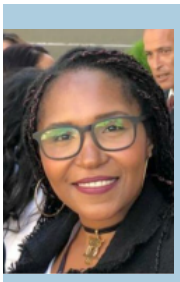
# FUNCTIONALITY OF THE DIGITAL CONTENTS OF THE CANAIMA EDUCATIONAL PROJECT IN THE LANGUAGE AREA



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## ABSTRACT

This research had as main purpose to evaluate the main Digital Content Canaima Education Project's in the area of Language in the National Bolivarian Schools Elementary of School Municipality No. 3 Maracaibo at the Zulia State. The theory was based on Pinto (2011), Rodriguez (2010), Garcia (2010), Ponce (2011), Navarro (2009), Gil (2001), Trevejo (2010), Poza (2006), Pressman (2002), Jimenez (2011), and the foundations of Canaima Education Project issued by the Ministry of Popular Power for Education (2009). From the methodological point of view was a descriptive research and its design was considered non-experimental and field. A population census was used consisting of 10 teachers and 120 students from three (3) schools attached to the City School No. 3. For data collection was used two (2) questionnaire with dichotomous response options (Yes - No). The first directed the staff consists of 42 items and the second aimed at students with 28 items. Both instruments were validated under the criteria of 5 experts and its reliability was determined using the method of Kuder Richardson, obtaining a reliability coefficient 0.72 and 0.73 respectively. For statistical treatment of data was used the Microsoft Excel 2007. The research results show that the dimensions of accessibility, functionality, requirements themselves, navigability and design a high value obtained according to the schedule established. In this sense it is concluded that digital content Education Project Canaima meet all the technical, pedagogical allow its application in the sub-primary education system that implements the Venezuelan government. It also raises a periodic review from the point of the learning process, technology, that strengthen conditions considered in the current digital content.

**Keywords:** Digital Content, Canaima Education Project, Teachers.

## INTRODUCTION

The present research constitutes a real contribution in order to evaluate the digital contents of the Canaima Educational School Project, a project of the Venezuelan Government that aims to support the integral formation of girls and boys, through the provision of a school laptop with educational contents to students of the primary education subsystem made up of national, state, municipal, autonomous and private public schools subsidized by the Venezuelan state, and thus determine its applicability throughout the sub-system according to the new educational model.

## THEORETICAL BASIS

The theoretical bases constitute the support of the research, since in them the axioms are exposed, indicative of the real behavior of the study variable, highlighting the contributions that experts in digital content express in this regard, conceptualizing the dimensions and indicators that accompany the research, focusing them in the field of primary education.

## FUNCTIONALITY

According to Pinto (2011), this term refers to the ease with which, on a website, the user can locate the information that interests him and grasp the relevant information quickly. In other words, this criterion assesses the effectiveness of the website when using and consulting it. Hence, the structure and logical organization of the contents are valued in order to achieve an optimal result in locating the information.

In the same vein, Tate, 199 c.p., Chiarini, (2005), considers that ease is the ability to assess how the user can locate the information of interest in the content portal and grasp the relevant information quickly. The indicators that should be taken into account to assess this criterion A logical structure of the contents, organized in the form of a table of contents, hierarchical menu or other similar organization, so that the user can grasp the most important contents from the outset.

According to Gil (2001), functionality is related to the time, effort and capacity required by the visitor to reach a certain level of adaptation to the system, which can sometimes be linked to the number of steps required to achieve a certain activity, and to the level of

knowledge required by the users to use the application.

In this sense, the functionality of digital content can be defined as the ability to provide the user with the information he needs through the least amount of steps necessary to do so. It takes into account all the interactivity scenarios that can be offered to the user depending on the content execution environment.

**CONTENTS MENU**

Within this framework, the Consejería de educación de Cantabria, (2011), refers to the fact that the content menu shows several content filters within the same window. Unlike the selection, automatic selection and syndicated selection windows that directly show the contents that we filter, the contents menu window shows the filters in a list with the names that we define for each of them.

Likewise, Pinto (2011), refers to the Content Menu as the organization that will show all the content options to which the user will have access at the time of use. He also reflects that it is a structure of contents included in websites, organized in the form of a table, hierarchical menu or other similar organization, so that the user will be able to grasp from the first moment, the most important contents.

According to Trevejo (2010), content menus are groups of links to sections, categories, articles of the same content, components or external pages. These are modules that allow clear interaction or information search, there are different types of menus and can be created as many as we need. Different menus can even be displayed depending on the section or page being navigated. Each menu must have a unique identification name used internally. A menu is only visible on the website if the corresponding module is enabled (published) or freely accessible.

Linares (2004), defines the content menu as the links, which are present in all the pages of a Web in a fixed way and that give access to other areas of information of the same site, this menu constitutes a fundamental piece for the success of a Web site since it depends on them that the user can move adequately through the different pages and is able to find the information that interests him, which in short is one of the main reasons why users decide to visit a Web site, almost all the content or navigation menus can be catalogued in two types:

Navigation bars and Drop-down menus.

In summary, the content menu refers to the thematic and technological organization that will show all the content options that the user will have access to at the time of use, providing easy access to the website or tool and at the same time facilitating navigation where the user will have better management of the contents and all the information offered by the tool.

**CONTENT SEARCH SYSTEM**

In this regard, Poza, (2006) mentions that it is the one that is actively capable of exploring and indexing content regardless of whether or not a search has been requested. A content search engine is therefore the computer system that indexes files stored on servers, such as, for example, Internet search engines. Searches are made with keywords or hierarchical trees by subject, and the result is a list of addresses in which subjects related to the keywords to be searched are mentioned.

For its part, the Electronic Center for Health Information and Documentary Research (2007), reflects that search engines are the most accurate and effective mechanisms for finding the desired information on the Internet, incorporating functions such as searching by words or hierarchical categories.

These tools are almost always interlinked by establishing links to each other and to servers that may contain documents found on other Internet services, such as a gopher, for example. They vary according to the size of their databases, the type of information they collect, the skills of the search engine they use, the search techniques they implement.

It is pertinent to mention then, that the search systems must facilitate the process of investigation and navigation of the user achieving a fast, efficient and effective interaction at the moment of being activated by him; managing to maintain the attention and the interest in the Interfax at the moment of the search attending to the necessities requested to give them answer.

In such sense Marquet (1999), defines the navigation systems as the transparent environment that allows the user to have sufficient control of all the present contents, in an effective way but without calling the attention on itself. It can be: linear, parallel, branched.

In this sense, it could be said then that the navigation system, as its name indicates, consists of the ease of access that the participant or user has when navigating or interacting, while searching for content; as long as the site has the best organization, the participant will have the best management and mastery of all the information in the simplest and most uncomplicated way.

**WEB MAP**

In this regard Vahughan (1995), understands, as web map also or known as navigation map a representation in hierarchical form of the display of the screens of any software or web site. Navigation maps are elements in charge of outlining and organizing the connections, links and messages between the different areas of the content.

Likewise, Norton (2000) states that all multimedia requires a navigation map for users to find their way around the content. In the same vein, the Ministry of People's Power for Science, Technology and Intermediate Industries (2010) defines the hypermedia navigation map as a graph whose nodes represent informative modules or content measures of the generating topic or a related topic, whose edges will be the hyperlinks.

Pinto (2011) indicates that it is a web structure that includes, in a hierarchical and organized manner, all the contents of the website with active links. The presence of this element is vital to streamline and improve the effective use of web pages, and for the user to visualize the overall structure of the contents.

Therefore, the site map refers to the hierarchical structure that defines all the levels of access to the developed application, so that the user can visualize the contents of the site without any inconvenience, obtaining better search results.

**METHODS**

The purpose of this research is to evaluate the digital contents of the Canaima educational school project in the area of language, for which the facts are described as they were presented in reality, which allowed the analysis of them. In this sense, the present study is considered descriptive since the events are presented as they occurred in the project.

In accordance with the above, Hernandez et al. (2006), state that in this type of research

the properties of persons, groups, communities or any other phenomenon subjected to analysis are specified, such as how certain situations are manifested in exploratory research.

Similarly, this research is evaluative because it identifies causes and helps to make predictions about facts and processes. That is why Cisneros, (2011), considers that such predictions should help to improve an existing condition or situation that is repeated and out of control.

On the other hand, this type of research does not intend to make a new discovery; its main emphasis is on usefulness, since it provides valid information to enable the planning of a social improvement project, to execute such a project, i.e. to build it with its stakeholders, and of course to operate it effectively.

The design is framed within the non-experimental model, because it describes the facts, without manipulating the variable, in this sense Hernández et al. (2006), argue that non-experimental studies are those that do not manipulate the variable, since what is done is to observe the phenomenon as it occurs in its natural context and then analyze it. According to the same authors, this type of design is transactional, descriptive and field-based, since the data will be collected in a specific period of time.

Áreas (2006) defines the population as a finite and infinite set of elements with common characteristics to which the conclusions of the research will be extended. This is delimited by the problem and the objectives of the study.

On the same subject, Chávez (2007), considers the population as the universe of the research on which it is intended to generalize the results, that is, it is constituted by characteristics or strata, which allow distinguishing the subjects, one from the other. It represents a finite or infinite set of elements with common characteristics, to which the results of the research will be extensive, as already mentioned.

According to the above, the population taken for this research is framed in ten (10) teachers and one hundred and twenty (120) students of the six (6) national schools of the Manuel Dagnino Parish attached to the school municipality 3 in Maracaibo, Zulia State.

**Cuadro 2**

Distribución de la Población

| State | Municipality | Parish | School | No. of Teachers | No. of Students |
|---|---|---|---|---|---|
| Zulia | School N° 3 | Manuel Dagnino | E.N. Zulia | 2 | 24 |
| | | | E.B.N. Juan Antonio Paredes | 2 | 24 |
| | | | María Reina School | 2 | 24 |
| | | | Coromoto School | 2 | 24 |
| | | | Juan Germán Rosio | 2 | 24 |

**Source:** Hernández (2017)

**Sample**

With respect to this point, Hernández et al. (2001) indicate that the sample is a subgroup of the population. A subset of elements that belong to that set defined in its characteristics which is defined as population. All samples must be representative in order to be a true reflection of the population and therefore of the results obtained by using it for data processing as a result of the application of data and information collection instruments applied to it.

Castaneda (2006) indicates that the sample will be a representative subgroup of the total group and in order to be representative it must meet the requirements defined by probability theory, that they be chosen at random.

Similarly, Malhotra (2005) indicates that a population census includes a complete enumeration of the elements of a population. The parameters of a population can be calculated directly after the census is enumerated.

In the present research, a population census was carried out since the ten (10) teachers and one hundred and twenty (120) students, who were mentioned as population in the research, were taken into account.

Considering the postulates of Arias (2006), the technique is the various ways of obtaining information, while the instruments are the means to collect and store it. In this sense, the technique used for this research was the survey.

According to Castañeda (2006), the survey consists of the systematic interrogation of individuals of individuals in order to know the opinion of a certain group of people regarding a topic defined by the researcher.

In the same vein, the instrument commonly used to carry out a survey is the questionnaire. Castañeda (2006) defines it as the list of questions to be answered by the subjects of the sample deduced from the hypothesis and objectives of the research. The questionnaire should be designed in such a way that it is easy to understand and that no additional information is necessary.

Arias (2006) defines the checklist as the instrument in which the presence or absence of an aspect or behavior to be observed is indicated; it presents a defined structure in order to fulfill its objective.

Based on the above, two (2) instruments were used for data collection. One was a questionnaire addressed to teachers, consisting of 42 items, using a dichotomous measurement scale, and the second, a checklist addressed to students, containing 28 items. The questionnaire is designed according to the dimensions and indicators in which the research objectives are framed.

The checklist was designed according to the Accessibility dimension with its indicators: alternative visualization, navigation aid; and the Design dimension with the indicators identified as color scheme and typography.

As a result of the application of the instruments and in order to establish a comparison criterion for the behavior of the variable under study, a Comparative Scale Chart was used to characterize the Digital Contents variable of the Canaima Educational School Project according to the answers received.

In this sense, for the construction of the scale, the categorization of the response alternatives and the number of items were taken into account, which made it possible to calculate the lower and upper limits of the scale in order to determine the scores that will allow categorizing the indicators and dimensions in each of the instruments.

**Table 3**

**Scale of Comparison**

| Range of Values | | EVALUATION |
|---|---|---|
| **Lower Limit** | **Upper Limit** | |
| 0,66 | 1 | HIGH |
| 0,33 | 0,65 | MEDIUM |
| 0,00 | 0,32 | LOW |

**Source:** Hernández (2017)

As already mentioned, in all quantitative research an instrument is applied to measure the variables. This measurement is effective when it is valid and reliable; if this is not the case, the measurement will be deficient and therefore the research will not be worthy of consideration. (2004), state that validity is the degree to which an instrument really measures the variable it is intended to measure.

Chávez (2007, p.194) states that content validity is the correspondence of the instrument with its theoretical context. It is not expressed in terms of a numerical index. It is based on the need for discernment and independent judgments among experts. It is the careful and critical analysis of the totality of the items according to the specific area of theoretical content.

In the context of this research, the instrument was submitted to the criteria of seven (7) experts in the area in order to validate the pertinence of the items with the indicators, dimensions and objectives of the research.

**Cuadro 4**

Datos de los Expertos

| N° | Expert's name | Workplace | Academic Background | Remarks |
|---|---|---|---|---|
| 1 | Xiomara Linares | U.E. Cardonal Sur | M.Sc. in Research Methodology | No comments |
| 2 | Claudio Ordoñez | Rafael Belloso Chacín University | M.Sc. in Educational Informatics | Improvement in the wording of items 36 to 39 of the teacher's instrument. |

| N° | Expert's name | Workplace | Academic Background | Remarks |
|---|---|---|---|---|
| 3 | Lenis Piña | Rafael Belloso Chacín University | M.Sc. in Educational Management | Improved wording in item 8 of the student instrument. |
| 4 | Liody Díaz | Rafael Belloso Chacín University | M.Sc. in Educational Management | Improved wording of items 7, 10 and 26 of the student's instrument |
| 5 | Gleidis Díaz | Rafael Belloso Chacín University | M.Sc. in Educational Management | |

**Source:** Hernández (2017)

According to Castañeda (2006), reliability is the capacity of an instrument to yield equivalent results among respondents, regardless of who applies it. To achieve this, it is understood as the degree of congruence with which the measurement of the variable is carried out.

According to Chávez (2007), the reliability of a research instrument is the degree of equality with which its purpose is fulfilled; this quality is essential in any type of measurement. From this perspective, to determine reliability, a pilot test was applied to ten (10) teachers and fifteen (15) students with similar characteristics to the population under study.

There are different methods to determine the reliability of an instrument, among which is the Kuder Richardson Method, which is applied to instruments in which the responses to each item are dichotomous or binary, that is, they can be coded as 1 or 0 (correct - incorrect, present - absent, in favor - against, among others). The formula for calculating reliability by this method:

$$r_{tt} = \frac{k}{k-1} * \frac{st^2 - \sum pq}{st^2} \qquad st^2 = \frac{\sum \left( x_i - \bar{x} \right)^2}{n}$$

k = number of items in the instrument.

n = number of subjects.

p = people who respond affirmatively to each item.

q = people who respond negatively to each item.

St2 = total variance of the instrument.

Xi = total score for each respondent.

For the teacher's instrument, the results are as follows:

k = 42.

St2 = 14.5

Xi = 335

n = 10

$$st^2 = \frac{14{,}50}{10} = 1{,}45$$

$$r_{tt} = \frac{42}{42-1} * \frac{1{,}45 - 0{,}44}{1{,}45} = 0{,}72$$

The results show a reliability index of 0.72 for the instrument evaluated.

In the case of the instrument applied to the students, the results are as follows:

k = 28

St2 = 16.33

Xi = 244.93

n = 15

$$st^2 = \frac{244{,}93}{15} = 16{,}33$$

$$r_{tt} = \frac{28}{28-1} * \frac{16{,}33 - 9{,}60}{16{,}33} = 0{,}73$$

The results show a reliability index of 0.73 for the instrument evaluated.

**RESULTS**

Regarding the analysis of the Contents Menu indicator of the Functionality dimension of the instrument applied to the teaching staff, the highest percentage frequency is 60.00% and corresponds to the alternative Yes. The results indicate that the Digital Contents of the Canaima Educational Project have a Contents Menu; on the contrary, the rest of the

respondents, grouped in 40.00%, consider that it does not have one; obtaining an average of 0.60 which gives it a Medium valuation with respect to the comparison scale.

According to what was observed in the Contents Menu indicator of the Functionality dimension of the instrument applied to the student, the highest percentage frequency corresponds to the alternative Yes with 86.67%, with 13.33% of the respondents answering with the alternative No. The results indicate that the Digital Contents of the Canaima Educational Project include a contents menu. The evaluated indicator obtained an average of 0.87, which gives it a high valuation with respect to the comparison scale.

According to the results obtained, it is evident that the Digital Contents of the Canaima Educational Project have a contents menu as part of its design and structure; this is in accordance with Pinto (2011) who considers the contents menu as the organization that will show all the content options to which the user will have access at the moment of its use. It also reflects the structure of the contents included in the site, which can be organized in the form of a table, hierarchical menu or other similar organization, so that the user will be able to grasp the most important contents from the very beginning.

The results obtained from the application of the instrument to the teacher for the indicator "Content Search System" of the "Functionality" dimension, show that the alternative with the highest average percentage corresponds to the alternative Yes with 60.00%, demonstrating that the Digital Contents of the Canaima Educational Project offer a Content Search System; 40.00% of the teachers surveyed do not consider this to be the case. The evaluated indicator obtained an average of 0.60, which gives it an average valuation according to the comparison scale.

Regarding the indicator "Content Search System" of the "Functionality" dimension of the instrument applied to the students, the alternative with the highest percentage average corresponds to the Yes alternative with 85.83%; while the No alternative obtained 14.17%. The results indicate, according to the student's perspective, that the Digital Contents of the Canaima Educational Project offer a content search system; for the evaluated indicator, there is also an average of 0.86, which categorizes it with a high valuation with respect to the established scale (see Table 3).

The results obtained in the "Content Search System" indicator coincide with those proposed by Poza (2006), as the system that actively explores and indexes content regardless of whether or not a search has been requested. It is the computer system that indexes files stored on servers, such as, for example, Internet search engines that use keyword search techniques or hierarchical trees by topic, resulting in a list of addresses where topics related to the searched keywords are mentioned.

Thus, it is evident that the Digital Contents of the Canaima Educational Project have a content search system that offers the user, by means of a keyword, to obtain topics related to those terms and access their content.

Regarding the results obtained from the teachers' point of view associated with the "Web Map" indicator of the "Functionality" dimension, it is evident that the Yes alternative has the highest percentage average with 83.33% and the No alternative obtained 16.67%. From this it can be deduced that the digital contents of the Canaima Educativo project have a web map as part of its structure. Similarly, the evaluated indicator obtained an average of 0.83 which, as can be seen in the table above, corresponding to items 11 and 12 of the instrument applied to the student for the indicator "Web Map" of the "Functionality" dimension, the highest percentage frequency is 84.17% and corresponds to the alternative Yes; while the alternative No has a percentage frequency of 15.83%; obtaining an average of 0.84 which gives it a high valuation with respect to the comparison scale.

The results obtained show that the Digital Contents of the Canaima Educational project have a Navigation Map that allows showing in a hierarchical way the organization of the digital content that will be observed by the user of the referred content. This is in accordance with Vahughan (1995), who states that the web map is a hierarchical representation of the display of the screens of any software or website. The navigation maps are elements in charge of outlining and organizing the connections, links and messages between the different areas of the content.

Similarly, Pinto (2011) states that the site map includes, in a hierarchical and organized manner, all the contents of the website with active links. Consequently, the digital contents of the Canaima Educativo project allow to speed up the use and effective visualization of both the content and its global structure.

Regarding the results of the application of the instrument applied to the teaching staff to evaluate the "Functionality" dimension, it can be seen that the indicator "Web Map" obtained the highest frequency with 83.33%, followed by the indicators "Content Search System and Content Menu" which share 60.00%; while the indicator with the lowest percentage frequency corresponds to "Web Map" with 16.67%, which is well below the average of the indicators that make up the "Functionality" dimension. Likewise, it can be observed that the option Yes in all the indicators obtained the highest percentage frequency. It can also be seen that the dimension obtained an average of 0.68, which gives it a high value according to the comparison scale.

With regard to the "Functionality" dimension of the instrument applied to the student, the indicator with the highest percentage frequency (86.67%) corresponds to the "Content Menu", followed by the "Content Search System" indicator (85.83%), while the indicator with the lowest percentage frequency corresponds to the "Content Menu" indicator (13.33%), which is below the average of the indicators that constitute the "Functionality" dimension. The highest percentage frequency was obtained by the alternative Yes in all the indicators that constitute the dimension evaluated.

It can also be seen that the "Functionality" dimension obtained an average of 0.86, which gives it a high score with respect to the comparison scale established in the previous chapter.

The results obtained indicate that the subjects who participated in the study gave a high value to the "Functionality" dimension, demonstrating that the Digital Contents of the Canaima Educational Project are functional from the point of view of the aspects that constitute this characteristic. This corresponds to Pinto (2011), who considers functionality as the characteristic of a content that allows the user to locate the information, he/she is interested in and to grasp the relevant information quickly. In other words, this criterion values the effectiveness of the website when it is used and consulted. Hence, the structure and logical organization of the contents are valued in order to achieve an optimal result in locating the information.

Similarly, Gil (2001) states it as the time, effort and capacity required by the visitor to reach a certain level of adaptation to the system, this can sometimes be linked to the number

of steps required to achieve certain activity, and the level of knowledge required by users for the use of certain application and in this case for the digital contents of the Canaima Educational project.

## CONCLUSION

The objective of the research was focused on characterizing the functionality of the Digital Contents of the Canaima Educational School Project in the area of language, the results allowed concluding that the functionality dimension obtained a high valuation and thus highlighting the functionality that the digital contents of the Canaima Educational School Project have to strengthen the teaching-learning process in the area of language in the primary education sub-system in which this project is applied.

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