SEÇÃO: ARTIGOS

Promoting the Pedagogical Use of Pictograms: A Case Study of Five In-Service Costa Rican English Teachers

Promovendo o uso pedagógico de pictogramas: um estudo de caso de cinco professores de inglês da Costa Rica

Juan Pablo Zúñiga Vargas[1]
orcid.org/0000-0002-8717-3793
juan.zuniga.vargas@una.ac.cr

ABSTRACT: This article reports on the findings of a qualitative research project, in which an instrumental case study with five in-service English teachers graduated from Universidad Nacional (UNA), Costa Rica was carried out. Hence, a hybrid continuing education workshop was designed and conducted, which was focused on promoting the pedagogical use of pictograms in the design of materials for teaching English. As the main product of the workshop, the participants created and used a teaching material which included pictograms. Among the main results obtained in the research project, the students' facility, motivation, and speed to communicate their ideas in English by using pictograms stood out.

KEYWORDS: English teaching, materials, pedagogy, pictograms, teacher education

RESUMO: Este artigo relata os resultados de um projeto de pesquisa qualitativa, no qual foi realizado um estudo de caso instrumental com cinco professores de inglês, formados pela Universidade Nacional (UNA) da Costa Rica. Assim, um *workshop* de educação continuada bimodal foi elaborado e ministrado, que teve como objetivo promover o uso pedagógico de pictogramas na concepção de materiais para o ensino de inglês. Como produto final do *workshop*, os participantes criaram e utilizaram um material didático, que incluía pictogramas. Dentre os principais achados obtidos na investigação, destacam-se a facilidade, a motivação e a rapidez dos alunos em comunicar suas ideias por meio do uso de pictogramas.

PALAVRAS-CHAVE: ensino de inglês, materiais, pedagogia, pictogramas, treinamento de professores

In any teaching situation, achieving effective communication is of paramount importance. Hence, a critical, committed teacher should make use of any resources that boost communication among the participants of the educational process; indeed, teaching materials play a crucial role in this regard. As a further matter, although most (if not all) classrooms are places where teachers struggle to get students to understand their instructions and facilitate their learning, teaching foreign languages deserves special attention as language itself is both the means and the end of the formative process. As a matter of fact, English as a Foreign Language (EFL) teachers face great challenges while trying to make themselves understood; they need to teach and get their messages across in a language other than the students' mother tongue, and depending on the students' proficiency level and linguistic background, this can

---

[1]   Universidade Nacional (UNA), Heredia, Costa Rica.

come to be quite an endeavor. Let us consider, for instance, students whose native language does not use the Latin alphabet (as in the case of Asian languages); the target language by itself may not be enough, and resorting to the students' mother tongue excessively might be counterproductive.

Those are but a few of the hurdles that EFL teachers have to face on a regular basis, and that is just one side of the issue. EFL teachers also need to get their students to communicate with one another by incorporating the thematic, lexical, and grammatical contents of a lesson successfully. In this sense, resorting primarily to verbal techniques (as generally happens in language courses) to reach the aforementioned goal may not be enough. Therefore, it is advisable to incorporate non-verbal communication elements that may complement the use of verbal language. Specifically speaking, visual resources may well serve this purpose because, as Damyanov and Tsankov (2018) stated, the production of visual information has proliferated in the 21st century. Besides, Sansone (2015) has been emphatic to highlight that images not only provide an added aesthetic value, but they are also a source of meaning, so they should seriously be considered in the design of language teaching materials.

Among the wide range of images that can be used for English teaching purposes, pictograms stand out as they possess a simple design and may be interpreted and understood without having to resort to spoken or written language (Falck, 2001). Besides, Malamed (2015) asserted that pictograms can communicate a wide range of meanings in a simple way, which has great pedagogical potential. Pictograms are generally black and white and have a basic linear outline, which reduces the amount of visual information that the eye has to process, and their comprehension is much faster than that of a full-color image (Falck, 2001). In this regard, an image is likely to generate a more memorable experience in those who see it (Rosler, 2011). Figure 1, for instance, shows a comparison between a photograph and a pictogram that essentially represent the same. As you examine it, think of these two images being used for teaching vocabulary; in terms of content, they are alike, but one of them would provide a mental shortcut.

Figure 1 – Comparison of Visual Information Between a Photograph and a Pictogram.

Note: Author's own elaboration based on a free photograph retrieved from pixabay.com and a free pictogram retrieved from www.flaticon.com

As simple as it may seem, the adoption of visual resources (such as pictograms) by EFL teachers is not going to happen overnight; some training is needed for them to see the instructional and pedagogical possibilities offered by them. As proposed by Sansone (2015), if teachers are instructed in graphic design, that will provide them with tools, methods, and criteria to boost their students' learning. In addition, Suryanto (2014) posed that visual literacy could help English teachers develop more attractive formative processes. Thus, the idea for the research project described here came into being (as that kind of topic is not taught in the major for English teaching at Universidad

Nacional [UNA], Costa Rica); the study conducted sought to reach the following objectives:

1. To establish guidelines for the pedagogical use of pictograms to teach English,

2. To promote the pictographic representation of concepts to design teaching materials among in-service English teachers graduated from Universidad Nacional, Costa Rica, and

3. To assess the formative process carried out from the participants' and the researcher's points of view.

This research was carried out in the context of a workshop for English teachers during the second semester of 2019 sponsored by a continuing education project for in-service teachers graduated from UNA. This project offers training opportunities for teachers on a regular basis, so the idea of educating English teachers in the graphic design of materials was a perfect fit for this initiative given that developing good visual communication skills requires explicit instruction and practice, and the workshop was seen as relevant option to contribute to Costa Rican English teachers' professional growth.

A New Literacy for Newer Generations

EFL teachers now have to deal with new generations of students, which have received different names according to Wasilewska (2017): *Generation Z*, *Digital Natives*, *Like Generation*, *Selfie Generation*, etc. No matter which term is used to describe these students, there is always a common element in them, and it is how visual they are. Wasilewska (2017) also pointed out that we live in an era of images, which means that EFL teachers are faced with the challenge of facilitating these students' learning process and guiding them in a world that is eminently visual nowadays.

At present, it is increasingly common to find information that points to the fact that people need to go through different literacy processes, the first of which is learning to read and write in one's native language. Still, the concept of literacy has been

redefined (Goldstein, 2016). Now, we have *emotional literacy*, *technological literacy*, and *visual literacy* (to name a few). The latter should be of particular interest to any EFL teacher since visual information is easier to retrieve than text (Bangir, 2015). Notwithstanding this, living in a world full of images is no guarantee that people's visual literacy is highly developed (Pauwels, 2008); students need to learn to read images, while EFL teachers should be taught how to select pertinent visuals to teach through them. In other words, training is needed in this area.

English Teaching Through Images (and/or Pictograms)

In the field of English language teaching, text has always been the main means of instruction, leaving visual elements aside since they have been considered merely decorative (Goldstein, 2016). Still, an image can communicate aspects about a given concept for which text falls short (Sansone, 2015). Actually, according to Goldstein (2016), English teachers are now increasingly more interested in the visual elements they include in their classroom materials, and this is a consideration that goes beyond any added aesthetic value.

We are visual beings; as aptly described by Alcalde (2015), children draw before they are able to read and write; images have metalinguistic features that allow us to interpret them faster than text. Such latent pedagogical potential should be explored in the language classroom. As stated before, of all types of images available to EFL teachers, pictograms stand out because of the simplicity of their design and general straightforward communication of information.

Particularly, pictograms offer various educational benefits as indicated by Pérez (2017). Pictograms make the learning of reading and writing more accessible by fostering comprehension even when students cannot fully understand a text, provide visual exercise and promote visual discrimination, improve memory capacity by allowing to codify information verbally and non-verbally, are appealing and may improve concentration in the reading process, may facilitate the acquisition of

new vocabulary, and promote creativity. Indeed, pictograms are a pragmatic alternative for language teaching and materials development.

Specifically, Tomlinson and Masuhara (2018) have proposed eight main purposes for which to use visual elements in language teaching materials:

1. Provide a visual explanation/description for something that may be unfamiliar to the learners.

2. Provide context (e.g. introducing characters in a detective story, setting the mood and tone).

3. Show procedures (e.g. how to play a new game).

4. Induce affective responses (e.g. curiosity, interest, laughter).

5. Provoke thoughts and reactions (e.g. finding plausible reasons for a mystery; for and against an issue).

6. Provide a visual summary.

7. Achieve consistency and mark changes.

8. Provide an aesthetic experience. (pp. 327-328)

As can be seen, visuals in language teaching materials are not merely illustrative or decorative; they make the learning experience more enriching and memorable. Still, being able to achieve this requires training, practice, and theoretical knowledge. Aside from this, it is not implied that language teachers should resort to non-verbal resources at the expense of verbal language. Both images and text should complement each other in *multimodal ensambles* (Golstein, 2016). In other words, in the teaching of languages, transmitting the same message using more than on channel will guarantee a more accurate reception of it.
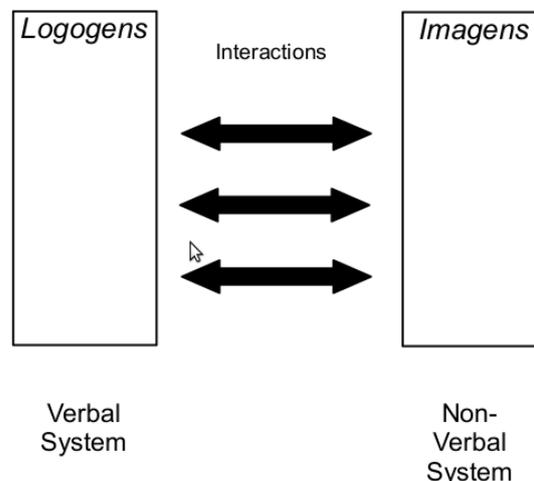
Dual-Coding Theory

Dual-Coding Theory is a theoretical model for human cognition proposed by psychologist Allan Paivio in the early 70's, which postulates that verbal processes and images are alternative systems for codifying information (Paivio, 2009). Hence, in Dual-Coding Theory, there is a non-verbal system that

is in charge of processing objects and non-verbal processes, while there is a system that concerns itself with language (Paivio, 2013).

In this cognitive model, each system has its own representational units, *imagens* for non-verbal processes and *logogens* for verbal processes. These units are activated when one perceives or imagines verbal information or non-verbal events or objects respectively (Paivio, 2014). Besides, when reality is experienced or thought about, there may be interactions between the two coding systems (See Figure 2). Indeed, when the two coding systems interact with one another, that produces an *additive effect* (Paivio, 2014), which means that such synergy allows for retrieving memories more efficiently than resorting to a single representational unit. This may be of particular interest to EFL teachers as will be described next.

Figure 2 – Coding Systems.

Note: Author's own adaptation based on Paivio (2014)

Dual-Coding Theory in Education

According to Paivio (2006), the first documented use of images with a pedagogical purpose dates back to 1062 with the book *Civitas Solis* (The City of the Sun) by Tommaso Campanella. Later in 1658, John Amos Comenius published *Orbis Sensualium Pictus* (The World Explained in Images), which was intended to be a textbook for learning Latin and other languages. It included images with headings, numbers, and descriptions classified

Juan Pablo Zúñiga Vargas
Promoting the Pedagogical Use of Pictograms: A Case Study of Five In-Service Costa Rican English Teachers

5/16

into different categories (Paivio, 2006). Just like these first pedagogical works, Paivio (2006) stressed that Dual-Coding Theory works with the concretization of knowledge by means of images, which has great educational potential.

In this regard, Clark and Paivio (1991) pointed out that there are students who have difficulty visualizing information, and that limits their ability to remember texts that lend themselves to visualization. Actually, if EFL teachers tried to communicate the subject matter by using both verbal and non-verbal means, the students would achieve learning gains as a result of that. Still, what usually happens in the classroom is that English teachers resort to mainly verbal methods to teach when; in fact, the use of images would facilitate the processing of the contents being studied (Clark & Paivio, 1991).

Thus, the *additive effect* of having two channels through which transmit information would improve most formative processes. Concretely, from the viewpoint of Dual-Coding Theory, the use of illustrations could promote the retention of the contents studied in class and allow students to generate mental images (Clark & Paivio, 1991). Hence, this should be an important consideration in the development of teaching materials, especially in the field of English Language Teaching (ELT).

Bilingual Dual-Coding Theory and ELT

In the latest updates to his work, Paivio (2014) referred in particular to Bilingual Dual-Coding Theory, which postulates that in the case of bilingual people, two separate, yet related systems are developed, one for the mother tongue (L1) and one for second languages (L2) (See Figure 3). In this sense, there can be shared *imagens* between both verbal systems or specific *imagens* for each. It is also possible for *imagens* to have a stronger connection with the *logogens* of either of the languages (Paivio, 2014).

Figure 3 – Bilingual Coding Systems.
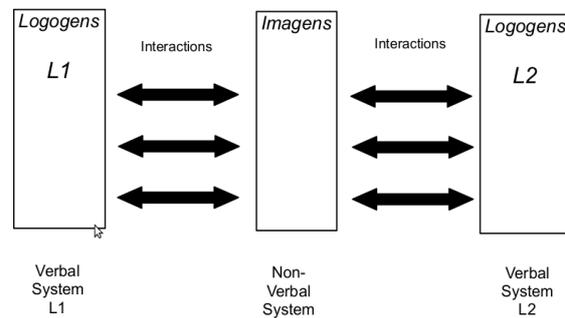
Note: Author's adaptation based on Paivio (2014)

As a further matter, a greater *additive effect* has been identified in a bilingual dual-coding system than in a monolingual one, in which images always have a more preponderant role than verbal systems (Paivio & Lambert, 1981), which shows the potential benefits of using images in the field of ELT. In this regard, Arnold et al. (2007) pointed out that foreign language learning becomes more productive when students link (as much as possible) the language they learn with the knowledge of the world they possess. In other words, that refers to establishing mental connections between words or concepts and images. They went on and exemplified this by saying that when a new language is learned, it is easier to associate a word with an image that represents it than to resort to a translation (Arnold et al., 2007). The cognitive process is simply more agile and should be exploited in EFL courses.

For example, images used to teach the productive skills of language can serve a series of specific purposes, namely providing motivation for students to engage in language-learning activities, being means to contextualize activities, being the objects of a description, being keys to answer questions, and stimulating conversation and narration (Wright, 2010). Figure 4 shows a sequence of pictograms that could be used as input in a simple speaking or writing activity in the EFL classroom. As can be seen, the set of images depicts a common situation that students may relate to as a result of their personal experiences

or something they may have seen on TV. An EFL teacher in this case may simply provide the vocabulary in written form and have the students do the activity, yet pictograms (images) have a more long-lasting effect on the memory and do not need to be translated. That is something that English teachers need training on.

Figure 4 – Set of Pictograms to Create a Story.

Note: Author's own elaboration based on Wright (2010, p. 65) (Free pictograms retrieved from www.flaticon.com)

Method

Paradigm and Type of Research

The research conducted fell within the qualitative paradigm as it sought to undergo a naturalistic inquiry to attain a holistic perspective of the phenomenon being studied as well as allow the researcher to be in direct contact with the participants to gain understanding of the phenomenon by resorting to the personal experiences and insight from all the people involved in the process (Fraenkel et al., 2012). Specifically, an instrumental case study was carried out since the purpose of the research was to shed light on a particular issue by using the different cases as sources of information (Creswell, 2012). Concretely, the issue investigated was the pictographic representation of concepts in the design of teaching materials by five in-service Costa Rican English teachers.

Context

The research was conducted at the Faculty of Education[3] from Universidad Nacional, Costa Rica during the second semester of 2019. For the purpose of the inquiry, a continuing education workshop for graduated teachers from the Bachelor's Degree in English Teaching from the university was offered. The workshop was sponsored by a continuing education project from the School of Secondary Teacher Education[4] of the faculty.

Participants

Five in-service Costa Rican English teachers were the participants of this study (four women and one man), whose ages were between 24 and 30 (Table 1 shows a detailed profile of them). To identify the participants, each of them was assigned a number according to the order in which they registered for the workshop described above.

---

[3] *Centro de Investigación y Docencia en Educación* as it is known in Spanish
[4] *División de Educología* as it is known in Spanish

TABLE 1 – Profiles of the Participants

Participant	Age	Sex	Experience	Highest Degree	Workplace
# 1	30	F	5 years	Master's Degree in English Teaching	Private Language Academy
# 2	24	M	3 years	Bachelor's Degree in English Teaching	Private Language Academy
# 3	29	F	4 years	Bachelor's Degree in English Teaching	Private Language Academy
# 4	28	F	2 years	Master's Degree in Translation	Public University
# 5	28	F	6 years	Licenciate Degree in Pedagogy with an Emphasis on Teaching	Independent Tutor

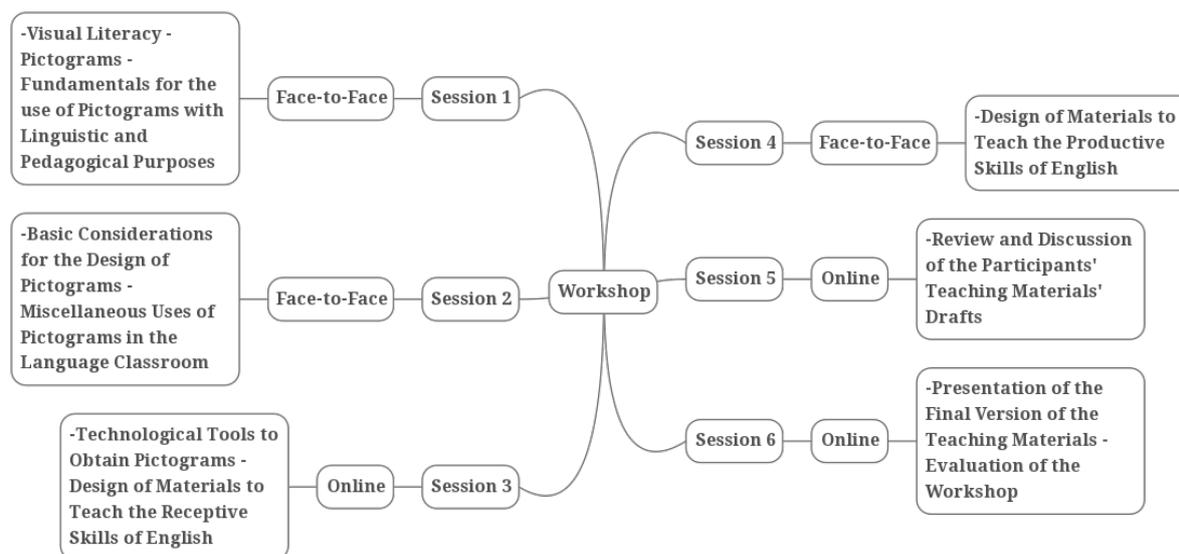**Note:** Author's own elaboration

Ethical Considerations

For conducting study, the participants' personal information was kept in absolute confidentiality, and they did not receive any monetary compensation for their participation in the project. In addition, each participant and the researcher signed an informed consent form that guaranteed that 1. their dignity would be protected, 2. they could leave the study at any time if they decided so, 3. anonymity and confidentiality would be ensured, and 4. no physical, mental, or moral harm would be caused.

The Workshop as a Continuing Education Opportunity

As a core component of the research conducted, a continuing education workshop for graduates from the Bachelor's Program in English Teaching from Universidad Nacional was offered and advertised by means of various e-mails sent to the graduated students from the aforementioned program. As described above, only five people registered for the workshop in spite of the different attempts to recruit more participants.

The workshop lasted for six sessions and followed a hybrid methodology combining face-to-face and online lessons (Figure 5 shows the content and nature of each session). For the development of the online lessons, a Google Classroom platform was used, which included video tutorials, documents of interests, links to various online resources, discussion questions, and various assignments. The contents and materials for the workshop were validated by both an English language teacher and an art teacher from the university.

Figure 5 – Sessions of the Workshop.

Note: Author's own elaboration

Data Collection Instruments

Prior to the administration of the instruments, they were validated by five graduated English teachers from the university (different from the participants of the study). Their feedback was taken into account, and the instruments were modified accordingly to guarantee greater validity and reliability.

Questionnaire about Prior Experiences and Expectations

As part of the first contact with the participants of the study, they were sent a questionnaire to inquire about their prior experiences in the design of language teaching materials and their expectations about the workshop to be developed, which contained open and closed items. The questionnaire was divided into four sections: 1. Personal Information, 2. Visual Literacy (questions about their use of images in their daily life and professional practice), 3. Materials Development (questions about the way in which they approach materials development for English Language Teaching), and 4. Expectations about the Workshop.

Questionnaire for Evaluating the Workshop and its Supporting Materials

To assess the overall experience with the workshop, a questionnaire was applied during the last session. This instrument was divided into three main parts: 1. Fulfillment of Expectations, 2. Opinion about the Materials used in the Workshop, and 3. Recommendations for Improving the Workshop.

Researcher's Log

From the beginning to the end, the researcher kept a log in which he recorded his experiences and perceptions about his own performance and those of the participants in each of the sessions of the workshop. The researcher wrote an entry in the log after each session of the workshop.

Categories of Analysis

To classify and analyze all the information collected in the research, a set of categories was devised *a priori* as shown in Table 2. Information coming from the different data collection instruments and materials designed by the participants was classified and analyzed within each category.

Juan Pablo Zúñiga Vargas
Promoting the Pedagogical Use of Pictograms: A Case Study of Five In-Service Costa Rican English Teachers

9/16

TABLE 2 – Categories of Analysis

Category	Definition	Subcategories
1. Visual Literacy for English Language Teachers	The learned ability to interpret images or visual messages as well as learn, think, and communicate visually in the field of English Language Teaching	*1-a. Comprehension of Visual Messages with a Linguistic-Pedagogical Intention* Cognitive and linguistic process oriented towards comprehending a visual message with pedagogical purposes for English teaching *1-b. Emission of Visual Messages with a Linguistic-Pedagogical Intention* Cognitive and linguistic process oriented towards communicating visual messages with pedagogical purposes for English teaching
2. Materials Design with Pictograms for English Language Teaching	*The process of materials development for English Language Teaching by integrating pictograms and text (multimodal ensembles)*	*2-a. Materials Containing Pictograms to Teach the Receptive Skills of English (Reading and Listening)* Materials designed to express concepts in a pictographic and linguistic fashion with the purpose of supporting reading and listening comprehension in English *2-b. Materials Containing Pictograms to Teach the Productive Skills of English (Speaking and Writing)* Materials designed to express concepts in a pictographic and linguistic fashion with the purpose of supporting speaking and writing in English
3. Accessible linguistic Input in Materials for English Language Teaching by Means of Associations with Pictograms	Samples of the target language presented to students with the support of pictograms to foster English learning	*3-a. Accessible Lexical Input in English Language Teaching Materials by Means of Associations with Pictograms* Samples of words or expressions presented to students with the support of pictograms to foster English learning *3-b. Accessible Grammatical Input in English Language Teaching Materials by Means of Associations with Pictograms* Samples of grammatical structures presented to students with the support of pictograms to foster English learning

Note: Author's own elaboration

Results and Discussion

Category #1: Visual Literacy for English Language Teachers

As put forward by Malamed (2015), developing visual literacy entails being able to understand visual language. Thus, as initial input for the research, in the Questionnaire about Prior Experiences and Expectations, the participants were asked about whether they used a textbook to teach their English classes and if that textbook contained any images. In all cases, the answers were affirmative. Following, the participants were asked about the purpose of such images; the answers given are shown in Table 3.

TABLE 3 – Purpose of the Images in the Textbooks Used by the Participants

Participant	Purpose Stated
# 1	-The books I use are those of *Nat Geo Learning*; images are a primordial factor for teaching.
# 2	-Activation of prior knowledge: There is an image at the beginning of each unit. -Reinforcement of oral and written input in the activities of the book -They are a source of input.
# 3	-The purposes of the images is to activate the prior knowledge that students can have as well as critical thinking and inferences they can draw from each image.
# 4	-Illustrate topics, facilitate understanding, make it more attractive
# 5	-The objective of such images is to provide visual support in the explanation and comprehension of a topic.

Note: Author's own elaboration

The Questionnaire about Prior Experiences and Expectations inquired further about the participants' way of dealing with the images from the English teaching textbooks they used, and they were asked whether they tried to interpret those images; all the answers were affirmative, and the reasons given are displayed in Table 4.

TABLE 4 – Reasons for which the Participants Interpret the Images Found in the Textbooks they Use

Participant	Reason
# 1	-Because it is part of the program I teach
# 2	-Usually they have an educational purpose that can be adapted to the activities of the class.
# 3	-For students to do the same and we can have class rich in oral expression and analysis
# 4	-I like to think of the purpose of each element included in the book.
# 5	-I interpret them to analyze their connection with the context given.

Note: Author's own elaboration

Juan Pablo Zúñiga Vargas
Promoting the Pedagogical Use of Pictograms: A Case Study of Five In-Service Costa Rican English Teachers

11/16

As can be seen in both Tables 3 and 4, all the participants showed a positive disposition towards working with and analyzing images with an educational purpose. That was a relevant point of departure for developing visual literacy, yet understanding visual messages is but one side of the issue; communicating by non-verbal means is also part of visual literacy.

In the Questionnaire about Prior Experiences and Expectations, the participants were also requested to upload a representative sample of the language teaching materials they designed for their classes to have a general panorama of the pedagogical use of images they made in their professional practice. Since three of the participants (#1, #2, and #3) worked for the same language institute which has smart boards in every classroom, they provided multimedia presentations.

The presentations were between five and 22 slides long, and they were designed as supporting materials for oral activities. The use of images was noticeable in most of the slides, and the visual resources served two main purposes: 1. illustrating vocabulary words and 2. being contextualizing elements for the activities to be done in class. Figure 6 shows one slide from the presentation designed by participant #2.

As for the two remaining participants, they showed a more traditional approach to materials development. Participant #4 uploaded the photograph of a hand drawn comic strip in which a woman introduces two other people, one of whom used a kiss as a greeting, which is perceived as something inappropriate. In the case of participant #5, she provided an illustrated glossary about arts and artists; it contained 14 words in English accompanied by pictures that represented them. In all of the materials designed by the participants, it was noticeable that foreign language learning is facilitated when words are linked with images that represent them (Arnold et al., 2007).

Figure 6 – Sample from the Multimedia Presentation Designed by Participant #2.
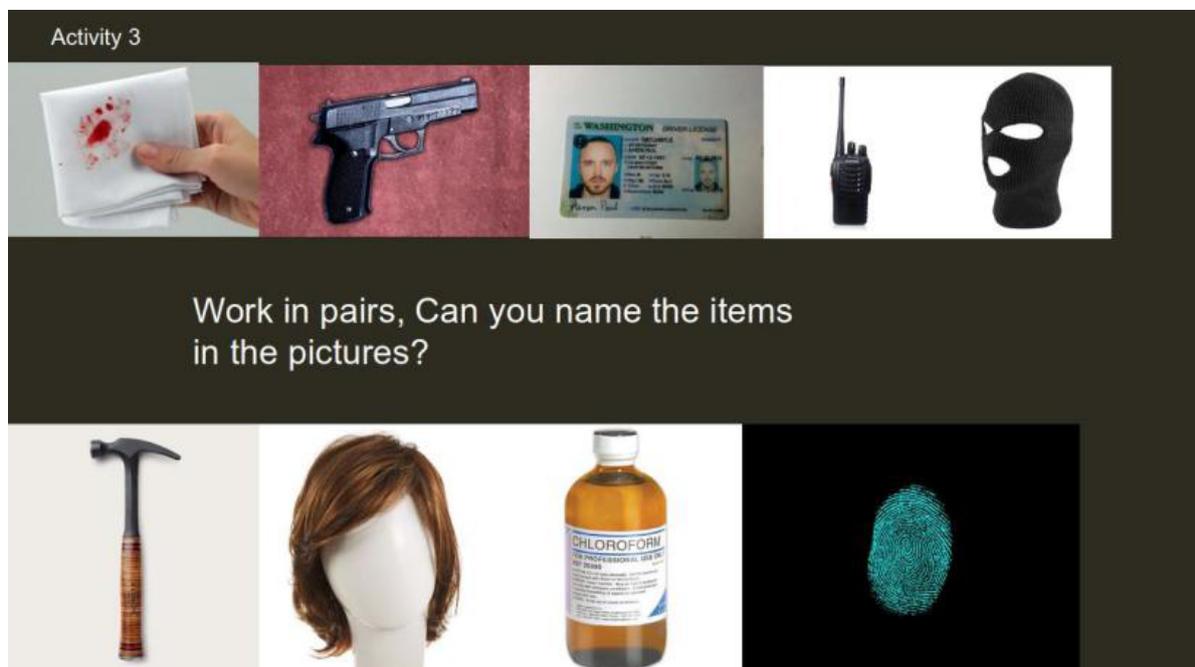
Note: Author's own elaboration

Category #2: Materials Design with Pictograms for English Language Teaching

With regard to this category of analysis, it is relevant to point out that, according to Dual-Coding Theory (Clark & Paivio, 1991; Paivio, 2006, 2009, 2013, 2014), it was the researcher's intention to promote the design of English teaching materials in which verbal elements (*logogens*

in the form of text) and non-verbal elements (*imagens* by means of pictograms) complemented each other. Still, in the materials designed by the participants, visual elements had a more preponderant role as will be seen below. This could be explained because "pictures have an advantage over words by being encoded into long-term memory through both the visual and verbal channels. That is, pictures are encoded as an image as well as spontaneously given a verbal label" (Malamed, 2015, pp. 7-8).

Only one of the designed materials fit into sub-category 2-a. As the final product of the workshop, participant #4 designed a memory game for her students, which consisted of a set of cards with pictograms and phonetic transcriptions of the words represented by the former (See Figure 7) that had to be matched. This material was intended for the students to review vocabulary related to Christmas. In spite of being the simplest material designed by all the participants, it was a pragmatic integration of both verbal and non-verbal elements to support reading of phonetic transcriptions. Indeed, Pérez (2017) has stated that pictograms make reading more accessible and foster concentration.

Figure 7 – Sample from the Material Designed by Participant #4.

Note: Author's own elaboration

Participant #3 designed two different teaching materials, the first one of which fit into sub-category 2-b. It was a memory game that included eleven pictograms and phrases related to holidays that had to be matched (See Figure 8). This activity was used as a vocabulary warm-up prior to a speaking activity

in one of her courses. According to this participant, this material helped her students remember the vocabulary more easily, which is an advantage for the use of pictograms described by Martos (2008).

Figure 8 – First Material Designed by participant #3.

Note: Author's own elaboration

On the other hand, participant #2 designed an info-gap activity for pair work for a group of intermediate students of English. Figure 9 shows Student A's version of this material. Both handouts contained a series of pictograms that the students had to use to narrate a story in the past. Students were supposed to select six of the pictograms and take turns telling each other a made-up story. While the students listened, they had to circle the pictograms corresponding to the events they heard. Later, they had to compare their handouts; some of the pictograms in the two handouts were slightly different to foster negotiation for meaning.

Juan Pablo Zúñiga Vargas
Promoting the Pedagogical Use of Pictograms: A Case Study of Five In-Service Costa Rican English Teachers

13/16

Figure 9 – Sample of the Material Designed by Participant #2.

Activity 1. Instructions: Use the pictograms below to tell a story in the past. It could be related to something that happened to you or it can be just fiction. Remember to use the past forms of the verbs. Use at least 6 pictograms. You will have 3 minutes to tell the story.

Activity 2: Instructions: Pay attention to your partner's story. While you listen, circle the pictograms that describe the events that occurred in your partner's story. Then, show your answers to your Partner

Note: Author's own elaboration

In a later stage of the activity, the students were told to work with other classmates and narrate their stories again. In this regard, something that attracted Participant #2's attention was that his students were able to structure the sequence of events more quickly than in similar activities that he had asked them do in the past and in which there was no visual support as the pictograms used in this case. Indeed, Pérez (2017) has pointed out that memory may benefit from the use of pictograms as seems to be the case here.

Category #3: Accessible linguistic Input in Materials for English Language Teaching by Means of Associations with Pictograms

Participant #1 designed a multimedia presentation comprising seven slides about sports and ways to classify them. Figure 10 shows slide number six in which students had to name the sports represented by the pictograms. Participant #1 stated that, with this material, her students' performance was notable compared with other activities she had tried, and they learned the vocabulary easily. In this sense, as Alcalde (2015) stressed, a visual text is processed more rapidly than a written one.

Figure 10 – Sample from the Material Designed by Participant #1.

Note: Author's own elaboration

Participant #5 was not working at an educational institution at the time that the workshop was given. Thus, as her final project, she designed a review material for two students she was tutoring. Her material consisted of fifteen strips of paper with pictograms related to people's physical appearances (See Figure 11). They were placed inside a container, and the students had to take turns drawing them out, saying what word or expression they represented, and using it in a sentence. If they did it correctly, they could keep the pictograms. If they did not, the pictograms had to be returned to the container.

Figure 11 – Sample from the Material Designed by Participant #5.

Note: Author's own elaboration

At the end, the winner was the student who had the most pictograms. Participant #5 said that with the material she designed, she wanted her students to do something more playful since she normally gave them regular printed handouts for them to work with, but they eventually lost interest in the topic and got bored. Conversely, with this activity, her students were more motivated and engaged to participate actively in the activity, which is one of the advantages of using pictograms that is described by Martos (2008).

Only one of the designed teaching materials fit into sub-category 3-b. Participant #3 created a second teaching material, which consisted of a board game to practice the Simple Past and the Past Progressive in English in groups (See Figure 12). As in any regular board game, the players had to roll the dice, and depending on the pictogram they landed on, they had to say a sentence in any of the previous verb tenses based on the concept represented by that image. As she carried out this activity with her students, participant #3 noted that, although this activity was meant to be primarily for oral practice, her students also wrote down the sentences and in general used grammar in different ways, which was the idea that she had in mind. In connection with this, Martos (2008) has stated that pictograms help to build concepts and relationships between them.

Figure 12 – Second Material Designed by Participant #3.

Note: Author's own elaboration

Conclusions

To prepare the workshop for in-service English teachers, a series of teaching strategies based on images proposed by Díaz and Hernández (2002) was identified and included as part of this formative process. In like manner, the design of

Juan Pablo Zúñiga Vargas
Promoting the Pedagogical Use of Pictograms: A Case Study of Five In-Service Costa Rican English Teachers

15/16

pictograms itself was a major concern, and thus the four-sided approach to developing pictograms (1. Referent, 2. Graphic Items, 3. Comprehension, and 4. Legibility) issued by Fundación ONCE (2013) was followed to train the participants. This approach also concerns the steps of *reflection*, *research*, and *development* so that good pictograms can be generated, and the researcher made sure to familiarize the participants with these guidelines.

Dual-Coding Theory (Paivio, 2006, 2009, 2013, 2014) was also a core component of the workshop. Therefore, the researcher explained the main tenets of this theory to the participants for them to see that information can be communicated using more than one channel at the same time, which already happens in the way we store memories in our minds. This is indeed something relevant to bear in mind when developing language learning materials that combine verbal and non-verbal elements.

In all cases, the inclusion of pictograms in teaching materials by all the participants was successful. Still, as stated above, non-verbal elements were more prominent than verbal elements although the researcher's initial intention was for the participants to come up with multimodal ensembles (Golstein, 2016) to send the same message. Even so, this was not a problem when using the teaching materials. Actually, all the participants were clear about the fact that the use of pictograms facilitated their students' understanding and classwork, which is promising evidence in favor of the use of these visual resources for developing English language teaching materials.

The workshop offered was assessed positively by all the participants. Indeed, in the evaluation questionnaire they filled in at the end of the process, they said that they would recommend it to others since they saw it as a good continuing education opportunity that allowed them to learn something new and useful for their professional practice. The researcher could see how all of them were able to design and use materials with pictograms successfully, and throughout the whole process, they were highly engaged as he noted in his log.

All of the collected information in the research conducted can be considered to turn the workshop into a regular continuing education activity for graduates from the university. Certain changes will be needed, however. For example, it could become an exclusively online training opportunity that can be more convenient for English teachers in Costa Rica given their busy schedules. More examples of possible uses of pictograms should be shown to the participants so that they can extrapolate them to their own teaching context. Finally, the notion of multimodal ensembles needs to be reinforced to foster English students' understanding.

References

Alcalde, I. (2015). *Visualización de la información: De los datos al conocimiento.* [Visualization of information: From data to knowledge]. Editorial UOC.

Arnold, J., Puchta, H., & Rinvolucri, M. (2007). *Imagine that! Mental imagery in the EFL classroom.* Cambridge University Press.

Bangir, G. (2015). The reflections of visual literacy training in pre-service teachers' perceptions and instructional materials design. *Journal of Education and Human Development, 4*(2), 143-157. http://dx.doi.org/10.15640/jehd.v4n2_1a15

Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review, 3*(3), 149-210. http://nschwartz.yourweb.csuchico.edu/Clark%20&%20Paivio.pdf

Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Pearson.

Damyanov, I., & Tsankov, N. (2018). The role of info-graphics for the development of skills for cognitive modeling in education. *International Journal of Emerging Technologies in Learning, 13*(1), 82-92. https://doi.org/10.3991/ijet.v13i01.7541

Díaz, F., & Hernández, G. (2002). *Estrategias docentes para un aprendizaje significativo: una interpretación constructivista* (2nd ed.) [Teaching strategies for meaningful learning: A contructivist interpretation]. MacGraw-Hill Interamericana.

Falck, K. (2001). *The practical application of pictogram.* Swedish Institute for Special Needs Education. http://static.pictosys.se/pictogram/practicalapp_pictogram.pdf

Fraenkel, J. R., Wallen, N. E., & Hyun, H. (2012). *How to design and evaluate research in education* (8th ed.). Mc Graw-Hill.

Fundación ONCE. (2013). *Pautas de diseño de pictogramas para todas las personas: proyecto de biblioteca digital de recursos gráficos orientativos en accesibilidad cognitiva urbana.* [Guidelines for the design of pictograms for everyone: A project for a digital library of orientation graphic resources in cognitive urban accessibility]. http://accesibilidadcognitivaurbana.fundaciononce.es/docs/Manual_pictogramas.pdf

Goldstein, B. (2016). *Visual literacy in English language teaching: Part of the Cambridge Papers in ELT series.* Cambridge University Press. http://languageresearch.cambridge.org/images/Language_Research/CambridgePapers/CambridgePapersInELT_VisualLiteracy_2016_ONLINE.pdf

Malamed, C. (2015). *Visual design solutions: Principles and creative inspiration for learning professionals.* Wiley

Martos, A. E. (2008). Poemas y cuentos con pictogramas como recurso para la lectura, escritura y otras habilidades comunicativas. [Poems and short stories with pictograms as resources for reading, writing and other communicative abilities]. *Glosas Didácticas, 17*, 49-63. https://www.um.es/glosasdidacticas/numeros/GD17/05.pdf

Paivio, A. (2014). Bilingual dual coding theory and memory. In R. R. Heredia & J. Altarriba (Eds.), *Foundations of bilingual memory* (pp. 41-62). Springer.

Paivio, A. (2013). *Mind and its evolution: A dual coding theoretical approach.* Psychology Press.

Paivio, A. (2009). *Imagery and verbal processes.* Psychology Press.

Paivio, A. (2006). *Dual Coding Theory and education: Pathways to literacy achievement for high poverty children*. The University of Michigan School of Education.

Paivio, A., & Lambert, W. (1981). Dual coding and bilingual memory. *Journal of Verbal Learning and Verbal Behavior, 20*, 532-539. https://doi.org/10.1016/S0022-5371(81)90156-0

Pauwels, L. (2008). Visual literacy and visual culture: Reflections on developing more varied and explicit visual competencies. *The Open Communication Journal, 2*, 79-85. https://pdfs.semanticscholar.org/60e8/f7ba5b290ba009ee4a9b6063a6bd393d4020.pdf

Pérez, M. (2017). Los pictogramas en el proceso de enseñanza/aprendizaje de la lectoescritura. [Pictograms in the teaching/learning process of reading and writing]. *Publicaciones Didácticas, 81*, 487-508. http://publicacionesdidacticas.com/hemeroteca/articulo/081073/articulo-pdf

Rosler, R. (2011). Cómo evitar la muerte por PowerPoint. [How to avoid death by Powerpoint]. *Revista Argentina de Cardiología, 79*(5), 1-6. http://www.redalyc.org/articulo.oa?id=305326989012

Sansone, K. L. (2015). Using strategies from graphic design to improve teaching and learning. In D. M. Baylen & A. D'Alba (Eds.), *Essentials of of teaching and integrating visual and media literacy: Visualizing learning* (pp. 3-26). Springer. https://doi.org/10.1007/978-3-319-05837-5

Suryanto, S. (2014). How can visual literacy support English language teaching? *Lingua, Jurnal Bahasa & Sastra, 15*(1), 35-43. https://www.researchgate.net/publication/299978135_How_Can_Visual_Literacy_Support_English_Language_Teaching/download

Tomlinson, B., & Masuhara, H. (2018). The complete guide to the theory and practice of materials development for language learning. John Wiley & Sons.

Wasilewska, M. (2017). The power of image nation: how to teach a visual generation. In K. Donaghy & D. Xerri (Eds.), The image in English language teaching (pp. 43-50). Gutenberg Press.

Wright, A. (2010). Pictures for language learning. Cambridge University Press.

Juan Pablo Zúñiga Vargas

M. A. in English Teaching as a Foreign Language all from the University of Costa Rica (UCR), San José, Costa Rica. Professor of undergraduate and graduate English teacher education courses at Universidad Nacional (UNA), Heredia, Costa Rica. Main editor of the academic journal *Ensayos Pedagógicos* from UNA.

Mailing Address

Juan Pablo Zúñiga Vargas

Universidad Nacional, Heredia, Costa Rica

División de Educología, Centro de Investigación y Docencia en Educación

Campus Omar Dengo

Apartado, 86-3000

Heredia, Costa Rica