THE POSITIVE INFLUENCE OF IMAGES AND GRAPHICS PRESENTATIONS IN TEACHING TEXTS FOR KEEPING STUDENTS' ATTENTION AND CONCENTRATION

Arbresha Zenki-Dalipi

University of Tetovo - Tetovo, Republic of North Macedonia, arbresha.zenki@unite.edu.mk

Rabije Osmani

Primary school "Mehmet Deralla", v.Gradec, Vrapçishte, Republic of North Macedonia, rabijeo@hotmail.com

Abstract: We live in a world where visuals are becoming very important, as most information is presented as a combination of words and pictures which provide the opportunity to create concrete and abstract ideas for reading through the formation of images in the mind. Everything in the world is a photo. The written (text) is a photo, and the photo represents a text. Visual literacy is the ability to use images to construct meaning. The advantages of symbols have long been recognized, which is why we are increasingly incorporating symbolic teaching and learning today. Using words and images allows the thought process to be visible, that is, it allows us to put ideas on paper, out of the brain, where we can explore them more deeply. Since visualization is considered a factor that directly affects the level of understanding and retention of students' attention, many remarks addressed the inclusion of this component in the preliminary books. To gather experience and findings about the impact of the inclusion of images and visual representations on the attention of students, a questionnaire was carried out with teachers who worked in the lower primary cycle. However, since the research problem has to do with the positive impact of these visual shows on maintaining the students' attention, direct observation of the students was also carried out. The research will reveal data and qualitative analysis obtained from the observation of students of the lower primary cycle of two schools in the cities of Tetovo, Skopje, Gostivar, and Kiçevo, one of which is a school in the city and one in the village. The retention of students' attention has been compared using books that are supported by visual and contrasting images. The data collected from the statements collected from the questionnaires and qualitative data collected from the observation are analyzed with statistical procedures and methods. The arithmetic mean was used to describe the quantitative data obtained from this research. To measure the variability of the data, the standard deviation measure was used, a t-test of statistical significance and ANOVA were used to determine the differences between the groups, while the Pearson correlation coefficient was used to determine the relationship between the variables. The results obtained about this complicated and active act, prompt many questions, but also support many conclusions that cause different associations and suggest many solutions presented in the relevant research in the form of suggestions.

Keywords: Images, graphic representation, attention, concentration.

1. INTRODUCTION

Integrating mental images into the learning process becomes an inevitable priority as the modern world becomes surrounded by visual images. As 65 % of the population are visual learners, the generation of images in the learning process creates conditions for coding due to the organizational capacity of the imaging system, known as reintegration. The constituent part reintegrates the whole and creates conditions for finding the other constituent elements. Evoking a response to a specific partial stimulus has a powerful effect in teaching through mnemonic techniques (Zenki-Dalipi, 2019). These pairs of stimuli will encourage a "search" for meaning, will allow a fluent and graceful movement between reintegrated equivalents to cognitive knowledge, and will also keep students focused in the learning process. This consistent postulate provides a plausible explanation of the role of integrating images that will guide students to master new knowledge through mnemonic and memory strategies, as well as connecting emotions with visual images that contribute to maintaining interest in learning. Visual impulses stimulate an emotional response because visual stimuli are encoded in the medial temporal lobe of the brain, and the emotional connection to visual information increases student responsiveness by up to 40%. The visual impulses obtained broken down into parts for better absorption increase the student's interest, influence the increase of cognitive level and stimulate the imagination, which leads to established results of the influence of visualization in improving learning by up to 400%.

Most students can interpret, and "read" diagrams and maps long before they can read the same information through words and sentences because pictures are more alluring than words, more precise and powerful in evoking a wide range of associations and thus enhancing creative thinking and memory (Buzan,1994). This way of "visual

representation of knowledge" is a type of critical thinking that improves students' intellectual ability, directing attention, and storing and combining concepts into meaningful images that allow for "long-term memory where they are indelibly etched" (Burmark, 2022). According to studies, the difference between retention of information given through written or spoken and visual information is given. While in the first case only 10-20% of the written or spoken information is retained after three days, almost 65% of the visual information is retained.

Created in Paleolithic cave times, the images went through numerous social-cultural changes and still follow the rapid trend of civilization development. And not only that. The expansion of presentations, which are more than artifacts, affects the great challenge facing education today, how to maintain students' motivation and interest. If science provides evidence that 90% of the information that is sent to the brain is visual and that images are refined 60,000 times faster than text messages in the brain, the question is imposed how many approaches that we apply today to ensure that students are engaged in learning? What would be the approach of teachers in the future who would triumph over the world of fascinating and engaging photos and videos, and interesting infographics that serve today's students? How will we inspire them and how will we fight the monotony that students feel while facing the lesson?

2. THE VISUAL FEATURES OF LEARNING AND TEACHING

"The soul never thinks without a mental image" – Aristotle

Efficient and effective learning, as well as teaching, are achieved by adjusting the teaching according to the student's abilities, and this undoubtedly implies the application of a wide range of teaching methods and strategies.

Visual learners use visual cues, and they process and create meaning. Images are powerful in evoking a range of associations and thus enhance creative thinking and memory. If they are easy on the eye, then they will be easy on the brain because images facilitate the process of learning. According to Medina, vision trumps all senses. Pictures beat text as well, in part because reading is so inefficient for us. Our brain sees words as lots of tiny pictures, and we have to identify certain features in the letters to be able to read them. That takes time (2008). This physiological and psychological reliable perception enables receiving information, processing, remembering, and learning. Finding the study based on the impact of visual "images influence the learning process. Students often see pictures before reading the text and these pictures can enhance the power of imagination of the students and can increase students' creativity." (Kasmaienezhadfard, *et all.,* 2015).

In combination with other teaching approaches or on its own, this optical display represents a strategy whose framework extends to all teaching stages of the lesson. The goal of every teacher is to build and develop a habit among students to interpret and analyze written, auditory, or visually transmitted information. Processed reliable and valid information will help them to create their points of view, perspectives, and attitudes.

Gangwer in his study states that visual learning removes the pain and intimidation that students face when presented with many pages of text (2022). Alibabiq states that using visuals, in every case, attracts the attention of the participants, arouses interest in the given content, makes it easier to follow, and increases memory (Alibabiq *et all.,* 2013).

Visuals are all objects, pictures, images, slides, and everything else that can be observed through the visual network. At the same time, pictures, sketches, patterns, etc., are of great importance. Pictures are the most noticeable visual means in the first educational cycle, but if we combine verbal and non-verbal elements, motivation and attention will increase, as also understanding, as explained by the well-known theory of double coding by Allan Pavio (1991).

3. GRAPHIC DISPLAY CHARACTERISTICS

Graphics are visual or graphical tools that are intended to help students learn and retain the information acquired through visual representations, perceive the relationship between selected pieces of information in graphic format, and connect abstract concepts and principles to concrete representations (Lorin, 2018). This visual support offered by graphic organizers provides an opportunity to develop, organize, summarize and evaluate information. That optical display allows familiarity with the structure, recognition of the relationship between elements, and connection of abstract concepts and principles with a concrete display.

Creating mind concept maps is really about finding a specific direction and pattern of thinking. Mind maps, diagrams, and tables can be applied at different stages in the teaching process. They can be applied in different developmental educational stages, among different groups of students. According to the purpose of the application, they can be divided into graphic organizers for collecting, ordering, classifying, comparing, developing and expanding understanding, developing ideas, summarizing, and evaluating.

According to Anderson, the reasons for using these graphic displays are:

1. First, according to the dual processing ability theory of working memory, information is retained in long-term memory in two forms: visual and verbal. Information that is presented visually and verbally is remembered better than information that is presented in only one of the two forms.

2. Second, graphic displays require students to organize information in ways that benefit memory (eg, hierarchical, causal). You can also use ready-made graphics or ask students to create them themselves.

However, despite the fact that they seem simple on the surface, using graphic organizers is a complex activity. Therefore, teachers should be helped and shown how to involve and animate students in the process of applying graphic organizers, in order to create student competencies in students through which the set goals will be reached. As useful graphic displays, the following are commonly used: T-table, Venn Diagram, Tangram, Memory cards, Concept Maps, Mind Maps, Sequence Diagrams, Puzzle, Crosswords, Story cards, Spot the differences, Connecting the dots, etc.

4. DEFINITION AND IMPORTANCE OF ATTENTION AND CONCENTRATION IN SCHOOL

The act or power of concentrating all attention which according to Kumar (2003) is only achievable if all senses and mind are focused on a particular problem best defines concentration. All this processing of information received from the outside and "setting" in a state of readiness to use in immediate but also prolonged cases brings to mind that "all the knowledge or information given to him is well taken and not only they can 'use them to deal with current situations and later to apply them in the long term (Le, Vy, 2021). While (Al'Omairi & Al Balushi, 2015) treats attention and concentration as the primary component of the educational process, Kurniati (2009) clarifies concentration as a manifestation and individual reaction where students react according to their will to engage in learning, stay calm, and interested, perform given assignments, view static or dynamic visuals and communicate to friends' opinions and teachers. Attention and concentration allow deeper understandings and memory, enable focusing on a given task, eases the way to achieve goals efficiently, and allow you to clarify irrelevant information.
For Le Vy, 2021 the role of attention is essentially undeniable in students' learning process. Since the level of concentration affects the result of learning and gaining knowledge, in the study of Hariyanto (2021) it is stated that If the learner is paying attention, then the learner will follow and carry out the learning activities well.

5. STUDENT ATTENTION AND CONCENTRATION SPAN, WAYS FOR CAPTURING AND HOLDING IT

It has been and still is a challenge for methodologists to find a way for capturing, holding, and extending students' attention and concentration in class, as the opinion of some psychologists is very popular that a student's attention span is 10-15 minutes. However, the findings of Wilson, Karen, Korn, and James, declare that instructors should take into account individual differences in student attention when lecturing and determine whether students are recording the relevant content of the lecture in their notes. According to other studies, the level of students' attention and concentration is also influenced by the type of teaching. Distance learning is characterized by partial attention, while classroom learning, i.e. interactive learning offers efficient ways to capture and maintain students' concentration. All this prompted the effort to find multiple methods, forms, and strategies that would appear as factors for capturing and maintaining attention. I don't think many studies have been done in this field, where there is evidence that interest, motivation, importance, forms of learning, and others can be high influencers of concentration. Giving an active role in the learning process, learning independently where students will be allowed to learn, exchange with peers, communicate ideas with others, demonstrate, monitor their progress and evaluate learning, and reflect on their active involvement in learning.
Starting from the fact that children have an increase in concentration for 3-5 minutes each year, it is worth noting that the age of children of the low cycle, the duration of their concentration is 20-40 minutes. This is precisely an incentive for teachers to organize their activities in shorter sessions in the classroom. The shorter sessions will allow the teacher to monitor the attentive engagement of the students in the lesson, help them in eventual cases, create differentiated learning, to provide different resources. There is evidence that teaching methods that include some form of active learning (e.g., think-pair-share, group discussions) can produce superior learning gains compared with lecture-only teaching methods (e.g., Freeman, 2014). Of particular importance is to integrate experiments, demonstrations, images, virtual tours, and short videos that would support teaching. Along with some researchers who have found that illustrated readings can motivate creativity (Kaufman, Lee, Baer, & Lee, 2007), some have brought facts that the visual appearance in a particular situation is extremely efficient (Mayer, 2002) or the utilization of visual advancements can significantly impact students' attention in class (Raca and Dillenbourg, 2013). Moreover, some researchers brought up that images in the learning process are considered attractive and cheerful factors in reading (Peeck, 1993).

These approaches will probably help in attracting attention and maintaining attention and concentration for as long as possible, but at the same time also understanding the concepts that are explained. At the end of the lesson as preferred by the students are the competitive activities. To summarize the learning, to evaluate the learning, fun quizzes can be integrated. All these activities will undoubtedly attract the attention of the students and will maintain their concentration, which means that the students are engaged in active learning most of the time.

6. MATERIALS AND METHODS

The research is about revealing the influence of images and graphic representations in maintaining students' attention. To examine the research questions, we have based on the analysis of the statements of the teachers who have been involved in completing an online questionnaire. However, in order to have the most relevant data, in this study we will also reveal the impressions obtained from the observation of lower cycle students. The follow-up of students was carried out so that a random group of students took part in the observation. In order to avoid different factors and exclude any random limitations, the same students were followed in the same form, at the same time, in the same way. What differed in the cases that needed to be differentiated was that the same students were once given reading and work material in which there was no visual support, and in other cases reading and work material with visual support. Specifically, they had to read first children's books (in all cases) with images (pictures, drawings,...) and in the other case without them. The students were also faced with tasks in which they would have to receive information presented in different graphic organizers and at the same time complete their answers in visual graphs, while in the other case they would receive descriptive information and give answers in the form of writing.

The research reveals data and qualitative analysis obtained from the observation of students of the lower primary cycle of two schools in the cities of Tetovo, Skopje, Gostivar, and Kercova, one of which is a school in the city and one in the village. The observation in question was carried out for a duration of one month by the researchers. During the observation, appropriate data were recorded, including the desire to engage in the activity, the impression they showed during the first "meeting" with the book (working material), minutes where the students read/worked quietly, the different body movements and their facial gestures, manipulation with different tools and materials for presentation of given tasks.

7. RESULTS AND DISCUSSION

The actuality that the use of visual images in teaching is gaining in recent times takes large proportions in the pedagogic literature. First, we will present sublimated results from the teachers' point of view, to continue with the presentation of the impressions obtained from the observation of the student's performance with two types of materials.

The results obtained from the teachers' questionnaires provide very promising data. 89% of the surveyed teachers stated that they apply images, other visuals, and graphics during their teaching. In the question of how they act when there is no ready visual support when using books and other materials, approximately 38% declare that they prepare appropriate visuals, while almost ¾ of them state that they do not commit to prepare materials by which they would practice the same. From the answers received from teachers who work in rural and urban places regarding their attitude that visual images positively affect the level of concentration of students, according to the analysis by t-test, the results appear as follows. According to the displayed average values of the teachers according to the place where they operate, it is observed that there is no significant difference. We present the coefficient of significance with 0.463, which is greater than the second validity limit of 0.05 ($p > 0.05$). In other words, it means that there is no significant statistical difference in the attitudes of teachers according to the place of action in connection with the positive impact of visualization at the level of students' attention and concentration.

In order to determine the hypothesis *There is a statistically significant difference when images and graphics presentations are applied in teaching texts for keeping students' attention and concentration*, an interpretation through statistical analysis follows.

Table 1. Teachers' attitudes regarding the claim: *There is a statistically significant difference when using images and graphics presentations in teaching texts for keeping students' attention and concentration*

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	82,158	4	20,540	2,770	,035
Within Groups	467,077	63	7,414		
Total	549,235	67			

The table shows the average sizes according to teachers' views on the positive influence of pictures and graphic displays in maintaining students' concentration. A significance coefficient of 0.035<0.05 ie. that there is statistical significance in the attitude of teachers who think that pictures and other graphic displays have a positive effect on maintaining students' concentration.

In order to avoid the subjectivity of the participants, the observation of the students as mentioned was carried out with the same students with different types of materials. The observer had the task of obtaining data about the reaction of the students during the first "meeting" with the material, the way of browsing the material, the time of their engagement with the given obligations, and the way of presenting the given information in the graphic organizer. All data were recorded and processed.

The students' observation started with books/texts which had no visual support. In the beginning, the students were asked to read the text that we distributed to everyone in the class. The reaction of most of the students was that they opened the text on all pages. They seem to be looking for information (it is thought that they were looking for eventual images or were curious about the number of pages where the text is spread). The first "meeting" did not show any reaction that we would have shown, as long as we do not compare it with the second day, that is, when the students faced the book with illustrations. There were moments when the students immediately after the first minute lost communication with the book, as their vision was lost in the objects that surrounded them. The only thing most of them did was follow the teacher who seemed to think it was very important that the students give their all to do their duty. During the observation of the students after only 3-5 minutes, the following images were encountered: reading silently, underlining some lines/words, trying to sit more comfortably, swaying, adjusting body parts, sharpening the pencil, etc. Regarding the presentation of the tasks, it was observed that all the students were engaged in the work, without noticing anything that refused to fulfill their obligation.

During the second meeting, the students seem to have shown more pronounced enthusiasm about reading, which they expressed by navigating through the pages of the text with a more pronounced dynamic. In this case, non-verbal communication with each other was observed, with which they expressed joy, but also compliance to joining the activity. In this case, there was also silence during the reading. Throughout the reading, it was observed that the students kept their eyes on the reading material. Although there were moments when some of them seemed to lose interest in reading, their number was approximately 67% in decrease. Line/sentence underlining (in the same students) was also encountered, as well as a wobble in the chair even though the vast majority were rapidly turning the pages of the reading material. During the engagement with answers about the reading, the students were asked to distinguish between two well-known characters. One Little Red Riding Hood, an elaborate and familiar tale for children, and the character they announced that day, Green Riding Hood. To present the differences and similarities we asked to be served with the Venn Diagram. Literally, all the students got involved in the work. They began to establish the similarity in the cut of the two communities, and the differences in their changes. It is very important to note that it was noticed that some students started using colored pencils to distinguish the two faces of the tale. The impressive thing was the freedom of the display of thoughts in the diagram. In some students, the presentation of differences was observed that were not present at all in written form, e.g. the underpants and some snow seen in the forest in Green Riding Hood compared to Little Red Riding Hood's shoes and the flowers she collects for her grandmother. These data, obtained only from the illustrations given, were enough for a student to write that the time when Green Riding Hood went to her grandmother was winter. According to the observation of the student's work in the diagram, it was observed that all the students managed to complete the given task.

8. CONCLUSION

How many times did your concentration fail while reading this article? Despite the strong motivation and interest that we can feel, it appears as a natural phenomenon to have many fluctuations from internal or external factors. Evoking our return to finish reading this study is the easiest way to understand very well the variety of ways to return and maintain concentration at work. Shifts in focus, attention and partial thinking that are retroactive appear to be beneficial to the thinking process toward understanding or critical thinking, so we must be in constant pursuit of the mechanisms underlying the benefits of active learning.

A large number of teachers declare that they apply visualization strategies and models during their teaching, even if they do not find them ready, only ¼ declare that they provide such approaches to self-engaged students. This research reveals a significance coefficient of 0.463, which is greater than the second validity limit of 0.05 (p > 0.05), which indicates that there is no statistically significant difference in the attitudes of teachers according to the place of action. regarding the positive impact of visualization on the level of attention and concentration of students. The study highlighted a statistical significance coefficient of 0.035<0.05 in the attitude of teachers who declare that photographs and other graphic representations have a positive effect on maintaining students' concentration.

From the participatory observation, we bring data that shed enough light on the reason that attention and concentration are longer during the application of images and graphic representations during the learning process. It clarified the influence of the visualization of the learning process on the motivation of students, the involvement of the majority of students in the learning process, the way of thinking, and the presentation of knowledge and information in graphs.

Despite Robison's (2020) statements that the self-report measure of classroom concentration that Bunce (2010) requires with clickers is artificial and non-objective, it appears that students' reporting of fewer distractions during demonstrations and supported activities visual is quite reliable. Although it has been established that the way of following the students' concentration through eye tracking does not represent a perfect measure, it seems that the shift of the gaze (though also of the attention) during visual perceptions is very little emphasized, especially if we analyze the facts that the images are refined 60,000 times faster than written and 90% of the information transmitted to the brain is visual as 40% of the nerve fibers are connected to the retina.

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