facility index, ordered from the most to the least *difficult*, were *descend* /dɪ'send/, *debt* /det/, *tomb* /tu:m/, *anchor* /æŋkə/, *aisle* /aɪl/, *lawn* /lɔ:n/, *condemn* /kən'dem/, *align* /ə'laɪn/, *jeopardy* /dʒepədi/, *salmon* /sæmən/ and *subtle* /sʌtl/, which is very similar to the words on the list of the FO1BE group. These being *debt* /det/, *salmon* /sæmən/, *lawn* /lɔ:n/, *align* /ə'laɪn/, *damn* /dæm/, *subtle* /sʌtl/, *jeopardy* /dʒepədi/, *anchor* /æŋkə/, *tomb* /tu:m/ and *conscience* /kɒnʃəns/. The complete list of words with their facility indexes is available in Appendix 5.

3.2.4 The conclusion of the results

The results confirm that Czech students of English, to a various degree, do really have problems with identifying silent letters in certain words. For the test, words of various difficulty were chosen, from which it may be assumed that this conclusion applies to silent letters in general, not only those words which we could label as 'complicated'. This is also supported by the fact that the students involved in the test

made spelling mistakes not only in less commonly used words, which, theoretically, they may not have encountered before but also in very common words.

The question that might arise is what is the cause for such a diversity of individual students' results. The results range from less than thirty percent to more than ninety percent, although such high score was achieved only by several students. It is impossible to infer the cause for sure because no additional information about the participating students was provided. However, there are no limitations regarding the specialization of previous studies of the students entering the English teacher training programme at TUL. Therefore, the differences could be attributed to the fact that the students probably studied at different elementary schools and later went to different high schools, where the importance of English studies would be disparate.

It is necessary to mention that the results also point out other problems related to English phonetics and phonology. They mainly indicate the need to practise listening more often. The students repeatedly confused voiceless consonants with their voiced counterparts, such as /t/ and /d/, which is a kind of mistake not related to the topic of spelling, let alone to silent letters. Another group of often confused phonemes consisted of the phonemes /e/, /æ/, /ʌ/, alongside with the one consisting of /u:/, /əʊ/, /ɔ:/. The phonemes /m/ and /n/, which are produced differently in terms of the place of articulation, were frequently confused as well. These mistakes clearly denote the need for more listening practice.

As it was already illustrated on the example with the words *salmon* /sæmən/ and *summon* /sʌmən/, this inexperience in listening to native speakers, possibly to English in general, may have significantly affected the results of the test, as some of the words chosen for the test might not have been so difficult from the perspective of

silent letters. Perhaps, the mistakes in these words could have been caused by the students' inability to distinguish similar phonemes, which would mean that the students maybe knew that the words contained silent letters. However, they did not focus on them because another incorrectly identified phoneme had changed the intended word to a completely different one to them. Unfortunately, this was not taken into consideration during the preparation of the test, which caused that the results for some of the words used were eventually rendered unreliable.

3.3 Preparation of the lecture on silent letters

The online lesson was meant to be an introduction into the topic of silent letters accompanied by examples and, most importantly, by rules and patterns which would make it easier for the students to identify silent letters in English words. In order to facilitate the learning process as much as possible, examples were accompanied by recordings of their correct pronunciation where possible and by phonetic transcriptions, even though the students were still getting acquainted with it.

The students would be able to go through the lecture as many times as they wanted. With the connection to the Internet being the only prerequisite for accessing the lesson, they could study whenever they wanted in order to prepare themselves for the final test, which contains the topic of silent letters as well.

In the beginning, it was necessary to decide what depth the presented materials should be of. At this point, the students should have already been introduced to the topic in one of the lectures, therefore they were supposed to have the basic understanding of what silent letters are. As there is not enough time which could be dedicated to this topic, this lesson could be used to complement the mentioned lectures. The lesson itself was intended to be rather practical because in order to identify and pronounce words with silent letters correctly one does not need to understand the reasons for their emergence nor the history of the English language in general. Another reason was that to offer so much information at once would only confuse the students, which would be highly demotivating and could make the matter even worse.

The lesson was divided into twenty-two parts and the e-learning system was set to remember the part which each student previously went through, so that it would not be necessary to complete the whole lesson in one session. It was also possible to repeat

each par multiple times. The interface and the overview of the lesson presented to the students can be seen in the figures 8 and 9.

The screenshot shows an e-learning interface. At the top, a blue banner reads "A lesson on silent letters". Below this is a "LESSON MENU" sidebar with a list of topics: Introduction, Overview, Key terms, Definition of silent letters, The letter B, The letter C, The letter D, The letter E, The letter G, The combination of letters G and H, The letter H, The letter K, The letter L, and The letter N. The main content area features a large title "FO1BE: Phonetics and Phonology WS 2017/2018 (NSK)" and a sub-title "A lesson on silent letters" with a help icon. A "Return to: Silent Letters" button is in the top right. Below the title are buttons for "Preview", "Edit", "Reports", and "Grade essays". The "Introduction" section begins with the text: "The purpose of the lesson is to complement lectures, as there is – for obvious reasons – only little time dedicated to this topic during the lectures and classes themselves. However, it is not meant to provide deep theoretical or historical background of the subject of silent letters. Rather it is meant to offer practical advice on the topic and to **describe some basic rules and patterns for the occurrence of silent letters.**"

Figure 8: E-learning interface

After the introduction and overview parts, a brief definition of silent letters was provided and the following parts were focused on the rules and patterns for individual silent letters. For the sake of clarity, the rules were simplified as much as possible, usually without any unnecessary explanations. With the exception of occasional remarks explaining some important details. For example, in case of the letter <e>, it was unavoidable to mention that it, when positioned at the end of a word, changes its pronunciation. A very convenient rule, which is also very easy to remember, is that the silent letter <e> changes the preceding vowel phoneme into the sound of the letter of the alphabet. Each of these explanations was followed by an example such as the comparison of the words *cap* /kæp/ and *cape* /keɪp/.

Overview

The lesson contains many examples with transcriptions, some of them even with recordings.

Example:

bomb /bɒm/



Check the transcription while listening to the recordings. You may go through the lesson and play all the recordings as many times as you want.

The lesson consists of these parts:

Definition of key terms related to the topic

Brief definition of silent letters

Defining the rules and patterns for individual silent letters

Final observations and recommendations regarding silent letters

You can skip the parts (or distinct letters) that you already know through the navigation menu in top left corner. There is no time limit.

After completing a part of the lesson, the next time you come, you will be asked if you wish to continue the lesson where you last left off. This means you do not have to start over again each time you want to practise.

Figure 9: Overview of the lesson

However, the obvious problem with such rules is that most of them are not valid in every situation. To illustrate this claim, the well-known rule that the letter <g> is silent when followed by the letter <n> may be utilized. A student may come to the conclusion that it is always the case. However, as an exception to this rule, the word *signify* /sɪg'nɪfaɪ/ or the word *repugnant* /rɪ'pʌgnənt/, where the letter <g> certainly is pronounced, may be offered. This is also valid for some derived words such as *significance* /sɪg'nɪfɪkəns/, *signifier* /sɪg'nɪfaɪə/ or *repugnance* /rɪ'pʌgnəns/. In

accordance with this rule, one may presume that because the word *resign* is pronounced as /rɪ'zain/ with the letter <g> being silent, it would be silent in the word *resignation* /reziɡ'neɪʃn/ as well. In contrary to the expectation, this is not the case.

Therefore it had to be conveyed to the students that although it is very useful to know all these rules, it is not possible to depend on them automatically. It is necessary that they realize this fact and are able to ascertain the correct pronunciation in a dictionary. It is not possible to list every single word with an exception in it, nor is it possible to memorize them all. Thus presenting these rules and the most usual exceptions which any student is likely to encounter very often was meant to provide them with basics upon which they could build in the future. That is to say, it is a never-ending process of developing one's vocabulary and that to be aware of the problem of silent letters, or even knowing all the rules, is just a beginning.

In some cases, even though there may be inferred some specific patterns or at least an explanation for the occurrence of a silent letter in a given position, it seems to be much easier to merely memorize such words. The word *phlegm* /flem/, in which the letter <g> is silent, is one of these words. After consulting an etymology dictionary, such as Online Etymology Dictionary available at etymonline.com, one would identify it as a word of Latin origin coming from the word *phlegma* mixed with the old French *fleume* and Greek *phlekein* "to burn" and that at some point during the transition, the /g/ sound disappeared altogether. The question is whether this knowledge would help the students to develop the habit of not pronouncing the letter, especially when it is considered that the /g/ sound remained unaltered in some related words, such as the word *phlegmatic* /fleg'mætɪk/. It would more likely only confuse them which is undesirable. It is the same with the already mentioned words *resign* and

resignation. The difference in these words is that when divided in syllables as **re-sign** and **res-ig-na-tion**, in the first word the phonemes /g/ and /n/ are in the same syllable, which is usually the prerequisite for the letter *g* to be silent. Obviously, these rules tend to be quite complicated and therefore words like *yew* /ju:/, *yacht* /jɔt/, *muscle* /mʌsl/, *people* /pi:pl/, *leopard* /lepəd/, *colonel* /kɜ:nl/ or *rendezvous* /rɒndɪvu:/ are easier to memorize.

4 Conclusion

The initial research of this thesis confirmed that Czech students of English do indeed have problems with identifying silent letters. The average results could be generally considered insufficient as many of the students had difficulties with identifying words containing silent letters which were selected among the most frequent in the language. However, the immense orthographical depth of English may not be the only reason causing this inadequacy. Apart from the differences between Czech and English language systems, it is possible that these problems are caused by the level of general knowledge about phonetics and phonology, which, after attending elementary and high school studies, could still be insufficient. Many mistakes made in the test were probably made not because of the silent letters in the chosen words, but due to the inexperience of the participants in listening to a native speaker. There were also significant differences among the individual results, which could be explained by a different amount of time dedicated to English studies at different schools.

However, it is necessary to remark that silent letters represent a difficult topic in general. It is not problematic only for speakers of foreign languages but to native English speakers as well. A speech given by Barack Obama vividly illustrates this point. In 2010 the former president of the United States addressed a member of a military medical unit often called hospital corpsmen. Obviously, not being aware of the silent letters <p> and <s> in the word *corpsman*, he pronounced it as /kɔɪpsmən/ instead of /kɔɪmən/, thus making it sound like *corpseman*, which resulted in a *faux pas* /,fəʊ 'pɑː/. It is therefore advisable to develop the habit of regular consulting dictionaries in students as it is not possible to simply memorize all the silent letters. Moreover, as it was illustrated in the section dealing with individual silent letters, it is

not possible to depend on the rules in every case because there are too many exceptions.

The theoretical part of the thesis proved to be unexpectedly difficult as there are only few books dealing with this topic. Another problem was that even the basics regarding the topic, such as the number of possible silent letters or even the definition itself, are not clearly established among linguists. In some cases, it was therefore necessary to choose one of the possible interpretations. Simplification of the historical background of silent letters was also much more time demanding than it was expected. Each of the periods, and perhaps even each historical event, important for the development silent letters in the English language would deserve each own thesis. However, to precisely depict this historical background was not the goal and therefore only the most important pieces of information had to be chosen.

Attending the discussions held at the fifteenth Old World Conference on Phonology in January 2018 helped me to restructure my thesis and provided me with some useful links and, most importantly, references for useful books, which were a valuable resource for my thesis and helped me to form the final lesson. The result of the practical part of the thesis hopefully provided future students of phonetics and phonology course in the undergraduate programme at the Faculty of Science, Humanities and Education at the Technical University of Liberec with useful materials which may be built upon in the future.

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7 Appendices

Appendix 1: The letter to Macmillan Dictionary

Dear Sir or Madam,

I am an undergraduate student at the Faculty of Science, Humanities and Educations of the Technical University of Liberec, studying programme Specialization in Pedagogy with study branches of Information Technologies and English for Education. I am writing you to ask about the possibility to use some of the audio recordings available at [HYPERLINK "http://www.macmillandictionary.com"](http://www.macmillandictionary.com) <http://www.macmillandictionary.com> in my bachelor thesis, which is dealing with teaching Czech native speakers about silent letters.

In my thesis, to be more precise, I want to address the problems with silent letters caused by the differences between English and Czech language system. It is an especially difficulty topic as the Czech language is highly grapheme-phoneme corresponding one, therefore this language feature causes many difficulties to learners here in the Czech Republic.

As an important part of the thesis, I want to use the university's online Moodle system and introduce a series of exercises to students in the first semester of the bachelor program English for Education at the Technical University of Liberec. I want to find out to what extent are these students acquainted with the topic of silent letters from their previous studies and how big a problem it really is.

These exercises are meant to be a part of the Phonetics and Phonology course, which is (for most of the students) the first course dealing with studying English pronunciation in depth. I was wondering whether it would be possible for me to use some of the recordings from [HYPERLINK "http://www.macmillandictionary.com"](http://www.macmillandictionary.com) <http://www.macmillandictionary.com> for this purpose. I am mainly talking about recordings of words containing silent letters.

Yours Sincerely,

Dear Ondrej,

Thank you for your interest in the Macmillan English Dictionary recordings. We would agree in principle to grant permission, however we would need to know exactly which words you would like to include. We would also need to know whether the course will be password-protected and whether appropriate protection against unauthorised downloading/copying/sharing will be put in place.

Please also note that due to the age of the dictionary, we would not be able to supply you with digital files of the recordings.

If you could fill in the form you can download from this page and add all the necessary information, we will be able to review and advise: <http://www.macmillaneducation.com/rights-and-permissions/>

Kind regards,

Fabrizio

Appendix 3: Simplified list of silent letters

Words with SL	Transcription	Silent	Words with	Transcription	Silent
abscess	/æbses/	C	built	/bɪlt/	U
ache	/eɪk/	H	business	/bɪznəs/	I
acquire	/ə'kwɪər/	C	bustle	/bʌsl/	T
acquit	/ə'kwɪt/	C	butch	/bʊtʃ/	T
aghast	/ə'gɑːst/	H	calf	/kɑːf/	L
aisle	/aɪl/	S	calm	/kɑːm/	L
alight	/ə'laɪt/	G,H	campaign	/kæm'peɪn/	G
align	/ə'laɪn/	G	castle	/kɑːsl/	T
alms	/ɑːmz/	L	catacomb	/kætəku:m/	B
anchor	/æŋkə(r)/	H	catalogue	/kætələg/	U
annihilate	/ə'naɪələt/	H	catch	/kætʃ/	T
answer	/ɑːnsə/	W	chalk	/tʃɔːk/	L
apostle	/ə'pɒsəl/	T	champagne	/ʃæm'peɪn/	G
apropos	/æprə'pəʊ/	S	chaos	/keɪɔs/	H
archaeology	/ɑːki'ɒlədʒi/	HA	character	/kærəktə(r)/	H
architect	/ɑːkɪtekt/	H	characteristic	/kærəktə'rɪstɪk/	H
archive	/ɑːkaɪv/	H	charisma	/kə'rɪzmə/	H
argot	/ɑːgəʊ/	T	chemical	/kemɪkl/	H
arraign	/ə'reɪn/	G	chemist	/kemɪst/	H
artistically	/ɑː'tɪstɪkli/	A	chemotherapy	/ki:məʊ'therəpi/	H
ascend	/ə'send/	C	chimera	/kaɪ'mɪərə/	H
ascent	/ə'sent/	C	chimney	/tʃɪmni/	E
assign	/ə'saɪn/	G	chlorine	/klɔːri:n/	H
asthma	/æsmə/	H,T	choir	/kwaɪə(r)/	H
autumn	/ɔːtəm/	N	cholera	/kɒləərə/	H
awry	/ə'raɪ/	W	chord	/kɔːd/	H
baguette	/bæ'get/	U	choreograph	/kɔɪəgrɑːf/	H
ballet	/bæleɪ/	T	chorus	/kɔːrəs/	H
balm	/bɑːm/	L	Christian	/krɪstʃən/	H
bankruptcy	/bæŋkrəpsɪ/	T	Christmas	/krɪsməs/	H
banned	/bænd/	E,N	chrome	/krəʊm/	H
bare	/beə/	R	chrysalis	/krɪsəlɪs/	H
batch	/bætʃ/	T	circuit	/sɜːkɪt/	U
benign	/brɪ'nain/	G	climb	/klaɪm/	B
bewitch	/brɪ'wɪtʃ/	T	cognac	/kɒnjæk/	G
billet-doux	/bɪleɪ'duː/	T,X	colleague	/kɒliːg/	U
biscuit	/bɪskɪt/	U	cologne	/kə'ləʊn/	G
blackguard	/blæɡɑːd/	C,K	colonel	/kɜːnəl/	L,O
bomb	/bɒm/	B	column	/kɒləm/	N
Bordeaux	/bɔː'dəʊ/	X	comb	/kəʊm/	B
borough	/bɒrə/	G,H	condemn	/kən'dem/	N
bourgeois	/bɔːʒwɑː/	S	condign	/kən'daɪn/	G
bright	/braɪt/	G,H	Connecticut	/kə'netɪkət/	C
bristle	/brɪsl/	T	conscience	/kɒnʃəns/	C
Buddha	/bʊdə/	H	conscious	/kɒnʃəs/	C
Buddhism	/bʊdɪzəm/	H	consign	/kən'saɪn/	G
budget	/bʊdʒɪt/	D	corps	/kɔː/	P,S
build	/bɪld/	U	coup	/kuː/	P

Words with SL	Transcription	Silent Letter(s)	Words with SL	Transcription	Silent Letter(s)
court	/kɔ:t/	R	fasten	/fɑ:sn/	T
crescent	/kresnt/	C	faux	/fəʊ/	X
crumb	/krʌm/	B	faux pas	/fəʊ'pɑ:/	S,X
crutch	/krʌtʃ/	T	feign	/feɪn/	G
cupboard	/kʌbəd/	P	fetch	/fetʃ/	T
czar	/zɑ:/	C	fight	/faɪt/	G,H
damn	/dæm/	N	finger	/fɪŋgə/	R
daughter	/dɔ:tə/	G,H,R	fluorescent	/flɔ:'resənt/	C
debris	/debri:/	S	folk	/fəʊk/	L
debt	/det/	B	foreign	/fɔrən/	G
debut	/deɪbjʊ/	T	fracas	/frækɑ:/	S
denouement	/deɪ'nu:mənt/	E,N,T	fright	/fraɪt/	G,H
depot	/deɪpəʊt/	T	gadget	/gædʒɪt/	D
descend	/dɪ'send/	C	garden	/gɑ:dn/	R
descent	/dɪ'sent/	C	ghastly	/gɑ:stli/	H
design	/dɪ'zaɪn/	G	gherkin	/gɜ:kɪn/	H
dialogue	/daɪələg/	U	ghetto	/getəʊ/	H
diaphragm	/daɪəfræm/	G	ghost	/gəʊst/	H
dicey	/daɪsi/	Y	ghoul	/gu:l/	H
dichotomy	/daɪ'kɒtəmi/	H	glisten	/glɪsn/	T
disciple	/dɪ'saɪpl/	C	gnarled	/nɑ:ld/	G
disguise	/dɪs'gaɪz/	U	gnarly	/nɑ:li/	G
dishonest	/dɪ'sɒnɪst/	H	gnash	/næʃ/	G
divorce	/dɪ'vɔ:s/	R	gnat	/næt/	G
dodge	/dɒdʒ/	D	gnaw	/nɔ:/	G
does	/dʌz/	E	gnome	/nəʊm/	G
doorway	/dɔ:weɪ/	R	gnu	/nu:/	G
doubt	/daʊt/	B	gourmet	/gɔ:meɪ/	T
dough	/dəʊ/	G,H	government	/gʌvəmənt/	N,R
drought	/draʊt/	G,H	Grand Prix	/grɑ:'pri:/	D,N,X
dumb	/dʌm/	B	grandson	/grænsən/	D
echo	/ekəʊ/	H	grudge	/grʌdʒ/	D
eight	/eɪt/	G,H	guard	/gɑ:d/	U,R
epoch	/ɪ:pɒk/	H	guess	/ges/	U
etch	/etʃ/	T	guest	/gest/	U
evanesence	/i:və'nesns/	C,E	guide	/gaɪd/	U
exceed	/ɪk'si:d/	C	guild	/gɪld/	U
excel	/ɪk'sel/	C	guile	/gaɪl/	U
excellent	/eksələnt/	C	guillotine	/gɪləti:n/	U
excerpt	/eksɜ:pt/	C,P	guilt	/gɪlt/	U
excess	/ek'ses/	C	guilty	/gɪlti/	U
excite	/ɪk'saɪt/	C	guise	/gaɪz/	U
exhaust	/ɪg'zɔ:st/	H	guitar	/gi'tɑ:r/	U
exhibit	/ɪg'zɪbrɪt/	H	half	/hɑ:f/	L
exhibition	/eksɪ'brɪʃn/	H	halves	/hɑ:vz/	L
exhilarate	/ɪg'zɪləreɪt/	H	handkerchief	/hæŋkətʃɪf/	D
extraordinary	/ɪk'strɔ:dnəri/	A	handsome	/hænsəm/	D,E
fascinate	/fæsɪneɪt/	C	hasten	/heɪsən/	T

Words with SL	Transcription	Silent Letter(s)	Words with SL	Transcription	Silent Letter(s)
hatch	/hætʃ/	T	lark	/lɑ:k/	R
hate	/heɪt/	E	lawn	/lɔ:n/	W
hedge	/hedʒ/	D	ledger	/ledʒə(r)/	D
heir	/eə/	H	Leicester	/lestə/	C
here	/hɪə/	R	leopard	/lepəd/	O
Hiccough	/hɪkʌp/	G,H	leprechaun	/leprəkɔ:n/	H
high	/haɪ/	G,H	lichen	/laɪkən/	H
honest	/ɒnɪst/	H	light	/laɪt/	G,H
honour	/ɒnə/	H	limb	/lɪm/	B
hour	/aʊə/	H	listen	/lɪsn/	T
hurrah	/hə' rɑ/	H	loch	/lɒk/	H
hustle	/hʌsl/	T	logical	/lədʒɪkl/	A
hymn	/hɪm/	N	logically	/lədʒɪkli/	A
incandescent	/ɪnkæ'n desnt/	C	luminescent	/lu:mi' nesnt/	C
indict	/ɪn' daɪt/	C	malign	/mə' laɪn/	G
indictment	/ɪn' daɪtmənt/	C	match	/mætʃ/	T
iron	/aɪən/	R	mechanical	/mə' kænɪkl/	H
island	/aɪlənd/	S	medieval	/medi' i:vəl/	I
isle	/aɪl/	E,S	melancholy	/melənkəli/	H
itch	/ɪtʃ/	T	might	/maɪt/	G,H
jamb	/dʒæm/	B	miniature	/mɪnɪətʃər/	A
jealous	/dʒeləs/	A	miscellaneous	/mɪsə' leɪniəs/	C
jeopardise	/dʒepədaɪz/	O	mnemonic	/nɪ' monɪk/	M
jeopardy	/dʒepədi/	O	moisten	/mɔɪsn/	T
jostle	/dʒɒsl/	T	monarch	/mɒnək/	H
khaki	/kɑ:ki/	H	monkey	/mʌŋki/	E
kitchen	/kɪtʃn/	T	monochrome	/mɒnəkrəʊm/	H
knack	/næk/	K	moreover	/mɔ: ' rəʊvər/	E
knapsack	/næpsæk/	K	mortgage	/mɔ: gɪdʒ/	T,R
knave	/neɪv/	K	muscle	/mʌsl/	C
knead	/ni:d/	K	musically	/mju: zɪkli/	A
knee	/ni:/	K	myrrh	/mɜ:(r)/	R
kneel	/ni:l/	K	neigh	/neɪ/	G,H
knell	/nel/	K	nestle	/nesl/	T
knew	/nju:/	K	numb	/nʌm/	B
knickers	/nɪkəz/	K	obscene	/əb' si:n/	C
knife	/naɪf/	K	often	/ɒfn/	T
knight	/naɪt/	K	orchestra	/ɔ:kɪstrə/	H
knit	/nɪt/	K	orchid	/ɔ:kɪd/	H
knob	/nɒb/	K	palm	/pɑ:m/	L
knock	/nɒk/	K	parliament	/pɑ:lɪmənt/	A
knoll	/nɒl/	K	patch	/pætʃ/	T
knot	/nɒt/	K	people	/pi:pəl/	O,E
know	/nəʊ/	K	phlegm	/flem/	G
knowledge	/nɒlɪdʒ/	D, K, W	pitch	/pɪtʃ/	T
knuckle	/nʌkl/	K	playwright	/pleɪraɪt/	W
laissez-faire	/leɪse' feə/	Z	pledge	/pledʒ/	D
lamb	/læm/	B	plumb	/plʌm/	B

Words with SL	Transcription	Silent Letter(s)	Words with SL	Transcription	Silent Letter(s)
plumber	/plʌmə/	B	sharp	/ʃɑ:p/	R
pneumonia	/nju:'məʊniə/	P	sheikh	/ʃeɪk/	H
prayer	/preə/	Y	shepherd	/ʃepəd/	H
psalm	/sɑ:m/	P	shore	/ʃɔ:/	R
pseudo	/sju:dəʊ-/	P	should	/ʃəd/	L
pseudonym	/sju:dənim/	P	sigh	/saɪ/	G,H
psychedelic	/saɪkə'delɪk/	P	sign	/saɪn/	G
psychiatrist	/saɪ'kaɪətrɪst/	P	silhouette	/sɪlu'et/	H
psychiatry	/saɪ'kaɪətri/	P	Sioux	/su:/	I,X
psychic	/saɪkɪk/	P	sketch	/sketʃ/	T
psychology	/saɪ'kɒlədʒi/	P	snatch	/snætʃ/	T
psychotherapy	/saɪkəʊ'θerəpi/	P	soften	/sɒfn/	T
psychotic	/saɪ'kɒtɪk/	P	solemn	/sələm/	N
rapport	/ræp'ɔ:/	R,T	sovereign	/sɒvrɪn/	E,G
raspberry	/rɑ:zbəri/	P	spaghetti	/spə'geti/	H
receipt	/ri'si:t/	P	stalk	/stɔ:k/	L
reign	/reɪn/	G	stitch	/stɪtʃ/	T
rendezvous	/rɒndɪvu:/	S,Z	stoically	/stəʊkli/	A
rescind	/ri'sɪnd/	C	stomach	/stʌmək/	H
resign	/ri'zaɪn/	G	straight	/streɪt/	G,H
resuscitate	/ri'sʌsɪteɪt/	C	stray	/streɪ/	Y
rhapsody	/ræpsədi/	H	stretch	/stretʃ/	T
rheumatism	/ru:mætɪzəm/	H	subpoena	/sə'pi:nə/	B,O
rhinoceros	/raɪ'nɒsərəs/	H	subtle	/sʌtl/	B
rhododendron	/rəʊdə'dendrən/	H	succumb	/sə'kʌm/	B
rhombus	/rɒmbəs/	H	switch	/swɪtʃ/	T
rhubarb	/ru:bɑ:b/	H	sword	/sɔ:d/	W
rhyme	/raɪm/	H	talk	/tɔ:k/	L
rhythm	/rɪðəm/	H	technical	/tek'nɪkəl/	A,H
ricochet	/rɪkəʃeɪ/	T	technique	/tek'ni:k/	H,U
right	/raɪt/	G,H	technology	/tek'nɒlədʒi/	H
rogue	/rəʊg/	U	thistle	/θɪsl/	T
romantically	/rəʊ'mæntɪkli/	A	thorough	/θərə/	G,H
roux	/ru:/	X	though	/ðəʊ/	G,H
rustle	/rʌsl/	T	thought	/θɔ:t/	G,H
salmon	/sæmən/	L	through	/θru:/	G,H
sandwich	/sænwɪtʃ/	D	thumb	/θʌm/	B
scenario	/sə'nɑ:riəʊ/	C	thyme	/taɪm/	H
scene	/si:n/	C	tomb	/tu:m/	B
scent	/sent/	C	tongue	/tʌŋ/	U
scheme	/ski:m/	H	trestle	/tresl/	T
school	/sku:l/	H	tsar	/zɑ:/	T
schooner	/sku:nə/	H	two	/tu:/	W
science	/saɪəns/	C	vehement	/vi:əmənt/	H
scimitar	/sɪmɪtər/	C	vehicle	/vi:əkl/	H
scissors	/sɪzəz/	C	victuals	/vɪtlz/	A,C,U
scotch	/skɒtʃ/	T	viscount	/vaɪkəʊnt/	S
sepulchre	/sepəlkeɪ/	H,R	walk	/wɔ:k/	L

Words with SL	Transcription	Silent Letter(s)	Words with SL	Transcription	Silent Letter(s)
waltz	/wɒlz/	T	wrong	/rɒŋ/	W
watch	/wɒtʃ/	T	wrote	/rəʊt/	W
Wednesday	/wenzdeɪ/	D	wrought	/rɔ:t/	G,H,W
weigh	/weɪ/	G,H	wrung	/rʌŋ/	W
weight	/weɪt/	G,H	wry	/raɪ/	W
whale	/weɪl/	H	yacht	/jɒt/	C,H
what	/wɒt/	H	yew	/ju:/	W
wheel	/wi:l/	H	yolk	/jɒk/	L
when	/wen/	H			
where	/weə/	H,E			
whether	/weðə/	H,R			
which	/wɪtʃ/	H			
while	/waɪl/	H			
whisper	/wɪspə(r)/	H			
whistle	/wɪsl/	H,T			
white	/waɪt/	H			
who	/hu:/	W			
whoever	/hu:'evə/	W			
whole	/həʊl/	W			
wholly	/həʊlɪ/	W			
whom	/hu:m/	W			
whore	/hɔ:/	W			
whose	/hu:z/	W,E			
why	/waɪ/	H			
witch	/wɪtʃ/	T			
womb	/wu:m/	B			
would	/wʊd/	L			
wrack	/ræk/	W			
wrangle	/ræŋgl/	W			
wrap	/ræp/	W			
wrapper	/ræpə/	W			
wrath	/rɒθ/	W			
wreak	/ri:k/	W			
wreath	/ri:θ/	W			
wreck	/rek/	W			
wreckage	/rekɪdʒ/	W			
wren	/ren/	W			
wrench	/rentʃ/	W			
wrest	/rest/	W			
wrestle	/resl/	T,W			
wretch	/retʃ/	T,W			
wriggle	/rɪgl/	W			
wring	/rɪŋ/	W			
wrinkle	/rɪŋkl/	W			
wrist	/rɪst/	W			
writ	/rɪt/	W			
write	/raɪt/	W			
writhe	/raɪð/	W			

Appendix 4: FO1BE - facility index of questions

Question name	Facility index	Question name	Facility index
listen	100.00%	ache	64.89%
people	98.94%	court, caught	64.89%
knife	97.87%	column	63.83%
talk	97.87%	bomb	62.77%
fascinate	93.62%	aisle - isle	58.51%
answer	92.55%	excellent	58.51%
muscle	92.55%	climb	57.45%
design	90.43%	asthma	51.06%
grandson	90.43%	campaign	51.06%
exhibition	89.36%	folk	48.94%
extraordinary	87.23%	circuit	41.49%
tongue	87.23%	sovereign	40.43%
knowledge	85.11%	condemn	36.17%
exhaust	82.98%	descend	35.11%
vehicle	82.98%	acquire	35.11%
raspberry	79.79%	benign	35.11%
business	78.72%	anchor	30.85%
government	77.66%	tomb	30.85%
through	73.40%	conscience	30.85%
sharp	70.21%	jeopardy	28.72%
calm	68.09%	align	25.53%
foreign	68.09%	damn	25.53%
stalk	68.09%	subtle	25.53%
resign	67.02%	lawn	24.47%
doubt	65.96%	salmon	20.21%
colleague	64.89%	debt	15.96%

Appendix 5: FO1K - facility index of questions

Question name	Facility index	Question name	Facility index
extraordinary	100.00%	foreign	64.71%
knife	100.00%	sharp	58.82%
knowledge	100.00%	sovereign	58.82%
people	100.00%	campaign	58.82%
raspberry	100.00%	climb	52.94%
talk	100.00%	through	52.94%
calm	94.12%	acquire	52.94%
answer	94.12%	stalk	47.06%
exhibition	94.12%	court, caught	47.06%
grandson	94.12%	circuit	41.18%
listen	94.12%	bomb	41.18%
exhaust	88.24%	folk	41.18%
fascinate	88.24%	damn, dam	41.18%
muscle	88.24%	benign	41.18%
vehicle	88.24%	align	35.29%
tongue	82.35%	jeopardy	35.29%
business	76.47%	salmon	35.29%
design	76.47%	subtle	35.29%
doubt	76.47%	conscience	35.29%
excellent	76.47%	aisle	29.41%
ache	76.47%	lawn	29.41%
colleague	70.59%	condemn	29.41%
asthma	70.59%	anchor	23.53%
government	70.59%	descend	17.65%
resign	70.59%	debt	17.65%
column	70.59%	tomb	17.65%