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Presentation of the content

In the first article we present, *An analysis of schooling and sex through the National Household Income and Expenditure Survey in Mexico, 2012*, by MARTÍNEZ-MORALES, Javier, FRANCO-DUARTE, María Teresa, HERNÁNDEZ-ARCE, Jesús and VALLES-BACA, Herik Germán, in the next article we present, *Good practices of the Keep Learning Program ... in the hospital, in the facilities of the Hospital de Especialidades Pediátricas de la Ciudad de Tuxtla Gutiérrez, Chiapas*", by MENA-ANDREA, Nangusé María Elena & MONTESINOS-LISANDRO, Cruz Elisa, with adscription in the Hospital de Especialidades Pediátricas, in the next article we present, *Material design for mixed environments at UTSV*, by KATT, Alondra, VÁZQUEZ-BRIONES, Manuel, ALEGRÍA-PALACIOS, Arturo and CAYETANO-POLITO, René Francisco, with adscription in the Universidad Tecnológica del Sureste de Veracruz, in the last article we present, *Interactive Software for Preschool Level*, by GARCÍA, Oscar, MANCILLA, Victor, AGUILERA, Gabriel and AGUILAR, Rebeca, with adscription in the Universidad Politécnica de Juventino Rosas.

Content

Article	Page
An analysis of schooling and sex through the National Household Income and Expenditure Survey in Mexico, 2012 MARTÍNEZ-MORALES, Javier, FRANCO-DUARTE, María Teresa, HERNÁNDEZ-ARCE, Jesús and VALLES-BACA, Herik Germán	1-6
Good practices of the Keep Learning Program ... in the hospital, in the facilities of the Hospital de Especialidades Pediátricas de la Ciudad de Tuxtla Gutiérrez, Chiapas" MENA-ANDREA, Nangusé María Elena & MONTESINOS-LISANDRO, Cruz Elisa <i>Hospital de Especialidades Pediátricas</i>	7-12
Material design for mixed environments at UTSV KATT, Alondra, VÁZQUEZ-BRIONES, Manuel, ALEGRÍA-PALACIOS, Arturo and CAYETANO-POLITO, René Francisco <i>Universidad Tecnológica del Sureste de Veracruz</i>	13-20
Interactive Software for Preschool Level GARCÍA, Oscar, MANCILLA, Victor, AGUILERA, Gabriel and AGUILAR, Rebeca <i>Universidad Politécnica de Juventino Rosas</i>	21-25

An analysis of schooling and sex through the National Household Income and Expenditure Survey in Mexico, 2012

Un análisis de la escolaridad y el sexo a través de la Encuesta Nacional de Ingreso y Gasto de los Hogares en México, 2012

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Abstract

The role of education, punctuated by Mendez (2009), is explained as a universal right that everyone should have and as an instrument or means of social development that would ensure freedom and democracy. Education is essential for countries to achieve higher levels of development mechanism. In addition, it must be a key to obtaining knowledge and help train men seeking welfare (General Education Act) factor.

Analysis, Education, Sex, National Household Income and Expenditure Survey in Mexico

Resumen

El papel de la educación, puntualizada por Méndez (2009), es explicado como un derecho universal que todo individuo debe tener y como un instrumento o medio del desarrollo social que permita garantizar la libertad y la democracia. La educación es un mecanismo primordial para que los países alcancen niveles de desarrollo más elevados. Además, ésta debe ser un factor clave para la obtención de conocimientos y que ayude a formar hombres que busquen el bienestar social (Ley General de Educación).

Análisis, Escolaridad, Sexo, Encuesta Nacional de Ingreso y Gasto de los Hogares en México

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† Researcher contributing as first author.

Introduction

The Mexican educational system has expanded significantly during the last 50 years (Latapí, 2002). New schools have been built and more teachers have been hired. The Mexican Constitution establishes that education is a right of every citizen, in fact, the Mexican educational system has increased its efforts so that each and every child in the country can enter school. Nowadays, compulsory basic education is made up of kindergarten, primary and secondary school, that is, the minimum level of studies offered by the Mexican government already reaches 12 school years. Unfortunately, although access to education, at least at the basic level, has been almost universal, unfortunately there is a huge differential by gender, social status and geographic location (urban or rural), among other factors. From the above it can be established that education is generally seen as a key catalyst for the general individual, the community or national development. The theory of human capital, developed by Schultz (1961) and Becker (1975), analyzes schooling in the form of expenditure and at the same time in the form of investment that makes individuals more productive and allows a higher expected salary.

Authors such as De Gregorio and Lee, (2000) and Checchi, (2001) independently show that a higher level of education accompanied by a more equitable distribution are factors that achieve a more equitable distribution of income, while Castello and Domenéch (2001) reveal in their study that educational inequality has a negative effect on the economic growth of nations and both Ram (1990) and Thomas and others (2000 and 2002) demonstrate the existence of an inverted “U” curve of education.

Within Mexico, there are fewer studies between the relationship between schooling and income distribution; However, the most outstanding are the Brachos (1994) who link the relationship between the average years of schooling and their inequality, concluding the existence of an inverted “U” curve for education; The one by Martínez (2002) that performs an analysis of the behavior that inequality in education has had, from 1960 to 2000, for the 32 states, (in the case of Aguascalientes, the study is used for its municipalities considering only the year 2000) and concludes that although there has been a considerable decrease in educational inequality, it has not been enough to reduce income inequality.

Another author documented (Barceinas (2004), for the Mexican case, that schooling reduces income inequality, but leaves open to debate whether this effect may be due to exogenous causes, for example the economic growth of a country.

He concludes that the best The effect of reducing the concentration of income is the distribution of education. For this, the objective of this work is to analyze in a purely descriptive way the variables of household income and expenditure according to schooling and sex, both at the household level and by state.

Methodology

For the analysis of the information, the database of the National Household Income and Expenditure Survey for the year 2012, published by the National Institute of Statistics and Geography (INEGI), was considered.

The base contains 9002 observations of individuals of members of the households that allows to work at the individual level and by federal entity since they have a representative sample. Only male and female heads of households over 12 years of age were cared for.

The variables with which they were worked were:

- Age
- Sex
- Quarterly current income
- Quarterly monetary expenditure

The classification of current monetary expenses, according to the ENIGH, are:

- Saving.
- Spending on food, beverages and tobacco.
- Dress and footwear.
- Housing and fuels.
- Articles and services of the house.
- Health care.
- Transport and communication.
- Education and recreation.
- Personal care.
- Expense transfer
- Credit card payment

For the variable education, it was based on the following classification:

- Without schooling
- Complete primary
- Incomplete secondary
- Complete secondary
- Incomplete high school
- Complete high school
- University
- Postgraduate

Important characteristics of the survey

A brief relevance of the most important data available in the ENIGH database (2012) is presented below. Table 1 shows that nuclear-type households are the most representative, that is, households made up of a father and mother and children.

Kind of Home			
	Frequency	Percentage	Accumulated
Sole proprietorship	1,041	11.56	11.56
Nuclear	5,713	63.46	75.03
Extended	2,110	23.44	98.47
Compound	96	1.07	99.53
Co-resident	42	0.47	100.00

Table 1 Household distribution

Table 2 shows the composition of the socioeconomic strata according to households. It is observed that the lower middle stratum has the highest percentage, with a value close to 50% of all households.

Stratum Socioeconomic			
	Frequency	Percentage	Accumulated
Low	2,623	29.14	29.14
Medium low	4,391	48.78	77.92
Medium high	1,475	16.39	94.30
High or tall	513	5.70	100.00

Table 2 Households according to socioeconomic status

Table 3 represents the schooling of the heads of household. As can be seen, the bosses with the highest representation are those who have completed secondary school followed by incomplete primary school.

	Frequency	Percentage	Accumulated
Without	965	10.72	10.72
Scholarship	1,940	21.55	32.27
Primary	1,611	17.90	50.17
Incomplete	326	3.62	53.79
Primary	2,021	22.45	76.24
Complete	262	2.91	79.15
Secondary	785	8.72	87.87
Incomplete	954	10.60	98.47
Secondary	138	1.53	100.00

Table 3 Education of the head of the household
Results

In this section, the most outstanding results of the survey are presented by crossing variables. The average age of the heads of household is 48 years old while that of the heads of households is 53 years old, they represent 25% of the total. The average size of household members is 4 people with a value of 21%. Figure 1 represents the average current income level by level of education and sex. The results show that a higher degree of schooling has a higher income, however, at the university and postgraduate level, women earn less.



Figure 1 Average income by level of education and sex

Table 4 shows the results by state by sex and its gap, it is observed that the state with the greatest inequality between men and women is Nuevo León, while Jalisco is the state with the greatest gap in favor of women.

Federal entity	Men	Woman	Gap
Aguascalientes	\$36,999	\$25,919	\$11,081
Baja California	\$54,105	\$38,300	\$15,804
Baja California Sur	\$47,461	\$44,217	\$3,244
Campeche	\$36,288	\$35,666	\$621
Coahuila	\$33,093	\$30,158	\$2,935
Colima	\$38,004	\$34,623	\$3,381
Chiapas	\$18,443	\$15,868	\$2,575
Chihuahua	\$30,702	\$25,716	\$4,986
federal District	\$68,239	\$51,991	\$16,249
Durango	\$27,832	\$22,398	\$5,434
Guanajuato	\$32,412	\$28,362	\$4,051
Warrior	\$20,495	\$16,188	\$4,306
gentleman	\$26,509	\$27,468	-\$959
Jalisco	\$39,439	\$43,832	-\$4,394
Mexico	\$35,247	\$29,192	\$6,055
Michoacan	\$26,129	\$28,745	-\$2,616
Morelos	\$32,317	\$29,321	\$2,996
Nayarit	\$29,671	\$30,963	-\$1,292
New Lion	\$56,512	\$37,485	\$19,027
Oaxaca	\$18,402	\$16,737	\$1,665
Puebla	\$25,437	\$19,065	\$6,371
Queretaro	\$45,041	\$45,734	-\$692
Quintana Roo	\$43,512	\$35,524	\$7,988
San Luis Potosi	\$26,879	\$26,051	\$828
Sinaloa	\$32,683	\$31,863	\$820
Sonora	\$44,146	\$38,899	\$5,246
Tabasco	\$31,354	\$33,221	-\$1,867
Tamaulipas	\$35,938	\$35,399	\$539
Tlaxcala	\$27,050	\$28,465	-\$1,415
Veracruz	\$26,115	\$24,578	\$1,537
Yucatan	\$29,044	\$32,035	-\$2,992
Zacatecas	\$26,767	\$19,064	\$7,704

Table 4 Average income by state and sex

Figure 2 represents the average quarterly monetary expenditure by level of education and sex; the figure is very similar to quarterly monetary income.

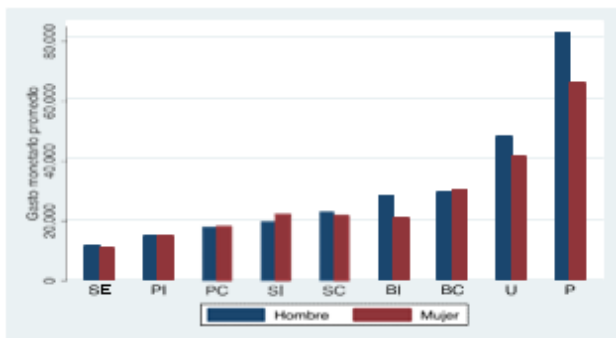


Figure 2 Quarterly monetary expenditure by schooling and sex

The different types of spending by level of education and sex are shown below. Figure 3 presents the average level of spending on education and recreation by level of education and sex. Spending on education and recreation is focused on spending on education, recreation, tourist packages, care, accessories, and other expenses. According to figure 3, men with university and postgraduate levels have the highest spending value.

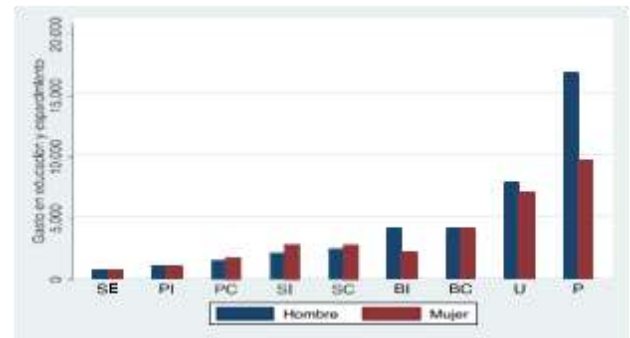


Figure 3 Expenditure on education and leisure by educational level and sex

Table 5 presents the average current spending by state and sex, the Federal District is the one with the highest spending for both men and women while Sinaloa is the state with the lowest spending in terms of men, while Puebla is for the women.

Federal entity	Men	Woman
Aguascalientes	8922.37	5340.28
Baja California	10772.78	8499.21
Baja California Sur	9001.44	8096.62
Campeche	8613.92	8060.13
Coahuila	7756.83	6212.66
Colima	9807.03	9342.82
Chiapas	5027.22	5361.49
Chihuahua	7950.53	6503.13
federal District	13595.80	10911.94
Durango	7421.87	5707.25
Guanajuato	8705.88	7955.13
Warrior	6867.71	5498.57
gentleman	6694.93	5745.31
Jalisco	9541.90	7002.49
Mexico	9290.37	7134.62
Michoacan	7832.33	7089.05
Morelos	9097.16	8455.61
Nayarit	8564.41	7578.39
New Lion	10695.24	7280.48
Oaxaca	6270.49	5683.45
Puebla	7070.10	4781.89
Queretaro	8174.70	7302.81
Quintana Roo	10231.42	8283.46
San Luis Potosi	7186.39	5526.43
Sinaloa	5745.93	5596.68
Sonora	9272.69	7721.03
Tabasco	8321.07	8030.66
Tamaulipas	8132.63	7338.07
Tlaxcala	7665.99	6488.93
Veracruz	7299.55	6010.20
Yucatan	9178.87	8950.16
Zacatecas	6290.06	5398.05

Table 5 Average spending on food, beverages, and tobacco

Figure 4 shows the average level of savings by level of education and sex, as can be seen, the highest levels of education, in women, tend to have a higher level of savings, however men do not have the same regularity of savings, somehow the level of education does not determine the level of savings of people.

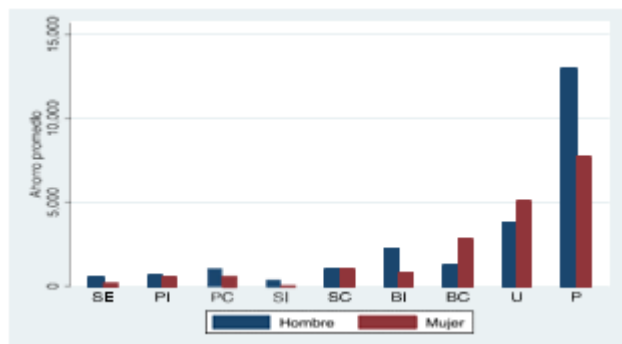


Figure 4 Average level of savings by schooling and sex

Table 6 represents the average level of savings by state. It can be seen that households in the state of Oaxaca save the least, however households in the state of Mexico save the most. In fact, the savings ratio is 41 times more between the state of Mexico and Oaxaca.

Condition	Saving	Condition	Saving
Oaxaca	\$86.68	Baja California	\$1,206.67
Chiapas	\$94.64	Yucatán	\$1,254.82
Aguascalientes	\$286.17	Campeche	\$1,506.15
Hidalgo	\$308.84	Colima	\$1,532.79
Michoacán	\$414.07	Baja California	\$1,649.16
Tlaxcala	\$422.76	Quintana Roo	\$1,779.15
Tabasco	\$445.47	Zacatecas	\$1,800.64
Sinaloa	\$484.40	Jalisco	\$1,810.24
San Luis Potosí	\$490.89	Guanajuato	\$1,875.90
Guerrero	\$545.38	Tamaulipas	\$1,877.93
Durango	\$747.76	Morelos	\$2,530.78
Coahuila	\$821.33	Querétaro	\$2,658.56
Chihuahua	\$929.57	Distrito Federal	\$3,017.66
Puebla	\$1,116.93	Nayarit	\$3,225.04
Nuevo León	\$1,117.41	Sonora	\$3,510.95
Veracruz	\$1,176.49	México	\$3,670.94

Table 6

Figure 5 shows the average credit card payment by level of education and sex, as can be seen, the level of payment is higher for both men and women with a university degree or higher. This may be due to the fact that professionals have better jobs, a higher salary level, they can have greater credit facilities and borrow more..

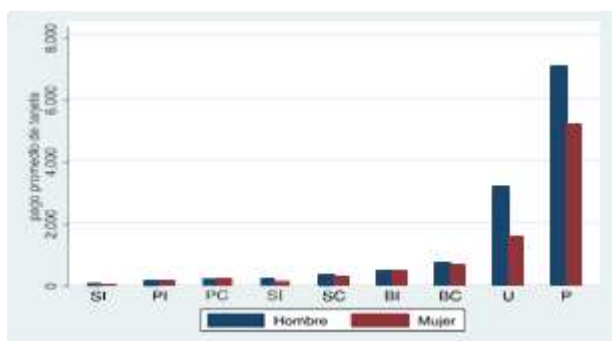


Figure 5 Average payment of credit cards by level of education and sex

Conclusions

Education is key so that any nation, state or municipality can develop from an economic, social and cultural sphere. Once society has achieved a minimum acceptable level of education then equity with equal opportunities can be applied. As has been observed, Rawls established that if there is an inequality in initial conditions then we must apply a theory of social justice that seeks not only equality but also equal opportunities to really achieve justice in those who have the least.

This document also concludes four important points:

- A higher level of schooling generates better income, however the gender more
- that sex plays a counteracting role towards women.
- In most cases there is a gap in income by federal entities
- salary between men and women and they begin to reduce and are even usually higher in certain states in favor of women, however it is not enough to counteract this wage discrimination.
- Savings levels are not determined by the level of education, in fact Expensive (2014) shows in his thesis that schooling is not the key to saving people, but there are other factors that have a significant effect such as financial culture.
- The income levels of people together with their education, in both sexes, influences
- for access to obtain a credit card.

Finally, studying the distribution of income and expenditure of households only on the side of schooling leaves open to the possibility of analyzing more factors that influence the determination of these.

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Good practices of the Keep Learning Program ... in the hospital, in the facilities of the Hospital de Especialidades Pediátricas de la Ciudad de Tuxtla Gutiérrez, Chiapas"

Buenas prácticas del Programa Sigamos Aprendiendo... en el hospital, en las instalaciones del Hospital de Especialidades Pediátricas de la Ciudad de Tuxtla Gutiérrez, Chiapas"

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Abstract

The program "Let us keep learning ... in the hospital" has its beginnings in 2005 in five hospitals in Mexico, his arrival to the state of Chiapas was almost immediately, so that, for 2006, was home in the new hospital Pediatric entity. Since its launch, has been a top end, to combat the backlog of education in children of school age and health problems have to leave their academic studies from having to remain hospitalized for days, weeks, months and even years. As the first pediatric tertiary care hospital was born together with the educational program continue to learn ... in the hospital, where since then there have been many children served medical and "educationally", provided that, inclusiveness and universal right to the education of all children. Contribution: The presete research leads us to realize that the other exite (otherness) that all people, in the specific case of children and sick and sick children with health problems terminally ill or long or short recovery period, and visiting hospitals are entitled to education, have the right to not lose a school year or cycle for any disease, it helps the teaching hospital is also known, which is an emerging form of education authorities and hospitals come to learn that some centers are already serving this population but physically vulnerable, are entitled to the same rights as everyone.

Learning, Hospital Education, Health

Resumen

El programa "Sigamos aprendiendo... en el hospital" tiene sus inicios en el año 2005 en cinco hospitales de México, su llegada al estado de Chiapas fue casi de inmediato, por lo que, para el año 2006, daba inicio en el nuevo hospital pediátrico de la entidad. Desde su lanzamiento, ha tenido como fin principal, el de combatir el rezago de la educación en niños y niñas en edad escolar y que por problemas de salud tienen que abandonar sus estudios académicos al tener que permanecer hospitalizados días, semanas, meses y hasta años. Al ser el primer hospital pediátrico de tercer nivel nació conjuntamente con el programa educativo sigamos aprendiendo... en el hospital, donde desde ese año han sido muchos los niños atendidos médica y "educativamente", cumpliendo con esto, la no exclusión y el derecho universal a la educación de todos los niños y niñas. Contribución: El presente trabajo de investigación, nos lleva a tomar conciencia de que el otro exite (otredad) de que todas las personas, en el caso específico de los niños y niñas enfermos y enfermas con problemas de salud en estado terminal o de muy largo o corto periodo de recuperación, y que acuden a los hospitales, tienen derecho a la educación, tienen el derecho a no perder su año o un ciclo escolar por cualquier enfermedad, contribuye a que se conozca también la pedagogía hospitalaria, la cual es una forma emergente de educación y que las autoridades y hospitales lleguen a enterarse, que algunos centros, ya están atendiendo a esta población que aunque vulnerable físicamente, les corresponden los mismos derechos que a todos.

Aprender, Educación Hospitalaria, Salud

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Introduction

When a school-age child is hospitalized, they not only leave their home, their family, friends, and each of the uses and customs in which they have developed, mainly, they see the need to leave their formal studies, dropping out of school, to be cared for and fight his illness. The time that these will remain in the facilities of a hospital or how many times they will have to resort to it, is not known, that is why the government of the republic emergentmete through the secretariat of education and health, have turned to the attention of this sector. The educational backwardness is the most recurrent concern that the different sectors currently have, therefore, the hospital sector with respect to the education of boys and girls is being attended to.

In the first section, "Brief look at hospital schools" the different versions on the subject are addressed, such as: curative, therapeutic, special pedagogy and the one that corresponds to the object of study, hospital pedagogy, detailing the role that it must fulfill.

In the second section, we will address the context of the program, specifically in the Pediatric Specialty Hospital of Chiapas, to later announce the results in the conclusions.

Development

Brief look at hospital theories

It is essential to know and recognize that in pedagogy there are different theoretical approaches, since previous years, they have tried to name according to their purpose and proposal, below we will mention some approaches regarding education in recruitment centers such as hospitals.

Healing Pedagogy

It is a term spread by Debesse, who defined it "as the study of the education and care required by the child whose physical and mental development is at a disadvantage due to factors of an individual or social nature" (1969; 1164-1177). This look is in relation to the care that the child must have appropriate to her situation, therefore, the pedagogue will have exclusive treatment and never in a discriminatory way, adapting the tasks and activities.

Therapeutic pedagogy

Strauss (1936) defines it as a science that educates children who suffer delays or disturbances in their development during childhood, based on knowledge of medicine, on the causes and treatment of bodily and physical defects. Thus, he understands all the methods that allow to achieve the improvement and harmonious development of the faculties and physical and mental abilities of children and young people with some disability, based on instilling social habits according to the context and the state.

Special Pedagogy

Zavalloni (1973) defines the term as the science that normalizes the behavior of the subjects, whether they are socially inadequate or physically and / or mentally handicapped, considering the educational and didactic aspect.

Warnock (1978) recommends substituting the categories of deficits or disabilities for special educational needs following the following classification:

- Needs for specific adjustments to the curriculum.
- Needs to provide specific means of access to the curriculum.
- Needs to modify the social structure and emotional climate in which education takes place.

Hospital Pedagogy

In order to justify the need and possibility of pedagogical action in these diverse educational environments, we have followed the works of Castañeda (2006) and Castillo (2006).

For Castañeda, it is the conception of education as the basis of the processes of improvement of people and of educational attention as a fundamental contributor to their integral health that justifies the relevance of the existence of the pedagogical service within educational attention hospitable.

According to Castillo (2006), the different administrations have tried to provide an educational response to the special and specific needs presented by hospitalized children in two ways: on the one hand, trying to compensate for the problems that derive from a more or less prolonged hospitalization and, on the other, provide the necessary resources to carry out the compensation. We cannot forget that these children, in addition to being hospital patients, are still students with the same right to education as others (2006).

Based on the previous theoretical supports, then what concerns the present investigation will be addressed, so we will begin by contextualizing the program that is carried out in Tuxtla Gutiérrez, Chiapas, Mexico.

“Keep Learning Program... in the hospital, in the facilities of the Hospital of Pediatric Specialties of the City of Tuxtla Gutiérrez, Chiapas”

The research was developed in the program "Let's continue learning ... in the Hospital", in the third floor area better known as preschool, this is the hospitalization area, where there are girls, boys, young people who need to be in a treatment process for days, weeks and months, that is why this area is assigned to them.

It was carried out in this space, because it is the one with easier access due to the fact that there are no total medical restrictions, however, although it is called preschool, there are children from two years of age to 16, it is also due clarify that it is the area with the largest child population, with different treatments, where most of them receive chemotherapies and remain there, for days, weeks or months, depending on their condition and level of recovery, likewise are the isolated ones, children or young people with delicate conditions that need medical restraint.

The Pediatric Specialties Hospital, is the first hospital of this level in the country, it begins its operation hand in hand with the program Let's keep learning ...

In the hospital created by decree of the then President Vicente Fox Quesada, in 2006. In order to meet the demands of the population, especially diseases of high therapeutic diagnostic complexity, the creation of the Pediatric Specialties Hospital was promoted., for the infant population from newborn to 17 years 11 months of age, in the capital of Chiapas. It has medical technical infrastructure, state-of-the-art technology and specialist pediatric doctors at the level of the large high-specialty hospitals in the country to respond to the care needs of the state and regional child population.

The Pediatric Specialties Hospital has technological resources to serve through 39 clinical-surgical specialties, with around 152 census and non-census beds, consulting rooms, five operating rooms, diagnostic assistants: clinical analysis laboratories, simple radiology rooms, tomography, magnetic resonance imaging, nuclear medicine, blood bank, lactation room, auditorium, emergency area, social work area, government area, registry control, psychological area, classroom let's keep learning ... in the hospital, among other departments that comprise it

The Pediatric Specialties Hospital includes the pediatric intensive care unit, neonatal intensive care unit, hemato-oncology unit, day hospital: inhalation therapy, chemotherapy, outpatient surgery, peritoneal dialysis and hemodialysis, histopathology, cystic fibrosis clinic, clinic for the care of diseases due to inborn errors of metabolism, catheter clinic, wound and stoma clinic, diabetes and obesity clinic, child neuropsychiatry clinic and psychosocial and nutritional medical care.

This hospital provides care for complex diseases such as: congenital malformations, cardiovascular diseases, orthopedic disorders, leukemias and other types of cancer, transplants, among other conditions that require specialized medical services.

In the State of Chiapas, it was promoted in 2006, within the regional hospital "Rafael Pascasio Gamboa" and in the hospital of "Pediatric Specialties", the latter being the only third-level hospital that starts the program at the National Level and is currently promoting it in the new hospital "Dr. Jesús Gilberto Gómez Maza Medical Center".

The SIGAMOS program is an effort not only federal, but also state, offering education to boys, girls and young people who cannot attend school for health reasons, this program is one of the educational initiatives led by NGOs in shelters of the Mexico City and other cities, such as the projects of the private assistance institution Casa de la Amistad para Niños con Cáncer and the Asociación Mexicana de Ayuda a Niños con Cancer.

The program let's continue learning in the hospital, in the city of Tuxtla Gutiérrez, which is located in the facilities of the pediatric high specialty hospital, Mtra. Ana Crystell Chanona Cal y Mayor, teacher in education, is the general director of the program Let's keep learning... in the hospital at the state level and coordinator of this in the facilities of the pediatric specialty hospital. Currently it operates in coordination with the para-educational personnel of the Hospital Classroom dependent on the level of Special Education of the Undersecretary of Federalized Education, staff of the Chiapaneco Institute of Education for Youth and Adults ICHEJA and social service providers interns of the degrees of psychology, pedagogy and communication, who actively participate in the care of children in the program of medical services: Dialysis, Oncology, Outpatients and Hospitalizations (preschool).

Objective, mission and vision of the program Let's keep learning... at the hospital

Aim

Combat the educational backwardness of boys, girls and young people; as well as promoting state-of-the-art education, facilitating integration into the school and allowing the certification of schooled and non-schooled studies directly in the hospital with the implementation of educational programs.

Mission

Characterize that children and young people who are in need of being hospitalized, have the opportunity to adapt their learning pace to their health conditions, as well as continue their studies and facilitate their re-entry to regular school.

Vision

Provide authentic quality education for the training of hospitalized children and young people.

The program Let's keep learning in the hospital works with the participation of para-educational personnel. The teachers in charge are from the federalized secretary of education of the special education department, together with the Chiapas Institute of education for youth and adults, who send trained personnel to each of the facilities that are incorporated into the program, these teachers are highly qualified, complying with all the norms of their profession and complying with the examinations and requirements that they ask for. They meet a primary morning schedule, their entry time is at eight in the morning and their departure time is at one in the afternoon, made up of an elementary-level teacher, a psychologist and a special education teacher.

The activities that are carried out with the children are from Monday to Friday from 9:30 a.m. to 12:00 p.m., after the roll call, the children are expected to have breakfast, and then go through the corridors and ask the The parents and the child, if they have availability to work or not, in some cases the children do not work because they feel tired, some part of the body hurts or the channeling is in the arm with which they write or they simply do not want to to carry out the activities due to lack of motivation and interest, so they are sometimes left with books in case they are interested in reading when they feel better, and in the worst case by medical prescription

Results and conclusions

According to the observations and interviews with those in charge and beneficiaries of the program, it can be determined that there is no relevant negative information in relation to the program, let's continue learning ... in the hospital, since it complies with the standards indicated by being applied correctly by those responsible for the program. Likewise, it should be mentioned that the teachers in charge of giving the activities in the hospital follow a work route selected by the experts who carried out said work program, in the same way they have tools and didactic techniques that contribute to carry out this task with greater satisfaction both for the little ones as well as for those responsible.

Given the interviews, it is observed that 100% of the children surveyed come from other municipalities such as Arriaga, Jitotol, Huixtla, among others, an average that ranges from six years to 13 years of age, the majority attend regular school when they are discharged for seasons and those who do not attend these have dropped out due to health issues, however this is where the program fulfills its function, let's continue learning, preventing these children from missing school cycles.

Familiar appearance

In the family aspect, we find that 100% of the children live with their parents and siblings, the families are no more than six members per family, in which the mother is the most important person in the family nucleus, who is also in charge of care when they are hospitalized, as well as in most cases the parents are the ones who work, sometimes all day, dedicated to fishing, agriculture and commerce, of the people who make up their family in the most of whom children get along best with are siblings.

Academic aspect

In the academic aspect, the opinion of parents in relation to the program let's keep learning ... in the hospital and their child is made known, observing if the activities are adequate for their learning and if they believe that these are beneficial for learning, Taking into account the material that is provided, the treatment of those in charge of the program and the relationship that exists between them with their child, suggesting that the program provide more didactic material and some mention that it would be very useful to make a mini library for the facilities on the third floor, this with the purpose that when they do not receive classes the children have the opportunity to take a book and the children's learning is more fruitful and they look for alternatives to promote the habit of reading and they feel motivated when doing so and look for alternatives of distraction.

Emotional aspect

In the emotional part of the interviews, parents share the observations they have when their child performs activities with those in charge based on the program Let's keep learning ...

In the hospital if these are satisfactory for improving the children's mood, since it must be considered that the treatment can sometimes be painful and they do not have enough desire or courage to carry out activities, as well as mention if the children are related with other hospitalized children, and if they, as parents, have communication with the other parents, also showing that in the emotional part they feel satisfied and grateful with the operation of the program.

It is clear that each of the participants in this program is committed to achieving the objectives set, proof of this is the taste and satisfaction expressed by both children and parents as subjects benefiting from the program, let's keep learning ... in the hospital, no However, it concludes with the proposal to create a service quality management program, which contains a registered route, valued and approved by the corresponding educational bodies, for its constant review and compliance with quality standards.



Figure 1 Child doing activities of the program Let's keep learning... photo. Nangusé María Elena



Figure 2 Girl benefited from the program photo: Nangusé María Elena



Figure 3 Child and father participating in the activities of the program photo: Nangusé María Elena

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Material design for mixed environments at UTSV

Diseño de material para ambientes combinados en la UTSV

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Abstract

In the Technological University of Southern Veracruz was carried out the process of material design combined environments, to get it performed certain activities such as: Identify actors interverdrían therein, awareness about digital inclusion, training teachers multipliers styles and types of learning, instructional design, reagents , in order to create meaningful material that included cognitive development of the hemispheres practices that fostered the acquisition of skills and attitudes . The validation of the material was performed by the process of implementation, monitoring and continuous improvement to ensure quality. It is intended that by designing meaningful material a change in students by encouraging their productive role in detrrminado context.

Design, Material, UTSV

Resumen

En la Universidad Tecnológica del Sureste de Veracruz se llevó a cabo el proceso de diseño de material para ambientes combinados, para poder conseguirlo se realizaron ciertas actividades como: Identificar a los actores que intervendrían en el mismo, concientización sobre la inclusión digital, capacitación a docentes multiplicadores en estilos y tipos de aprendizaje, diseño instruccional, de reactivos, con la finalidad de crear material significativo que incluyera prácticas cognitivas para el desarrollo de los hemisferios que propiciara la adquisición de habilidades y actitudes. La validación del material se realizó mediante el proceso de aplicación, seguimiento y mejora continua para asegurar la calidad. Se pretende que mediante el diseño de material significativo se produzca un cambio en el alumno, fomentando su función productiva en un contexto determinado.

Diseño, Material, UTSV

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Introduction

Globalization opens the possibilities for multinational jobs and with it the need to raise the educational level. The Mexican educational system has gone through various paradigms, in order to improve, training the student for the work context, where the cognitive, pragmatic and axiological level are the basis for the professional development of the student. The educational system by competencies requires interaction with the physical world, knowledge, information processing, in order to achieve this there are various models for the teaching-learning process, which have evolved, adopting new techniques and digital inclusion.

The university professor faces new challenges every day in his professional work. Universities have ceased to possess the monopoly of knowledge that they held for centuries (Salinas, 1998); The paradigm of collaborative learning has changed. Comodice Salinas (Salinas, 2004) All this requires higher education institutions to make their procedures and administrative structure more flexible, in order to adapt to alternative training modalities more in line with the needs of this new society. presents.

The Universidad Tecnológica del Sureste de Veracruz (UTSV), derived from the prevailing technological need, intends to adopt an innovative educational model that combines face-to-face and virtual learning, called blended learning. B-learning takes advantage of technological resources, turning them into a powerful tool that affects meaningful learning Likewise, taking the advantages of physical interaction, fostering motivation in students and offering the opportunity to perform

Literature review

According to UNESCO (2006) "it is intended to improve the practice of teachers in all areas of their professional performance, combining skills in information and communication technologies (ICT) with innovations in pedagogy, the study plan (curriculum) and the school organization; coupled with the purpose of getting teachers to use ICT skills and resources to improve their teaching strategies, cooperate with their colleagues and, ultimately, be able to become leaders of innovation within their respective institutions".

Face-to-face education is not fully developed since it incorporates technological elements, in order to support the presentation of content, manage learning and collaborative work, through the use of educational platforms and other resources available on the web. It is an undeniable fact as it mentions that the addition of ICT in the processes has favored the appearance of roles different from those traditionally developed by teachers, since they induce the adoption of strategies and teaching styles more focused on the student.

"Achieving the integration of ICT in the classroom will depend on the ability of teachers to structure the learning environment in a non-traditional way, merge ICT with new pedagogies and promote dynamic classes at the social level, stimulating cooperative interaction, learning collaborative and group work.

What requires acquiring a different set of competences to manage the class, the fundamental competences will include the ability both to develop innovative methods of using ICT in the improvement of the learning environment, as well as to stimulate the acquisition of basic notions in ICT, deepen the knowledge and generate it. The professional training of teachers will be a fundamental component of this improvement in education. However, teacher professional development will only have an impact if it focuses on specific changes in their behavior in the classroom and, in particular, if this development is permanent and harmonized with other changes in the educational system"(Makrakis, V. , 2005).

According to Mena, for the teacher to be successful, eleven basic competencies must be developed, such as: use of academic platforms, communication skills, subject matter mastery, technical support, mastery of communication strategies, interpersonal communication, mastery of learning strategies, work in equipment, materials design, as well as knowledge and use of ICT.

The use of ICT in the teaching-learning process allows the acquisition of technological competences by students, useful for the educational process and for subsequent professional practice. Digital literacy has been essential in competency training, being promoted by different international and national institutions.

It has influenced the transition from traditional user training to competence-based training (C12- Informational and computer skills) in order to improve the quality of education, being supported in libraries in information and learning resource centers. Taking the web 3.0 as a motivational framework for the interaction between the learning subjects (Morales F., et. Al., 2014).

Methodology

The Universidad Tecnológica del Sureste de Veracruz (UTSV) has approximately 1,515 students, with an area of influence of more than five cities, gaining ground over more than ten years, positioning itself as a highly prestigious institution, socially responsible with the strong conviction to provide its students with a comprehensive, quality education under a scheme of professional skills.

The process for the design of material for combined environments in the UTSV took over two years, carrying out various actions, such as:

- Identify the actors, being the people who intervene directly in the design of the material.

Student: End user of the material developed for the platform in mixed environments, they must identify the environment.

Teacher: Facilitator of the class supported by the material for mixed environments, also covers the role of designer teacher.

Designer teacher: person in charge of developing the virtual content, identifying the content of each subject, the instruments that must be made, products and performances to be evaluated. **Multiplier:** it is the teacher who propagates the courses and appropriate techniques for the relaying of activities under the scheme of combined environments.

Technician: person responsible for the platform.

- Train teachers: this process is essential in the realization of material for mixed environments, since it analyzes how to learn and knowledge management.

To relate effective material, various courses were taken in order to promote the development of meaningful material.

Learning styles: a style denotes a way of being and doing, and although they can be classified by groups, there are individual differences caused by experience, social and cultural context as well as personality.



Figure 1 Knowledge management process

It is important that the teacher knows the learning styles that exist and that their students may have, however it is essential that each student knows how to identify their own learning style so that they do not learn as they think is correct, since when creating In his own method, the student leaves gaps, causing his use and processing of information not always to be the most optimal based on the expected results (Crozer, 1997).

It is important that the teacher when designing the material, can include activities for each style or to promote its development, as well as detect during the march and focus the activities for a better use, in order that the information is acquired by some sense, to form structures or representations of the information giving it a visual, auditory or kinesthetic meaning. The activity of the hemispheres helps to organize the information received, for the logical hemisphere, the practice of diagrams, readings, writings is recommended, for holistic ones, mind maps, exemplifications and artistic activities are recommended, for the development of both hemispheres it is recommended poetry, brain gymnastics and body activities. (Willis, 2007)

Learning activities for mixed environments must be designed to promote perception, organization, information processing, exercising cognitive levels.

Virtual learning environments: It is understood by the physical space where new technologies such as: satellite systems, the internet, multimedia and interactive television, among others, have been strengthened, favoring the knowledge and appropriation of content, experiences and pedagogical processes. They are made up of the space, the student, the advisor, the educational content, the evaluation, and the information and communication media. When distance education courses are designed, careful planning is carried out, the objectives to be achieved, as well as the selection of topics that allow the development of content, the means to be used as well as the activities and the evaluation of learning.

To do this, the target audience, the institutional infrastructure and the learning subjects, institutional and curricular objectives, and instructional materials must be taken into account. (Avila, et al., 2001).

For the technical part, a training course must be taken on the platform in particular, in order that its management is efficient and punctual.

Pedagogical Resources: according to UNESCO, they are quality teaching materials. These resources that are used have the same purpose, the induction of learning and procedures for the efficient management of information.

According to their objective they are:

Trasmitir	• con recursos dirigidos a alumnos visuales, auditivos y kinestésicos.
Organizar	• Con recursos para los hemisferios
Trabajar	• Con recursos para detonar estilos activos, reflexivos, pragmáticos y teóricos.
Contextualizar	• Con los recursos para los diferentes niveles cognitivos
Desarrollar	• En el ambito conceptual, procedimental y actitudinal

Figure 2 Pedagogical resources

The teaching process has two phases:

Transmission phase that consists of the way in which the information is presented to the student. In order to carry out the effective transmission, the different types of students that we have, the auditory, kinesthetic and of course the visual, must be taken into account. For the pedagogical resource to have the desired impact, the following criteria can be taken into account:

Teaching Strategies		
Visual	Auditory	Kinesthetic
Images, photographs	Audiobooks	Puzzle
Multimedia content	Radio	Models
e-book	Music therapy	Roleplay
Digital manuals	Dialogues	Practical exercise
Online questionnaires	Video with audio	Field research
Crosswords		Relate
Virtual encyclopedias		
Conceptual maps		
Videos		

Figure 3 Pedagogical resources - student types

Processing phase: it is how the student works the information received in order to use it, based on the cognitive levels. Among these are the conceptual, procedural and attitudinal. For the student to organize the information received (acquired by various means depending on the type of student), it is important to use resources that promote it. For this, it is necessary to work with the cerebral hemispheres through activities that promote it.

Logical hemisphere	Holistic Hemisphere
Make outlines	Make concept maps
Give rules	Give examples
Explain step by step	Start by explaining the big idea
Read the texts from the beginning	Start by reading the end of the text to know where it is going to end
Write a text from photos or drawings	Convert a text into a comic
Organize in sections	Organize by colors
Give reasoned opinions	Express emotions and impressions

Figure 4 Pedagogical resources - cerebral hemispheres

The pedagogical resources to contextualize and develop student learning go hand in hand, to define the taxonomic level to be reached, as well as the area to be developed, such as conceptual, procedural and attitudinal (knowing, doing and being)

Instructional and reagent design: According to Broderick (2001) it is the art and applied science of creating an instructional environment and clear and effective materials that will help the student develop the ability to achieve certain tasks.

By producing educational material appropriate to the needs of students, it contributes to ensuring their quality.

According to Frida Díaz (2005), with the inclusion of ICT in the teaching-learning process, these allow not only to flatten geographical distances and expand coverage, but above all to provide instruction in a more efficient and effective way.

Teachers hope first and foremost that technology will help them show their students better examples of the concepts and principles they teach, almost unlimited and personalized opportunities to perform a procedure, learn a technique or correct mistakes, and above all, achieve an environment of more entertaining or motivating learning (Duffy & Cunningham, 2001), cited by Frida Díaz (2005). For the creation of reagents, the cognitive levels to which they are intended to reach are taken into account, using Bloom's taxonomy.

- Information curation: based on the content curation model developed by Francisca (Negre et. Al., 2014) that comprises the following phases:
 - Planning the process based on the need for specific information.
 - Creation of a container space and selection of information sources.
 - Assessment of information received.
 - Assignment of metadata for its conservation and storage.
 - Use and reuse to share with others.
 - Transformation into new knowledge.



Figure 5 Healing model applied in the didactic strategy followed

This model has been applied and validated in different cycles. The implementation context, application phases, validation process, as well as the results obtained when applied between different groups of students of the same subject, where the strategy to identify, assess and share content of interest, are described. Therefore, it is extremely enriching that the contents established in the materials in mixed environments go through a healing process, which will allow the student to build their knowledge through quality material.

- Use adequate structure for the material: According to Reyna (Reyna et. Al., 2014) the navigation of the content of the material for combined environments must be sequential and systematic, which will allow the learning curve to be covered in the same way.
- For the correct interaction of the material established on the platform, two facilitators are required, one for the theoretical - methodological part and the other for the technical environment.

The design of the material for combined environments was carried out according to the instructional taxonomy for the design of platform courses, developed by Reyna (Reyna et. Al., 2014), which consists of the following.

Instructional Taxonomy of an LMS-based course	
Purpose	Course
Learning guide	
Teaching object -Activities -Forum	Learning unit, topic, block, other.
Teaching materials	
Evaluation	
Reference sources	Course
Authorship and credits	

Figure 6 Instructional taxonomy (Reyna, 2014)

By uniting each of the elements, two great actors are obtained: technical and theoretical - methodological, which require training.

The technical part is responsible for the management of the platform, creation of user accounts, courses, assignment of roles as well as enrollment, user service.

The theoretical methodological part includes the realization of the course content, where various actors intervened:

Multiplying teachers who are those who were trained to develop quality material.

Designer teachers are the teachers who, together with the multipliers, carry out the information curation process.

User teachers, who interact with the platform and the material developed for it.

For the realization of the material for combined environments the multiplier teachers, designers created various pedagogical resources.

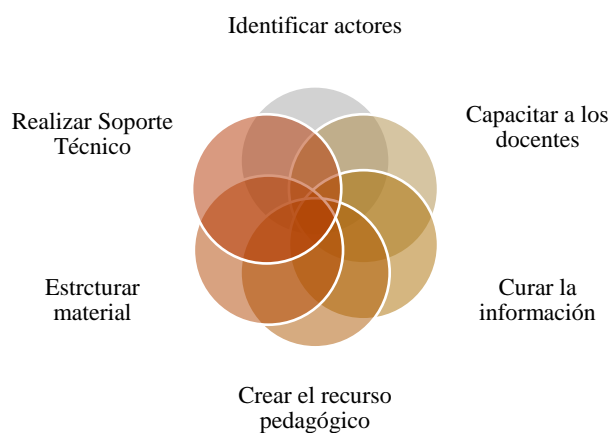


Figure 7 Sketch of the model for material in mixed environments

For the creation of pedagogical resources, the different types of students, learning styles, evaluations, feedback must be taken into account.

Results

To test the material design model for combined environments, the technical and theoretical methodological elements were taken into account.

In the technical part, Moodle was used as a tool for the virtual platform, where the structure was followed to present the information indicated in the model. Regarding the methodological aspect, the target population was considered, taking into account:

The types of students and learning styles, in order that the pedagogical resources developed are used both in person and online, thus contributing to the construction of the teaching-learning process, in the conceptual, procedural and attitudinal fields, promoting the development of the competencies.

Various types of questionnaires were carried out according to the desired objective. The reinforcement ones allow the student to enter the desired times and answer them. Those of self-evaluation favor introspection, those of evaluation, for their part, support the facilitator to identify areas of opportunity.

Regarding performance and product activities, they are requested according to different learning styles, be it metal maps, concept maps, essays, videos of practical work, as well as summaries or synthesis from videos, exhibitions, social participation. , case study among others to assess knowledge.

Activities		
Questionnaire (closed questions, complement, comprehension, mixed)	Beef up	
	Evaluate	
	Self appraisal	
Questionnaire	Self appraisal	Decision making and justification
		Goals and scope
		Suggestions and compromises for better learning
	Retroalimentación	Understanding of Concepts
		Synthesis and evaluation of situations
		Concept application and analysis
Participation in web 2.0		
	Presentation via the cloud	

Figure 8 Performed activities

In each of the previous activities, work was done under a scheme of cognitive levels, using Bloom's taxonomy, supported by the instructional design and reagents, to promote effective communication as well as the use of cured material, the latter being filtered by the user teachers, designers and multipliers, always in search of the development of professional skills.

At the end of the implementation of the model, the impact was measured through constant observation and through surveys carried out with the different actors involved in it, obtaining the following results.

Material design is affected by four main causes.

Comunicación	Reactivos	Herramientas	Material
<ul style="list-style-type: none"> Recursos pedagógico empleado por el facilitador La estructura del contenido es atractiva. La utilización de recursos según necesidades. 	<ul style="list-style-type: none"> Los niveles taxonómicos empleados Redacción adecuada 	<ul style="list-style-type: none"> Dominio de la plataforma para ambientes virtuales. Usabilidad de la plataforma. Uso de herramientas adicionales. 	<ul style="list-style-type: none"> La información contenida en la plataforma es adecuada a la asignatura desarrollada Material disponible de forma oportuna

Figure 9 Results obtained

Of the surveyed students:

100% agree that the information contained is attached to the study plan, 80% that the material developed is of quality and attractive. 80% think that the reinforcement questionnaires are useful as they serve as training for their evaluation. They think it is appropriate for the platform activities to be contained in the same place where they can deliver them or be able to enter the forum to solve doubts.

Of the 25 teachers involved, it is concluded that the structure provided to present the material is flexible, it adapts to the thematic contents, the design of the reagents was the most complicated part of the material design, since they had to adhere to the instructional design and taking into account the taxonomy, in addition to the selection of contents, it is possible to work collaboratively with teachers who share a subject, originating quality filtered material. Teachers users of the platform and the material, the information contained is relevant, appropriate to the content as well as specific teaching material.

At the end of the process, each of those involved agrees that the design of the material is the most important task, it requires a strong investment of time since it is intended that this incur in the student in a significant way, in such a way that the teachers are facilitators and students build their knowledge by acquiring the necessary skills.

Conclusions

In this research, different points of the construction of material for blended learning have been approached, making a mixture of different investigations carried out and tested, with the aim of developing quality material, seen from the different phases of material design.

The results indicate that factors such as geographical, social, and cultural must be taken into account in the development of materials for combined environments, carrying out collegiate work for the selection of information, development of the didactic resource.

A new paradigm for the use of reusable teaching material opens, the implication of which is to take what is still relevant and update what is necessary, working together, including information technologies.

By combining learning, the aim is to promote different types of competences, in the face-to-face classes it is sought to strengthen linguistic competence, knowledge and interaction with the physical world, social and civic, cultural and artistic competence, learning to learn, with the virtual part Information processing competence and digital competence are promoted, as well as autonomy and personal initiative.

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Interactive Software for Preschool Level

Software Interactivo para nivel Preescolar

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Abstract

The objective of this project is to create a tool that is support for teachers in the teaching of different training fields needed and agreed by SEP (Secretaria de Educación Pública), so that students have a meaningful learning. This is a graphic software that interacts with the student, is based on activities that the child be held and includes use of colors, letters, sounds, everything you need for students to acquire the necessary skills. The methodology is based on the quasi-experimental research, and is made up of variables constructs, indicators and indices. As part of the constructs it is that students can relate geometric shapes such as circles, triangles, rectangles, etc. It is hoped that this project, students have easier access to knowledge and tecnología management approach. As well as any student of any social level can access it through this software

Learning, Competence, Software, Preschool, Educational fields

Resumen

El objetivo de este proyecto es el de generar una herramienta que sea un apoyo para los docentes en la enseñanza de los diferentes campos formativos necesarios y acordados por Secretaría de Educación Pública (SEP) para que el alumno tenga un aprendizaje significativo. Se trata de un software gráfico que interactúa con el alumno, está basado en actividades que el menor llevará a cabo y que incluye uso de colores, letras, sonidos, todo lo necesario para que el alumno adquiera las competencias necesarias en el nivel básico de preescolar. La metodología está basada en el investigación cuasi-experimental, y esta constituida por constructos variables, indicadores e índices. Como parte de los constructos está el que el alumno pueda relacionar las figuras geométricas como círculos, triángulos, rectángulos, etc. Se espera que con este proyecto los alumnos tengan un acercamiento más sencillo al conocimiento y al manejo de la tecnología. Así como también que cualquier alumno de cualquier nivel social pueda tener acceso a ella mediante este software.

Aprendizaje, Competencia, Software, Preescolar, Campos formativos

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Introduction

In the 1950s, teaching assisted by computaora, understood as the application of computer technology to provide teaching. This is how it can be seen that the concept of teaching using technological means is not new, as is the case of Interactive Software for Preschool Level.

The development of this Software complies with the commitment that was generated on May 15, 2008 [5] where the Alliance for Quality in Education is generated, among other commitments, those aimed at modernizing schools were generated in order to strengthen their infrastructure and modernize the equipment of school facilities. All this in order to train citizens with greater opportunities to learn and develop successful educational paths in terms of their conditions and particular interests.

It is important to note that this software was developed based on the curriculum map of Basic Education 2011 [5], which in turn is made up of Curricular Standards. These standards are organized into four school terms of three grades each. These cuts correspond in an approximate and progressive way to certain key traits or characteristics of the students' cognitive development. The Training Fields are part of the Curricular Standards, these Training Fields regulate and articulate the Curricular Spaces.

In addition, in each Training Field the gradual processes of learning are expressed in a continuous and integral way, these frictions of child development and learning have an integral and dynamic character based on the interaction of internal (biological and psychological) and external (social and psychological) factors. cultural).

Likewise, by participating in educational experiences, girls and boys put into practice a set of capacities of a different order (affective and social, cognitive and language, physical and motor) that reinforce each other.

In general and simultaneously the learning covers different fields of human development; however, depending on the type of learning in which they participate, the learning may be concentrated in a particular way in a specific field.

According to the SEP, the Preschool Education program is organized into six training fields named like this because in their approaches it highlights not only the interrelation between development and learning, but also the relevant role of teacher intervention to achieve that the types of activities in which girls and boys participate constitute educational experiences.

The Training Fields facilitate the educator to have clear educational intentions (what skills and learning she intends to promote in her students) and to focus her attention on the experiences that it is important for her to propose.

It is precisely these training fields on which each of the activities that the Software developed in this project is based is based. Table No. 1 shows the training fields that are part of the activities that are included in the design of the Interactive Software for Preschool level.

Campos Formativos	Aspectos en que se Organizan
Language and communication	– Oral language – Written language
Mathematical Thinking	– Number – Form, space and measure
Exploration and knowledge of the world	– Natural world – Culture and social life
Physical development and health	– Coordination, strength and balance – Health promotion
Personal and social development	– Personal identity – Relationships
	– Musical expression and appreciation – Body expression and appreciation of dance – Visual expression and appreciation – Dramatic expression and theatrical appreciation

Table 1

Currently there are some attempts to generate educational software for children of early ages but they are not standardized and do not comply 100% with the requirements determined by the Ministry of Public Education (SEP). The Preschool Interactive Software uses as a reference the activities of the competency-based model currently used in the teaching of children at the basic preschool level.

This means that the Preschool Interactive Software is specially developed for students who are Mexican, with Mexican games, with Mexican songs. All this causes the child to become more familiar with the handling of the software, and to accept it, which provides a greater familiarity between the child and the software.

With the above, the Interactive Software at the Preschool level becomes an option so that the Educational Institutions at the Preschool level have a tool that supports them in teaching the competencies required by the basic level curriculum required by the SEP. With the Preschool Interactive Software, the teacher can be sure that the content of each of the activities is 100% Mexican, this means that the system has everyday words from the region (specifically Guanajuato), which are surely words that the minors they know or have heard it at least. With the above, it is avoided that the teacher has to make excessive adjustments in the activities and that may confuse the students.

The Interactive Software for Preschool level is a software that is designed to be used by purely Mexican schools, since the language it uses and the other elements are totally from this region. It is also interactive software since the child must answer what each activity requests, as well as each activity will indicate whether the child got the answer right or not so that in this way the teacher has an idea of the degree of mastery of the competence that he obtained the younger.

Software development

For the design of the activities, a tool called Scratch which is a programming language that facilitates the creation of interactive comics, games and animations. In turn, the activities are organized through an interface using the object-oriented programming language called Java.

The reason for using these two tools is because they are completely free, they do not require licenses for their use, and this was precisely thinking that the Educational Institutions to which said software could be installed, do not have sufficient resources to purchase licenses .

All the activities of the software have written instructions, these are short and common phrases so that the student can read them easily since, in preschool, children are still learning to read. Also the instructions come in audio, so that the little ones relate what is written with what they are listening and with this they can easily understand the activity, in addition to the fact that with the written and heard phrase the student reinforces their learning in reading. The activities are designed as follows, according to the training fields described by the SEP for the basic level curriculum, specifically preschool, a number of activities were designed which are shown in table number 2.

Campo Formativo	Actividades
Language and	<ul style="list-style-type: none"> - Tell me your name - Germinators - What are you wearing? - Jungle
Communication	<ul style="list-style-type: none"> - The bird and the balloons - Dice and seeds - Logic blocks - Books and booklets
Thought	<ul style="list-style-type: none"> - Guess the song - Musical Mexico - The scarf
Maematic	<ul style="list-style-type: none"> - Crocodiles - Fast slow - Food wheel
Expression and	<ul style="list-style-type: none"> - What do I do? - What do you do?
artistic appreciation	<ul style="list-style-type: none"> - Hear that! - Rock And Roll

Table 2

Methodology

The methodological basis used for this project It is of a quasi-experimental research type, these are made up of constructs, variables, indicators and indices. As part of the constructs, the preschool child will be able to relate geometric figures such as circles, triangles, rectangles, rhombuses, etc. Through interactive software that has modules that refer to the training fields mentioned in the previous point. Therefore, the software will be made up of five modules which refer to the different fields of training such as: Language and Communication, Mathematical Thinking, Artistic Expression and Appreciation, Physical Development and Health, Personal and Social Development, Exploration and Knowledge of the World.

In general, these 6 modules include alphabet letter recognition, geometric figures, color differentiation, animal sound identification, object size appreciation, object identification, among others.

The student has to answer and do the activities indicated by the activity and it will indicate whether it was correct or not.

The variables that intervene in this project are the school level of the students, economic income, social condition and infrastructure of the Institution where it will be implemented.

Some indicators will be the list of Educational Institutions, an interview with them, and a study of the computer equipment that each one of them has.

The way to test the software is through tests of its use by a preschool student. A group of students will be chosen to whom minimal instructions will be given and the activities to be developed will be indicated. A record will be kept of the results obtained by the minors who carried out said test. The index that will be monitored will be the group average according to the evaluations made to the different students.

Results

The software was tested in two groups of 2nd and 3rd grade preschool children from a public school in a community called Valencia in Santa Cruz de Juventino Rosas Gto. The children were given the minimum instructions and on their own initiative they began to move the mouse to interact with the different activities.

The following are the results that were obtained when the preschool children used the Interactive Software at the Preschool level, said survey was applied to the teachers of that level to know how accepted the software would or would not be in the level institutions basic preschool:

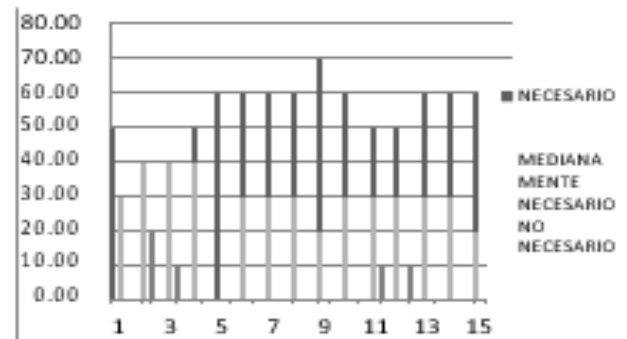


Figure 1

Figure 1 shows that the preschool teaching staff considers that if it is necessary to implement a software that supports them in their daily work with preschool students.

Conclusions

As already mentioned in the previous sections, the objective was to have a software that was Mexican, with Mexican terms and idioms as well, that would support the student in learning by competencies at the basic preschool level. And indeed, a product was achieved that involves simple terms for the explanation and understanding of the activities.

I believe that the above was fulfilled, since at the time of carrying out the tests with the preschool students, we were able to verify that technology is no longer alien to them, they learn quickly, they liked the activities since they wanted to continue playing.

So far, the software developed has audio and written phrases, in addition to the fact that when a student executes an activity it will indicate if his answer is correct or not, however, there is still work for the future, and this is regarding keeping a record of the score of each student, so that the teacher can visualize the progress or not of the competence of each student.

This software is intended to have a social impact, since it is not necessary for students to have to enter private schools so that they can have access to this software, the idea is that it can be implemented in public schools where these activities are part of his training.

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Instructions for Scientific, Technological and Innovation Publication

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Abstract (In English, 150-200 words)

Objectives
Methodology
Contribution

Keywords (In English)

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Abstract (In Spanish, 150-200 words)

Objectives
Methodology
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Introduction

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General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

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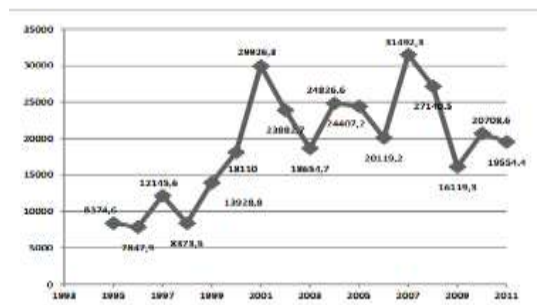
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In the article content any graphic, table and figure should be editable formats that can change size, type and number of letter, for the purposes of edition, these must be high quality, not pixelated and should be noticeable even reducing image scale.

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Graphic 1 Title and Source (in italics).

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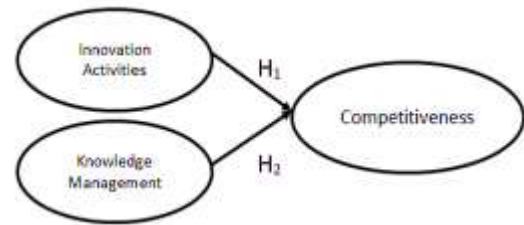


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		Panel A. Bias			Panel B. RMSE					
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$\rho = 0.0$	$\gamma = 0.0$	1	-0.00011	-0.00003	0.00013	0.0267	0.0398	0.0378		
		2	0.00051	0.00039	0.00015	0.0267	0.0414	0.0395		
		3	-0.00091	-0.00143	-0.00065	0.0286	0.0461	0.0429		
		4	0.00034	0.00041	0.00115	0.0301	0.0498	0.0471		
		5	0.00011	0.00040	0.00018	0.0324	0.0537	0.0507		
		10	-0.00010	-0.00079	-0.00013	0.0455	0.0861	0.0763		
		$\rho = 0.3$	$\gamma = 0.3$	1	0.01477	0.00378	0.00274	0.0342	0.0435	0.0360
				2	0.01778	0.00754	0.00618	0.0361	0.0472	0.0391
				3	0.02092	0.01064	0.00925	0.0388	0.0518	0.0438
				4	0.02340	0.01364	0.01236	0.0418	0.0555	0.0471
5	0.02652			0.01721	0.01454	0.0448	0.0607	0.0516		
10	0.04198			0.03247	0.03146	0.0641	0.0952	0.0829		
$\rho = 0.3$	$\gamma = 0.0$			1	-0.00085	-0.00021	-0.00073	0.0364	0.0545	0.0531
				2	0.00019	-0.00015	-0.00011	0.0374	0.0565	0.0550
				3	0.00015	0.00076	0.00046	0.0400	0.0627	0.0597
				4	0.00043	-0.00011	-0.00070	0.0417	0.0711	0.0668
		5	0.00165	0.00206	0.00213	0.0454	0.0791	0.0711		
		10	0.00073	0.00136	0.00112	0.0661	0.1267	0.1128		
		$\rho = 0.3$	$\gamma = 0.3$	1	0.02299	0.00570	0.00458	0.0490	0.0643	0.0527
				2	0.02818	0.01123	0.01035	0.0523	0.0676	0.0561
				3	0.03264	0.01611	0.01445	0.0571	0.0720	0.0620
				4	0.03581	0.01957	0.01907	0.0591	0.0773	0.0690
5	0.04081			0.02569	0.02416	0.0647	0.0872	0.0754		
10	0.06063			0.04727	0.04458	0.0914	0.1369	0.1187		

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