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INVESTIGACIÓN/RESEARCH

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LINGUISTICS VISUAL RESOURCES IN THE NATURAL SCIENCES

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ABSTRACT

The use of information and communications technology (TIC`S), have led the visual language resources in education to be diverse and versatile, making them an indispensable tool in the classroom, school auditorium, and so on. Among these resources are infographics since, according to some researchers, allow the appropriation of knowledge by processing, organization and prioritization of new information while clarifying his thought (Jonassen, 2000), so it was considered, they are a medium that can contribute to potentiate the learning of natural sciences students, and in turn they are able to teach others. The study universe of this research are students of the third year of the morning Graduate School of the Benito Juarez Autonomous University of Puebla registered in the area of natural sciences and health, the 2014-2015 school year, making a comparative cross with a pilot group and another where the resource wasn't used. Later, the results are displayed. To measure and assess their scope, two instruments: a questionnaire where students from third pilot group evaluate themselves and a survey of second-year students from the same school who were advised. The conclusions that can be reached after analyzing the results, show the potential in the process of teaching and learning of various subjects of natural sciences and health, as long as they are well crafted.

KEYWORDS
Innovation – ICT - natural sciences – communication

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RECURSOS LINGUISTICOS VISUALES EN LAS CIENCIAS NATURALES

RESUMEN

El uso de las tecnologías de la información y la comunicación (TIC`S), han propiciado que los recursos lingüísticos visuales en educación sean diversos y versátiles, haciendo de éstos una herramienta indispensable en el salón de clases, auditorio escolar, etcétera. Dentro de estos recursos se encuentran las Infografías ya que, de acuerdo a algunos investigadores, permiten la apropiación del conocimiento mediante el procesamiento, organización y priorización de nueva información al tiempo que clarifican su pensamiento (Jonassen, 2000),por lo que se consideró, que son un medio que puede coadyuvar a potencializar el aprendizaje de las ciencias naturales en los alumnos, y a su vez éstos sean capaces de enseñar a otros. El universo de estudio de esta investigación son los estudiantes del tercer año matutino de la Preparatoria Licenciado Benito Juárez García de la Benemérita Universidad Autónoma de Puebla inscritos en el área de las ciencias naturales y de la salud, del ciclo escolar 2014-2015, haciendo un comparativo transversal con un grupo piloto y otro donde no se utilizo el recurso. Más adelante, se muestran los resultados. Para medir y evaluar su alcance, se utilizaron dos instrumentos un cuestionario donde los alumnos de tercero del grupo piloto se autoevalúan y una encuesta aplicada a los estudiantes de segundo año de la misma preparatoria que fueron asesorados por éstos. Las conclusiones a las que se llega después de analizar los resultados, muestra el potencial que tiene en el proceso de enseñanza aprendizaje de diversos temas de las ciencias naturales y de la salud, siempre y cuando sean bien trabajadas.

PALABRAS CLAVE
Educación – innovación – TICs - ciencias naturales - comunicación

1. INTRODUCTION

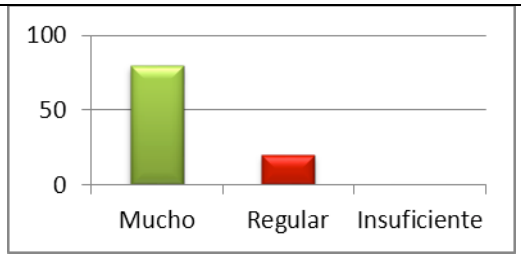
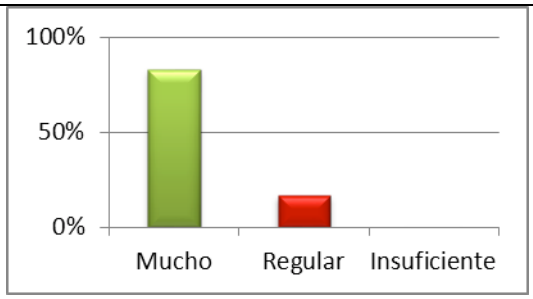
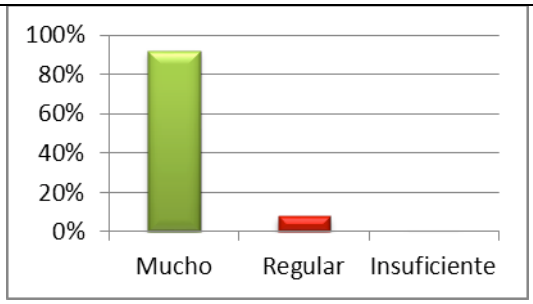
Digital teaching resources undoubtedly are already a reference support in the process of teaching and learning, becoming it's increasingly every day. Starting from this, it is contemplated in the subject Selected Topics in Biology use, and for this the teacher starts giving its kind supported by this digital resource, and then ask students to research the topic of photosynthesis, and work it into the development of a infografíaque share in an Internet portal created for them.

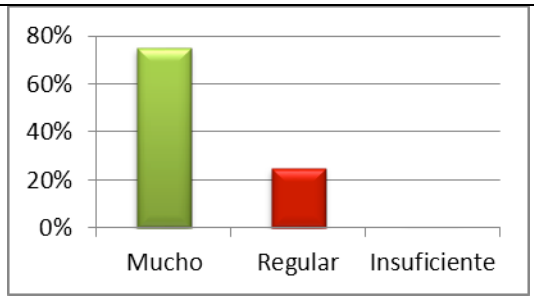
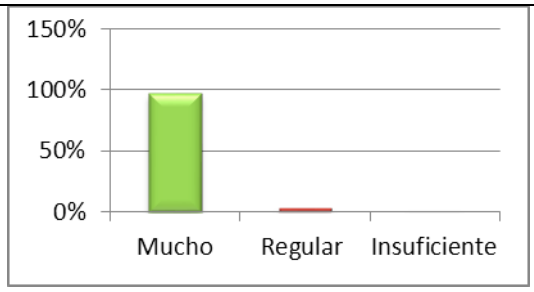
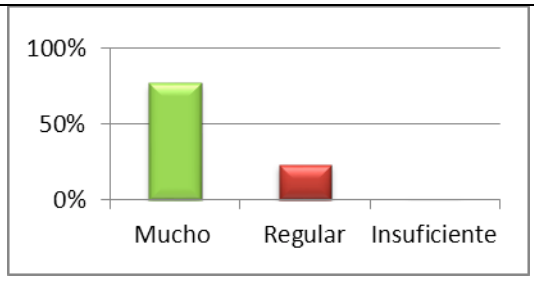
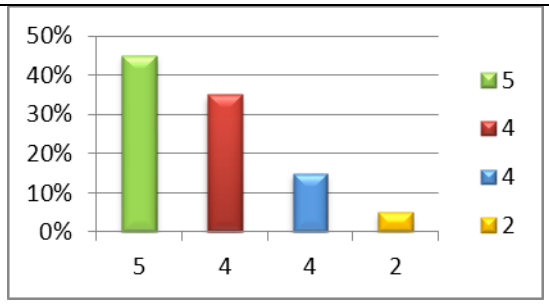
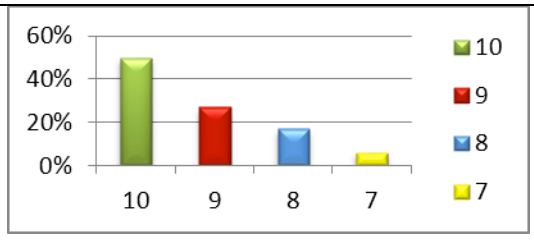
2. METHODOLOGY

Description. Type correlational cross-sectional study, documentary and field research is conducted, the analysis of the results is qualitative and quantitative, the method is deductive-inductive. The technique used is the self-assessment and survey.
Process. La research on the subject and the development of computer graphics is done in 4 teams of 6 members and July 2 members, the work is subject to photosynthesis.
The study subjects. Of the 76 students in this area (2 groups) are selected random sample of 50%. This is the third E is the pilot (38) and 3º.F (38) group is the group in which the resource is not shown. Another is 60 students out of a total of 604 enrolled in the second year, ie 10% of the population of both shifts, which I invite you to come to the place where they were exposed computer graphics, then cite them (the teachers) to advise answer questions on the subject (photosynthesis).
Instruments. Self-assessment questions and surveys that make both instruments are closed type (quantity scale and frequency) is used. And the indicators to assess, time, interest, understanding and application.

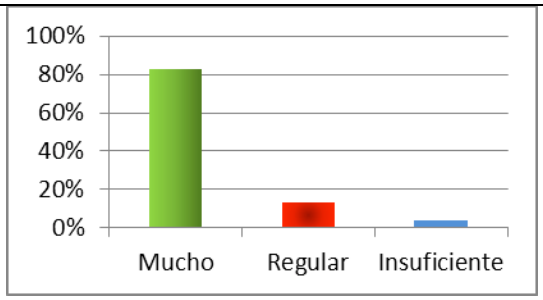
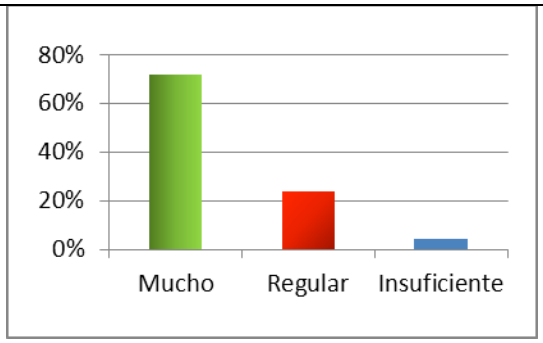
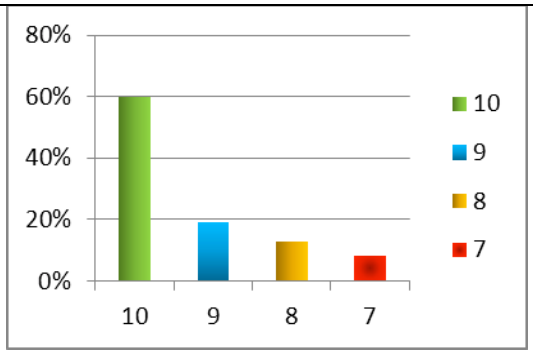
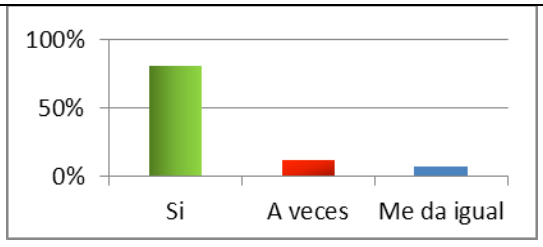
3. ANALYSIS AND DISCUSSION

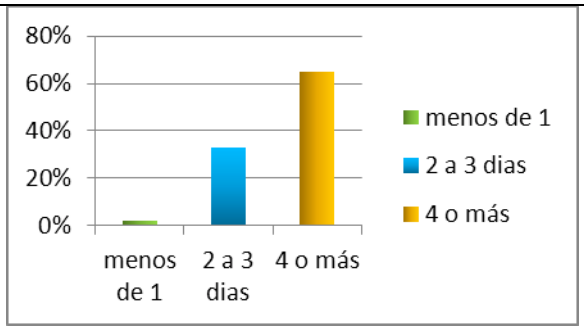
Quantitative Analysis: Self (Students developed infographic to learn).

Question	Graph
1. The use of computer graphics allow you to learn faster? Result. The 38 students 80% answered that much, and 20% Fair.	
2. Content understanding is reinforced with computer graphics? Result. 83% mentioned that much, 17% Fair.	
3. Allows you to more easily interrelate concepts and main ideas of the research topics? Result. 92% think that much and 8% Regular	

4. Consider that to develop computer graphics, suitable to delve into what you learned in class making it more meaningful. Result. 75% of students believe that much and 25% think so.	
5. Achieve that selected for graphics objects acquire a clear meaning on the ideas you wanted to convey. Result. 97% said that long and 3% think Regular.	
6. Consider that facilitated the dissemination of the subject made for others by using ICTs. Result. 77% mentioned that much and 23% Fair.	
7. Point out according to the following scale if this resource will help to develop more precisely examples of applying the theme to your daily life, in your class. 1 not 2 slight 3 Fair 4 most 5 pretty 45% say 5, 35% said 4, 15% to 5% is 2 points.	
8. From 1 to 10 rating give the use of computer graphics as a resource for learning. Result. 50 qualifies with 10%, 27% give grade 9, another 17% gives 8, a 6% think that gets seven.	

Population survey. Quantitative Analysis (students were advised to computer graphics)

Question	Graph
1. The picture presented in the portal for juniors, was illustrative and according to the theme of photosynthesis. Result. 83% think that much, 13% mentioned that Regular, 4 Insufficient.	
2. Consider to be a useful and attractive resource that allows you to understand what is learned in class more easily, quickly, clearly and precisely, compared with other digital media way. Result. 72% of the population says much and 24% Regular, Insufficient 4%	
3. With regard to other digital media used in education rating of 1 to 10, you give the infographics. Result. 60% qualifies with 10, 19% gives 9 rating and 21% estimated to get eight	
4. I wish this visual resource support was provided for understanding difficult issues. Result. 81% of the population says Yes and 12% sometimes 7% I do not care.	

5. About that time learned the topic explained by your fellow party. Result. • Less than 1 day, 3% • From 2 to 3 days 32% • From 4 days or more 65%	

Qualitative analysis

As you can see, the results of both instruments match, this gives a clear idea of the benefit that can be obtained from digital resources and to achieve develop skills in students, teachers need to not only use the digital media to describe a topic. Because its use can go beyond that is conducive to the understanding and application of various topics for both academics and in everyday life, if this is achieved, students are more interested in learning when they see that knowledge makes sense and significant, and when they learn to develop them, the appropriation of the subject increases, becoming almost one expert.

In conclusion we can say that the use of computer graphics, foster learning issues more quickly, easily, and significant hypothesis of this research confirmed it.

But to reach the goal and get the most out of these means, it is important that teachers, learn and work to develop an infographic, as this involves having a thorough knowledge of the subject, for there just have to translate the concepts and key ideas but also make clear the importance of the subject and who it benefits the query.

The comparison between the pilot group and the group with which I do not work with computer graphics, is as follows:

• Do not reflected a marked difference when evaluating both groups with an exam. 3ºE average group - 9.1 and 3ºF group average - 8.9.

• The difference is that understanding the issue was reached in more depth for those who then had to develop an infographic, and this is palpable when their class participation.

More than 80% of the group participates in class (3ºE).

60% or less involved in class (3 ° F).

This or other resource supported by ICTs, worked in this way is considered that would advance the student to understand and apply the knowledge in any context in which it performs.

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