TÉCNICA DEL NORTE UNIVERSITY

FACULTY OF ENGINEERING IN APPLIED SCIENCES

CAREER OF ENGINEERING IN COMPUTATIONAL SYSTEMS

GRADE WORK PRIOR TO OBTAINING THE TITLE OF ENGINEERING IN COMPUTER SYSTEMS

SCIENTIFIC ARTICLE

THEME:

“MULTIMEDIA NUTRITIONAL SYSTEM USING FREE SOFTWARE FOR THE EDUCATION OF CHILDREN OF THE CHISPITAS DE VIDA CHILDREN'S CENTER”

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Ibarra – Ecuador

2017

MULTIMEDIA NUTRITIONAL SYSTEM USING FREE SOFTWARE FOR THE EDUCATION OF CHILDREN OF THE CHISPITAS DE VIDA CHILDREN'S CENTER

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Abstract: *The present thesis project is based on a "nutritional multimedia system using free software for the education of children of the Chispitas de Vida children's center", is focused as methodological teaching and learning material for children under four years of age, as a point main issue dealing with nutrition in which food, nutrition, advice and nutritional diets are presented in various scenarios, this system was developed in free software java alice 3d character management and object oriented programming using the SOHDM methodology In order to have access to educational videos, an informative website was designed for the institution in which teachers and parents can have access as a methodological guide for teaching children.*

Keywords

Multimedia, Nutritional multimedia system, Interactive videos, Nutrition, Sparks of Life, Java Alice, SOHDM Methodology.

Resumen *El presente proyecto de tesis se basa en un "Sistema multimedia nutricional utilizando software libre para la educación de niños del centro infantil Chispitas de Vida", está enfocado como material metodológico de enseñanza y aprendizaje para los niños menores de cuatro años de edad, como punto principal tratar el tema de la nutrición en la cual intervienen los alimentos, la alimentación, consejos y dietas nutricionales presentados en varios escenarios, este sistema fue desarrollado en el software libre java alice manejo de personajes en 3d y programación orientada a objetos mediante la metodología SOHDM, para tener acceso a los videos educativos se diseñó una página web informativa para la institución en la cual pueden tener acceso los docentes y padres de familia como guía metodológica de enseñanza para los niños.*

Palabras Claves

Multimedia, Sistema multimedia nutricional, Videos interactivos, Nutrición, Chispitas de Vida, Java Alice, Metodología SOHDM.

I. INTRODUCTION

Interactive multimedia has been an innovative strategy which is being used in the country to replace traditional education especially in education that is aimed at children who are starting their educational training through these multimedia materials will facilitate learning and At the same time, contribute to the development of education in this way the private educational center Chispitas de Vida of the city of Ibarra is integrated into this process

The teaching methodology is focused on the traditional method of books, blackboard and games, but to deal with issues such as food does not have interactive material of interest resulting in the lack of concern about this issue for not having the necessary complements, for which proposes a methodology guide that serves teachers and parents, incorporating multimedia technology as a tool to design teaching / learning strategies, and is not considered a simple novelty; it is essential to approach it from the pedagogy, as this is the science that studies the educational fact in terms of the integral formation of children (Vallejo, 2010)

Information and communication technology (ICT) has been used for several years in the educational field in the development of multimedia systems for its contribution and help to teachers working with children in early childhood education, incorporating this new material teaching in which it is expected to contribute in a technological and interactive way in the education of children.

In the city of Cuenca, an online educational multimedia system was developed for the teaching of spelling to 4th grade children, obtaining results that allowed knowing a spelling approach in students in educational establishments (Parra Pérez, 2013)

II. PROBLEM

How would the nutritional multimedia system developed in free software for children from 2 to 4 years of age from the Chispitas de Vida children's center help?

In this institution, it was observed that it does not have an interactive technological teaching tool to deal with nutritional education issues, for this reason children take little interest in this topic. From this problem arises the need to help with a new methodological way of teaching on this subject together with the supervision of teachers and parents.

III. JUSTIFICATION

Social impact

This project is designed for the children of the Chispitas de Vida Children's Center of the city of Ibarra as an interactive methodological material to deal with the subject of nutrition in the teaching process, currently using books, modules, and not a tool for support such as ICT, for which the classes become monotonous, so this interactive multimedia system was designed as a contribution to education and the Children's Center.

With the implementation of the multimedia system it will be more entertaining and fun to learn with interactive images that simply by visualizing and listening to the children, capture the information taught together with the teachers to reinforce what has been taught.

Technological Impact

One of the best alternatives in education is the use of technology, being of vital importance to include it in institutions of initial education to help in the learning of the children. Every day teachers prefer to include interactive technology in their classes as a teaching methodology and more when it comes to topics that are a little comprehensive for children, in which a method that captures the attention of children especially in nutrition issues is sought. (Seville, 2015)

Economic impact

By making this nutritional multimedia system using free software for the education of children of the "sparks of life" children's center, it was considered to reduce development costs using Free Software in the same way to publish this website in a free hosting.

Environmental impact

By making this multimedia system we will help to take care of the environment in the reduction and use of paper that was used to print documents.

IV. GENERAL PURPOSE

To develop a nutritional educational multimedia system using the java alice tool for the children of initial education of the educational center "Chispitas de Vida"

V. REACH

The system was developed to fulfill a new form of education for children's education in the same way as methodological material for teachers in which you can see several scenarios such as: welcome, nutrition, food and nutrition along with an animated character that are integrated into a website.

Development tools

For the development of this interactive multimedia system, the following free software has been considered:

Java Alice. - It is a free software that is related to object-oriented programming and 3D animations. In addition, some tools were used to give a better presentation to this nutritional multimedia system.

Visualization of the Multimedia System

• The visualizations of the images are in accordance with the subject of nutrition.

• In the implementation of the multimedia system, a Web application was developed under tools such as: PHP, HTML, CSS

• An open source database was used in the storage of data, such as: MySql

Multimedia System Architecture

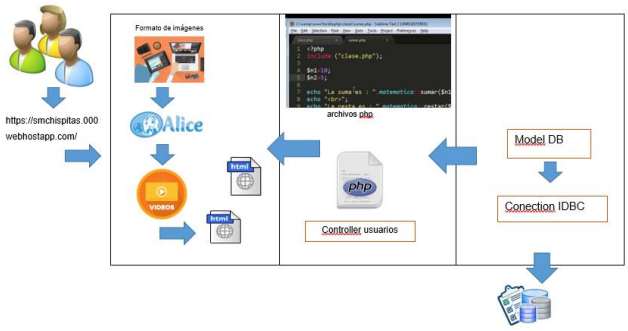

Fig. 1: Multimedia system architecture

Source: Own

VI. SOHDM METHODOLOGY

The Methodology that will be used for development is SOHDM, it is a Method that develops, designs in object oriented panoramas in Hipermedia presents the need to have a process that allows to capture the needs of the system. To do this, it proposes the use of scenarios that describe the process of interaction between the user and the system when a specific event occurs, specifying the flow of activities. It consists of six phases: domain analysis, object modeling, vision design, navigation design, implementation design and construction. (Escobar, 2011)

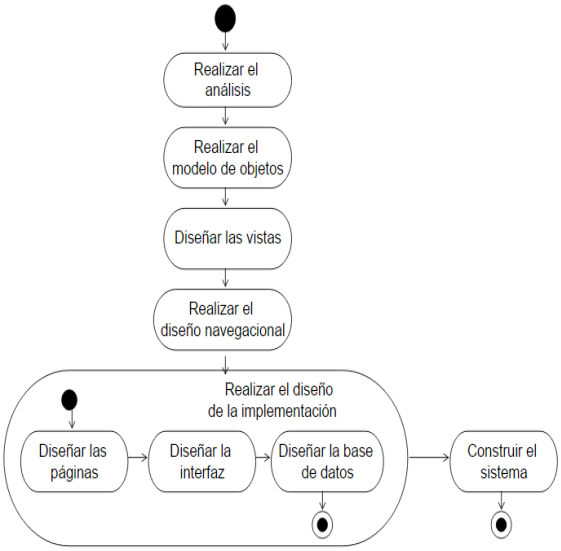

Fig. 2. Presentation of the phases of the SOHDM methodology

Table 1: Results of the impact analysis

Análisis (cambios y mejoras)	Evaluación Anterior	Evaluación actual	Explicación (Evaluación actual)
Inclusión de la tecnología	6	10	Para ser uso del sistema multimedia hubo la necesidad de incluir la tecnología para la ejecución del sistema lo cual hace óptimo en la educación de los niños del centro infantil.
Material sobre nutrición	7	10	El sistema multimedia incluye todo lo referente a la nutrición por medio de un personaje animado explicando información precisa y actualizada.
Enseñanza por medio de videos sobre nutrición	7	10	Tomando en cuenta que para la institución es un sistema nuevo con la inclusión de los videos multimedia sobre la nutrición dedicado como metodología de enseñanza.
material de enseñanza para los padres de familia sin necesidad de folletos	6	10	Este sistema multimedia permitirá que los padres de familia tengan acceso a esta información de suma importancia y lo pongan en práctica la buena alimentación
Tiempos	5	10	Mejoró el tiempo en tener toda la información ordenada sobre la nutrición dejando a tras el tiempo que se demoraba en buscar o comprar folletos sobre este tema.

Source: Own

VII. RESULTS

Impact analysis

The impact analysis is supported by statistical information, changes and improvements in the inclusion of technology, material on nutrition, teaching by means of videos, teaching material for parents, time, etc. To others it allows to determine the benefits and the degree of acceptance obtained by the multimedia system in the institution.

Results of people involved in the management of the system are: Teachers, parents and children.

From the informal interviews carried out with the director of the institution, several important points were noted. It is a means of support for teachers by the use of technology in the same way it takes into account the non-use of paper and with this help to improve environmental impact in the same way the economic impact with the use of free software generating zero costs.

For what is presented below the detailed information of the optimizations that has been generated with the development of the system.

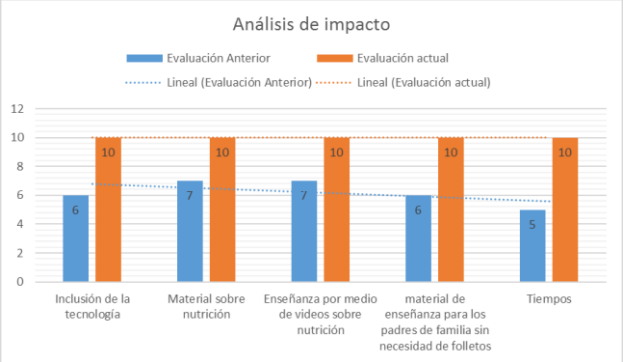

Fig.3: Graphic representation of the impact analysis

Source: Own

VIII. CONCLUSIONS

• With the information collected through the interview, an analysis of requirements for the development of the nutritional multimedia system was carried out.

• The SOHDM methodology was researched and developed, which is based on 6 phases: analysis, object modeling, design of views, navigational design, design of the implementation, construction, which were applied in the creation of the system.

• The multimedia system was made with the Java Alice tool, a free software specialized in 3D design and object-oriented programming, creating 6 scenarios.

• The proper training was carried out on the operation of the system since they have certain restrictions in menus of the web system, in turn the user and technical manuals were delivered to the director of the institution.

IX. ACKNOWLEDGMENTS

Primero agradezco a Dios ser maravilloso que me dio la vida y la fé para creer lo que me parecía imposible terminar. A mis padres por su amor y paciencia en todo este tiempo de estudio con sus consejos de superación que todo es posible con la bendición de Dios y con dedicación y amor a lo que se realice. A mis hermanos, abuelitos y familia que con su presencia física y espiritual siempre han deseado mi superación profesional.

A mis amigos que les aprecio mucho especialmente a Edison y Estefanía quienes han estado a mi lado en cualquier momento.

A mi asesor de tesis el Ing. Marco Pusdá, gracias por su apoyo total en el transcurso del desarrollo de la tesis y principalmente por su amistad desde los inicios de mi carrera.

A mi Universidad, por permitirme ser un profesional junto con cada maestro que hizo parte de este proceso integral de formación especialmente al Ing. Pedro Granda.

A la institución Chispitas de Vida especialmente a la directora Jacqueline Cisneros Maldonado por toda la ayuda prestada para el desarrollo de este proyecto.

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