



## ORIGINAL PAPER

# Visual Teaching – Using Digitalised Material to Engage ESP Students

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### Abstract

Since the beginning of our civilization human beings have communicated through visuals, either written on the cave walls or inside pyramids, visuals that formed a body of language with the help of graphic symbols and representations up to sophisticated digitalised Prezi presentations, today. The first examples of graphic symbols or infographics appeared 30,000 BC, in the Stone Age, when the first humans painted the cave walls with animals in order to communicate with one another; the Egyptians also used hieroglyphs, 3,000 BC, to tell story of their kings and queens, inside the pyramids; in 1510, Leonardo da Vinci combined written tuition with **illustrations** to produce an inclusive guide on human anatomy. In 1786, the Scottish engineer William Playfair initiated data visualisation through the use of graphs and charts and printed illustrations. Moreover, “Plants have been portrayed in print since the introduction of printing press in the 15<sup>th</sup> century. From early Renaissance herbals, through pictures of Baroque gardens, to increasingly naturalistic depictions of plants and flowers in the 17<sup>th</sup> and 18<sup>th</sup> centuries, printed illustrations of natural history had become fairly common and accepted.” (Playfair, 2005). In the mid 30’s, Otto Neurath developed a model of visual communication to clarify notions through the use of **icons** and **pictures** called **isotype**. Additionally, “In the Far East we see *one* language for writing, but a great number of languages for talking. We have made *one* international picture language (as a helping language) into which statements may be put from all the normal languages of the earth. We have given it the name *ISOTYPE*.” (Neurath, 1936). The brain is intended to pursue things that are diverse, so for it to be agile and function competently, its memory requires some empty space to maintain an ideal processing haste, thus the brain filters received data but discards 99% of all sensory data almost instantly after observing it, depending on whether the received info is diverse from what the brain is familiarised seeing. Information that is different or uncommon appeals to the brain, that is why Prezi presentations today deliver a chance of novelty or distinctiveness.

**Keywords:** *visual literacy; Prezi presentations; visual input; mnemonic; engage.*

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### Introduction

The concept of literacy usually emphasises the ability of humans to decipher reading and writing, but in the twenty-first century, literacy means the skill of understanding and interconnecting data through a diversity of media formats, using images, phone applications or apps, audio, video, and digital texts. Visual literacy is the skill of recognising, understanding and assessing visual messages, and the capacity to ponder and solve problems in the visual field, to decipher, read, produce, inquire, contest and assess texts that communicate with visual images rather than words. Visually literate people can read the intended meaning in a visual text such as an advertisement or a film shot, interpret the purpose and intended meaning, and evaluate the form, structure and features of the text. They can also use images in a creative and appropriate way to express meaning. Visual literacy augments both critical thinking in students who deal with problem solving, easily, empowering them to associate and evaluate, feelings/sentiments, positions, reminiscences and experiences and enables teachers to integrate the use of technology within the classroom to boost student learning by enabling students to view and produce visual images and messages. The first examples of graphic symbols or infographics appeared 30,000 BC, in the Stone Age, when the first humans painted the cave walls with animals in order to communicate with one another; the Egyptians also used hieroglyphs, 3,000 BC, to tell story of their kings and queens, inside the pyramids; in 1510, Leonardo da Vinci combined written tuition with illustrations to produce an inclusive guide on human anatomy. In 1786, the Scottish engineer William Playfair initiated data visualisation through the use of graphs and charts and printed illustrations. In the mid 30's, Otto Neurath developed a model of visual communication to clarify notions through the use of icons and pictures called isotype. Additionally, "In the Far East we see *one* language for writing, but a great number of languages for talking. We have made *one* international picture language (as a helping language) into which statements may be put from all the normal languages of the earth. We have given it the name *ISOTYPE*." (Neurath, 1936). Visual literacy chains comprehension by housing attention and charming students, triggering prior knowledge and developing students close viewing and reading skills. The brain is intended to pursue things that are diverse, so for it to be agile and function competently, its memory requires some empty space to maintain an ideal processing haste, thus the brain filters received data but discards 99% of all sensory data almost instantly after observing it, depending on whether the received info is diverse from what the brain is familiarised seeing. Moreover, "Though our auditory and kinaesthetic modes of sensing are complex and integrated with visual processing, the dominant mode is visual. Such dominance may seem a radical departure from the idea that we need to somehow balance instruction across multiple modalities. Yet the reality is that the human brain has evolved to become positively imbalanced toward visual imaging for information processing." (Costa, Kallick, 2008).

### Objectives

The reputation and relevance of the visual aids as a valuable implement in ESP seminars is going to be tackled in the present paper. Firstly, we shall appraise the methods and procedures of using visuals during the seminars illustrating how these supports have progressed and helped both teachers and students to be engaged in the process of teaching and learning and the effect these digitalised aids have on the x generation. The second objective of this paper is to emphasise and present ways in

which visuals can be integrated through the high-tech devices available, cohesively to achieve the best results for students. The concluding goal tracked in this exploration is to validate that visuals integrated in the seminar rooms lesson incites the dynamics of a lesson. The prediction is that through the use of audio-visual aids the attention and motivation of students will be boosted measurably, multimedia presentations and video integration in slides will enormously improve comprehension, and a better memorizing of specific vocabulary.

### **Topic relevance - 90 percent of the information received by the brain is visual**

A single image of a flower or a road can activate more than 30 million neurons in the visual cortex; the visual cortex creates about 20 percent of the cerebral cortex and it is positioned in the occipital lobe, being focussed in processing data about moving and still objects and plays a huge role in form recognition. The brain can see images that last for just 13 milliseconds (**0.013** seconds). Moreover, “Remarkably, unbelievably, the brain is capable of absorbing 36,000 visual images every hour. How can this imponderable ability be true? It is because the sophisticated visual capacity of our brain is beyond the conscious processing of our mind: research approximates that between 70 and 90 percent of the information received by the brain is through visual channels. Though our auditory and kinaesthetic modes of sensing are complex, the brain’s dominant and most efficient sensory filter for most information is our eyes.” (Hyerle, 2008). Research has pointed out that roughly 50% of our brain is dedicated (directly or indirectly) to visual purposes and scientists say that the brain processes visuals in 250 milliseconds, and 99% of all sensory data vanishes out of the brain instantly. Visual data is in the 1% that is remnant. Our brain records, through our eyes, 36,000 visual messages per hour and we perceive the sense of a visual scene in less than 1/10 of a second so it make clear that 90% of data conveyed to the brain is visual, thus studies have showed that visuals are processed 60,000X faster in the brain than in the text. Moreover, “Research conducted by the 3M Corporation found the brain processes visuals sixty thousand times faster than it processes text; visual aids in a classroom have been found to improve learning by up to 400 percent.” (Gangwer, 2009).

### **The effect of Audio -Visual Support and Digitalised Materials on ESP Students**

The brain is intended to pursue things that are diverse, so for it to be agile and function competently, its memory requires some empty space to maintain an ideal processing haste, thus the brain filters received data but discards 99% of all sensory data almost instantly after observing it,- depending on whether the received info is diverse from what the brain is familiarised seeing. Information that is different or uncommon appeals to the brain, that is why **infographics** deliver a chance of novelty or distinctiveness. Additionally, “The first need for **teaching by pictures** is to give the teacher good teaching material. Teaching by the eye is much more dependent on good teaching material, and much less dependent on the powers of the teacher than other forms of teaching. Frequently it is very hard to say in words what is clear straight away to the eye. It is unnecessary to say in words what we are able to make clear by pictures. And on the other hand, it is frequently hard to make a picture of a simple statement. Education has to put the two together, and a system of education has to see which language is best for which purposes. There will be need in the education system of the future for a system of teaching by pictures.” (Neurath, 1936).

The benefits linked to the use of visual aids and computerize materials in ESP

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seminars have been a theme of sparkling discussion. Nobody can deny that today, our students, also called the X generation live in a media world, in which most of the data is delivered by visual input, through diverse high-tech devices, such as smart phones, tablets, phablets, iPhones and iPads, laptops. Taking all these into account, teachers ought to make real efforts into bringing the student's real world into the seminar room, so as to make the achievement of the language eloquent for them. Visual resources labour as a prevailing tool in this piece, because they give teachers the chance to display the values of the targeted language, the ways and the frame language that lie behind the linguistic connections, thus students comprehend that the practice of the target language has a resolution: the tangible purpose of real communication. The Audio-Visual Support and Digitalised materials are the computer -distributed mixture of a bulky variety of communication basics: animation, text, graphics, pictures, sound, video, photographs, essentially, everything that visual literacy comprises that can create a synchronisation between the students, the procedure and resources used.

Teachers are the recipients of technologies because it allows them to do things that were not conceivable in an old-style classroom location. The blackboard is a place where the teacher writes with chalk but one cannot put pictures or photos there to visible for the entire classroom, cannot attach sounds, colors, animation or interaction. By using digitalised materials that are possible in technology seminar rooms the teacher can start a teaching revolution that can alter the course progress, using instruction time more successfully and monitoring the labour load by increasing the quantity and quality of resources. The use of classroom technology definitely affects the x generation and provides more elasticity (both to students and teachers). One cannot deny the variety of learning styles existent in a seminar room, such as visual learners - who can profit mostly from the visual aids, kinaesthetic learners and touch learners - who appreciate working with physical objects, tablets, phones or flashcards. The sense of easiness and positivism that lowers anxiety for the students in the seminar room resided in this methodology helps them perform sound, and feel self-assured. The incorporation of technology in education offers equivalent chance to all students thus it is very significant for the worldwide human instruction to provide new perceptions for independent learners and not only, such as professional growth, the authority to participate. Nobody wants to hire workers who do not comprehend the internet and technologies.

The methodology which uses Prezi presentations with integrated videos, assist students in the acquisition of poise as they replicate and reproduce actual copies by means of the targeted language, consequently, students will be more driven. Additionally, "The purpose of teaching-pictures is to have an effect on the mind. The distribution of signs and colours over the plane of the picture has to be made in such a way that the attention is guided to certain points which have to be looked at first. That is like the selection of words in a discussion or in a book, like the weight put on words in talking or in reading. If a word is printed w i d e r you will give it more attention, as when one word is said louder than another." (Neurath, 1936). The lushness of the context provided in dynamic colourful slides packed with audio makes listening comprehension simplified and eased by visual provision. Clear widely displayed graphic images bring forth highly detailed responsiveness to the item, condition or interconnected text, helping the student to retain better and remember when outside the classroom, to work with more abstract judgments and reasonable construction. Processing the images requires a smaller amount of cognitive alterations if associated with clear objectives of teaching, building cause-and-effect psychological representations which are a sustenance of long life, profound learning. Additionally, "A

picture which makes good use of the system gives all the important facts in the statement it is picturing. At the first look you see the most important points, at the second, the less important points, at the third, the details, at the fourth, nothing more if you see more, the teaching-picture is bad. A good teacher is conscious that only a certain amount of knowledge will be kept in mind. So, he puts into his picture only what is necessary. He is of the opinion that a simple picture kept in the memory is better than any number of complex ones which have gone out of it." (Neurath, 1936).

Another category of learners a teacher might encounter in the classroom and to whom visuals are of uttermost importance is represented by the mnemonic visuals. Mnemonic pictures contain organised retention mechanisms that enhance the students' ability to remember any text or information provided it is presented visually. Furthermore, "The network of cells, **neurons** and fibers that hosts all this activity is truly expansive. Within the eye, the retina alone is made up of more than 150 million cells and is actually a physical extension of the brain. In addition, neurons that are responsible for visual activity take up a large portion of the brain real estate, representing approximately 30% of our total grey matter. To put this in perspective, neurons for touch and hearing make up only 8% and 3%, respectively." (Smiciklas, 2012). Mnemonics has its roots in the antique method of gathering memories, based on the link between thoughts and a visual provision invested with gist, so mnemonics need to see in order to learn, understand, and remember. A visual mnemonic delivers a recovery signal, so the tag of the detail is related to its meaning of appearance. In order to operative, images should have a general application and they must have a meaning for the mnemonic learners.

### Implementation

The method is entirely based on technology, on the use of various devices: wi-fi, projectors, Chromebooks, Laptops, tablets, phablets, and smart phones or any similar devices, during the seminar. Taking notes is provided by basic transcripts provided by the teacher or shared directly through WhatsApp class group covering the chapter's construction with titles, a set of visuals and pictures, or prezi presentations that contain all the above mentioned and basically any supplementary multimedia-based teaching material. The content is distributed by talks using prezi or power point presentations as well as the option of augmenting the content by the students. Students are engaged in a collaborating manner during the seminar to deliver dynamic education with learning goals that are demarcated by means of an ability model and the assessment is done by developmental appraisal and frequently ability checks. The essential element of a ground-breaking method is the use of technology in mixture with an erudite system to take notes. The numerous technological devices have already, in western society, substituted paper/ chalkboard & pencil/ chalk and offer supplementary access to hypermedia-based materials or short videos during seminars, thus the students can fashion seamless files and their own well-structured education storage; this makes reproductions relaxed and ropes students' education. The designated teaching scheme offers a basis for teachers (and mentors) to teach a class in the didactic framework, with the use of well-prepared teaching material for students and in the technical context.

The fundamentals of the technological instruction system are the use of Prezi or PowerPoint (and other appropriate products) presented by a projector together with the use of numerous devices by students to take notes, to understand and engage with

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hypermedia content instantly, to achieve the WhatsApp -based skills and checks and to access the internet. A 21<sup>st</sup> century class hosts an instruction atmosphere that uses WLAN- wireless local area network to access the internet for web Quests, dictionaries and to scout information. The digitalised materials for students, organised by chapters provide online and digitalised basic texts, visuals and additional collaborative or hypermedia-based material. Students have at their disposal learning platforms, Twitter, Facebook, providing all demonstrations to accomplish capability checks. The teacher's methodology provides a student -centred approach, concentrating in dynamic education using skill based education results.

There are some requirements that teachers and students must fulfil in order to use the technique effectively and these requirements ask for the beneficiary of learning to provide Information Communication Technology or ICT skills. Examples of using basic ICT skills and technology to communicate means for a teacher or a student to be familiarised with the daily practise of digital technology that comprises the usage of a tablet or mobile phone, computer, sending an email, browsing the internet, or making a video call. Both teachers and students need skills in word processing and in distributing and receiving the material electronically (cloud-based storehouse or platforms). The students, can access through their own devices applications such as WhatsApp in order to access the link the teacher sends, the link containing the Prezi presentation which they can always access from the platform or application. Students track the presentations but are also involved in oral reflections, discussions, hands-on experiments, query rounds which are all student-centred activities.

Thanks to the above the head video projectors that exist nowadays in the seminar rooms, teachers can use diverse assets to support their clarifications, introduce new vocabulary or solve exercises. Teachers now have the possibility of learning programs that allows them to construct lesson plans that have effect on the surface and deep learning through pictures, videos, sounds, graphics and visual organizers. Prezi presentations are more dynamic than power point presentations, diminishing boredom and increasing vigilance through slides that have pictures and text inserted in, which improve the reading-to-learn process. Pictures have the ability to make the text more focussed, compressed/succinct, comprehensible, booster of motivation by focusing the students' attention, profundity of processing elucidation of a text. Students engage with a variety of texts, Prezi presentations, power point slides, and gain gist from these texts when they get visual input through printed, multimedia texts and video materials, and respond with pertinent comments, questions, gestures, or actions. Additionally, "The order of signs seen by **the eye** has to be in relation to the best order for keeping in memory marks in the mind. That is what every decision in the invention of a teaching-picture is based on. At the same time every other picture which has been put before the public has to be kept in mind. All pictures together make one unit, and it is important for the reader not to be troubled in any way if he is conscious of all the marks which teaching- pictures have made on his memory." (Neurath, 1936).

A consideration of how students assign their photographic attention when watching a Prezi presentation is highly significant for teachers when creating a slide with text. Such a consideration could have all the participants in the process of instruction comprehend the diversity of novelties, fluctuating from enhanced page layout, the amount of information on a slide, the centring of a photo, the overall design of the presentation construction and visual depictions of long pages. Teachers can

produce a model for forecasting where the visual attention of their students - who are daily browsing the internet and reading the web pages from their smartphones might rest. This is based on the verified eye-tracking information, meaning where on the slide the eye rests the most which is called the concept of fixation effect. Since an growing volume of data is being distributed in a digital format, it is imperative for teachers and educators to comprehend that young readers instinctively use diverse eye movement patterns when reading a text-based page rather than a slide in a digital format, projected on the white board. Because of the effects of digital assault, the majority of students in any specified seminar room are no longer aural or text-based learners, they have become graphic thinkers, thus they are a mixture of either visual or visual kinaesthetic learners. The new technologies are altering our children's brain, modifying their teaching behaviour, wiring them for multimedia.

The children of the digital or X generation have established "hyperlinked brains and ways of thinking. Their brains process data in an analogous or concurrent style. It was commonly supposed that around the age of three, our brains were steadied and didn't change much from then on, irrespective of any educational or socio-economic variables, nevertheless, new skimming technologies have demonstrated many of these long-lasting conventions to be entirely untrue. The brain is, actually, extremely plastic and flexible throughout one's life and the source of brain cells is regularly being restocked, our brains being continuously in a process of rearranging and acclimatizing themselves architecturally, based on two main features: firstly, the input or practice we partake, and secondly, the concentration and length of the practices.

### **A Prezi presentation**

Additionally, "Well, Prezi redefines the presentation playing field by transforming your canvas from a sequential, linear sequence of slides to a flat canvas that zooms in and out. When you start a new Prezi, it's much like standing in front of a huge, blank wall on which you have the freedom to group your topics in clusters and plug-in images, links to websites, videos or voice messages to tell your story. The nature of the Prezi interface will likely compel you to integrate more rich media rather than fall back on the age-old text on a slide. For this reason, it's a compellingly different tool and it shouldn't be theorized simply as a replacement for a presentation tool." (Brock - Pacansky, 2012).

A Prezi presentation was used in the seminar room with the Sociology students to highlight a novel grammatical structure inserted in the lesson: the passive voice. In order to make the grammar content more appealing for the students the students were presented a news report about a bank robbery that took place the days before. This short video, of the tv presenter telling the news, full of passive voice structures and short interviews with the customers of the bank presented a catching real-life situation, that can happen to everyone, made the class atmosphere more entertaining and presented the teacher with a new possibility of explaining the novel structures with audio visual aids in order to achieve the desired results. After inspecting the video, which introduced passive voice structures, the teacher elicited data from the students, asking them plenty of questions, clarifying situations, using the passive voice, and the students answered according to the model they saw in the video- using passive voice, too, about what they saw the situation of the bank, that day. Students are presented next with a slide containing the transcript of the video they had just seen and are asked to underline the passive voice structures they find in the text, provided they had paid attention to the video. Then the teacher checked the answers with the students and began presenting the

passive voice structures. After that, the students are asked to produce the new structures in exercises that require transform the passive voice sentences into active voice sentences and the other way around to get used to transforming quickly from active to passive voice. Another slide was brought forth containing gap filling sentences that could be checked on the spot, with the help of prezi, the next slides popping and revealing the true answers written in colour. Another slide was presented as a visual support for role-playing activity: one student is the policeman who would ask questions in passive voice, another is the bank owner who would speak about the amount of money he was robbed, and the other two are the hurt bank customer and the employee who would tell their story, about everything that the robbers had done in the bank, from their own point of view. Students are requested to produce short interchanges and play the role of their characters and to name them. Additionally, “On the flip side, it’s important to think about all your students when teaching with Prezi. First, focus your content when using Prezi and be gentle with the motions you incorporate into the viewing experience.” (Brock -Pacansky, 2012).

### **Conclusions**

The atmosphere of the seminar room changed when the Prezi presentation started to unfold and especially when the video was introduced. There was a substantial intensification in the number of students partaking in the conversation about the real-life situation of a bank robbery. During watching and reading the tape scripts students showed to be more involved and eager to contribute, the majority of the students tracked the discussion with consideration and they were relatively enthusiastic to take part, which made the seminar room a little noisy, by failing to respect turns. The students who were usually inactive and reluctant to participate in the post- video discussion reformed their position towards more energetic involvement. One detail that must be highlighted is that even if the novel introduced grammar structure was a little challenging for the ESP students, they perceived it rapidly and completed most of the task fairly well. The learning environment was inspiring, boosting the education process, and making teaching more extensively accessible to all types of learners thus creating novel solutions to the broadcasting of knowledge. Using projector digitalised-assisted learning- Prezi presentation on an above the head video projector, compared to old-style learning, where teachers would turn their back at the whole class, writing on the blackboard, resulted that students tend to absorb more and in less time. In both underling the new structures and the gap filling activity, most of the students felt self-assured in order perform the task accurately and individually or in pair and to share the replies with their partners. The level of engagement was fairly high, authorising a positive effect of the visuals in the ESP seminar room, demonstrating that the use of Prezi presentation together with video and images helped the students acquire self- confidence and autonomy, in English. Using visual supports in the ESP seminar rooms has heightened the language teaching, as well as students’ understanding of the new audio-video input, simplifying the gist of words and communication generally, helping in remembering new terminology, and in gaining students’ motivation and attention.

Using Prezi presentation, on a wide board, with vivid colours and sounds has eased the learning process, enhanced students’ education and smoothed teachers’ labour. The attitude towards the usage of Prezi or power point in the classroom has been a positive one and requested to happen again, since the majority of the students expressed their wish to have classes exclusively constructed on multimedia visuals. The clear

intensification of students' involvement, the engagement and easiness reflected in the students' attitude, the classroom dynamics, showed clearly that the level of self-confidence in speaking and interacting changed students' behaviour, as well. Visuals have facilitated them the learning of the new vocabulary and recognising the grammar with fewer explanations before presenting the new structures, thus education has converted more eloquent for them by bringing the real world to the seminar room with videos and presentations.

The technology enhanced method can be achieved effortlessly by the students and they perceive a benefit from using technology in ESP seminars thus from the students' point of view the teaching method is desired and classified as an appropriate way of teaching. The students reflect a high level of gratification, self efficacy and they feel reinforced in their learning process. The existing instructive system is using uniform tests to measure gradually nonstandardized brains, consequently we need to reflect how to reorganise the seminar room experience, the method we clarify, the way students absorb information, the effect the teacher has on students' visible learning and how that learning is evaluated. The future education trend cannot be separated from technology and the prediction is that in the future multiple devices are to be owned by the students and used during class or seminars. The use of a reliable and suitable agenda is essential for the fruitful instruction of teachers or coaches as well as for the learning achievement and outcome of the students.

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