

El foro virtual como estrategia de aprendizaje en la asignatura biología del 5to año del liceo bolivariano “santa bolívar” del distrito escolar n°12, municipio Andrés Eloy Blanco del Estado Barinas, Venezuela

The virtual forum as a learning strategy in the course of biology of the 5th year, the Holy Bolivarian LICEU Bolivar School District No. 12, Andrés Eloy Blanco Barinas State, Venezuela.

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Resumen

La presente investigación tuvo como objetivo proponer el foro virtual como estrategia de aprendizaje en la asignatura Biología, (específicamente en el tema de Ingeniería Genética), del 5to año del Liceo Bolivariano “Santa Bolívar”, del Municipio Andrés Eloy Blanco del Estado Barinas. Esta es una investigación binacional, construida con el esfuerzo de dos instituciones: el Liceo Bolivariano “Santa Bolívar” (Venezuela) y el Instituto Tecnológico de Comitán (México). Se fundamentó sobre la base de la teoría constructivista. La investigación se orientó por el método aplicable a los Proyectos Factibles, el cual se estructuró tres fases: diagnóstico, diseño y factibilidad de la propuesta. Así mismo se apoyo sobre el diseño de campo, por cuanto los datos se recolectaron directamente de la realidad. La población

estuvo constituida por 50 (cincuenta) estudiantes del año escolar 2009-2010. La información se recopiló a través de la aplicación de un cuestionario cerrado con preguntas dicotómicas, el cual fue validado por el juicio de expertos, el cual al ser empleado y analizado mediante estadística descriptiva evidenció la necesidad de la propuesta y sobre esa base se procedió a la fase de elaboración. La presente propuesta de un foro virtual aspira brindar ambientes interactivos en la educación presencial, propiciando en los estudiantes de bachillerato aprendizaje independiente.

Palabras Clave: Foro Virtual, Auto-aprendizaje, Interacción, Trabajo Colaborativo.

Abstract

The present study aimed to propose virtual forum as a learning strategy in the subject Biology, (specifically on the issue of Genetic Engineering), the Bolivarian High School 5th year "Holy Bolivar" by Andrés Eloy Blanco Barinas State. This is a binational research, built through the efforts of two institutions: the Bolivarian High School "St. Bolivar" (Venezuela) and Comitán Institute of Technology (Mexico). It was based on the basis of constructivist theory. The research was guided by the method applicable to Feasible Projects, which was structured three phases: diagnostic, design and feasibility of the proposal. So support himself on the field layout, because data were collected directly from reality. The population consisted of 50 (fifty) students in the 2009-2010 school year. The information was gathered through the implementation of a closed questionnaire with dichotomous, which was validated by expert judgment, which to be used and analyzed using descriptive statistics showed the need for the proposal and on that basis we proceeded to the development phase. The present proposal aims to provide a virtual forum interactive environments in classroom education, promoting high school students in independent learning.

Key words: Virtual Forum, Self-learning, interaction, Collaborative Work.

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Introduction

Teaching today poses radical changes in the way of applying strategies that tend to improve the cognitive part of the Venezuelan student body. In this regard, a series of practices have been incorporated that, with the help of Information and Communication Technologies, have been positive. In this sense, in pedagogical praxis, the virtual forum is becoming one of the tools that is offering greater possibilities for student learning through the Internet.

This study investigates the possibilities of implementing virtual forums in the subject of Biology, intending to respond to the new trends of the Information Society, articulating the Bolivarian Lyceums in the sociocultural context of the 21st century and making use of one of the main educational applications of Information and Communication Technologies (ICTs) such as the virtual forum between teachers and students.

In this research, a proposal is made based on the nature of the cognitive, social and didactic processes that the experts proclaim in relation to the virtual forum, linking this to Biology of the 5th year of high school of the Bolivarian Lyceum "Santa Bolívar" in Santa Cruz de Guacas State of Barinas.

For this reason, it is of interest to investigate, investigate and propose virtual forums as an asynchronous communication tool, by virtue of being considered an effective tool in the teaching and learning process. In this sense, the case to be shown is the biology subject, in which it is intended to incorporate forums as a strategy to highlight participation, dialogue and communication in various ways by involving teachers and students as protagonists of the process. educational.

The intention is to design a virtual forum to favor the development of collaborative learning processes, of social construction of knowledge, an accompanying tool for effective learning that tend to the production of effective knowledge in students of the 5th year of the Biology subject. .

INVESTIGATION DEVELOPMENT

In the methodological framework, all the methodological aspects carried out in the research are described, with each of its phases.

Taking into account the research under study, referring to the virtual forum as a learning strategy in the Biology subject of the 5th year of the Bolivarian Lyceum "Santa Bolívar" of the School District No. 12, Andrés Eloy Blanco Municipality of the State of Barinas, Venezuela, the investigation was framed within the feasible project modality, as indicated in the Degree Work Manual of the Universidad Experimental Libertador (2006) "It consists in the elaboration of a proposal of a viable model to solve problems, requirements or needs of organizations or social groups ." (p.76)

It should be noted that the Feasible Project modality is developed in the following phases:

Phase I Diagnostic: Through the application of the instrument for the collection of information that was applied to the selected sample of the student population of the Bolivarian Lyceum "Santa Bolívar" of the Andrés Eloy Blanco Municipality of the Barinas State. It should be noted that the study is cross-sectional because the data is collected in a single moment, in a single time, without intending to study the evolution of the variable over time.

Phase II Proposal Design: After making the diagnosis, the proposal was elaborated to incorporate the virtual forum as a learning strategy for the 5th grade students in the subject of biology of the Bolivarian Lyceum "Santa Bolívar" of the School District No. 12, Andrés Eloy Blanco Municipality, State Barines. In this section, the content was selected and the prototype was developed.

Phase III Feasibility: In this phase, the feasibility for the execution of the research work was taken into account, considering the necessary resources for its development.

Regarding the research design established for the development of this study, it consisted in the elaboration of a proposal that responds to the objectives of the research. In this sense, a field study was designed since the data was obtained directly from the reality where the events occur without manipulating any variable.

In this regard, UPEL (2006) provides:

Field Research is understood as the systematic analysis of problems in reality, with the purpose of either describing them, interpreting them, understanding their nature and constituent factors, explaining their causes and effects, or predicting their occurrence, making use of characteristic methods of any of the known or developing paradigms or research approaches. The data of interest is collected directly from reality (p. 18).

Since this field design allows observing, collecting directly from the reality under study and whose data of interest will be obtained from the students of the biology subject of the 2009-2010 school year of the Liceo Bolivariano "Santa Bolívar" in the State of Barinas, to their subsequent analysis and interpretation. Likewise, the proposed study is of a descriptive nature because it tries as much as possible to describe the proposal of the virtual forum in the subject of Biology of the fifth year of Baccalaureate of the Santa Bolívar Bolivarian Lyceum.

The population, according to Pérez (2002) is a set of all the cases that agree with a series of specifications. In this way, the population selected for this study was made up of 50 (fifty) students from the Liceo Bolivariano "Santa Bolívar". Given the

characteristics of the population, it is considered finite because it can be easily measured.

As for the sample, it represents a part of the population that will be studied. Pérez (2002) defines the sample as a portion, or representative part of the population under study. In this sense, in the present study, a sample was not considered because the number of the population is finite and representative and it is in the interest of the researcher to promote the participation of the subjects as a whole.

Regarding the data collection technique and instrument, Arias (1997) states that information collection techniques are "the different forms and ways of obtaining information." He also alludes to the fact that instruments are "material means used to collect and store information" (p. 35).

The technique that was used was the survey, according to Hurtado and Toro (1997), it consists of formulating direct questions to a representative sample of subjects from a questionnaire with a previously prepared script in order to discover and relate it to those personal characteristics in certain fields of information necessary to respond to the problem posed.

The instrument that was applied for data collection was the questionnaire, defined by Hurtado and Toro (1997), as one that is made up of instructions such as: number of items, to be marked with a cross (x) according to the chosen alternatives.

For this purpose, the information was collected and a questionnaire was applied in order to obtain specific data for the study. Hernández (2004) states that the questionnaire is "A set of questions regarding one or more variables to be measured" (p.243). All data collection instruments must be valid and reliable. The instrument applied to the selected sample was

a questionnaire consisting of thirteen (10) items for students, with closed questions with options (Yes) (No); that is to say, it is characterized by being dichotomous, it only accepts two alternatives, where to respond, the respondent indicates with a cross (X) only one option selected according to her personal criteria.

The questions applied in the research are the following: Do you regularly use the computer for school activities? Do you use the Internet as a study tool? Do you have time to learn online? Would you like to participate in a online forum? Do you consider that the virtual forum would facilitate interaction and knowledge among the participants? Do you think that the virtual forum is attractive and interesting for the acquisition of knowledge in the subject of biology? Would you assume responsibility for your own learning using the management of the virtual forum? Would you like to receive help from your classmates in the different learning activities applied in the virtual forum? Do you think the virtual forum is an appropriate means to discuss the content seen in class? Would you like to assume different roles to argue for or against in a virtual forum?

Considering the responses of the respondents in the 10 items, it is observed that the young people of the Bolivarian Lyceum "Santa Bolívar" have the conditions and the interest to participate in the Virtual Forums, leaning positively towards this technological resource, since the answers given oscillate between 80 to 100%.

THE PROPOSAL

Young people are intellectually precocious and eager to learn, however, they often show apathy and boredom due to formal study, due to the way in which information is presented to them or how they interact with it. However, they have many skills and possibilities of access to the Internet.

That is why, along with the growth of online education, the options to create or design virtual forums have grown, since authoring programs are currently offered on the market to “build” these online forums that provide variable capacities for administration. and monitoring of them. To show a button, many forums related to Genetic Engineering have been created, for example:

<http://biologia.superforos.com/viewtopic.php?p=3065&highlight=&sid=9e7ec030ca3bcb7d796b8bfda6035aee>,<http://www.vi.cl/foro/topic/7774-ingenieria-genetica-biotecnologia/>

The present proposal is basically based on the strengthening of the educational process and the achievement of a better performance and teacher-student interaction that carry out studies under the face-to-face modality. Then arises the need to incorporate alternate and effective tools that contribute and support the pedagogical, social, affective aspect of the actors involved in the subject of Biology, in the subject of Genetic Engineering.

At present, education is being supported by information and communication technologies, and these have become an alternative to guarantee meaningful learning in young people, since they constitute a novel way of learning. This has forced educational institutions that use computers and the Internet in their educational processes to assume the responsibility of training the necessary human resources to guarantee high-quality teaching.

The relevance of the forum is such that it offers participants the opportunities and possibilities to actively become protagonists of their own learning processes. In terms of the active and interactive nature of the teaching-learning process, it is essential to conceive it as the joint construction of knowledge rather than a mere transmission or acquisition of knowledge (Litwin, 2000).

The forum constitutes a valid option when considering instances of joint construction of knowledge, because there is a dynamization of learning. Forums shared by students and teachers create virtual environments where experiences can be shared, so that knowledge is built by seeing ideas from various points of view. A main characteristic of this type of

learning is the fact that it facilitates, based on technology and pedagogy, an approach to learning from a collaborative and cooperative point of view.

From this perspective, it is necessary to put the new information and communication technologies at the service of the student and his learning process. Thus, technology will become an added means and not an end in itself.

In response to the above, and based on the results and conclusions obtained in the investigation of the teachers and students of the Liceo Bolivariano "Santa Bolívar", the development of an Online Forum aimed at students and administered by teachers is proposed to carry out a controversial issue in this century Genetic Engineering and its contents such as Cloning, Biotechnology, Genome Project, Bioethics, etc.

Mission

Support the teaching-learning process of the students of the 5th year of the Liceo Bolivariano "Santa Bolívar", in the subject of Biology, specifically in the subject of Genetic Engineering

Vision

Being an alternative or complementary option to the face-to-face teaching-learning process of the Biology subject, with the Genetic Engineering theme, of the "Santa Bolívar" Bolivarian High School.

General objective

Propose the Virtual Forum for the subject of Biology on the topic of Genetic Engineering.

Specific objectives

Provide teachers and students of the Biology subject with an instructional manual on how to enter the virtual forum.

Develop in students critical and reflective thinking about the concepts inherent in Genetic Engineering.

Provide teachers with a methodological alternative that helps them fulfill their role as facilitator of learning.

rationale

The Biology of the second year diversified cycle, contains a vast compendium of topics. This is how it contains an extensive list of contents that offers information, data and definitions, related to Scientific Research Works, Mendelian Inheritance, Chromosomal Theory of Inheritance, Molecular Genetics, Genetic Regulation, etc. It should be mentioned that the theme selected for the proposal is that of **Genetic engineering** for its complexity, importance and controversy, in which the students will contribute and build their own knowledge.

In some cases, in these topics, the inexistence of an adequate treatment of said contents is observed. This proposal wants to break the schemes and get out of the daily routines of the four walls of the classroom, change the focus of traditional learning of this scientific discipline. The new proposal seeks to overcome the informative, descriptive, and fragmented approach, which normally prevails, to give way to a more analytical, explanatory and integrative approach to knowledge of the biological world with the support of ICTs, in this case the virtual forum. .

The proposal also seeks to incorporate the forum as a strategy in the learning process, favoring the exercise of critical-reflective thinking. Through the treatment of concepts and fundamental conceptual frameworks of Genetic Engineering.

It is opportune to emphasize that the theoretical contents of the Genetic Engineering topic will be taught in person. The participants have to comply with the realization of the different activities, respecting the stipulated deadlines. Among the changes to be made, we can mention the possibility of participating in a virtual forum. Including a forum in a course allows not only to promote reflection on various topics, but also to generate recreational spaces for participants to interact and socialize. "Participants in a forum are

brought together by interest in a topic, an activity, a goal or project, creating valuable discussions for all" (Arango, 2003, p. 2).

Student:

- Discuss and agree on ideas about the GI.
- Expand your knowledge on the subject.
- Increase skills in analysis, writing, argument on the subject.
- Ask questions.
- Summarize.
- Paraphrase.
- Contribute ideas.

The teacher:

In the cognitive realm, the teacher will lead to the understanding of fundamental concepts such as Genetic Engineering, Cloning, etc; establishing relationships between concepts; to the differentiation of related concepts from those that are not; to the hierarchy between more or less inclusive concepts; to the construction of conceptual frameworks to explain Genetic Engineering.

In the procedural field, the teacher will favor in the student the development of reading skills and written production of his thought, criticism and contributions to the subject.

In the attitudinal field, the teacher must pose problems or dilemmas that demand a position from the student, in the face of this scientific fact of social repercussion.

¿What is the mechanics?

Teacher Role

The Forum is designed around three axes:

1) post a question or problem for learning:

It is that the experiences that are registered in the forum have as an axis of reflection and analysis the learning that the students achieve from them. It is important to formulate questions that stimulate critical thinking.

2) invites group construction:

The idea is that the forum constitutes a way for students with interests, ideas, common or different opinions to meet and work together to enrich their knowledge on the subject.

3) constitutes an experience-process

The forum is planned as a process that takes place in different stages over two weeks.

Student Role

- **Arguing in Favor:** student looking for arguments in favor of the topic.
- **Arguing Against:** student who will expose all the negative things related to the topic.
- **Synthesizer:** student who will collect the opinions expressed on the subject and give a brief conclusion.

FORUM RULES

- The rules in this forum are as follows:
- Use short messages between 5 and 7 lines.
- Read previous topics and messages so as not to repeat content already covered. Duplicate topics should be avoided, but this doesn't stop you from adding new nuance to comments in specific conversation threads.

- When a new topic is created, it is necessary to provide content, a concern or a specific question that encourages dialogue.
- We must respect the rest of the users in our interventions. Do not be aggressive, sarcastic or offensive.
- It is necessary to avoid, as far as possible, personal messages, since there are other digital tools for this.
- You must avoid, at all costs, spam or messages to say that they visit a certain web page for no apparent reason or to promote an event that has nothing to do with the forum.
- Provide Internet links related to what is being discussed, enriches the forum. It is necessary to write messages that have been reflected on long enough to maintain a mature and serious level of discussion.
- It is important to pay attention to spelling.
- Do not use font sizes or colors in texts that make reading difficult.
- Be brief, without being too concise.
- Do not open a conversation topic in a thread with a totally different theme, but in the corresponding category.
- Do not write in all caps. capital letters on the internet give the impression that you are shouting.

KEY QUESTIONS:

1)¿What is your position on cloning? We know that in attempts to clone plants, frogs, fish, monkeys, pigs, sheep and other animals, victims of experimental geneticists, there are malformations. It would be necessary to prevent the same thing from happening with human cloning attempts. It would be intolerable to apply high-risk technologies to humans, such as those seen in these issues without having been refined ¿in other species. And can ethics justify this high risk?

2)¿What need do we have of all these innovative techniques, when there are so many children who could be adopted and so many hungry, malnourished and in abandoned homes?

3) Genetic engineering aims to improve the human species for racist, political, religious, economic purposes, it wants to create clones of intellectually or morally gifted people, for example, of Einstein, of Mother Teresa of Calcutta, of a great musician like Beethoven, or a great athlete. But what about moral and cultural qualities? ¿What about producing lesser human beings to do the menial war work, the drudgery and unrewarding tasks we don't want to do? Or produce human beings for organic parts as a repository for human parts for organ transplants?

4) ¿What do we think of the methods studied in terms of the total exclusion of sexual intercourse (understood as genital-affective), the total separation of couple relationships in the creation processes seen in previous years? Having a child seems like a matter of simple technology as if it were a question of making a doll on demand. How is married love, family life in these methods?

5) ¿What would the world be like if dominated by genetic engineering?

6) ¿Is IG a good business or do you really want to help humanity?

This proposal aims to arouse interest in the directive and pedagogical authorities of the Bolivarian Lyceum "Santa Bolívar", to serve as a springboard to be carried out in the field of biology. The forum is oriented to the use of the teacher and the student. The teacher must structure the development of the topic, and the student must participate in each of the sections of the forum.

FEASIBILITY

According to Müller (2003), feasible solutions are those that justify the sufficiency of the proposed alternative based on the political, economic and organizational aspects of the solution.

In response to what Müller postulates, the reasons why the virtual forum is feasible as a learning strategy for the subject of biology in the 5th year students of the Liceo Bolivariano "Santa Bolívar" are outlined in the following table.

Feasibility Chart

F A C T I B I L I D A D	Organizativa	<ul style="list-style-type: none"> ☒ En la propuesta se toma en cuenta la forma en que se va abordar el contenido (conceptual, procedimental y actitudinal), las actividades a seguir, etc. Cabe destacar que está sustentada bajo el formato de planificación que actualmente maneja la institución.
	Financiera	<ul style="list-style-type: none"> ☒ En internet se encuentra actualmente un sin número de foros gratuitos. Por ende, los gastos para ponerlo en práctica son mínimos. No se necesita de una plataforma virtual para interactuar alumno-docente o viceversa. ☒ Actualmente el Liceo Bolivariano “Santa Bolívar” cuenta con un CEBIT (Centro Bolivariano de Telemática e Informática) ☒ Los docentes poseen habilidades en el uso de las tics.
	Política	<ul style="list-style-type: none"> ☒ Esta propuesta encaja perfectamente en las directrices de las políticas educativas empleadas en la nación. El artículo 108 de la constitución de la Republica Bolivariana de Venezuela expresa: “...Los centros educativos deben incorporar el conocimiento y aplicación de las nuevas tecnologías, de sus innovaciones, según los requisitos que establezca la ley.” (p.104)

Author: Juan Alvarado. (2010)

Conclusions

The number of institutions and training spaces that use the virtual forum as teaching-learning tools is increasing. However, planned and well-founded educational proposals are

not always found, since alternatives proliferate that replicate a traditional teaching model and promote rote and decontextualized learning.

The fundamental purpose of this proposal was the virtual forum as a learning strategy, constituting this technological medium as one of the interaction strategies supported by information and communication technology for student learning.

The theoretical foundation of the research was constituted by the constructivist theory. The background consulted in this investigation and the results of the diagnosis led to verify the need to design the virtual forum for the subject of biology.

To arrive at the design of the forum for students in the 5th year of high school, the need for its implementation was evaluated, through the application of an instrument to a sample of the population of 50 students enrolled in the 2009-2010 school year. whose results evidenced the need to design the proposal that is presented, oriented under the Feasible Project methodology, which includes the diagnostic phases, preparation of the proposal, implementation and phase of the results.

In terms of viability, it meets all the organizational, financial and political requirements set by Müller. The proposed forum constitutes a tool that serves as a complement to face-to-face Biology classes on the subject of Genetic Engineering with the aim of promoting independent, autonomous and cooperative learning.

It is important to remember that the protagonist in the learning process is the student, who can achieve optimal performance and student performance with the proper use of ICT, and the help of the teacher, who has the task of fulfilling a role of guide, tutor or facilitator of the process. Thus, it is recommended that the educational processes that are supported by the use of ICT should be aimed at meeting the requirements of the educational community

and its environment, taking into account the educational needs of the country and the particularities of each region.

In conclusion, this research leaves an important contribution, not only in the academic aspects of the subject, but also in the student's intervention towards autonomy, communication, the possibility of having a space for personalized attention from the teacher.

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