Teaching Spelling Skills with a Mind-mapping Software

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Prof. Al-Jarf has been teaching EFL, ESP and translation at King Saud University, Riyadh, Saudi Arabia for 23 years. Her areas of interests are: Technology integration in language teaching and teaching methodology and course design. She has 6 books and 120 articles published in refereed journals and has given 200 presentations and conducted 30 workshops in 48 countries. She is an international journal editor and reviewer of translated books, grant and conference proposals, and faculty promotion research. In 2008, she won the Excellence in Teaching Award at the university, college, and department levels.

Abstract

Although the language program at the College of Languages and Translation offers several English language courses in the first four semesters of college, the spelling skill is completely ignored. Since many EFL freshman students are poor spellers, mind-mapping software can be used to help them connect spoken phonemes with their written forms. Mind-mapping software use lines, colors, arrows, branches to show connections between the spelling rule and examples generated on the mind map. This study shows how mind-mapping software can be integrated in EFL courses to help students discriminate different pronunciation of the vowel letters a, i, o, e, u; adding a final silent e; pronunciation of vowel digraphs; consonant letters with more than one sound; different pronunciations of consonant letters *c, cc, g, ch, s*; double consonants; homophones; homographs; hidden sounds; rules for adding affixes; assimilation; elision; acronyms and abbreviations.

Keywords: mind-mapping, spelling, phonics, sound-symbol associations, second language.

1. Introduction

A mind map is a graphic organizer in which the major categories radiate from a central idea and sub-categories are represented as branches of larger branches**.** It is a visual tool that can be used to generate ideas, take notes, organize thinking, and develop concepts**.** Teachers can use it to enhance learning. It is helpful for visual

learners as an illustrative tool that assists with managing thought, directing learning, and making connections. It is a skill that cuts across ability levels and encompasses all subject matters. It enables students to better organize, prioritize, and integrate material presented in a course. Three-dimensional mind maps are a highly effective tool for providing kinesthetic and sensory experiences for young children. Using the e-map technique gives instructors the freedom to show interrelationships between concepts and content in a very visual and nonlinear structure that benefits their students. Mind mapping has considerable utility for tracking change in the course of learning, and has the capacity of distinguishing between changes that are meaningful, and those that are not. Deep, surface and non-learning are tangible measures of learning that can be observed directly as a consequence of concept mapping (Buzan, 2000; Goodnough & Woods, 2002; Goodnough & Long, 2002; Budd, 2004; Goldberg, 2004; Stephens & Hermus, 2007; Hay, 2007; Ruffini, 2008, Howitt, 2009; Zipp, Maher & D'Antoni, 2009).

A review of experimental and quasi-experimental studies by Nesbit & Adesope (2006) in which students in Grade 4 to postsecondary learned by, constructed, modified, viewed or used concept maps to learn science, psychology, statistics, and nursing showed that across several instructional conditions, settings, and teaching methodologies, use of concept mapping was associated with increased retention of information.

In second language contexts, Chularut and DeBacker' (2003) investigated the effectiveness of concept mapping as a learning strategy. Their findings showed a statistically significant interaction of time, method of instruction, and level of English proficiency for self-monitoring, self-efficacy, and achievement. The concept mapping group showed significantly greater gains from pre-test to post-test than the individual study group. Students who used background knowledge, context, morphology, and dictionaries learnt words more effectively. They adapted a vocabulary web consisting of eight identical bubbles to provide students with a word map, intertwining most of the elements to clarify word meaning as essential to vocabulary instruction (Rosenbaum, 2001). When bilingual knowledge maps (BiK-maps) were used as tools

for learning German-English word pairs by 72 undergraduates, BiK-map learners outperformed list learners on all dependent measures (Bahr & Dansereau, 2001).

Although the language program at the College of Languages and Translation (COLT), King Saud University, in Riyadh, Saudi Arabia, offers 21 English language courses: 4 Listening, 4 speaking, 4 reading, 4 writing, 2 vocabulary building, 2 grammar, and dictionary skills courses in the first four semesters of the program, the spelling skill is completely ignored. As a result, many translation students at COLT are poor spellers. The typical freshman student misspells 41.5% of the words. Poor spellers have orthographic problems with vowel digraphs, double consonants, silent vowels and consonants. They also have phonological problems: hearing and discriminating all or most of the phonemes in a word, vowel phonemes, final syllables or suffixes, and confuse minimal pairs; confuse vowels and vowel digraphs as in: *preson*, *intristing*, *wendy,* realatives, *cheeper, tooking, toking;* delete final silent vowels: *bridg, mils, tak, cours*; delete vowels: *anther*, *mony*; delete silent consonants as in: *exited;* reduce double consonants into one: *midle, wory, connects;* students tend to spell english words phonetically as in: *pepul, maind* (Al-Jarf, 2005).

> Learning to spell English involves the correct association of phonemes and graphemes. It also involves the ability to sequence, segment and transform phonemes into graphemes. The speller needs to coordinate several sources of word knowledge: phonological, orthographic, morphological and semantic (Wong, 1986).

To help freshman students master English spelling, the present study shows how EFL/ESL students can be taught to associate the spoken sounds with their written forms and how EFL students can be taught the basics of English spelling (phonics) using a mind-mapping software.

For students majoring in translation, the ability to associate the spoken sound and written symbols is important, especially because English spelling is characterized by inconsistent pronunciations, discrepancies in numbers of letters and combinations of letters used to represent sounds (Fay, 1971). Failure to retain the detailed knowledge of spellings would result in word recognition and word meaning problems. Lennox and Siegel (1998) also pointed out that good spellers use both phonological and visual

clues to a greater extent than do poor spellers. Phonological deficiencies in stored representations and in short-term memory coding were probably responsible for problems of learning disabled students (Rubin and Liberman, 1983). Students with disordered spelling have a general difficulty in processing phonological complexity (Dodd, Sprainger, and Oerlemans, 1989).

2. Curriculum, Tasks and Materials

A series of graded spelling lessons can be integrated in the reading, writing and vocabulary building courses that students at COLT take. Each lesson may consist of a phoneme-grapheme rule and words illustrating that rule. Familiar monosyllabic and disyllabic words can be used. The teaching of phonics may proceed in the following sequence:

- Pronunciation of the vowel letters a, i, o, e, u *(sat, pit, pen, pot, cut)*
- Pronunciation of vowel letters *a, e, i, o, u* when adding a final silent *e* (in monosyllabic words *(car, care; sit, site, pet, pete; cut, cute; cot, cote).*
- Pronunciation of vowel digraphs *(oo, ee, ea, ou, ai, oi, oa, au, ie, ei, ow, ew, aw, ue, ui, ua, oe, eo, io, eu, ia).*
- Pronunciation of vowel digraphs with a final silent *e* in monosyllabic words *(believe,* receive*, sleeve, groove, source).*
- Pronunciation of vowel digraphs with the same pronunciation *(clean, keep, believe).*
- Pronunciation of consonant letters with more than one sound such as *c, cc, ch, g (city, cat, clock; get, gist; accent, account; chat, school, machine).*
- Silent consonants (*chalk, walk; which, where; write, knife; listen, autumn).*
- Double consonants & geminates *(immoral, illiterate, kettle, offer; allow, arrive).*
- Hidden sounds *(nation, picture, pressure, usual, special, comprehension, decision, leisure, sure).*
- Words with two pronunciations *(present, consent, record, comment, separate).*

- Word pairs with the same pronunciation *(right, write; sight, site; fair, fare; whole, hole).*
- Words commonly confused *(affect, effect; accept, except; loose, lose).*
- Doubling consonants before a suffix such as *-ed, -ing, -er (planned, planner, planning; inferring; swimmer, swimming; sitter, sitting, slipped).*
- Dropping silent e before a suffix *(believe, believer, believing, believable).*
- Changing *y* into *i* before a suffix *(city, cities; lady, ladies; worry, worries; carried; worried).*
- Adding *–s* and *–es; -ed* to verbs and nouns *(buses, planned, finishes, quizzes).*
- Words with two parts of speech such as words ending in *–ate, -ment (comment, experiment; separate, graduate).*
- Spelling changes that take place when adding affixes such as: Dropping silent e before a suffix *(maker, making),* doubling of consonants *(sitter, planner),* adding a combining vowel *(psychological),* consonant replacement before a suffix *(describe, description)*.
- Changing the pronunciation of a suffix after certain consonants as in *(plants, plans, wished, planned).*
- Flaps, reduction, vowel linkage, pause and juncture as in *(latter & ladder; winter & winner; lunch, students, lands; Did you seem ill & Did you see Mill; instead of).*
- Punctuation: use of hyphenation in compound, apostrophes, contracts, ordinal numbers.
- Acronyms and abbreviations (*NASA, UNESCO, Dr, Mrs, e.g., Eng,. Am.).*
- Spelling variations: American vs British spelling *(meter, metre; color, colour; realize, realise).*

To help the students compare and contrast, make connections and recall the phonics rules, a summary lesson is given every 5-7 lessons. Minimal pair practice is also given. The written forms are always associated with the spoken sounds and vice versa. While reading and writing, examples representing spelling rules are highlighted. The students are encouraged to make their own mind maps and compile word related to

each phoneme-grapheme association rule.

3. Instructional Strategy with Free Mind

In-class spelling instruction with the mind mapping software goes through 5 stages: Orientation, presentation and modeling, guided practice, independent practice, and assessment. Each stage is explained in below.

3.1 Orientation

To help EFL freshman students categorize, visualize and recall sound-symbol associations, a mind mapping software called *"Free Mind 0.9.0"* can be integrated in in-class spelling instruction. In the first week of classes, the students are introduced to the mind-mapping software and purposes of using it. They are given the link and are asked to download it free of charge from (http://freemind.en.softonic.com/). The components of the *Free Mind 0.9.0* homepage are introduced and explained.

3.2 Presentation and Modeling

The instructor can train students to use the Free Mind Software using an LCD projector or a smart board. Every week the software is used to create mind maps for one phonic rule. Different types of mind maps can be created to show the pronunciation of the vowel letters *a, i, o, e, u*; pronunciation of the vowel letters *a, i, o, e, u* in words ending in a silent *e,* vowel digraphs, vowel digraphs and final silent *e,* vowel digraphs with the same pronunciation, consonant letters with more than one sound, different pronunciations of consonant letters, silent consonants, double consonants, hidden sounds, words with two pronunciations, words with the same pronunciation, words commonly confused, and so on.

A mind map begins with placing a phonics category in the middle of the screen. This phonic category is used as a basis for grouping, categorizing and sub-categorizing words sharing the same phoneme-grapheme relationship. Branches radiating from the phonic category are drawn for the sub-categories and examples sharing the same phoneme-grapheme relationship. Sub-categories, examples and

words are elicited from students, grouped into related phonics sub-categories and placed radiating out from the central phonics category.

In Mindmaps 1-6, the central focus is on vowels and diphthongs, vowels before r, silent letters, double letters, hidden letter and homonyms. Each of the main branches represents one vowel letter or an example double letters, a silent letter, a pair of homonyms. Examples of words containing a particular vowel, silent letter, double consonants…etc radiate from each main branch. Thus associations are shown in the mind map. The mind map is kept clear by using a radiant hierarchy, numerical order or outlines to embrace branches. The central lines are made thicker, organic and flowing, becoming thinner as they radiate out from the centre.

The students develop their own personal style of mind mapping. They draw empty lines, collect words and classify them. They change colors to reenergize their mind. Sometimes the students are able to see relationships and connections immediately and can add sub-branches to a category. Sometimes they cannot, so they can just connect the subcategories to the central focus. Organization always comes later. The first requirement is to get few words and categories out of their head onto the screen.

During the mind mapping activity, the instructor serves as a facilitator. She provides technical support, answers students' questions and helps with the mind maps, categories, examples representing each category in and out of class.

3.3 Guided Practice

Students practice connecting new words studied in class with the phoneme-grapheme rule that they already know using *Free Mind 0.9.0*. They keep their phonics mind maps and continue to add phonics sub-categories and words to each map, every time a lesson is covered in class. For example, they keep the silent letters map which has a main branch for each silent letter such as *h, t, s,* and words containing each silent letter. New branches are added for new silent letters such as *n & w*. With the help of the instructor, the students make word lists and add words related to each phoneme-grapheme correspondence rule mind map. New phonics categories are explored through discussion.

3.4 Independent Practice

The students continue to use *Free Mind* at home and continue to add words related to each phonics rule. The students are handed out questions that require them to group, classify or connect words sharing the same phonics rule on their own in class or at home. Mind maps can be created and added to during, and after reading texts and doing vocabulary lessons.

3.5 Assessment

Students can keep their spelling mind maps in a folder or e-portfolio. Mind maps can be also posted in an online course. Students can exchange mind maps and may work on them collectively. They can also be handed our mind maps containing phonics categories and subcategories with a group of written or spoken words to insert on the maps.

4. Conclusion

The present study shows how the Free Mind 0.9.0 software is used in grouping, categorizing, and classifying words on the basis of **sound-symbol associations**. Those mind maps can be used in introducing, categorizing, visualizing and reviewing phonics rules and as spelling mnemonic devices. Through a graphic depiction of words, these mind maps build upon what students know to help them see relationships with newly introduced phonics categories. Students develop related rather than isolated knowledge of phonics rules and develop skill in differentiating phoneme-grapheme associations in spoken and written words representing.

These mind mapping strategies have been reported to improve word and concept knowledge as well as comprehension across grade levels, in a variety of content areas, and with a variety of learners, including struggling ESL and learning disabled students. In those studies, mind mapping enabled students to better organize, prioritize, and integrate material presented in a course (Zipp, Maher & D'Antoni (2009). Students surveyed also perceived mind mapping (MM) as an entertaining and

interesting approach and thought that mind mapping enhanced their learning. Most students preferred individual MM; some preferred group MM. The teacher enjoyed using MM and thought that it fostered student motivation in learning science (Goodnough & Woods, 2002). Most of the students surveyed appreciated its use for recall and creative thinking, although some prefer a top-to-bottom, linear outline approach (Mento, Martinelli & Jones, 1999).

It is noteworthy to say that the aim of the mind mapping activity is not to teach the students how to apply the details of the *Free Mind* software. Focus should be on placing a phonics category that would be used as a basis for grouping and classifying words in the center, how to add branches for the word examples, how to change the font color, size and case.

References

Al-Jarf, Reima (2005). The Effects of Listening Comprehension and Decoding Skills on Spelling Achievement of EFL Freshman Students. *ETAK (Journal of the English Language Teachers in Korea), 11, 2,* 2005.

Bahr, G. & Dansereau, D. (2001). Bilingual knowledge maps (BiK-Maps) in second-language vocabulary learning. *Journal of Experimental Education, 70, 1,* 5-24.

Budd, John W. (2004). Mind maps as classroom exercises. *Journal of Economic Education, 35, 1,* 35.

Buzan, Tony. (2000). *The mind map book*. New York: Penguin Books.

Chularut, Pasana & DeBacker, Teresa (2004). The influence of concept mapping on achievement, self-regulation, and self-efficacy in students of English as a second language. *Contemporary Educational Psychology, 29, 3*, 248-263.

Dodd B., Sprainger N., Oerlemans M. (1989). The phonological skills of spelling disordered children. *Reading and Writing: An Interdisciplinary Journal, 1, 4,* 333-355

Fay, L. (1971). *Reading and spelling: How are they related*? ERIC Document Reproduction Service No. ED059009.

Goldberg, Cristine (2004). Brain friendly techniques: Mind mapping. *School Library Media Activities Monthly, 21, 3,* 22-24.

Goodnough, Karen & Long, Robin (2002). Mind Mapping: A Graphic Organizer for the Pedagogical Toolbox. *Science Scope, 25, 8,* 20-24.

Goodnough, Karen & Woods, Robin (2002). *Student and teacher perceptions of mind mapping: A middle school case study.* ERIC Document Reproduction Service No. ED470970.

Hay, David B. (2007). Using concept maps to measure deep, surface and non-learning outcomes. *Studies in Higher Education, 32, 1,* 39-57.

Howitt, Christine (2009). 3-D Mind Maps: Placing Young Children in the Centre of Their Own Learning. *Teaching Science, 55, 2,* 42-46.

Lennox, L. & Spiegel, L. (1998). *Phonological and orthographic processes in good and poor spellers.* In Holm, Charle and Joshi, Malatesha et al (Eds.) Reading and spelling: Development and disorders. Lawrence Erlbaum Associates Inc.

Mento, Anthony J.; Martinelli, Patrick & Jones, Raymond M. (1999). Mind Mapping in Executive Education: Applications and Outcomes. *Journal of Management Development, 18, 4,* 390-407.

Nesbit, John & Adesope, Olusola (2006). Learning with concept and knowledge maps: a meta-analysis. *Review of Educational Research, 76, 3*, 413-448.

Rosenbaum, Catherine (2001). A word map for middle school: A tool for effective vocabulary instruction. *Journal of Adolescent & Adult Literacy, 45, 1,* 44-49.

Rubin, H., & Liberman, I. (*1983*). Exploring the oral and written language errors made by language disabled children. *Annals of Dyslexia, 33,* 110-120

Ruffini, Michael F. (2008). Using e-maps to organize and navigate online content. *EDUCAUSE Quarterly, 31, 1,* 56-61.

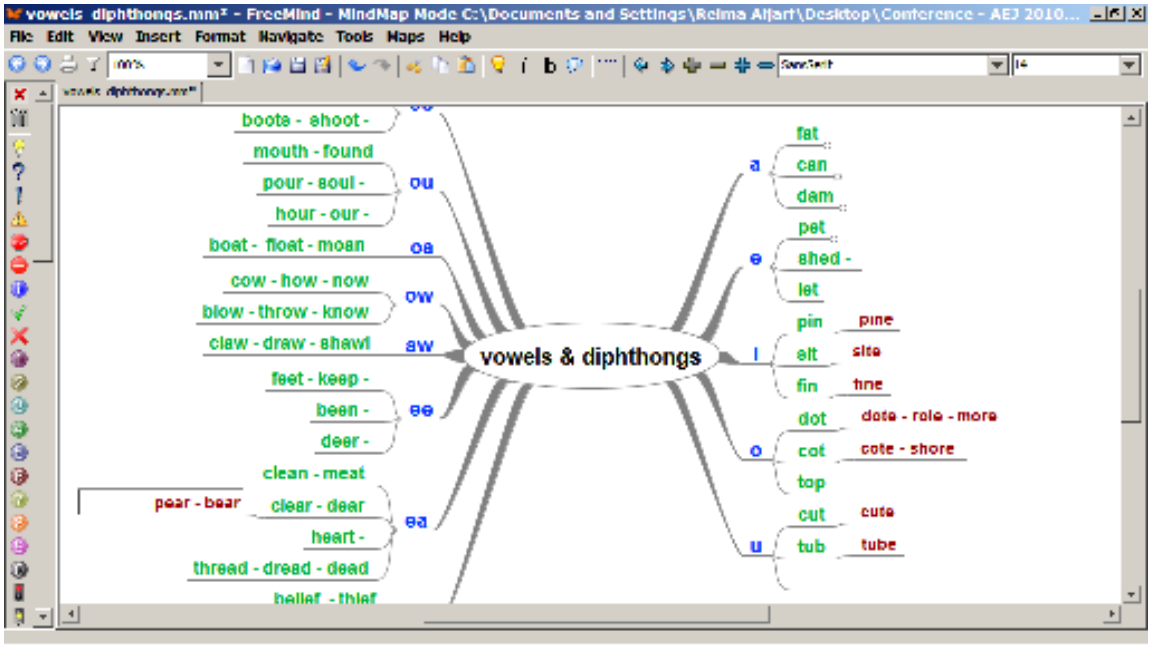
Stephens, Pam and Hermus, Cindy (2007). Making art connections with graphic organizers. *School Arts: The Art Education Magazine for Teachers, 106, 8,* 55.

Wong, B. (1986). A cognitive approach to teaching spelling. *Exceptional children; 53,*

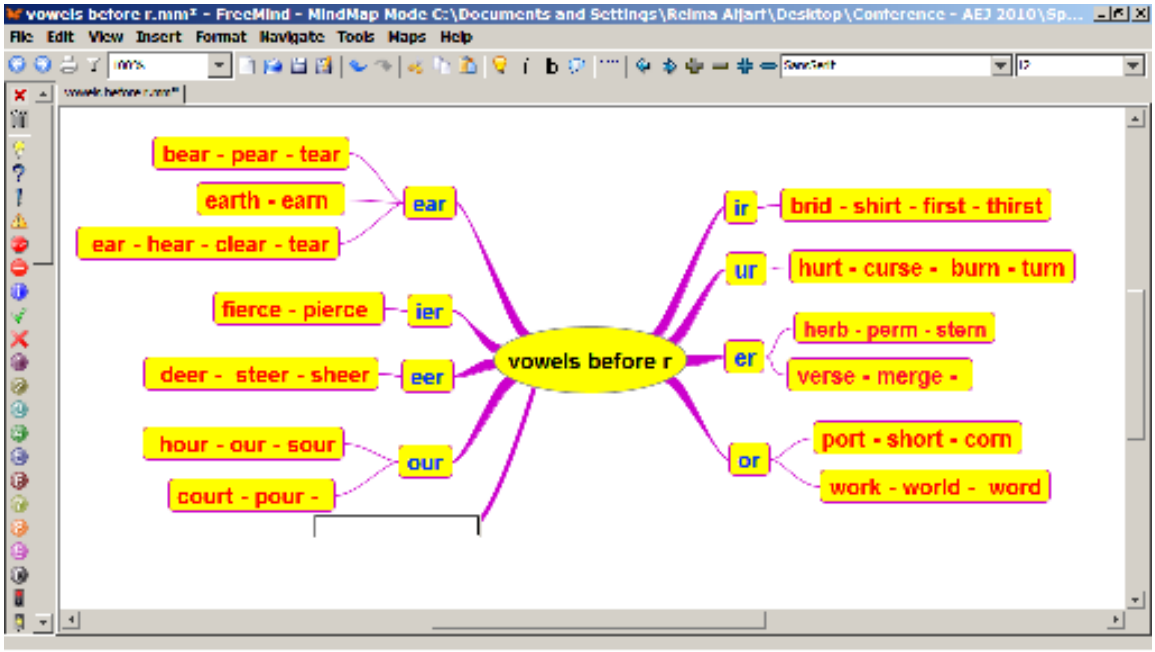
2, 169-173.

Zipp, Genevieve Pinto; Maher, Cathy & D'Antoni, Anthony V. (2009). Mind maps: useful schematic tool for organizing and integrating concepts of complex patient care in the clinic and classroom. *Journal of College Teaching & Learning, 6, 2,* 59-68.

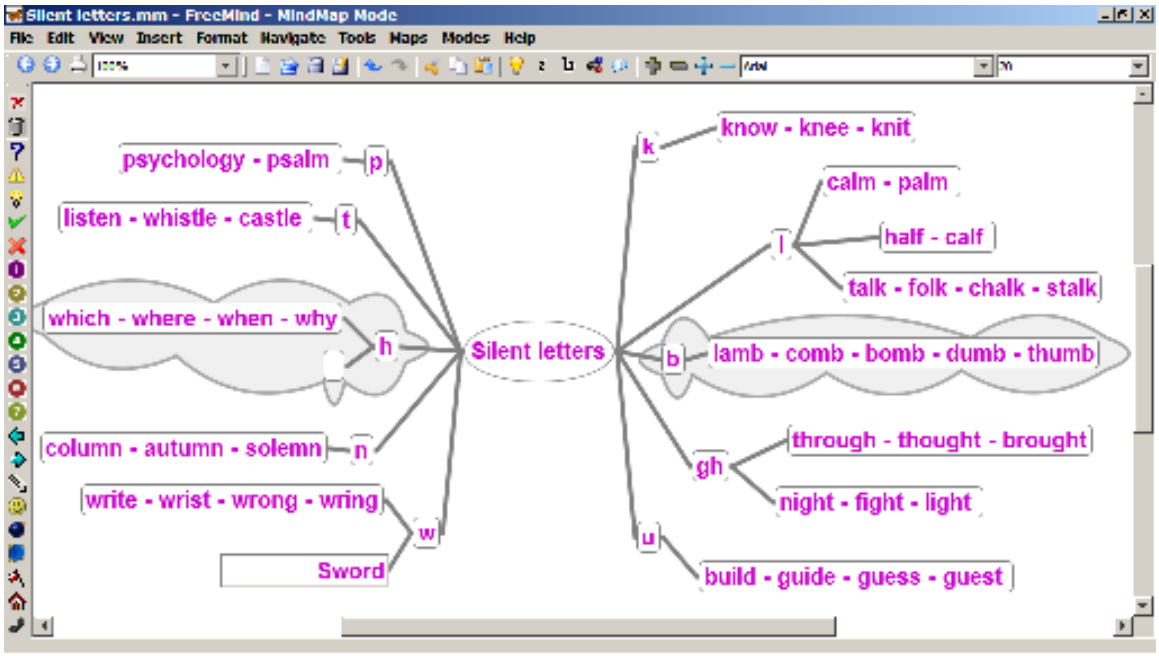
Appendix



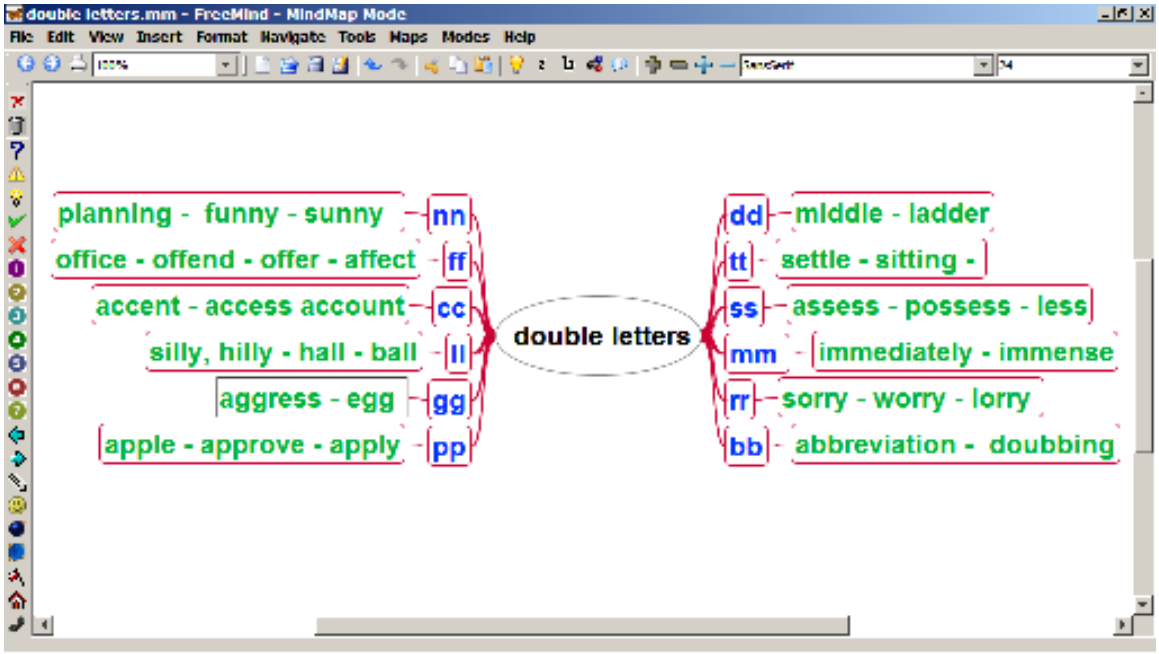
Mindmap (1) Vowels and Diphthongs



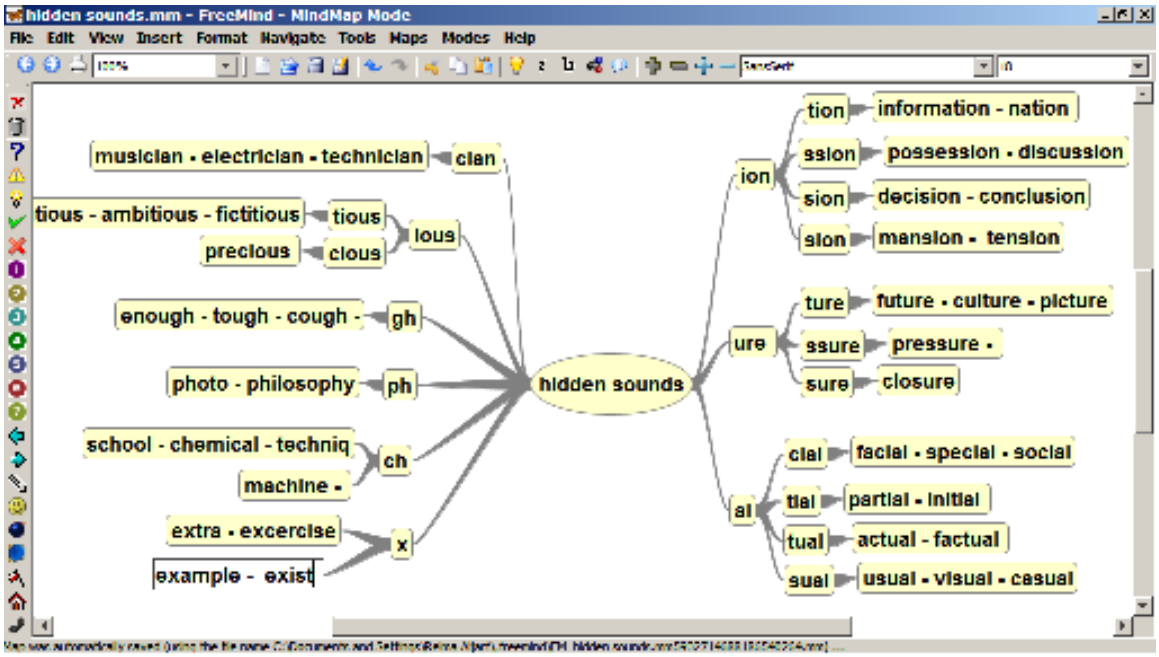
Mindmap (2) Vowels Before r



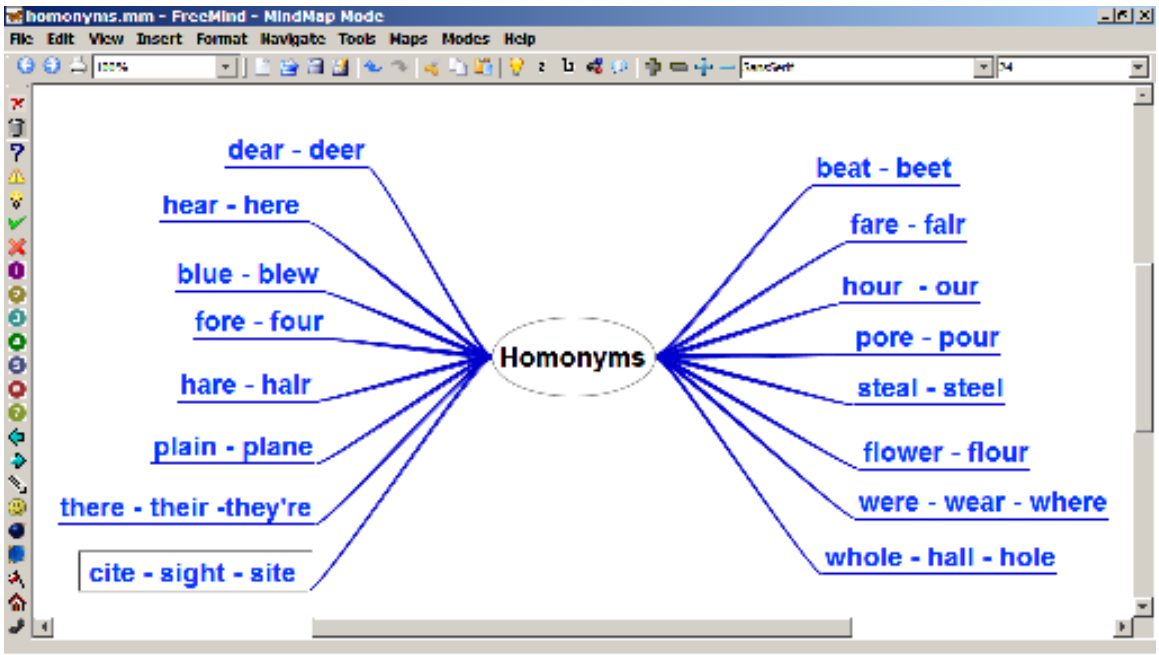
Mindmap (3) Silent Letters



Mindmap (4): Double letters



Mindmap (5): Hidden Sounds



Mindmap (6) Homonyms