Nonlinguistic Representations and Digital Resources in Vocabulary Teaching

Andrea Kriston[*]

Abstract: When teaching effective vocabulary, there are some steps to be taken in consideration. Talking about ways of acquiring knowledge, information can be stored in two ways: linguistic and nonlinguistic. Nonlinguistic representations are known as having very high impact on student achievement. They can be identified as graphic organizers, pictures, physical models, mental images, and kinesthetic activity. Besides analyzing nonlinguistic representations and observing the advantages they offer, along with the drawbacks, the paper offers some ideas on how to make use of certain digital tools to increase the above metioned aspect.

Keywords: nonlinguistic representations, vocabulary, digital resources, multimedia learning, graphic representations.

1. Introduction

Nowadays there is a huge variety of teaching methods when it comes to second language teaching. If the 20th century witnessed a boom in that direction, the emergence of the digital era led to a totally new dimension turning upside down the so-called traditional language teaching methods. Some of the issues related to the impact of digital media on language and on teaching methods have been addressed recently in the specialised literature (Dejica, Hansen, Sandrini, Para 2016).

Being bilingual or multilingual has become common practice these days, since we live in a globalized world, where commerce, education or professional world require the knowledge and often master of at least one foreign language.

That is why practices of teaching a second language developed in form and number, each of them trying to fulfil different needs of different learning categories. From a historical perspective, despite all teaching methods we can notice a common

---
[*] Assistant Lecturer, PhD, Department of Communication and Foreign Languages, Faculty of Communication Sciences, *Politehnica* University of Timișoara, Romania.

denominator that crosses all approaches. Thus, the final aim of teaching a second language is the ability of the learner to express himself, that is, to communicate in a different language than his or her own.

2. Vocabulary teaching - essential steps to be followed

If we had to resume most trends that deal with language teaching, we would notice that the outcome in the last century consisted mainly in the learner's capacity to communicate. Experience taught us that approaches of the language "through detailed analysis of its grammar rules, followed by application of this knowledge to the task of translating sentences and texts into and out of the target language" (Richards & Rodgers 1986: 3) is now obsolete. The core of second language learning focuses on enhancing the communicative competence whether we talk about primarily spoken form, or teaching through physical activity.

The importance of vocabulary gained respect over grammar because vocabulary enables the learner express himself fluently in a foreign language. The field of second language acquisition has seen the reemergence of interest in one area of language study, vocabulary (Meara 1987: 4). Teachers and educational researchers agree that vocabulary is the key to everyday communication. Still, Horwitz (1988: 292) found out that the importance of vocabulary is not recognised only by teachers, but a substantial number of the ESL students completing the questionnaire either agreed or strongly agreed that the most important part of learning a foreign language is learning vocabulary.

The acquisition of lexicon surpasses nowadays a good knowledge of grammar or spelling, which by themselves could not offer access to the communicative capacity. Singleton states that "the major challenge of learning and using a language –whether as L1 or as L2 – lies not in the area of broad syntactic principles but in the 'nitty-gritty' of the lexicon" (Singleton 1999: 4).

Lewis also stated that "the single most important task facing language learners is acquiring a sufficient large vocabulary" (Lewis 2000: 8), while Laufer declared that "the most striking differences between foreign learners and native speakers is in the quantity of words each group possesses" (Laufer 1998: 255). Nobody can deny that vocabulary is the key to communication, and furthermore, it allows you develop other skills, such as: speaking, listening, reading or writing, not to mention that it is solid ground for language proficiency.

Considering all the data that plead in favour of an impressive acquisition of the vocabulary, in this paper we would like to discuss one particular aspect on how to learn new words so that remain in the long-term memory. It is a well-known fact that the new words that we hear/listen to, translate, maybe even use during one class without further usage are kept for only 24 hours, and are forgotten after that. It is therefore very important to learn new words always in context instead of random lists. Meaningful tasks require learners to analyse and process language more deeply, aspect which helps them retain information in the long-term memory.

In remembering vocabulary, teachers have an important task by making sure that the new words get revised regularly, thus not being subject to oblivion. Gairns

and Redman state that the number of times a student sees or uses a word is important. Furthermore, students need to be challenged to link the words with other words that they already know (Gairns & Redman 1986: 5).

In terms of teaching vocabulary, if we research the literature on vocabulary instruction, we can see that there is not just one *correct* teaching method. Still, the major steps for an effective vocabulary teaching could be summed up the following way by W. Nagy (1988: 1): integration, repetition and meaningful use. Integration means learning new words by observing the connections with words already familiar, that is to provide a context for the words; repetition refers to using the new words as often as possible, and the final step involves the possibility of using the new word in reading, writing and finally in discussion.

In his study on effective vocabulary teaching, education researcher Robert Marzano (2004) established a number of six steps that need to be followed. They are the following:

1. The teacher explains a new word (provides a context, tells a story).
2. Students restate or explain the new word in their own words (verbally and/or in writing).
3. Students create a non-linguistic representation of the word (a picture, or symbolic representation).
4. Students engage in activities to deepen their knowledge of the new word (compare words, classify terms, write their own analogies and metaphors).
5. Students discuss the new word (pair-share, elbow partners).
6. Students periodically play games to review new vocabulary.

The number of six steps can be reduced to not less than three, but some important aspects have to be kept in mind. Researchers state that encountering a word before teaching it in the classroom is already helpful. The context is crucial, as students can guess or identify the meaning if it appears along with other familiar words, or in a situation that helps students use their visual imagination. To emphasize step 2, it is important to tell the students that in the process of explanation, they should use their own ideas, and not repeat the teacher's examples, as it is very helpful if students use their already existing knowledge. For a better deepening of knowledge, students are advised to find words with analogous or different meanings, as synonyms or antonyms. The three final steps need not be executed in sequence, or in the same time with the preceding ones. The teacher might have students compare the meaning of the new word with another previously studied term.

The steps of learning and integrating vocabulary can be and should be developed along with other techniques that reinforce the learning process. The actual teaching methods include besides the traditional approach (illustrations with pictures, mime, definitions, synonyms and antonyms, context building or translation) the new computer-assisted language learning (CALL), which gains more and more ground among the traditional methods.

In order to provide scaffolding for new information and to remember it, students should undergo some of the following by integrating traditional methods

with ones that are computer-based. Nonlinguistic representations are particularly helpful.

3. Nonlinguistic representations

Nonlinguistic representations are most common for children. When dealing with young adults, we should ask ourselves how useful they are at this age. Images are a child's first contact with this world. Babies learn their primary vocabulary by seeing objects and making associations between them and their names in the first language. This happens commonly in second language teaching at a young age. Therefore, it is a useful technique. We still have to adjust these representations to young adults by finding the appropriate ways of using them.

Studies say that people learn using the auditory learning style only in a small proportion compared to the three other learning styles: visual, kinesthetic (movement) or tactile. The choice of the learning style is based on the channels by which human expression can take place and is composed of a combination of perception and memory. This means that many people use any of the other three methods to remember and store information, so we should emphasise this practice. In their book, *Using Technology with Classroom Instruction that Works*, the authors declare:

> Nonlinguistic representation enhances students' ability to use mental images to represent and elaborate on knowledge. To back up slightly, knowledge is stored in two forms: *linguistic* form (as language) and *nonlinguistic* form (as mental images and physical sensations). The more individuals use both types of representation, the better they are able to reflect on and recall knowledge. Teachers usually present new knowledge in linguistic form; that is, they either talk to students about new content or ask them to read about new content. When teachers branch out to help students use nonlinguistic representation as well, the effects on achievement are strong. (Pitler *et al.* 2007: 86)

Other studies come to reinforce the opinion that "the more students use both systems of representing knowledge, they are better able to think about and recall what they have learned" (Marzano *et al.* 2001: 73).

After a thorough study that was summed up in *Cognitive Linguistic Approaches to Teaching Vocabulary and Phraseology*, Frank Boers observes that: "at any rate, pictures seem to lend themselves quite well to stimulate *semantic* elaboration, and this is beneficial for retention of *meaning*" (Boers & Lindstromberg 2008: 205).

Nonlinguistic representations include graphic organizers, physical models, mental images, pictures and pictographs, and kinesthetic activity. These representations are particularly suited to certain types of activities. They help students develop informal definitions of vocabulary through their perceptions or images, thus reinforcing the step which encourages them to create their own explanations, strengthening the learning process. Kinesthetic activity can include creative movement if your students feel like it or if time allows you.

The nonlinguistic development should occur as the third element in the learning process. Researchers consider that before that, students should encounter the words in context before experiencing them in written form. The first two steps are necessary to help students have a clear idea of the new word before representing it. Marzano (2001) believes that the nonlinguistic step is crucial in the learning process because it helps students understand better a new word, but it also helps them store it deeply by explaining the representation with their own words, and not by repeating the teacher's example. He also considers that not leaving out this step, achievement soars. "Creating a nonlinguistic representation helps students deepen their understanding because it requires them to think about the content in new ways. Asking students to explain their representations promotes even greater understanding." (Marzano 2010: 85) Each of the representations a student makes will add value to the understanding of the new term.

In his article *Representing Knowledge Nonlinguistically*, Marzano considers that the major drawback of nonlinguistic representation is time: "Nonlinguistic representations are time-consuming. This means they should be used strategically, and when they are used, teachers should give students enough time to do them well." (Marzano 2010: 86) The role of the teacher is to synthesise the most important words or concepts to be represented and to attract the students' attention on illustrating the aspects that make a difference. Another inconvenient for the approach is the fact that the representation sometimes necessitates revision.

4. Useful multimedia tools

Humans possess separate systems for processing pictorial and verbal material. The method which is most common for the pictorial material relies heavily on multimedia tools, as it offers a wide range of resource to be used in classroom. All of them make use of technology, but they also try to successfully combine it with effective (vocabulary) learning.

> We define *multimedia learning* as learning from words and pictures, and we define *multimedia instruction* as presenting words and pictures that are intended to foster learning. The words can be printed (e.g., on-screen text) or spoken (e.g., narration). The pictures can be static (e.g., illustrations, graphs, charts, photos, or maps) or dynamic (e.g., animation, video, or interactive illustrations). An important example of multimedia instruction is a computer-based narrated animation that explains how a causal system works (e.g., how pumps work, how a car's braking system works, how the human respiratory system works, how lightning storms develop, how airplanes achieve lift, or how plants grow). (Mayer & Moreno 2003: 43)

Differently said, this learning style helps teachers and students alike to increase their memorising capacity through classroom devices that have proven to be useful by facilitating classification and storage of the information:

> Graphic representations serve as mnemonic devices that facilitate the classification, organization, storage, and recollection of information into and out of long-term memory. This is especially true for students with learning styles that favor visual

forms of learning. Organizing and brainstorming software give teachers and students ways to create a variety of descriptive patterns to build conceptual understanding of everything from new vocabulary words to complex systems. In this way, teachers are addressing the classroom recommendation of using graphic organizers with their students (Pitler *et al.* 2007: 93).

There are several digital resources that can be used in classroom and applied successfully, like pattern organizers, power point to present information, video channels, websites to find educational resources, and others. Although nonlinguistic representations can be used at all ages with slight variations, here are some strategies that can be better exploited with young adults.

You can ask your students to create a blog. They have many advantages: promote creative thinking, promote analytical thinking and increase social interaction, while (through research) students gain access to quality materials. Besides, this has become a trendy activity, so many of the students might enjoy it. A blog can support also the successful learning of new words that the student wants to integrate, or maybe to look up.

YouTube is a popular sharing video website. It is used by both educators and students. Some general guidelines in relation to considering the appropriate use of any media to improve learning suggest that media must be aligned with expected learning or performance outcome, reduce cognitive load, exclude superficial text or graphics or be appropriate for target learner's learning literacy (Clark & Mayer 2003: 41). It has the following advantages: teacher can segment information, pause whenever he/she feels it is necessary, turn the sound off and explain the image, students can take notes, etc. After watching a video, you have the possibility to discuss with your students about their level of understanding, ask them to express their reactions, narrate, increasing thus the awareness of effective vocabulary. It can be used to anticipate classwork, or to envisage it for long-term projects (http://idahoptv.org/ntti/strategies.html). YouTube is one of the most popular channels used, as it is a learning community where everyone has a voice and anyone can contribute. It is a channel students enjoy, and teachers should take the maximum advantage of it.

A wiki is a website that provides collaborative modification of its content and structure directly from the web browser. Wikis are known as being a group of web pages where people can add or delete information, giving the contributors permission to edit the content.

> What distinguishes wikis from blogs, discussion fora, or other content management systems is that there is no inherent structure hard-coded: wiki pages can be interconnected and organized as required, and are not presented by default in a reverse-chronological, taxonomic-hierarchical, or any other predetermined order. In essence, the wiki offers a vast simplification of the process of creating HTML pages, and thus is a very effective way to build and exchange information through collaborative effort. (Duffy 2008: 126)

Among the advantages a wiki has, we can observe that it can be used for research projects, can be used by students to add notes, make summaries; it can also

work as a base resource for the teachers. Wikis can be useful in brainstorming activities or can be used in facilitating presentations in PowerPoint or Keynote.

For those who enjoy the visually appealing techniques can use the computer generated cloud applications, like Wordle, Wordsift or Tagxedo. They represent a word cloud based on the most frequent and important words that appear in a text. Whereas Wordle creates word clouds, Wordsift takes the most frequently used 50 words of the passage and enables you to associate pictures or images from Google that correspond to those words. These cloud generators seem to work because they create beautiful clouds, are easy to use and can be easily printed. You can also take advantage of some features, like the shape of the cloud, the alphabetical ordering, words presented in context, custom shapes and themes. This online learning strategy is helpful in learning vocabulary because it reinforces the new terms, making acquisition easier.

In order to express vocabulary knowledge, many teachers and students use the most popular forms of the media, such as PowerPoint presentations, but also the less famous Thinglink. This strategy focuses on students' vocabulary representations in multiple modes: writing, graphic, video, audio, and animation. Researchers consider that such a strategy is in the benefit of students, because in order to create/listen to it, one needs to have and use the writing capacity, to view graphics, read and understand definitions, complete an interactive word map and others. PowerPoint can praise with simple and easy features even for the non-connoisseurs, can present an attractive design, can reduce the information to the minimum, or could be easily modified. The major drawback is that by reducing the information, we have to be careful not to omit the important things and oversimplify the topic. The other tool, Thinglink brings a fresher approach and boasts itself with bringing a new dimension to the visual web. All these media channels along with others enhance again students' capacity of developing vocabulary by compelling them to study, write, read, use graphic, or in other words, these activities involve students to spend more time focusing on a task, implicitly being among (old and new) words.

5. Conclusion

As a final word on vocabulary teaching, we would like to state that despite the massive literature on effective vocabulary teaching methods, Marzano's theory presenting thoroughly the six steps is reliable and can be applied to other areas besides vocabulary. Like any theory, it comes along with some drawbacks, which can be adjusted. From the advantages' point of view, though, the researcher's strategy does not focus only the written or spoken form, but emphasizes the major role of the visual. It has always played a crucial role; it is an aspect which makes things memorable! Still, we believe this method has a valuable role by asking students to think and not to memorize mechanically, because eventually the deep understanding is the one that leads to knowledge and master of vocabulary. A discussion on the effective methods could not take place nowadays without observing some of the most common digital approaches in enhancing learning, and the contemporary educational

process should combine traditional techniques with computer-assisted ones for a better and in-depth vocabulary learning.

References

1. Boers, F., & S. Lindstromberg (eds.), *Cognitive Linguistic Approaches to Teaching Vocabulary and Phraseology.* Berlin: Mouton de Gruyter, 2008.
2. Clark, R. C., & R. E. Mayer, *E-learning and the Science of Instruction*. San Francisco: Jossey-Bass, 2003.
3. Dejica, D., Hansen, G., Sandrini, P. & I. Para (eds.), *Language in the Digital Era. Challenges and Perspectives.* Warsaw/Berlin: De Gruyter Open. 2016.
4. Duffy, P., 'Engaging the Youtube Google-Eyed Generation: Strategies for using web 2.0 in Teaching and Learning' in *The Electronic Journal of e-Learning*, volume 6, issue 2, 2008, 119-130, available online at www.ejel.org.
5. Gairns, R., & S. Redman. *Working with Words: A Guide to Teaching and Learning Vocabulary.* Cambridge: Cambridge University Press, 1986.
6. Horwitz, E. K., 'The Beliefs about Language Learning of Beginning University Foreign Language Students' in *The Modern Language Journal* vol. 72,1988, 283-294.
7. Laufer, B., 'The Development of Passive and Active Vocabulary in a Second Language: Same or Different?' in *Applied Linguistics*, vol.19 (2), 1998, 255-271.
8. Lewis, M. (ed), *Teaching collocation*. Hove: Language Teaching Publications, 2000.
9. Marzano, R. J., *Building Background Knowledge for Academic Achievement: Research on What Works in Schools*. Alexandria, VA: ASCD, 2004.
10. Marzano, R. J., 'Representing Knowledge Nonlinguistically' in *Educational Leadership.* Vol 67, nr 8, May 2010, 84-86.
11. Marzano, R., D. Pickering & J. Pollock, *Classroom Instruction that Works.* Alexandria, VA: ASCD, 2001.
12. Mayer, R., & R. Moreno, 'Nine Ways to Reduce Cognitive Load in Multimedia Learning' in *Educational Psychologist*, vol. *38*, issue 1, 2003, 43–52.
13. Meara, P. M., *Vocabulary in a Second Language.* Vol 2, London: Centre for Information on Language Teaching, 1987.
14. Nagy, W., *Teaching Vocabulary to Improve Reading Comprehension*. Newark, DE: International Reading Association, 1988.
15. Pitler, H., E. R. Hubbell, M. Kuhn & K. Malenoski, *Using Technology with Classroom Instruction that Works.* Alexandria, VA: ASCD, 2007.
16. Richards, J. C., & T. Rodgers, *Approaches and Methods in Language Teaching.* Cambridge: Cambridge University Press, 1986.
17. Singleton, D., *Exploring the Second Language Mental Lexicon* Cambridge: Cambridge University Press, 1999.
18. 'Video Utilization Strategies', http://idahoptv.org/ntti/strategies.html, [Accessed 12 June 2016].