

ENGLISH SPELLING AMONG THE TOP PRIORITIES IN PRONUNCIATION TEACHING: POLGLISH LOCAL VERSUS GLOBAL(ISED) ERRORS IN THE PRODUCTION AND PERCEPTION OF WORDS COMMONLY MISPRONOUNCED

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Abstract

This paper presents the results of a questionnaire and recording-based study on production and recognition of a sample of 60 items from Sobkowiak's (1996:294) 'words commonly mispronounced' by 143 first-year BA students majoring in English. 30 lexical items in each task represent 27 categories defined by Porzuczek (2015), each referring to one aspect of English phonotactics and/or spelling-phonology relations.

Our aim is to provide evidence for the occurrence of local and globalised errors in Polglish speech. This experiment is intended to examine what types of errors, that is, seriously deformed words, whether avoidable, 'either-or' or unavoidable ones, as classified in Porzuczek (2015), are the most frequent in production and recognition of words. Our goal is to check what patterns concerning letter-to-sound relations, are not respected in the subjects' production and recognition of an individual word and what rules should be explicitly discussed and practised in a phonetics course.

The results of the study confirm the necessity for explicit instruction on the regularity rather than irregularity of English spelling in order to eradicate globalised and 'either-or' pronunciation errors in the speech of students. The avoidable globalised errors which have turned out to be the most numerous in a production task include such areas of English phonotactics as: the letters <-old> and <oll>, 'mute consonant letters', 'isolated errors' and two categories related to the reduction of unstressed syllables: 'reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/' and 'reduce <-ous>, <-age>, and <-ate> in nouns and adjectives.' The hope is also expressed that once introducing spelling-to-sound relations becomes a routine procedure in pronunciation training, the strain on part of the students of memorizing a list of true local errors, phonetically challenging pronunciation exceptions, will be reduced to the absolute minimum.

Keywords: words commonly mispronounced, spelling-induced mispronunciations, local and global pronunciation errors, Polglish, letter-to-sound correspondence

1. Introduction

1.1. Arguments for the regularity of English Spelling

Hardly anyone can fail to notice the frequent mismatch between the sounds of English and the letters used to record them. Upward and Davidson (2011: ix) illustrate the issue of English spelling with the following quote: “[i]n his novel *Three Men on the Bummel*, the writer, Jerome K. Jerome says of English spelling that it ‘would seem to have been designed chiefly as a disguise for pronunciation’.”

Crystal (2012: 13) describes the nature of the spelling problem in yet another way: “English spelling is difficult, but it is not as chaotic as is often claimed. An explanatory perspective can make the learning of spelling easier.” He adds that it is learnable but it takes a learner a few years to be in control of the spelling system.

Upward and Davidson (2011: 3) make a claim that there is a high degree of regularity in English spelling: “English spelling is often perfectly phonetic, representing with absolute clarity and consistency the actual sound of many words by appropriate strings of letters.” They make it clear that 84 per cent of words in a sample of 17,000 are spelled regularly and that a belief in spelling irregularity comes from the fact that irregular words which are not so numerous, constituting 3% of the same sample, happen to occur in the language quite frequently, which is why a layperson gets an impression of irregularity in English spelling as a whole. Kelly (2000: 123) agrees, adding that the fact that “some of these words also happen to be amongst the most common ones (e.g. *are, said, come, how, what, could*) could give the impression of irregularity in the system.”

What we can learn from these opinions is that English spelling, although irregular at a first sight, exhibits a reliable degree of regular letter-to-sound correspondence. In the context of pronunciation instruction, it implies that a learner wishing to understand how English spelling works would benefit from following some graphophonemic cues to be able to pronounce a word from the printed text with a correct string of sounds.

A very useful reference on spelling-to-sound relations for RP can be found in Kenworthy (1987), Kelly (2000), Wells (2000, 2008), Collins and Mees (2008), Cruttenden (2008) or Lewis (no date) whereas for American English one can refer to an extremely detailed system of Dickerson (1978, 1981, 1985, 1987, 1992, 2015) and some guidelines from Avery and Ehrlich (1996), Celce-Murcia et al. (1996), Hahn and Dickerson (1999a, 1999b) or Gilbert (2008). For readers interested in the present and past state of English orthography we recommend Carney’s (1994) work, which is regarded as the most extensive study of English spelling. Upward and Davidson (2011) and Crystal (2012) provide a historical analysis of the development of English spelling and also make reference to changes in pronunciation. Teachers looking for some practical materials for

students of a wide range of language proficiency should consult Kelly (2000) – all levels, Hancock (2004) – intermediate learners and higher levels, Hewings (2004) – mostly elementary with some intermediate and advanced levels or Marks (2007) with a focus on elementary students.

1.2. Spelling-induced mispronunciations in the Polish context

A large number of pronunciation specialists (Sobkowiak 1996; Szyszka 2003; Szpyra-Kozłowska and Stasiak 2010; Nowacka et al. 2011; Pęzik and Zajac 2012; Bryła-Cruz 2013; Szpyra-Kozłowska 2005, 2013, 2015; Porzuczek 2015; Waniek-Klimczak 2015 and Zajac 2015) emphasise the need to draw students' attention to phonetically difficult words, unpredictable spelling-to-sound correspondence, phonetic 'false friends' or words with difficult stress patterns etc. Such components have always constituted parts of a classic pronunciation class; however, what we can infer from the above-mentioned research is that more explicit phonetic instruction in the realm of spelling-to-sound rules would be beneficial for the learners' competence and that it could hopefully lead to better phonetic performance in English.

Sobkowiak (1996: 23) understands the gravity of spelling-induced pronunciation errors:

Spelling, or rather conversion from spelling to sound, is bound to be an abundant source of error, both native- and foreign-language based. Identifying the effects of spelling in learning foreign language phonetics in general is very useful, not only for the sake of avoiding errors, but also in order to better understand what it is that we are trying to learn: first of all it is the phonetic system of it, not simply reading aloud. The spelling-to-sound and sound-to-spelling regularities and irregularities are important of course ... but their knowledge must be built on the solid foundation in phonetics proper.

His theoretical foundation and practice course on English Phonetics is abundant in graphophonemic patterns and spelling-oriented issues. He believes that both orthography (spelling English sounds and clusters) as well as orthoëpy (pronouncing letters and their clusters) should be integral parts of a phonetic course. Sobkowiak (1996: 25) notes that “[c]onsidering the heavy reading bias of the contemporary EFL scene in Poland, it would be irresponsible to avoid advice here on how to transfer from print to sound. It should always be remembered, that it is sound which is basic to phonetics, not spelling.”

Around a third (34) of 112 boxes in Sobkowiak's coursebook listing examples of lexical items focus on graphophonemic patterns, specifically: <trans->, <th>, <-s> = <-z> (not plural), <-Vse> = /-Vs/, <-VsV-> = /-VzV-/ , <-VsV-> = /-VsV-/ , <x>, 7 silent letters: , <c>, <h>, <k>, <l>, <p>, <t>, <ch> = /k/, <ch> = /ʃ/, spellings of: /f/ & /dʒ/, <g>, <-a> = /-ə/, <as>, <an>, /e/ = <ea>, pre-stress <e>, <-ate> = /-ət/, <-iCe> ≠ /-aiC/, word medial <y>, word final <y> in polysyllables, coda <-ths>, no stress before <-(at)ive>, <-ity>, <-ary> and <-ory>, and <-man> and <-land> compounds.

A third of the 40 tables (14) deal with sound-to-letter relation, among them one can find such issues as: progressive assimilation of voice in English, <s> and <-ed> suffixes, common spellings of English obstruents, selected grapho-phonemic correspondences for: schwa, /ʌ/, /e/, /ɔ:/, /u:/, /ɑ:/, /i:/, /ei/, /ai/, /əʊ/, /iə/ and spelling overlap of /əʊ/ and /aʊ/.

In some other pronunciation-oriented materials aimed at Polish learners, for example by Nowacka et al. (2011) and Porzuczek et al. (2013) letter-to-sound correspondences are also addressed but to a lesser degree. Nowacka et al. (2011) include an exercise in each unit corresponding to one sound in which they present the relationship between spelling and pronunciation as an awareness raising activity. Porzuczek et al. (2013) briefly introduce the topic of orthography and list the most common letter representation for a phonetic symbol. They (2013: 186) also draw the reader's attention to words with *-ough* and include an activity explaining its seven possible phonetic realisations.

In a significant number of studies on Polish-accented English, spelling-pronunciation is recurrently salient in the hierarchy of errors (Scheuer 1998; Majer 2002; Szpyra-Kozłowska 2005, 2013, 2015; Nowacka 2008 and Bryła-Cruz 2013). Here we present a summary of the major findings of this research on the spelling-induced errors in pronunciation. Scheuer (1998) points to the predominance of spelling-induced errors related to *schwa* in reading (50.1%) rather than in speaking tasks (36.8%) while Majer (2002) lists spelling pronunciation, such as pronouncing *forehead* as /'forehed/ or *firm* as /'firm/, among the most serious Polish-accented errors together with the misplacement of primary stress, e.g. in *area*, *capable* and *exam*.

Szpyra-Kozłowska (2005) includes spelling pronunciation, e.g. *bomb* as /'bɒmp/ and spelling-based mispronunciation of individual words, e.g. in *recipe* as /ri'sajp/ as serious errors which aggravate comfortable intelligibility according to the evaluations of 30 native speakers of various nationalities on the basis of a list of 25 phonetic features.

Nowacka (2008) examines the phonetic features responsible for strengthening the degree of perceived foreign accent in a sample of 62 students of English Philology from various universities in central and southern Poland. She observes that numerous mispronunciations arising from spelling interference were deemed undesirable by native raters, three Canadian and two English listeners, residing in Poland and with experience in teaching.

Szpyra and Stasiak (2010) advocate a shift in phonetic instruction from sounds and prosody to a focus on the pronunciation of whole words. They report on an experiment in which Polish students of English at intermediate level underwent training in words commonly mispronounced after which a noticeable improvement in the correct renditions of these lexical items was observed which in turn led to immediate communicative gains and a feeling of accomplishment.

Szpyra-Kozłowska (2013) claims that of all the phonetic inaccuracies in Polish-accented English, spelling-based errors as well as spelling-induced mispronunciations of whole words are the most threatening to communication

and, therefore, should be pedagogically prioritized. In her study English and Irish listeners evaluated two samples of Polish English, one representing global errors in speech and another with local errors, e.g. spelling-induced mispronunciations. They were rated for accentedness, annoyance and comprehensibility on the basis of transcriptions. The finding was that local errors considerably hampered intelligibility and contributed to communication breakdowns.

Bryła-Cruz (2013), on the basis of extensive and comprehensive empirical research into the perception of Polish-accented English, employing around 80 native judges from the British Isles, speakers of Standard Scottish English, Northern English and Irish English, established a list of pronunciation priorities. She addressed such issues as the degree of accentedness, comprehensibility, intelligibility and irritation exerted on the native listener by the speech of a Polish user of English. According to the British listeners, the aspects which should be prioritized in teaching pronunciation to Poles include: eliminating spelling-based errors followed by the dental fricatives, velar nasal, vocalic contrasts: STRUT vs. BATH vs. TRAP, FLEECE vs. KIT, NURSE vs. DRESS, NORTH vs. GOAT, word stress, maintaining voicing of lenis obstruents and weak forms. Spelling-induced pronunciation errors come top of the list, therefore in the light of this research the claim for the need to interrelate orthography with pronunciation during phonetic training seems well-justified. Bryła-Cruz (2013: 265) notes that “[t]he main focus should, thus, be on teaching whole words which contain deceptive spelling, followed by segmentals and prosody.”

Szpyra-Kozłowska (2015) shows evidence that native speakers of English perceive cases of foreign speakers spelling pronunciation as a major hindrance to the intelligibility of accented speech. In her hierarchy of shared phonetic features of Polish and English which are relevant for both intelligibility and accentedness she lists spelling pronunciation of individual words as a top feature along with mispronunciation of ‘th’, word final devoicing of final obstruents, incorrect word stress, lack of distinction between FLEECE and KIT, stop insertion after angma, lack of distinction between short and long vowels as well as between STRUT and PALM, FOOT and GOOSE, LOT and NORTH. Therefore, teaching the major spelling-to-sound correspondences is well founded and should constitute the next phonodidactic priority for foreign learners because local errors appear to be too important to be left to chance. Szpyra-Kozłowska (2015:103) adds: “[t]he focus on phonetically difficult words ... does not mean neglecting general phonetic practice, since it would be absurd if learners mastered the pronunciation of difficult items, but mispronounced those which seem phonetically easy.”

1.3. Local and global pronunciation errors

Sobkowiak (1996: 21) makes an observation that local errors “affect single words only or a handful of related words, so called derivatives” for example, pronouncing nowhere as /nəʊ'hɪə/*¹ or /nəʊ'hɪə/*, whereas global errors reappear in hundreds of other English words, whenever the appropriate context arises, e.g. in rhetoric /re'torik/* in which the stress is shifted to the penultimate syllable, a reflection of a Polish stress pattern combined with a substitution of English sounds with Polish equivalents. Sobkowiak further points to the fact that local errors happen to be tied to words that are relatively rare, and also very idiosyncratic, i.e. they do not follow rules.

Szpyra-Kozłowska (2015: 93) defines local errors as “idiosyncratic mispronunciations of individual words in which, apart from global errors, there are other phonological and phonetic deviations from the original, due to various interference factors,” e.g. pronouncing *foreign* as [fo'rejn]. It is argued that the use of these local errors, phonologically deviant representations of words, frequently hinders successful communication far more than other phonetic errors. On the other hand, she (2015: 93) characterizes global errors as “[r]ecurring mispronunciations of foreign sounds and prosodies which create a foreign accent and result mainly from L1 phonological and phonetic transfer, e.g.: E *jazz* > PE [dzes], E *foreign* > PE ['for'in].”

2. Method/ study design

2.1. Aim

The primary aim of this study is to provide evidence for the focus on local errors in pronunciation teaching. We assume that results of the study will confirm the necessity for explicit instruction on the regularity rather than irregularity of English spelling in order to eradicate globalised and ‘either-or’ pronunciation errors in the speech of Polish first-year university students of English.

The paper presents the results of a questionnaire and recording-based study on first-year students’ production and recognition of a sample of 60 items from Sobkowiak’s (1996: 294) ‘words commonly mispronounced’ (henceforth WCM) (30 words tested in production and 30 in recognition) on the basis of responses obtained from 143 BA students majoring in English. The WCM comprises notoriously phonetically troublesome English words:

¹ An asterisk indicates an erroneous pronunciation.

[t]hese ‘hard nuts’ have been collected from experience as well as other books on English phonetics. They are all known for being frequently mispronounced by Polish learners of English at roughly the intermediate stage of Polish competence. ... I decided to list those variants (of mispronunciation) which appeared to me to be the most common errors, but I claim no empirical support for the choice; it is mostly based on my intuition and experience.

Szpyra-Kozłowska (2015) believes that this list of phonetically difficult words could easily be expanded and observes that it is useful not only for Polish learners but also for speakers of some other L1s (Brazilian Portuguese, Mauritian Creole, Mexican Spanish and Italian) since they tend to err in the pronunciation of these items to the same extent as Polish learners do.²

This experiment is intended to examine what types of local errors, seriously deformed words, whether avoidable, ‘either-or’ or unavoidable ones, as classified in Porzuczek (2015), are the most frequent in production and recognition of words.

It also aims at juxtaposing production and recognition results in search of common ground between the two, that is the type of local errors, which should be remedied during the subjects’ phonetic training with a view to minimizing these local mispronunciations and therefore enhancing the learners’ phonetic progress in general.

The study is designed with 30 lexical items in each task representing 27 categories defined by Porzuczek (2015), each referring to one aspect of English phonotactics and/or spelling-phonology relations.

Our tertiary aim is to check what categories, i.e. patterns or rules concerning letter-to-sound relations, are not respected in the subjects’ performance and recognition of an individual word and in turn what patterns should be explicitly discussed and practised in phonetics courses.

2.2. Instruments

For the purpose of this study we designed a two-task test, one on production and one on recognition. Each task included 30 lexical items of Sobkowiak’s (1996) words commonly mispronounced, taken from Porzuczek’s (2015) selection of the first 373 words of Sobkowiak’s list. Our corpus is presented in Table 1 (see Appendix 1).

First, students were given tests with individual reference numbers in the two tasks to allow for the correlation of production and recognition results.

In task one, the students were asked to read and record 30 lexical items. Next, all the students listened to a recording of 30 items, which were written in the test. Each item was pronounced twice in two versions, one containing standard

² No statistically significant differences between Polish and Ukrainian students were found in Nowacka’s study examining the production of 30 words commonly mispronounced. In other words, nationality did not have an influence on the result.

British English pronunciation of the word and the other with a deviant Polish mispronunciation based on Sobkowiak's transcription, e.g. *angel* was pronounced as A. /eɪndʒl/ and as B. /æɪndʒəl/. The subjects were required to indicate the correct rendition of each item, by circling the corresponding letter A or B.

The reason for choosing words from Porzuczek's (2015) abridged version of Sobkowiak's list is that he classified these words according to the reported types of mistakes appearing in Polish pronunciation, distinguishing three major classes of erroneous pronunciation: true local errors, 'either-or' local errors and avoidable (globalised) errors. Porzuczek (2015: 172) defines true local errors as "those which can hardly be prevented by observing the graphophonemic or phonotactic rules of English. Those words are mostly 'graphophonemic exceptions', where following a well-established pronunciation pattern results in an error." The category of 'either-or' local errors encompasses "words which are mispronounced if a student chooses the wrong one of two equally plausible pronunciation options." The avoidable (globalised) errors "gather errors which can easily be avoided if typical spelling cues are taken into account. Most of these errors are caused either by L1 interference or the learners' failure to follow the most characteristic pronunciation patterns and their consequent random phonological choices."

In Porzuczek's classification each group of errors is further subdivided into 27 patterns, each referring to one aspect of English phonotactics and/or spelling-phonology relations. Table 1 (see Appendix 1) presents this categorization together with examples of lexical items included in the production and recognition task in this study.³

2.3. Participants

The data were collected from four groups of learners, 143 BA students majoring in English, on daily (97) and extramural (46) courses, at two universities in Rzeszów, both public (114) and private (29). The majority of the participants (127) were in their first year of training, only a small proportion of them (16) were in their second year (extramural, private university – doing a three semester course in phonetics which was the equivalent of two semesters at a public university). It turned out that the type of programme the students were enrolled in had an influence on the results, since higher scores were obtained by daily rather than extramural students.

The material was gathered in the second and the third week of October 2015, at the very beginning of the academic year. One of the aims of the study was to examine what the phonetic know-how of the freshmen is before they undergo

³ We use three shades of grey to point to different types of errors: dark grey refers to unavoidable true local errors, moderate marks 'either-or' local errors and light one signifies avoidable (globalised) errors.

English phonetic instruction. We were interested to find out which items selected from Sobkowiak's 'WCM's would pose a problem and which ones would be articulated and recognised properly.

It should also be added that the number of participants differed in the two tasks. The production task was successfully completed by 117 subjects.⁴ The recordings were made by means of SANACO hardware digital language lab (public university) or digital language lab software (private). Task 2, focussing on recognition, was assessed on the basis of questionnaire answers from 143 students.

3. Results and discussion

3.1. Production

The production results were obtained by assessing the correctness of 117 respondents' articulations, totalling 3510 items. In our evaluation of samples we completely disregarded global errors triggered by L1 interference and restricted the judgement of the correctness of the pronunciation on the basis of the feature included in the rule corresponding to a word, e.g. when a subject placed a Polish a-like vowel in the initial syllable of the lexical item *accurate*, but the suffix was rendered correctly with *COMMA*, such a pronunciation was regarded as correct since our major concern in this study are not words themselves but the categories they represent, i.e. the phonotactic patterns which are applied in them and the types of errors they denote.

Figure 1 shows the results for the correct rendition of lexical items in the production task.

⁴ There were numerous reasons for obtaining fewer answers in task 1 in comparison with questionnaire-based task 2. Among them we can enumerate: lack of recording, erroneous recording of items from task 2 instead of those from task 1, poor quality of recording due to inappropriate microphone position or too quiet a recording, etc.

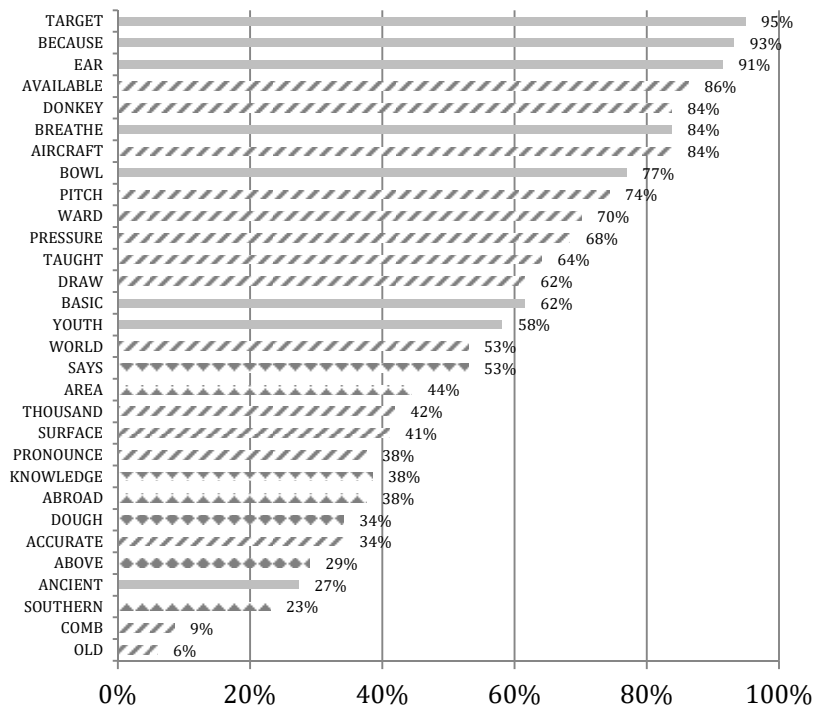


Figure 1. Correct production of lexical items in task 1.⁵

The words at the bottom of the graph obtained the lowest results for phonetic accuracy. The findings suggest that thirteen lexical items out of thirty are mispronounced by more than half of our respondents. In this group we find *old* (6%), *comb* (9%), *southern* (23%), *ancient* (27%), *above* (29%), *accurate* (34%), *dough* (34%), *abroad* (38%), *pronounce* (38%), *knowledge* (38%), *surface* (41%), *thousand* (42%) and *area* (44%).

The other lexical items are pronounced correctly by a majority of the respondents. This category comprises *says* (53%), *world* (53%), *youth* (58%), *basic* (62%), *draw* (62%), *taught* (64%), *pressure* (68%), *ward* (70%), *pitch* (74%), *bowl* (77%), *aircraft* (84%), *breathe* (84%), *donkey* (84%), *available* (86%), *ear* (91%), *because* (93%) and *target* (95%).

Table 2 (see Appendix 2) shows for each selected word the category that was taken into account during the evaluation process of this lexical item, e.g. the rule ‘reduce <-ous>, <-age>, and <-ate> in nouns and adjectives (T.14)’ is tested in the word *accurate* (no. 6 in Table 2).

The top ten categories are the ones that scored the lowest percentages, i.e. under 50% of correct responses in this production ranking. These patterns and

⁵ Patterns on the graph refer to three different kinds of errors, i.e. diamond-shaped stands for true local errors, no pattern represents ‘either-or’ local errors and striped is used for globalised errors.

the corresponding lexical items in which the subjects erred most are the focal point of our discussion as we argue that they demand to be remedied in the pronunciation course.

Following Porzuczek's (2015) terminology these weakest phonetic areas in our subjects' pronunciation represent all three major kinds of errors, i.e. the most numerous group of avoidable globalised errors (5), unavoidable local errors (4), and one kind of 'either-or' local error.

The five common mispronunciations belonging to the avoidable (globalised) errors are the sequence '<-old> → /əʊld/; <oll> → /əʊl/ but (*doll*) (T.22), 'mute consonant letters (T.26)', 'isolated errors (T.27)' and two categories related to the reduction of unstressed syllables, i.e. a more general rule which tells one to 'reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/ (T.13)' as in *surface* (41%) and also a specific case of it, i.e. 'reduce <-ous>, <-age>, and <-ate> in nouns and adjectives (T.14)' examined in *accurate* (34%).

The top category, a reliable rule concerning spelling to sound correspondence between the sequence '<-old> → /əʊld/; <oll> → /əʊl/ but (*doll*) (T.22) was tested on *old* (6%). Hardly any of our respondents (6%) are aware of the fact that the letter <o> can also signify GOAT apart from a frequent LOT, NORTH value or any other rounded vowel in the region of open or mid back. Thus, it seems that students should be familiarized with the easily predictable pattern contained in the above-mentioned rule and some other words of this type, such as *cold*, *old*, *soldier* and *roll* as suggested by Porzuczek (2015:184). Interestingly, Zajac (2015) has noted the same phonetic feature as the most frequent type of mispronunciation in her corpus-based list of words most commonly mispronounced, where she found it in such words as *don't*, *old*, *also*, *Polish*, *only*, *Poland*, *older*, *told*, *photos*, *whole*, *most* and *moment*. Collins and Mees (2008: 112) make a comment that of all the letters, the letter <o> is associated with most pronunciation irregularities.

The respondents' familiarity with the existence of mute consonantal letters in English was tested by means of the item *comb*, articulated properly by only 9% of the students. It is evident that this issue of silent letters should be explained to the learners because their spelling pronunciation is caused by interference from L1 spelling, as Polish is more phonemic than English, has a high degree of phonological transparency i.e. a fairly regular correspondence between letters and sounds. Collins and Mees (2008) as well as Porzuczek (2015) emphasise that it is enough to remember a few general rules to eliminate mispronunciations of lexical items with silent letters. Porzuczek (2015: 185) provides 7 rules with corresponding examples, e.g. ' is mute in <bt> and <mb> as in *bomb* or *doubt* while Collin and Mees (2008: 109-111) on the basis of 13 consonant letters and examples of their mute context indicate individual lexical items, e.g. letter: b – context 1: final mb, examples: *bomb*, *climb*, etc.; – context 2: final bt, examples: *debt*, *doubt*.

Bryła-Cruz (2013:145) admits that spelling-based errors are the least acceptable when comprehensibility is a parameter and she further assumes that such a distortion makes the recognition of this item harder, giving an example of one rater's comment (Sc16) on errors rooted in spelling and their influence on the raters' evaluation "I wouldn't be worried or put off by any of the mispronunciations. Perhaps I would like or feel compelled to correct only one – the pronunciation of [b] in 'doubt'!"

The category 'isolated errors (T.27)' covers errors that, according to Porzuczek (2015: 186), "can be avoided if general spelling-to-sound rules are observed, even though the actual pronunciation is not always predictable". He provides some phonetic hints in transcription next to the word, e.g. *clothes* /kləʊzɪz/* <th> ≠ /z/. This category which obtained a mean value of 40% is represented by words such as *pronounce* (38%) and *thousand* (42%), with the following corresponding hints: for the former <n> → /n/, and for the latter <th> ≠ /t/ (but *Thames*, *thyme*, etc.).

Two other problematic areas within avoidable globalised errors concern the reduction of unstressed syllables. The patterns are as follows: 'reduce <-ous>, <-age>, and <-ate> in nouns and adjectives (T.14)' implemented correctly in *accurate* in 34% of cases and 'reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/ (T.13)' exhibited in the item *surface* by 41%.

The second group, unavoidable local errors includes four patterns, namely: the ambiguous letter <o> leading to one out of 5 phonetic phonological shapes such as /ɒ/ - /ʌ/ - /əʊ/ - (/u:/) - (/ʊ/) (T.4), e.g. in *above* our point 3, 'unpredictable <-ough> (T.3)' as in *dough* – our point 4, 'words with unpredictable pronunciation (T.1)', e.g. *southern* – point 6 above and 'unpredictable word stress (T.2), e.g. *area*' in point 9. These notorious unavoidable local errors, make up one-third of the half of Sobkowiak's (1996) words (150 items out of 373 in Porzuczek, 2015: 173-175, Tables 1-4), 40% of all analysed difficult words, which if memorized should reduce or eliminate the number of word mispronunciations.

The item *above* with the focus on the same letter <o>, represents the fourth notorious category <o> → /ɒ/ - /ʌ/ - /əʊ/ - (/u:/) - (/ʊ/) (T.4), devoted to a single letter <o> which as observed by Porzuczek (2015: 175) "has proved to be so tricky for the learners that it has found itself an important place. Not only must we enumerate 3 main pronunciation options, i.e. /əʊ/, /ɒ/ and /ʌ/ plus two less frequent ones: /u:/ and /ʊ/ but also the mute <e> following syllables spelt with an <o> seems less reliable as a 'long' pronunciation indicator." In our research only 29% of subjects pronounced it with STRUT, the rest applied GOAT-like or LOT-like quality. A practical solution to the problematic letter <o> which leads to a wide array of phonetic realisations can be found in Collin and Mees' (2008: 112-113) comprehensive and exhaustive 'spelling guidelines 5: the letter <o>' which is material ready to use with the students.

The fifth place in the production ranking is taken by a category called ‘unpredictable <-ough> (T.3)’ sequence, which has a variety of pronunciations. In our research we verified it on the basis of the item *dough*, which turned out to be known by 34% of the subjects. The explicit focus on this abundance of phonetic realisation seems to be the most time-saving way of eradicating this problem, which can be done, for example, with the help of the poem “A Cruise” by Digby and Myers (1993: 18-19) which starts with the words: “The wind got up, the sea got rough, And very soon we’d had enough, Some caught colds and started to cough ...”. Porzuczek et al. (2013: 186) include a useful summary systematizing the seven phonetic shapes of the letters <-ough>, namely /ʌf, əʊ, ɒf, əʊ, ɒk, ɔ:, u:/ in 19 lexical items.

The question must also be asked how typical such irregularity of English spelling is as a whole. We also have to bear in mind that this well-known notorious set of letters is on the whole a minute part of the English spelling system and that claims about English spelling irregularities should not be based on this unrepresentative example. Crystal’s (2012: 15) explanation and a metaphor best describe this stand:

(...) the feeling that English spelling is a mess has been reinforced by the clever creations based on irregular forms, such as ‘Though the rough cough and hiccough plough me through, I ought to cross the lough.’ All good fun, but hugely misleading as a summary of the English spelling system. It’s a bit like listing eight accident blackspots in a country, and saying all the roads are like that.

However, Upward and Davidson (2011: 4) argue that

[w]hat holds true for these five words [*though, through, plough, cough* and *enough*] is equally true for many others in which the Modern English sound-spelling relationships are unsystematic and unpredictable, and in some cases seem to be almost beyond comprehension.

The category ‘words with unpredictable pronunciation (T.1)’ scored 38% of correct answers, which is on the whole higher than had been expected. Memorization of 62 items included in Porzuczek’s (2015: 173) table 1, appears to be the best approach to getting to know these grapho-phonemic exceptions, since in this case the application of a pattern results in an error. For the purpose of this examination we have included such items as *southern* (23%), *abroad* (38%), *knowledge* (38%) and *says* (53%) each exhibiting its own individual level of familiarity in the subjects’ performance. It could be added that the word *southern*, which happens to be most challenging for 77%, was rendered as /'səʊθərn/ or /'saʊθərn/; *abroad* and *knowledge* are well articulated by 38% each, other erroneous renditions of them included GOAT like quality in most respects and *says* is realised correctly by a slight majority of the subjects (53%).

The lexical item *area*, representing the category ‘unpredictable word stress’ (T.2), turned out not to be an easy issue for 56% or respondents. Learning by

rote Porzuczek's set of 46 items exhibiting unpredictable stress seems to be a justified solution.

Thirdly, we also observed one 'either-or' local error in which a letter in spelling suggests two (or more) equally plausible pronunciation options and the mispronunciation of the letter should not prevent the listener from recognising the word. The category 'unpredictable pronunciation of single vowel letters (T.5)', third in the ranking, comprises words in which a vowel letter is context-dependent and has two phonetic variants either long or short, i.e. <a> → /eɪ/-/æ/, <e> → /i:/-/e/, <i>/<y> → /aɪ/-/ɪ/, <u> → /ʃ(j)u:/ - /ʌ/, e.g. *atom* vs. *ancient*, *serious*, *pint* vs. *driven* and *bugle* pronounced erroneously as /'ertəm/*, /'ænfənt/*, /'serjəs/*, /paɪnt/*, /'draɪvən/* and /'bʌgəl/*. Porzuczek (2015) includes 31 items in this list. The item *ancient*, selected for the purpose of this category, has been rendered with a Polish monophthong of a-like and e-like quality rather than a diphthong NEAR in majority of cases (73%).

3.2. Recognition

The recognition results are based on multiple-choice questionnaire answers, collected from 143 respondents. Figure 2 presents the ranking of lexical items in this task.

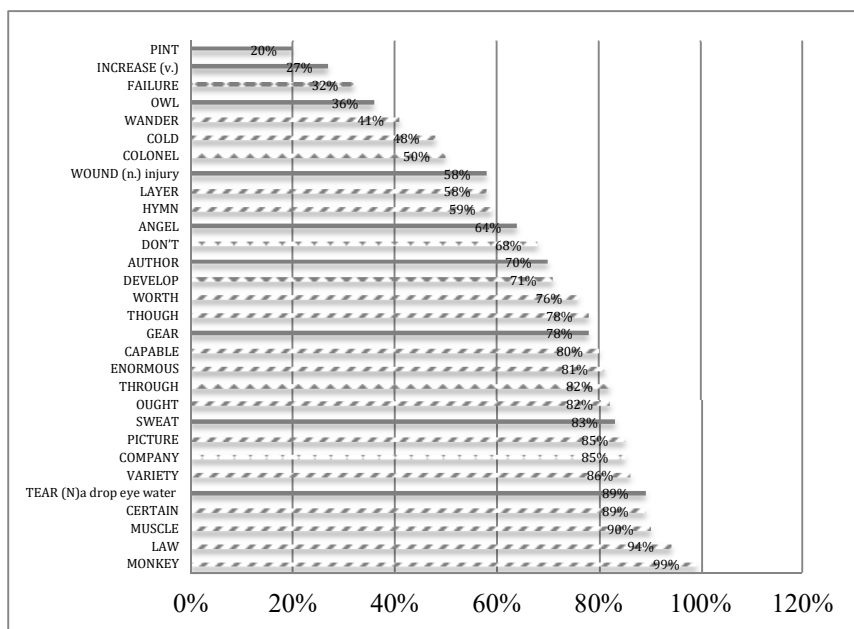


Figure 2. Ranking of lexical items in the recognition task.

For the purpose of this analysis we discuss in detail the results of 50% or lower, which indicate low familiarity of our respondents with these items. Among 30

words there are only seven lexical items that were associated with an erroneous pronunciation. In this group we can find *pint* (20%), *increase* (27%), *failure* (32%), *owl* (36%), *wander* (41%), *cold* (48%) and *colonel* (50%). In the case of the remaining lexical items the majority of our subjects were able to point to the correct pronunciation. This less problematic set includes: *wound* (*n.* - injury) (58%), *layer* (58%), *hymn* (59%), *angel* (64%), *don't* (68%), *author* (70%), *develop* (71%), *worth* (76%), *though* (78%), *gear* (78%), *capable* (80%), *enormous* (81%), *through* (82%), *ought* (82%), *sweat* (83%), *picture* (85%), *company* (85%), *variety* (86%), *tear* (89%), *certain* (89%), *muscle* (90%), *law* (94%) and *monkey* (99%).

Table 3 (see Appendix 3) ranks the above-mentioned lexical items with the graphophonemic pattern which they correspond to. The findings that indicate low familiarity might suggest that some subjects are unfamiliar with a word or they might point to the respondents' familiarity with the written form of a word only and/or of their incorrect impression of how an individual word is pronounced.

The words that turned out weakest in our recognition ranking represent all three major types of errors, i.e. 'either-or' local errors (3), avoidable globalised errors (2) and one type of unavoidable local error.

The first of these, 'either-or local errors', in which spelling leading to two equally plausible phonological shapes is the source of an error, comprises three out of six problematic areas: 'problems with voicing (T.11)' as in *increase* (27%), which around $\frac{3}{4}$ of our respondents mistakenly believed to be pronounced with final /z/; the diagraph <ow> giving rise either to /aʊ/ or /əʊ/ (T.7), tested on *owl* (36%) recognized correctly with MOUTH not GOAT by 36% of the subjects; and 'unpredictable pronunciation of single vowel letters (T.5)' which scored 42% of correct answers, which, however, is item-dependent since the results vary according to the choice of words and their frequency of occurrence,⁶ in this case *pint* obtained a lower result of 20% and *angel* a much higher 64%.

It was surprising that the item *increase* was top of the ranking among the Polish students, since the Polish final devoicing rule together with the indication of the letter <s> in spelling, if followed, imply the insertion of /s/ which is a correct option in this case. We presume it might have been an incorrect overgeneralization by most of the students borrowed from the English language concerning the pronunciation of <-s, -es> inflections after a voiced sound in a root, in Simple Present third person singular as in *sues*, or in Saxon Genitive, e.g. *Sue's* or from regular Plural as in *shoes*, which had been discussed at the beginning of the course when transcription and some fundamental pronunciation rules were introduced to the students.

⁶ On en.wikipedia.org the frequency of use for *pint* is 0.0001% while the one for *angel* is higher as it equals 0.003%.

The problematic letter <o> leading to a variety of phonological shapes and thus to a high degree of confusion among foreign learners, as discussed in the production part of the study, here makes our respondents form an incorrect assumption about its pronunciation in the diagraph <ow> of an *owl* (36%) giving rise to /aʊ/ but not to /əʊ/. This finding confirms the need to explicitly systematize spelling guidelines concerning the letter <o> in the pronunciation course as suggested in our discussion on the production results.

The low mean result for ‘unpredictable pronunciation of single vowel letters (T.5)’ as in *pint* (20%) or *angel* (64%) leads to the conclusion that the respondents would benefit from conscious memorization of items included in this category, since the graphophonemic patterns which they exhibit are not very straightforward.

In the second class of avoidable globalised errors there are two patterns, namely the one explaining how sequences of letters <(s)waC>, <squaC> and <war(C)> can be pronounced as /ʃ(s)wɒC/, /ʃ(s)kwɒC/ or /wɔ:(C)/ (T.23) respectively, verified on the item *wander*, known to 41% of the participants, but also present in *swan*, *quantity* and *ward*; as well as the sequences ‘<-old> and <oll> leading to /əʊld/; and /əʊl/ respectively, with the exception of the item *doll* (T.22) examined with the item *cold*, recognized by 48%, which supports the claim that the letter <o> and its phonetic renditions need special attention in pronunciation training.

‘Words with unpredictable pronunciation (T.1)’ constituting unavoidable local errors received a relatively high mean result of 50%, pointing to half of the respondents’ familiarity with these items; however, on the whole we realise that this category is item-dependent because each word received a different recognition score, e.g. *failure* (32%), *colonel* (50%), and *don’t* (68%). Therefore, we make a claim that all the lexical items belonging to this unpredictable set should be brought to students’ conscious attention.

3.3. Production versus recognition: in search of some common errors and patterns

In this section we juxtapose the production and recognition results in search of some general tendencies (Table 4, see Appendix 4).

The colours in table 4 indicate three different tendencies between the production and recognition results. The light grey colour shows that both production and recognition results are lower than 50%, indicating that the corresponding category leaves room for teachability/learnability and should be dealt with first. The moderate grey colour illustrates a divergence between production and recognition results for the items in the selected category, i.e. lower results for production (under 50%) and higher ones for recognition (over 50%). On the other hand, the dark grey colour represents the opposite diverging trend between production and recognition, i.e. higher (over 50%) results for

production and lower (under 50%) results for recognition of the items in the selected category. The categories with no colour seem less problematic for the respondents since scores of over 50% were obtained in the two tasks, which is why we exclude them from the discussion.

Starting with the data marked in light grey, with low results for both tasks, we have three categories each representing a different type of local errors: an avoidable error referring to the category '<old> → /əʊld/; <oll> → /əʊl/ but (*doll*) (T.22)' (P: *old* (6%); R: *cold* (48%)); 'either-or' local error pointing to a dual pronunciation of the letter encompassed in the category 'unpredictable pronunciation of single vowel letters (T.5)' (P: *ancient* (27%); R (42%): *pint* (20%) and *angel* (64%)); and unavoidable errors listed under the name 'words with unpredictable pronunciation (T.1)' (P (38%): *abroad* (38%), *knowledge* (38%), *says* (53%) and *southern* (23%); R (50%): *failure* (32%), *colonel* (50%) and *don't* (68%)).

In the moderate grey group, with lower results for production (under 50%) and higher ones for recognition (over 50%), the avoidable globalised errors constitute the largest group and concern first of all the reduction of unstressed syllables, as we can see two categories here, namely 'reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/. (T.13)', checked by means of (P: *surface* (41%); R: *certain* (89%)); and 'reduce <-ous>, <-age>, and <-ate> in nouns and adjectives (T.14)', tested on (P: *accurate* (34%); R: *enormous* (81%)). Apart from the lack of weak vowel reduction we also find here the articulation of 'mute consonant letters (T.26)' (P: *comb* (9%); R (74.5%): *hymn* (59%), *muscle* (90%)) and also the rendition of 'isolated errors (T.27)' (P (40%): *pronounce* (38%), *thousand* (42%); R: *variety* (86%)), both of which could be explicitly taught to students in a weekly phonetic class since the rules concerning mute letters do not seem very abundant and are productive. As for isolated words, they reveal a variety of phonetic features which need to be controlled depending on the word, which, however, could be presented to students with the appropriate articulation and the use of the words in context to strengthen the right usage for the future. As a comment, the lack of COMMA in freshmen's speech is no news to teachers of phonetics. The first year Polish students are usually not aware of the weak quality of an unstressed syllable in English and tend to pronounce a strong spelling-induced vowel in the weak vowel position, e.g. *surface* as /sɜ:'feɪs/ usually accompanied by incorrect stress placement. Therefore, it appears that the reduction rule should be introduced early in the course because of its highly productive value, and consequently if applied in students' performance, it should lead to fewer local errors of that type.

The category of unavoidable local errors which scored better in recognition than in production includes: the multiple phonetic realisation of the letter '<o> → /ɒ/ - /ʌ/ - /əʊ/ - (/u:/) - (/ʊ/) (T.4)' (P: *above* (29%); R: *company* (85%)) previously discussed, 'unpredictable <-ough> (T.3)' (P: *dough* (34%); R: *through* (82%)) and 'unpredictable word stress (T.2)' (P: *area* (44%); R: *develop* (71%)). As regards, the previously discussed sequence <-ough>, the explicit

time-saving approach would familiarize students with the variety of its phonetic realisations within a relatively short period of time. The issue of word stress has always been found important for intelligibility. These results simply confirm the fact that lexical items belonging to these categories (Porzuczek, 2015: 174, Table 2) ought to be learnt as individual cases since mis-stressed words increase the processing difficulty of accented speech as noted by a large number of researchers: Dalton & Seidlhofer, 1994; Sobkowiak, 1996, Celce-Murcia et al., 1996; Collins and Mees, 2003; Szypra-Kozłowska, 2005; Cruttenden, 2008; van den Doel 2006; Gilbert, 2008; Roach, 2009.

When it comes to the category of unpredictable word stress (T.2) in the production part of the experiment we tested the word *area* but in the recognition part we included the word *develop*. Both words exhibit a penultimate stress pattern that is typical of Polish. The mispronunciations of these words can be treated as cases of L2 based overgeneralization, i.e. the shift from a penultimate to a non-penultimate syllable in English as opposed to a fixed penultimate syllable stress-placement in Polish. On the whole the word *area* was pronounced with the correct word stress by only 44% of the respondents. Here in the incorrect enunciations of this word apart from a word stress shift a vowel change also occurred, although for the purpose of this study we have focused only on the stress feature. Waniek-Klimczak (2015: 192) points to the relatively high recognition of the correct pronunciation of this two-syllable lexical item among first- (60%) and second-year students (90%). The second word, *develop*, tested in the recognition part, obtained 71% correct answers, which although lower than Waniek-Klimczak's (2015) result, agrees with her findings where it was recognized correctly by all second-year students and a slightly lower number of first-year students (90%).

On the basis of another word which we selected in our research, i.e. *capable*, which we verified for the correct rendition of *-able/-ible* suffix to */-əbl/*, i.e.: 'Never stress the adjectival *-able/-ible* suffix. Reduce it to */-əbl/* instead (T.15)' we can also make an observation concerning the stress placement. In the recognition task it received 80% correct answers, which is a result convergent with Waniek-Klimczak (2015) where around 90% of the respondents pointed to the correct pronunciation (88% - 1st year & 92% - 2nd year). It should be added here though that the word *capable* unlike the other two discussed above, that is *area* and *develop*, belongs to words in which L1 transfer rather than L2 based overgeneralization is assumed to be responsible for mispronunciations. *Available* is another word that was researched by Waniek-Klimczak (2015) and the present author. However, since in this study we controlled for the articulation of this word with respect to the suffix *-able/-ible* suffix as */-əbl/* but not the stress placement itself we cannot confirm that the result we obtained can also refer to stress placement. We can only assume that the results might be lower for stress since, for example, the mispronunciations of *available* as */'evələbəl/* or */'evəjəbəl/*, although incorrect as a whole but correct for the rendition of the suffix itself and incorrect for stress placement, were quite frequent.

The data marked in dark grey, pointing to a higher (over 50%) scores for production and lower ones (under 50%) for recognition, includes two categories of so-called ‘either-or’ local errors, i.e. the dual rendition of the digraph <ow> → /aʊ/ - /əʊ/ (T.7) (P: *bowl* (77%); R: *owl* (36%)) and ‘problems with voicing (T.11)’ (P: *basic* (62%), R: *increase* (27%)) and one category concerning the pronunciation of three letter sequences <(s)waC->, <(s)quaC-> and <war(C)>, i.e. ‘<(s)waC-> → /s)wɒC/; <(s)quaC-> → /s)kwɒC/; <war(C)> → /wɔ:(C)/ (T.23)’ (P: *ward* (70%); R: *wander* (41%)) What should be stressed here is that there are no unavoidable errors in this category which might mean that in the case of the true/false recognition task making a decision about the correct or incorrect status of the true, difficult unavoidable local errors is much easier than pronouncing such words correctly.

4. Conclusions

The research confirms our assumptions. A large range of our lexical items, known as words commonly mispronounced, are indeed rendered incorrectly by Polish university freshmen. We have also provided evidence for the existence of three kinds of errors, of which avoidable globalised errors have turned out to be the most numerous. This group includes the letters ‘<-old> and <oll>, ‘mute consonant letters’, ‘isolated errors’ and two categories related to the reduction of unstressed syllables: ‘reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/’ and ‘reduce <-ous>, <-age>, and <-ate> in nouns and adjectives.’ What this means for pronunciation instruction is that these issues should be explicitly discussed and practised during training because learners seem unaware of the phonetic ‘traps’ in them.

Unavoidable true local errors in production with under 50% correct results have been observed in four categories: the ambiguous letter <o>, ‘unpredictable <-ough>’, words with unpredictable pronunciation and with unpredictable word stress, which allows us to conclude that learners would benefit from making an effort at memorizing these exceptional cases in which there is a vague correlation between spelling and pronunciation. The most practical approach would be to rely on Porzuczek’s classification of these errors. One ‘either-or’ local error ‘unpredictable pronunciation of single vowel letters’ should also fall in this ‘learn by rote’ category although it could be supported by an overt explanation of the context for the presence of either the short or long variant of a vowel.

The results for recognition of selected lexical items of WCM also point to learners’ unfamiliarity with the correct pronunciation of some lexical items and thus unawareness of some graphophonemic patterns. Among ‘either-or’ local errors we find ‘problems with voicing,’ ‘the digraph <ow>’ and ‘unpredictable pronunciation of single vowel letters’, which also occurred as one of frequent problems in the production task. This is why we suggest that this source of error

in which spelling leads to two equally plausible phonological shapes should be explicitly taught to students. In the case of ‘problems in voicing’, lexical items in which the letter ‘s’ in a root does not become voiced, e.g. *cease*, *increase*, *cancel* etc. ought to be drawn to students’ attention.

In the second class of avoidable globalised errors there are two patterns, the sequences of letters <(s)waC>, <squaC> and <war(C)> and ‘<-old> and <oll>’, which once again supports the claim that the letter <o> and its phonetic renditions need special attention in pronunciation training.

‘Words with unpredictable pronunciation (T.1)’ constituting unavoidable local errors received a relatively high mean result of 50%, pointing to half of the respondents’ familiarity with these items; however, on the whole we realise that this category is item-dependent because each word received a different recognition score, e.g. *failure* (32%), *colonel* (50%), and *don’t* (68%). Therefore, we make a claim that all the lexical items belonging to this unpredictable set should be learnt by rote.

All in all, the categories which turn out most problematic in both the production and recognition tasks include 3 major classes: firstly, the ambiguous letter <o>, ‘the diagraph <ow>’ and sequence of consonantal letters with <o>, i.e. ‘<-old> and <oll>’ (each category representing a different type of error: unavoidable true local, ‘either-or’ local and avoidable globalised, respectively); secondly, words with unpredictable pronunciation, constituting a true unavoidable local error and thirdly, unpredictable pronunciation of single vowel letters (‘either-or’ local error). This finding supports the claim that words classified in such groups represented by Porzuczek’s tables no. 1, 4, 5, 7, 22 should constitute the core of exercises in the explicit practice of spelling-to-pronunciation relationships.

We have empirically confirmed the existence of local and globalised errors, the usefulness of such a classification and their relevance for production and recognition of words commonly mispronounced. We have also managed to select the precise graphophonemic patterns and other pronunciation rules which need to be addressed in phonetic courses as they appear to require learners’ attention.

To sum up, Porzuczek (2015: 187) notes that “the number of ‘difficult words’ to be learned can be further reduced by teaching some patterns which the students usually fail to notice without the teachers’ help. It is thus advisable to make learners cautious about the most tricky spellings and word stress assignment.” It is believed that the outcome of our research makes it easier for teachers of phonetics to decide which graphophonemic patterns should be explicitly taught in phonetic instruction. We also hope that Polish learners’ production of some phonetically challenging items ought to improve if they make an attempt at memorizing some spelling guidelines, which we have ranked according to their needs.

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Appendix 1

Table 1. The examined categories according to Porzuczek (2015) and the choice of lexical items included in the production and recognition task.

No.	Category	PRODUCTION	RECOGNITION
I.	UNAVOIDABLE TRUE LOCAL ERRORS:		
1.	Words with unpredictable pronunciation (T.1) ⁷	<i>abroad</i> <i>knowledge</i> <i>says</i> <i>southern</i>	<i>colonel</i> <i>don't</i> <i>failure</i>
2.	Unpredictable word stress (T.2)	<i>area</i>	<i>develop</i>
3.	Unpredictable <-ough> (T.3)	<i>dough</i>	<i>through</i>
4.	<o> → /v/ - /ʌ/ - /əʊ/ - (/u:/) - (/ʊ/) (T.4)	<i>above</i>	<i>company</i>
II.	'EITHER-OR' LOCAL ERRORS:		
5.	Unpredictable pronunciation of single vowel letters (T.5)	<i>ancient</i>	<i>angel, pint</i>
6.	<ea> → /i:/ - /e/ - (/eɪ/) (T.6)	<i>breathe</i>	<i>sweat</i>
7.	<ow> → /aʊ/ - /əʊ/ (T.7)	<i>bowl</i>	<i>owl</i>
8.	<ou> → /aʊ/ - (/u:/) - (/ʌ/). <ou> ≠ /əʊ/ (T.8)	<i>youth</i>	<i>wound (n.)</i> <i>(injury)</i>
9.	<au> → /ɔ:/ - (/ɒ/). <au> ≠ /əʊ/, /aʊ/ (T.9)	<i>because</i>	<i>author</i>
10.	<ear> → /ɪə/ - /eə/ (T.10)	<i>ear</i>	<i>tear</i>
11.	Problems with voicing (T.11)	<i>basic</i>	<i>increase</i>
12.	<g> → /g/ - /dʒ/ before <e>, <i>, <y> (T.12)	<i>target</i>	<i>gear</i>
III.	AVOIDABLE (GLOBALISED) ERRORS		
13.	Reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/ (T.13)	<i>surface</i>	<i>certain</i>
14.	Reduce <-ous>, <-age>, and <-ate> in nouns and adjectives (T.14)	<i>accurate</i>	<i>enormous</i>
15.	Never stress the adjectival <i>-able/-ible</i> suffix. Reduce it to /-əbl/ instead (T.15)	<i>available</i>	<i>capable</i>
16.	If unstressed, <-er>, <-o(u)r> → /ə/; <-ey> → /ɪ/ (T.16)	<i>donkey</i> ⁸	<i>monkey</i>
17.	Stressed preconsonantal or word-final <wor>, <ur>, <ir>, <er> → /ɜ:/; <earC> → /ɜ:/ if C is not an inflectional ending (but <i>beard</i>) (T.17)	<i>world</i>	<i>worth</i>
18.	<-ough>, <-aught> → /ɔ:t/ (but <i>drought</i>) (T.18)	<i>taught</i>	<i>ought</i>
19.	<aw> → /ɔ:/ (T.19)	<i>draw</i>	<i>law</i>
20.	<air> → /eə/ (T.20) ⁹	<i>aircraft</i>	-
21.	<-aiC>, <-ay> → /eɪ/ (T.21) ¹⁰	-	<i>layer</i>
22.	<old> → /əʊld/; <oll> → /əʊl/ but (<i>doll</i>) (T.22)	<i>old</i>	<i>cold</i>
23.	<(s)waC-> → /s)wɒC/; <(s)quaC-> → /s)kwɒC/; <war(C)-> → /wɔ:(C)/ (T.23)	<i>ward</i>	<i>wander</i>
24.	<i> ≠ /i:/ (T.24)	<i>pitch</i>	<i>picture</i>
25.	Predictable consonant voicing (T.25)	<i>pressure</i>	<i>though</i>
26.	Mute consonant letters (T.26)	<i>comb</i>	<i>hymn, muscle</i>
27.	Isolated errors (T.27)	<i>pronounce</i> <i>thousand</i>	<i>variety</i>

⁷ The abbreviation (T.) in brackets stands for the Table in Porzuczek (2015) including items characteristic for the discussed category and the corresponding number refers to the number of the table in the same text.

⁸ The category: 'If unstressed, <-ey>, <-our> → /ə/; <-ey> → /ɪ/' is mistakenly represented by a word which does not come from Porzuczek's (2015); however, it is included in Sobkowiak's (1996) list of words most commonly mispronounced by Polish learners of English.

⁹ Porzuczek's (2015) category '<air> → /eə/' was mistakenly not tested in the recognition task.

¹⁰ Porzuczek's (2015) category '<-aiC>, <-ay> → /eɪ/' was mistakenly not tested in the production task.

Appendix 2

Table 2. Ranking of results for word production: task 1 (word reading).

No.	Category	Items - production	% correct renditions
1.	<old> → /əʊld/; <oll> → /əʊl/ but (<i>doll</i>) (T.22)	<i>old</i>	6%
2.	Mute consonant letters (T.26)	<i>comb</i>	9%
3.	Unpredictable pronunciation of single vowel letters (T.5)	<i>ancient</i>	27%
4.	<o> → /ɒ/ - /ʌ/ - /əʊ/ - (/u:/) - (/ʊ/) (T.4)	<i>above</i>	29%
5.	Unpredictable <-ough> (T.3)	<i>dough</i>	34%
6.	Reduce <-ous>, <-age>, and <-ate> in nouns and adjectives (T.14)	<i>accurate</i>	34%
7.	Words with unpredictable pronunciation (T.1)	<i>southern</i> (23%) <i>abroad</i> (38%) <i>knowledge</i> (38%) <i>says</i> (53%)	38% ¹¹
8.	Isolated errors (T.27)	<i>pronounce</i> (38%) <i>thousand</i> (42%)	40% ¹²
9.	Reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/. (T.13)	<i>surface</i>	41%
10.	Unpredictable word stress (T.2)	<i>area</i>	44%
11.	Stressed preconsonantal or word-final <wor>, <ur>, <ir>, <er> → /ɜ:/; <earC> → /ɜ:/ if C is not an inflectional ending (but <i>beard</i>). (T.17)	<i>world</i>	53%
12.	<ou> → /aʊ/ - (/u:/) - (/ʌ/). <ou> ≠ /əʊ/ (T.8)	<i>youth</i>	58%
13.	Problems with voicing (T.11)	<i>basic</i>	62%
14.	<aw> → /ɔ:/ (T.19)	<i>draw</i>	62%
15.	<-ough>, <-aught> → /ɔ:t/ (but <i>drought</i>) (T.18)	<i>taught</i>	64%
16.	Predictable consonant voicing (T.25)	<i>pressure</i>	68%
17.	<(s)waC-> → /s)wɒC/; <(s)quaC-> → /s)kwɒC/; <war(C)-> → /wɔ:(C)/ (T.23)	<i>ward</i>	70%
18.	<i> ≠ /i:/ (T.24)	<i>pitch</i>	74%
19.	<ow> → /aʊ/ - /əʊ/ (T.7)	<i>bowl</i>	77%
20.	<ea> → /i:/ - /e/ - (/eɪ/) (T.6)	<i>breathe</i>	84%
21.	If unstressed <-er>, <-our> → /ə/; <-ey> → /ɪ/ (T.16)	<i>donkey</i>	84%
22.	<air> → /eə/ (T.20)	<i>aircraft</i>	84%
23.	Never stress the adjectival <i>-able/-ible</i> suffix. Reduce it to /-əbl/ instead. (T.15)	<i>available</i>	86%
24.	<ear> → /ɪə/ - /eə/ (T.10)	<i>ear</i>	91%
25.	<au> → /ɔ:/ - (/ɒ/). <au> ≠ /əʊ/, /aʊ/. (T.9)	<i>because</i>	93%
26.	<g> → /g/ - /dʒ/ before <e>, <i>, <y> (T.12)	<i>target</i>	95%

¹¹ The mean value for four items.¹² The mean value for two items.

Appendix 3

Table 3. Ranking of results for word recognition: task 2 (true/false).

No.	Category	Items for recognition	% correct responses
1.	Problems with voicing (T.11)	<i>increase</i>	27%
2.	<ow> → /aʊ/ - /əʊ/ (T.7)	<i>owl</i>	36%
3.	<(s)waC-> → /s)wɒC/; <(s)quaC-> → /s)kwɒC/; <war(C)> → /wɔ:(C)/ (T.23)	<i>wander</i>	41%
4.	Unpredictable pronunciation of single vowel letters (T.5)	<i>pint</i> (20%) <i>angel</i> (64%)	42% ¹³
5.	<-old> → /əʊld/; <oll> → /əʊl/ but (<i>doll</i>) (T.22)	<i>cold</i>	48%
6.	Words with unpredictable pronunciation (T.1)	<i>failure</i> (32%) <i>colonel</i> (50%) <i>don't</i> (68%)	50% ¹⁴
7.	<-aiC>, <-ay> → /eɪ/ (T.21)	<i>layer</i>	58%
8.	<ou> → /aʊ/ - (/u:/) - (/ʌ/). <ou> ≠ /əʊ/ (T.8)	<i>wound</i> (n.) <i>injury</i>	58%
9.	<au> → /ɔ:/ - (/ɒ/). <au> ≠ /əʊ/, /aʊ/. (T.9)	<i>author</i>	70%
10.	Unpredictable word stress (T.2)	<i>develop</i>	71%
11.	Mute consonant letters (T.26)	<i>hymn</i> (59%), <i>muscle</i> (90%)	74,5% ¹⁵
12.	Stressed preconsonantal or word-final <wor>, <ur>, <ir>, <er> → /ɜ:/; <earC> → /ɜ:/ if C is not an inflectional ending (but <i>beard</i>). (T.17)	<i>worth</i>	76%
13.	Predictable consonant voicing (T.25)	<i>though</i>	78%
14.	<g> → /g/ - /dʒ/ before <e>, <i>, <y> (T.12)	<i>gear</i>	78%
15.	Never stress the adjectival <i>-able/-ible</i> suffix. Reduce it to /-əbl/ instead. (T.15)	<i>capable</i>	80%
16.	Reduce <-ous>, <-age>, and <-ate> in nouns and adjectives (T.14)	<i>enormous</i>	81%
17.	Unpredictable <-ough> (T.3)	<i>through</i>	82%
18.	<-ough>, <-aught> → /ɔ:t/ (but <i>drought</i>) (T.18)	<i>ought</i>	82%
19.	<ea> → /i:/ - /e/ - (/eɪ/) (T.6)	<i>sweat</i>	83%
20.	<o> → /ɒ/ - /ʌ/ - /əʊ/ - (/u:/) - (/ʊ/) (T.4)	<i>company</i>	85%
21.	<i> ≠ /i:/ (T.24)	<i>picture</i>	85%
22.	Isolated errors (T.27)	<i>variety</i>	86%
23.	Reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/. (T.13)	<i>certain</i>	89%
24.	<ear> → /ɪə/ - /eə/ (T.10)	<i>tear</i>	89%
25.	<aw> → /ɔ:/ (T.19)	<i>law</i>	94%
26.	If unstressed <-er>, <-our> → /ə/; <-ey> → /ɪ/ (T.16)	<i>monkey</i>	99%

¹³ the mean value for two items¹⁴ the mean value for three items.¹⁵ the mean value for two items

Appendix 4

Table 4. Ranking of word production and recognition results grouped according to increasing results for the production task.

No.	Category	Task 1: PRODUCTION (word reading)	T ₁ : %	Task 2: RECOGNITION (true/false)	T ₂ : %
1.	<-aiC>, <-ay> → /eɪ/ (T.21)	-	-	layer	58%
2.	<-old> → /əʊld/; <oll> → /əʊl/ but (doll) (T.22)	old	6%	cold	48%
3.	Unpredictable pronunciation of single vowel letters (T.5)	ancient	27%	angel (64%) pint (20%)	42%
4.	<o> → /ɒ/ - /ʌ/ - /əʊ/ - (/u:/) - (/ʊ/) (T.4)	above	29%	company	85%
5.	Unpredictable <-ough> (T.3)	dough	34%	through	82%
6.	Reduce <-ous>, <-age>, and <-ate> in nouns and adjectives (T.14)	accurate	34%	enormous	81%
7.	Words with unpredictable pronunciation (T.1)	southern (23%) abroad (38%) knowledge (38%) says (53%)	38% 16	failure (32%) colonel (50%) don't (68%)	50%
8.	Isolated errors (T.27)	pronounce (38%) thousand (42%)	40%	variety	86%
9.	Reduce the vowel in stress-adjacent syllables and in syllables following the stressed one to /ə/ or /ɪ/. (T.13)	surface	41%	certain	89%
10.	Unpredictable word stress (T.2)	area	44%	develop	71%
11.	Stressed preconsonantal or word-final <wor>, <ur>, <ir>, <er> → /ɜ:/; <earC> → /ɜ:/ if C is not an inflectional ending (but beard). (T.17)	world	53%	worth	76%
12.	<ou> → /aʊ/ - (/u:/) - (/ʌ/). <ou> ≠ /əʊ/ (T.8)	youth	58%	wound (n.) injury	58%
13.	Problems with voicing (T.11)	basic	62%	increase	27%
14.	<aw> → /ɔ:/ (T.19)	draw	62%	law	94%
15.	<-ough>, <-aught> → /ɔ:t/ (but drought) (T.18)	taught	64%	ought	82%
16.	Predictable consonant voicing (T.25)	pressure	68%	though	78%
17.	<(s)waC> → /s(w)ɔ:C/; <(s)quaC> → /s(kw)ɔ:C/; <war(C)> → /wɔ:(C)/ (T.23)	ward	70%	wander	41%
18.	<i> ≠ /i:/ (T.24)	pitch	74%	picture	85%
19.	<ow> → /aʊ/ - /əʊ/ (T.7)	owl	77%	owl	36%
20.	<ea> → /i:/ - /e/ - (/eɪ/) (T.6)	breathe	84%	sweat	83%
21.	If unstressed <-er>, <-our> → /ə/; <-ey> → /ɪ/ (T.16)	donkey ¹⁷	84%	monkey	99%
22.	<air> → /eə/ (T.20)	aircraft	84%	-	
23.	Never stress the adjectival -able/-ible suffix. Reduce it to /-əbl/ instead. (T.15)	available	86%	capable	80%
24.	Mute consonant letters (T.26)	comb	9%	hymn (59%) muscle (90%)	74.5 %
25.	<ear> → /ɪə/ - /eə/ (T.10)	ear	91%	tear	89%
26.	<au> → /ɔ:/ - (/ɒ/). <au> ≠ /əʊ/, /aʊ/. (T.9)	because	93%	author	70%
27.	<g> → /g/ - /dʒ/ before <e>, <i>, <y> (T.12)	target	95%	gear	78%

¹⁶ The mean value for four items

¹⁷ The category: 'If unstressed, <-ey>, <-our> → /ə/; <-ey> → /ɪ/' was mistakenly represented by a word which does not come from Porzuczek's (2015) list included in his Table 16; however, it is included in Sobkowiak's (1996) list of words most commonly mispronounced by Polish learners of English.