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Implementing Graphic Organisers to Teach Grammar to Moroccan Second Year Baccalaureate Students: an Action Research Project

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Abstract: *This action research project was carried out to investigate the effectiveness of using graphic organisers to teach grammar to a group of second year baccalaureate students from a secondary school in Morocco .The results of the pre-test and the post test demonstrated that the performance of students increased after implementing graphic organisers. The results of the questionnaire which was devised at the end of the study to get students' perceptions of the use of graphic organisers showed that the students responded positively to integrating such teaching device in the grammar component.*

Keywords: *graphic organisers, teaching grammar, knowledge maps, concept maps, cognitive organizers, advance organizers, concept diagrams.*

I. Introduction

One of the aims of the Moroccan second year baccalaureate textbook is to develop accuracy; hence the importance given to grammar. In fact, grammar is allotted 15 points of the overall 40 points mark of the English test in the baccalaureate national exam. Also, students are required to write formally in the writing section of this test, so being knowledgeable about grammar rules is imperative. Actually, students have to master a lot of complicated rules; therefore, an effective and efficient memory is essential.

Before discovering what the problem was, the students participating in this project used to practise a target grammar structure until they were able to perform an error-free repetition of the material at the end of each grammar lesson. Nevertheless, whenever students had to refer to a previous grammar rule over which a new structure built on, the majority of students failed to remember it. The problem increased gradually as students accumulated many rules in mind. At the beginning, it was speculated that students might need more practice or they did not revise their lessons regularly. However, it was noticed that even the most hard-working students manifested the same problem. Therefore, an unstructured interview with these students was conducted to get a clear picture of the problem and its causes**.** Only then it was discovered that the problem was due to a failure of the memory system rather than the language system, and that some extra assistance was necessary.

Research shows that graphic organisers make content area information more accessible as well as memorable to students. These are visual tools that help English language learners understand and organize information. They are like mind maps which promote active learning. Graphic Organizers can also help students develop higher level thinking skills and promote creativity. So, the aim of this study is to help students learn grammar effectively using graphic organisers.

II. Review Of The Related Literature

2.1 Defining graphic organisers

According to Drapeau (1999:5) a graphic organizer is a visual and graphic display that depicts the relationships between facts, terms, and or ideas within a learning task. Willerman & Mac Harg (1991:705) add that graphic organizers are also referred to as knowledge maps, concept maps, cognitive organizers, advance organizers, or concept diagrams.

Bellanca (2007: 11) maintains that teachers can use graphic organizers to reinforce learning, assess learning at multiple checkpoints, and identify misunderstandings of concepts. In fact, graphic organizers can be used before, during, and after instruction. Besides, learning environment settings for using organizers vary from individual use, to partners, to small groups, to centres, and to whole class environment. Teachers can use organizers to brainstorm ideas, to activate prior knowledge, to remain focused on content material, to present findings from an investigation, to confirm existing knowledge, and to review at the end of the period or week of study. Graphic organizers are also valuable in any activity which requires the use of critical thinking. The use of these tools can generate excitement and enthusiasm toward learning. Therefore, graphic organizers appear to be a beneficial instructional strategy to support students to retain learned information longer and to learn more effectively.

2.2 Evidence for effectiveness as a learning enhancement

The literature supports the use of graphic organizers to facilitate and improve learning outcomes for a wide range of learners. In fact, numerous studies confirm the benefits of using graphic organizers in the classroom in terms of helping students develop and process information. In this respect, Ellis (2004:1) emphasises that they help students to process information as opposed to memorizing and stressing facts. This is because graphic organizers are structures or templates that help students to understand the relationships between concepts rather than just memorizing isolated, decontextualised bits of information. Also, spatial arrangements depicting the information's structure reduce the cognitive demands on the learner. The learner does not have to process as much semantic information to understand the information. This is one reason why graphic organizers are "such powerful devices for students with language based learning disabilities" (Ellis, op.cit: 2).

Mcknight (2010: 5) argues that when content is illustrated with diagrams, the information can be maintained by students over a period of time. First, because organizers portray knowledge in a meaningful way which helps bring clarity to ideas as connections are made. As a matter of fact, having a way to organize ideas, facts, and concepts graphically facilitates effective student retention. Also, graphic organisers help students separate what is important to remember from not essential information.

Many students are visual learners, thus, a visual approach to brainstorming or organizing information is essential. As such, Horton, et.al (1990: 12-14) believes that graphic organizers appear to be a valued approach to utilize in teaching and learning. They help students generate mental images to go along with information and create graphic representations for information. Organizers also offer an entry point into complex material for visual learners, increase comprehension and retention, and can be used with all students, ranging from gifted to those with mild cognitive disabilities.

Learning to think is an essential skill needed in education today. Educators often use teaching methods where students are passive learners. Difficulty arises when students must make meaning out of information taken from a book, video, or a lecture. When students interact with content, it is important that they actively construct meaning. To do this, students must be active thinkers during the learning process. Drapeau (2008:12) emphasies that students are required to think in multiple directions when using graphic organizers, which makes learning an active and meaningful process.

Graphic organizers offer support when new information is presented and previously learned information is reviewed. Ausubel (1963:15) believes that the appropriate organizer can help students form relationships between previously acquired knowledge and new concepts. This linkage process seems to be precisely what students need for learning to take place because it helps them store and retrieve the knowledge in their long-term memory.

Jitendra (2002: 23-28) points out that students are more likely to become strategic learners. Reading and writing skills, communication skills, and analytical, critical, and creative thinking skills are all subject to improve when students use graphic organizers.

Students with learning difficulties need strategies to help them achieve success. These students must have information presented in a clear, concise, and organized form if they are to make progress in content area classrooms. Gagnon & Maccini (2000:1-22) emphasise that graphic organizers have great potential for students with learning disabilities because they provide extra support to guide them to focus on the important information and learn how to organize it .

To sum up, the literature stresses that graphic organizers clarify and organize information, which leads to students being active in the acquisition of conceptual knowledge. Teachers also use this resource to develop lessons and link new concepts with existing knowledge. Besides, graphic organizers combine both the linguistic and non-linguistic modes of learning. In most cases, this dual-presentation (visual representation accompanied by auditory explanation) is considerably more powerful than either approach alone and hence leads to the ultimate goal of effective learning for students. Ultimately, graphic organizers allow for more than just content acquisition. Students learn processing skills, patterns for organizing information, critical thinking skills, and communication skills.

III. Methodology

3.1 Research question

This study seeks to answer the following research question:

-How effective is using graphic organizers in learning grammar rules ?

3. 2 Participants

This action research project involved forty six second year arts baccalaureate students studying in Imzouren secondary school in Imzouren, a small city that is 18 kilometres away from the city of Al-Hoceima in the North of Morocco. The respondents were assigned to the teacher researcher by the school administration. The ratio of males and females was not even. Only 6.5% were male students and a majority of 93.5% were

female students. Their ages varied from seventeen to twenty years. The respondents were different also in terms of their level in the English language.

3.3 Data collection instruments

The teacher researcher relied first on unobtrusive observation of students' responses in grammar lessons to build a picture of the problem. Participant observation in action research is much more open-ended, its purpose being to provide more detailed descriptions of the people's actions. Stringer (2008:71) suggests that observations should always be accompanied by asking participants relevant questions to check the teacher researcher's observations with participants. The purpose of this process is to provide a clear record of events and activities as they actually occur, rather than relying solely on participant accounts. For this reason, the present investigation used a semi-structured interview with students to get a clear picture of the problem and its causes.

The Students also took two tests : a pre-test at the beginning of the study and a final post-test. The results of the two tests were analysed quantitatively to evaluate the students' progress in learning grammar. At the end of the study, a survey questionnaire was administered to students to evaluate their perceptions of the use of graphic organisers in learning grammar. The questionnaire consisted of six checklist items (see appendix I). The results were analysed both quantitatively and qualitatively.

IV. The Study

To begin the research process, the participants took a pre-test to evaluate their mastery of the grammar lessons that they had studied previously without the use of graphic organizers. The purpose is to evaluate the students' learning without implementing them. The results of this test were meant to be compared with those of the post-test students were to take at the end of the research process after using graphic organisers.

Throughout this action research project, students worked to improve their knowledge of grammar rules using graphic organisers. In fact, McKenzi (1997: 2-4) emphasised that most examples, in the literature, that outline the inefficacy of graphic organizers invariably point to inadequate teacher instruction as the key in the failure of these tools to achieve any noticeable results in student achievement. By and large an effective teacher instruction model includes explicit and detailed instructions and independent practice by the students with feedback wherever necessary. The teacher should determine and establish a purpose for which the graphic organizer is being used. All these three elements – instruction by the teacher, practice by the students and teacher, and feedback from the teacher – are inextricably linked. Failure at one of these stages will negate the benefits of using the tools. In relation to this research project, students were first introduced to a variety of graphic organisers with examples that demonstrate their different uses. Next, students practised utilising different graphic organizers. Accordingly, at the end of every grammar lesson, students were required to hand in visually represented interpretations they used to help them better retain the information. Feedback from the teacher researcher was provided.

Bellanca (op.cit: 2) points out that visual displays can be successfully implemented at several phases of the instructional cycle. They may be introduced as advance organizers, before the learning task, or as post organizers, after encountering the learning material. Positive outcomes have been reported when graphic organizers are used as both advance and post organizers. However, the precise point of implementation does appear to influence the degree of graphic organizers' effectiveness. Merkley & Jefferies (2001:350-357) report from a study that the point of implementation is a crucial factor in determining the magnitude of improvement in learning outcome. When graphic organizers were used as a pre- activity, average effect sizes were small. In contrast, graphic organizers used as a follow-up yielded somewhat higher improvement in learning outcomes. Thus, efforts to improve learning outcomes may be more successful when graphic organizers are introduced after the learning material. Using this research information, it was assumed that the use of graphic organizers in this research project would be utilized better after the instructional portion of a grammar lesson. In this way students would have an introduction to the lesson, but they would also have to write in the information on their own afterwards.

V. Results

To analyze the data, the information from the pre and post tests as well as the questionnaire was used to determine if the students benefited from the use of graphic organizers. First, the pre-test was graded. Then its scores were compared with those from the post-test the students took at the end of the action research project. It was assumed that the guided question in this study would be answered if the scores from the post-test were higher or lower than those from the pre test. The results are presented in tables 1 and 2.

Table 1: students' scores in the pre-test

Below average mark		Average mark		Above average mark	
n	**%**	**n**	**%**	**n**	**%**
25	54.3	12	26.08	9	19.5

Table 2: students' scores in the post-test

Below average mark		Average mark		Above average mark	
n	**%**	**n**	**%**	**n**	**%**
12	23.9	15	32.6	20	43.4

It can be inferred from the results on tables 1 and 2 that this study supported the use of graphic organisers to enhance student achievement in grammar. As stated before, the pre-test was conducted before implementing graphic organisers while the post-test was conducted after using them. Comparing the two sets of data in tables one and two, the lessons that implemented graphic organisers elicited higher test scores in the post test than the lessons in which the information was presented through merely teacher-directed instruction. In the pre-test only 19.5% of the students could get an over average mark. However, there was a sharp rise in student performance after the implementation of graphic organisers as 43.4% of the learners could get an over average mark in the post test. Also, 54.3% of the students did not do well in the pre-test because they got below average marks. Nevertheless, only 23.9% got a below average mark in the post-test. It can be deduced, then, that there is a positive correlation between the use of graphic organisers and students' achievement. The data from the questionnaire also confirm this correlation as tables 3, 4, and 5 demonstrate.

Table 3: Percentages of items 1 and 2 in the survey questionnaire

Questionnaire items	Answers	
	N	%
1. I understand something better in		
(a) written notes	6	13.04%
(b) visual representation	40	86.9%
2. When I think about what I studied yesterday, I am most likely to get		
(a) a picture.	36	78.2%
(b) words.	10	21.7%

The results on table 3 clearly indicate that the majority of the students responded positively to implementing graphic organisers in learning grammar. According to 86.9% of the participants, their visual memory is rather stronger; they tend to remember better what they see and not what they write. Besides, 78.2% of them reported that when they think about what they studied before, they are most likely to get a picture in mind of it. Consequently, it can be deduced that they find a visual support in the form of graphic representation of grammar information very crucial. In fact, learners are more likely to remember the content that is being taught as it is presented using visual graphs and images. Indeed a picture is worth a thousand words! In their explanation of brain based learning, Tomlinson & Kalbfleisch (1998: 52-55) emphasise, in this respect, that learning involves both focused attention and peripheral perception. The brain absorbs information with which it is directly involved, but also pays attention to information outside of the direct involvement field. This means that the brain responds to the entire sensory context in which teaching or communication occurs. For teachers this implies that they need to engage students' senses in the learning process. Hence, the use of a visual impetus like graphic organizers would be much beneficial.

One of the problematic areas for students is the manner in which textbooks are written. Very often textbooks are written above their level and lack explicit organization of concepts. This is where graphic organizers come to the rescue. According to 91.3 % of the respondents (see table 4), graphic organisers make grammar lessons rather easier to understand. 82.6% of the students also find it easier to recall grammar information from their own notes represented in graphic organisers.

Table 4: Percentages of items 3 and 4 in the survey questionnaire

Questionnaire items	Answers	
	n	%
3. For me graphic organisers make grammar information		
(a) easier to understand	42	91.3%
(b) difficult to understand	4	8.6%
4. I find it easier to recall grammar information		
(a) from the teacher' s notes	38	82.6%
(b) from my own notes on a graphic organiser.	8	17.3%

In fact, in the literature there is considerable evidence that graphic organizers are ideal methods for presenting large amount of data in a simplified manner. According to Meyen, Vergason and Whelan (1996:132) graphic organizers are "visual displays teachers use to organize information in a manner that makes information easier to understand and learn". Gajria et al. (2007: 210-225) add that graphic organizers make material that is difficult to understand more accessible to students. This technique "helps students understand where they have been, where they are and where they are going to on their journey through content". The support provided when using graphic organisers reduces the cognitive demands on the learner. The ripple effect is that there is more time for learning. As students are bombarded with less data, more time is available to process new concepts. Consequently, the probability of being successful at the learning task is enhanced. Success breeds confidence, and confidence leads to increase attempts at difficult tasks.

Apart from helping in better understanding and longer retention (memory), visual displays of ideas / information via graphic organisers relieve boredom and create motivation.As the results on table 5 show, 93.4 % of the students opted for graphic organisers because they prefer a kind of variation in the method of learning.

Table 5: Percentages of items 3 and 4 in the survey questionnaire

Questionnaire items	Answers	
	n	%
5. I prefer **(a)** graphic organisers because they creates some variation in the learning process . **(b)** I prefer written notes all the time	43 3	93.4% 6.5%
6. I appreciate being able to represent grammar rules in my own way. **(a)** Yes **(b)** No	42 4	91.3% 8.6%

According to McKenzi (op.cit: 12) until now, students were bound by typewriter mentality and cumbersome paper, pencil and eraser. Graphic organisers allow them to cut, clip, paste and move information in an interesting way. When used by teachers they marvel at how they enhance students' motivation to learn.

Finally, 91.3% of the respondents (see table 5) appreciated being able to reproduce the grammar rules they learn in their own way. For them, having some knowledge on how to represent information on graphic organizers makes this information more memorable. According to Moroccan English Teaching Guidelines for second year baccalaureate students (2006: 39), a balanced view for teaching does not see it as a frozen system of rules, but rather as a rational, dynamic system with three dimensions of form, meaning, and use. Implicit in this view is the necessity for training learners to play an active role in their learning. In accordance with this, the implementation of graphic organizers to teach grammar to students gives them a chance to produce work according to their learning style and at their own level. Graphic organizers are highly personalized and reflect individual thinking.

VI. Discussion

Both the literature and the results of the data analysis support the assertion that graphic organizers are valuable instructional instruments that improve learning no matter the cognitive ability or learning style of the learner. Experience in this project showed that when students use graphic organizers, they tend to be motivated and thus better assimilate information and complete complex tasks. Therefore, it is important that educators make a concerted effort to use this method to cater for individual differences, abilities and preferences. However, the effectiveness of instruction will depend on teachers' skills and knowledge in the development and use of graphic organizers. Maximum gains can only be derived if teachers are equipped with the ability to use the strategy.

Moreover, this strategy provides instant feedback. As a result, teaching can be modified to suit the learners' needs and so allows educators to be reflective. Also, the use of graphic organizers in the classroom can lead to positive gains for students. It moves instruction from teacher-directed to student-directed. Students learn how to construct meaning themselves. Consequently, it is incumbent on educators to use such a strategy that will not only maximize engaged time but also develop independent learners.

Finally, since students learn best through a variety of ways, teachers need to vary their teaching to help promote student excellence. Using graphic organizers to learn grammar rules is just another approach to assist students' learning. After this study was complete, the students' scores on the post- test were higher than before using graphic organizers, then it can be concluded that graphic organizers do assist students' learning of grammar rules. It is important to consider this topic of interest because it is one that students will need to remember for their entire lives. Knowing proper grammar rules will help them with speech and writing in the future.

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Appendix (I)

Survey questionnaire for students of second year baccalaureate cycle after implementing graphic organisers

For each of the questions below select either "a" or "b" to indicate your answer. If both "a" and "b" seem to apply to you, choose the one that applies more frequently.

1. **I understand something better in**
(a) Written notes
(b) Visual representation
2. **When I think about what I studied yesterday, I am most likely to get**
(a) A picture.
(b) Words.
3. **For me graphic organisers make grammar information**
(a) Easier to understand.
(b) Difficult to understand.
4. **I find it easier to recall grammar information**
(a) From the teachers' notes
(b) From my own notes on a graphic organiser.
5. **I prefer**
(a) Graphic organisers because they creates some variation in the learning process.
(b) I prefer written notes all the time.
6. **I appreciated being able to reproduce the grammar rules in my own way**
(a) yes
(b) No