

# LEARN GO

## **DISEÑO Y DESARROLLO DE UN SISTEMA TUTOR INTELIGENTE PARA BRINDAR SOPORTE AUTOMATIZADO AL APRENDIZAJE DE CONCEPTOS DE PRE-LECTURA PARA NIÑOS DE 5 A 7 AÑOS**

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CÁTEDRA UNESCO “TECNOLOGÍAS DE APOYO PARA LA INCLUSIÓN EDUCATIVA”  
GRUPO DE INVESTIGACIÓN EN INTELIGENCIA ARTIFICIAL Y TECNOLOGÍAS DE ASISTENCIA (GI-IATA)

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CUENCA - ECUADOR



# CONTENIDOS DE LA PRESENTACIÓN

- RESUMEN
- INTRODUCCIÓN
- PROPUESTA DEL SISTEMA
- RESULTADOS
- CONCLUSIONES
- TRABAJO FUTURO

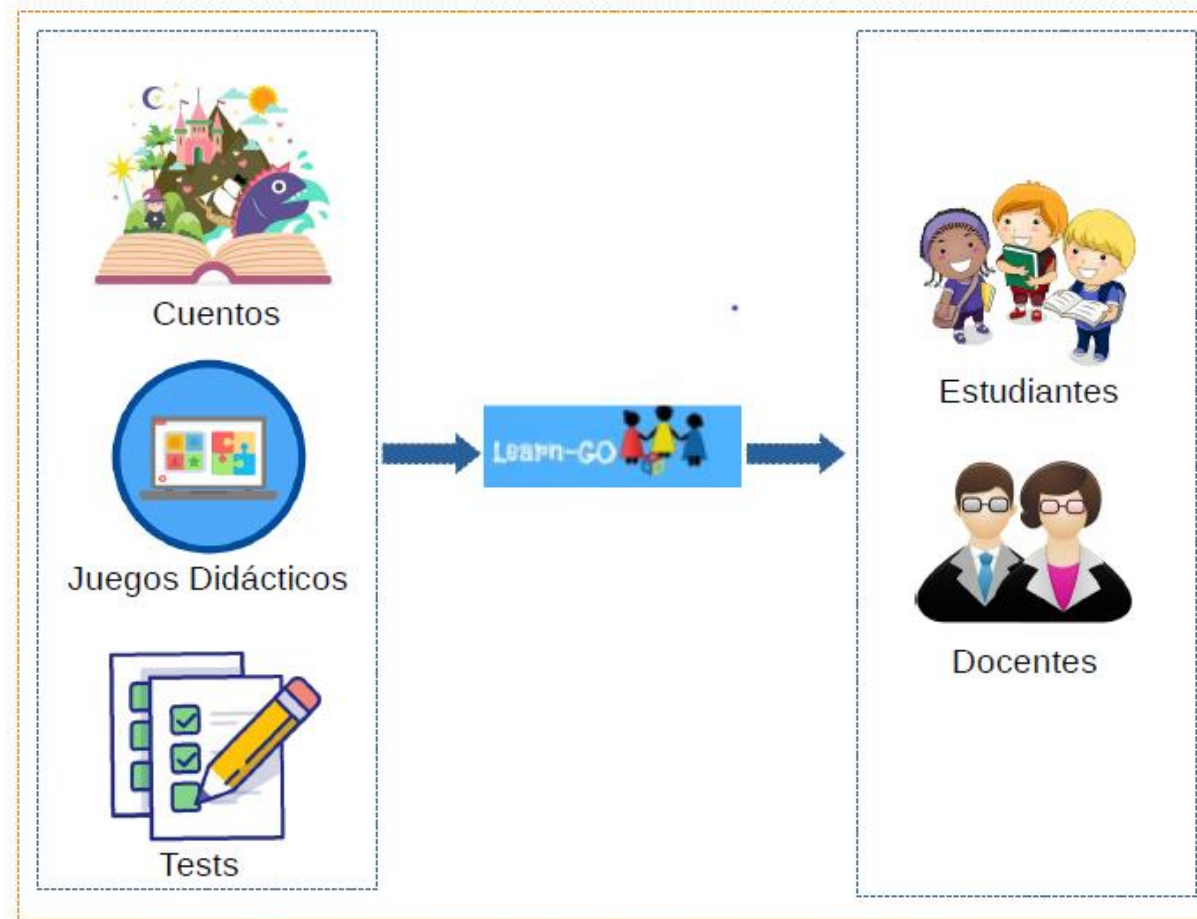


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# RESUMEN



Desarrollamos una plataforma para mejorar los procesos de enseñanza de pre-lectura en niños de 5 a 7 años mediante el uso de un sistema tutor inteligente que aplica técnicas de inteligencia artificial y aplicación móviles.

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# INTRODUCCIÓN: ESTADÍSTICAS

**La población entre las edades de 16 a 65 años tiene problemas con la con la lectura comprensiva y la pronunciación.**

(Instituto Nacional de Estadísticas y Censos, 2013)

**Se estima que el 49% de ecuatorianos que participaron en las pruebas PISA-D muestran un nivel de lectura 2.**

(Instituto de Evaluación Educativa, 2017)

# INTRODUCCIÓN: ESTADO DEL ARTE

- Varias herramientas educativas tratan de mejorar el nivel de la educación, utilizando métodos y estrategias pedagógicas innovadoras a través de actividades didácticas.
- Algunas plataformas virtuales dedicadas a ayudar en el ámbito educativo son diseñadas con el fin de mejorar la manera de impartir conocimiento.
- Las plataformas Ghotit Real Writer & Reader y Clicker 8 tratan el mejoramiento del nivel educativo más específicamente en el ámbito de la lectura a través de prácticas organizadas que permitan obtener mejores resultados mediante el uso de procesos automatizados e inteligencia artificial.

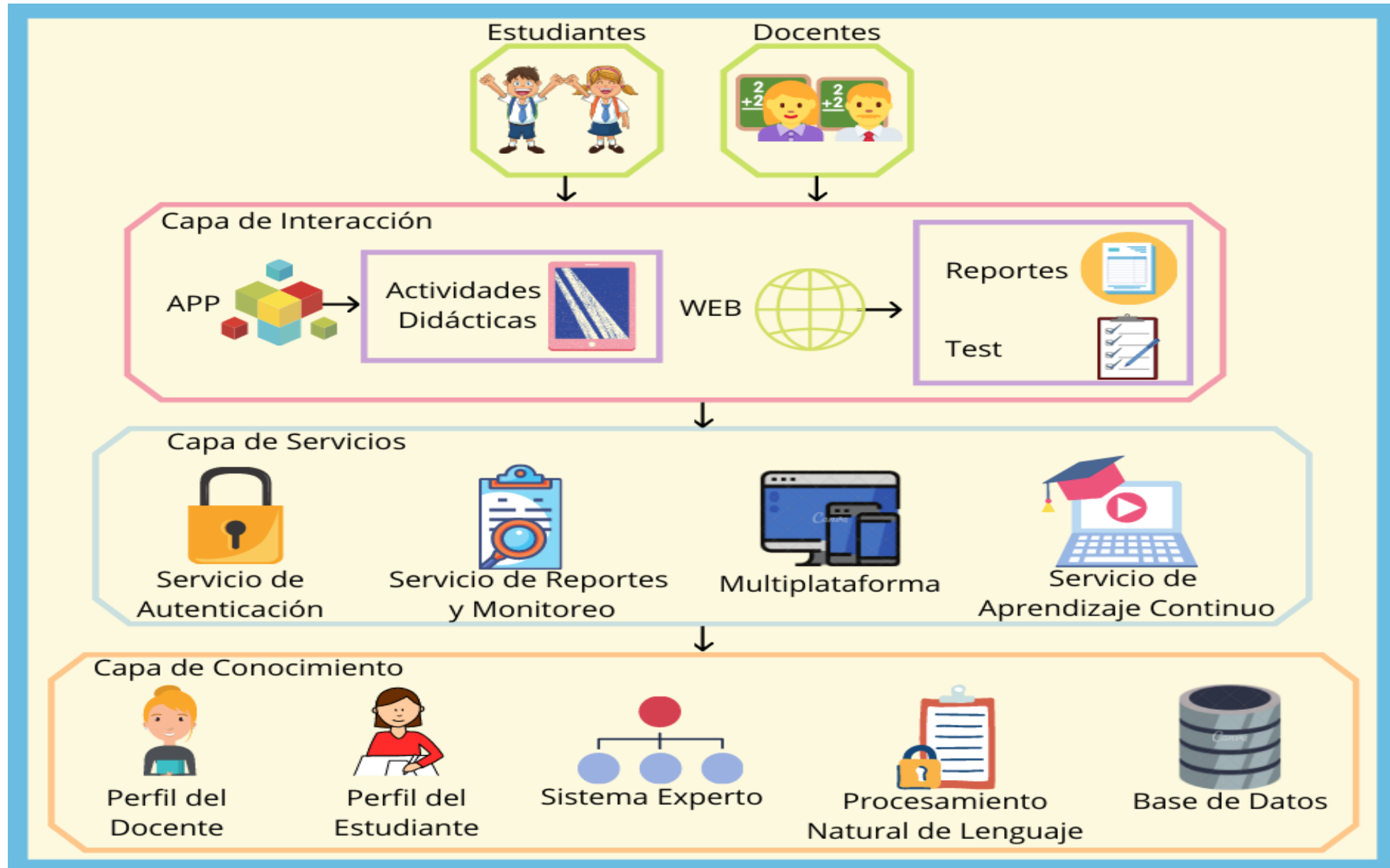
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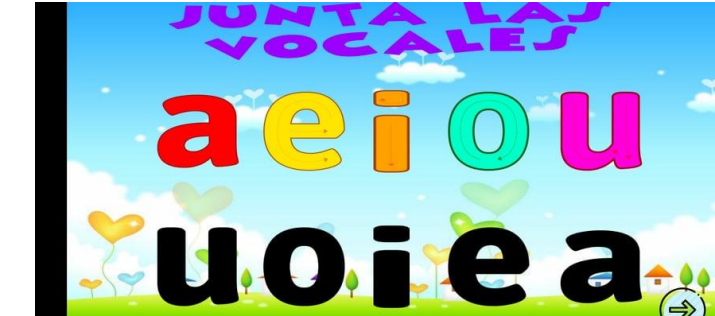




# PROPUESTA DEL SISTEMA: ARQUITECTURA GENERAL LEARN GO

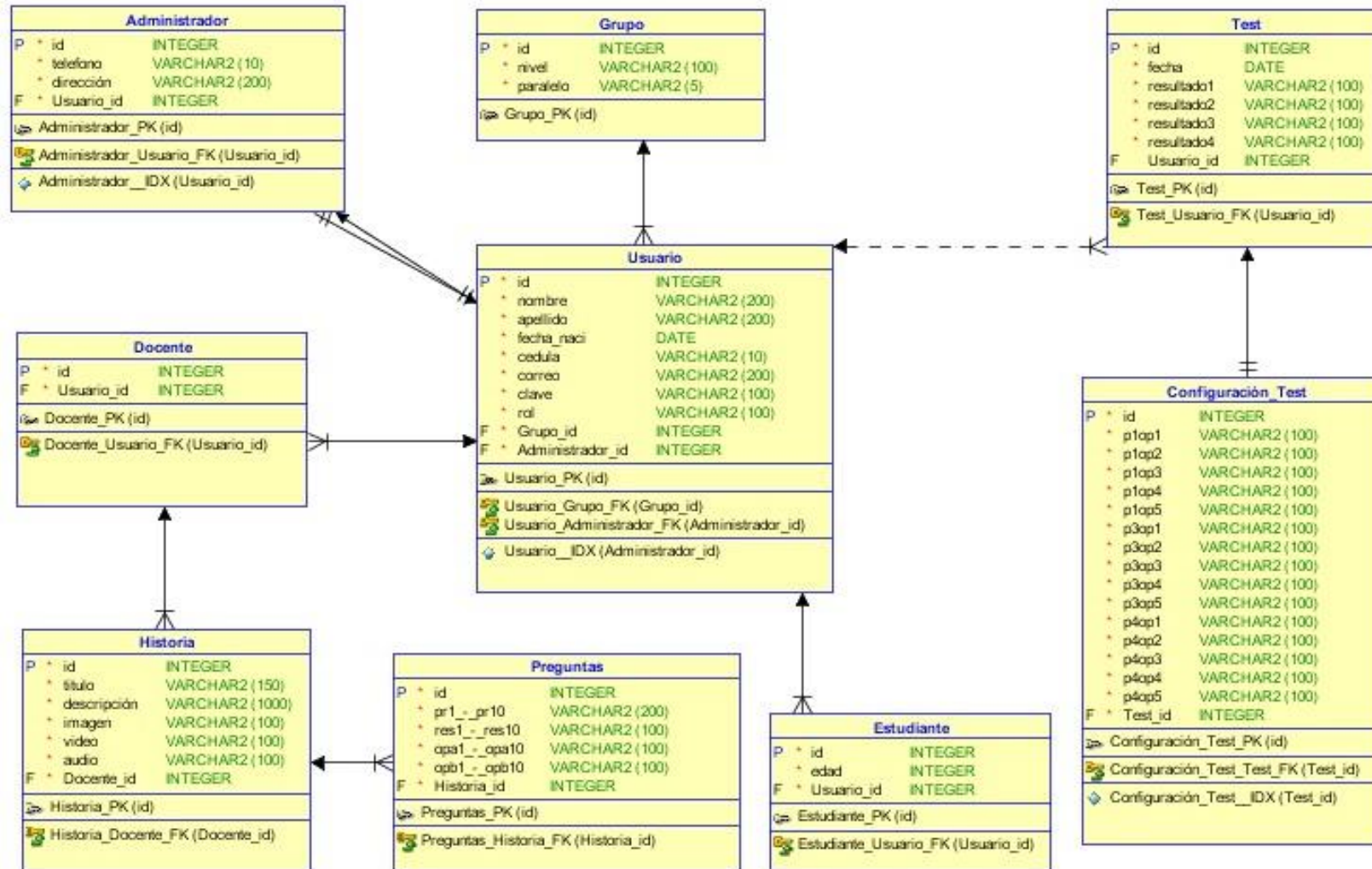


# PROPUESTA DEL SISTEMA: MÓDULOS DE ACTIVIDADES DIDÁCTICAS LEARN GO



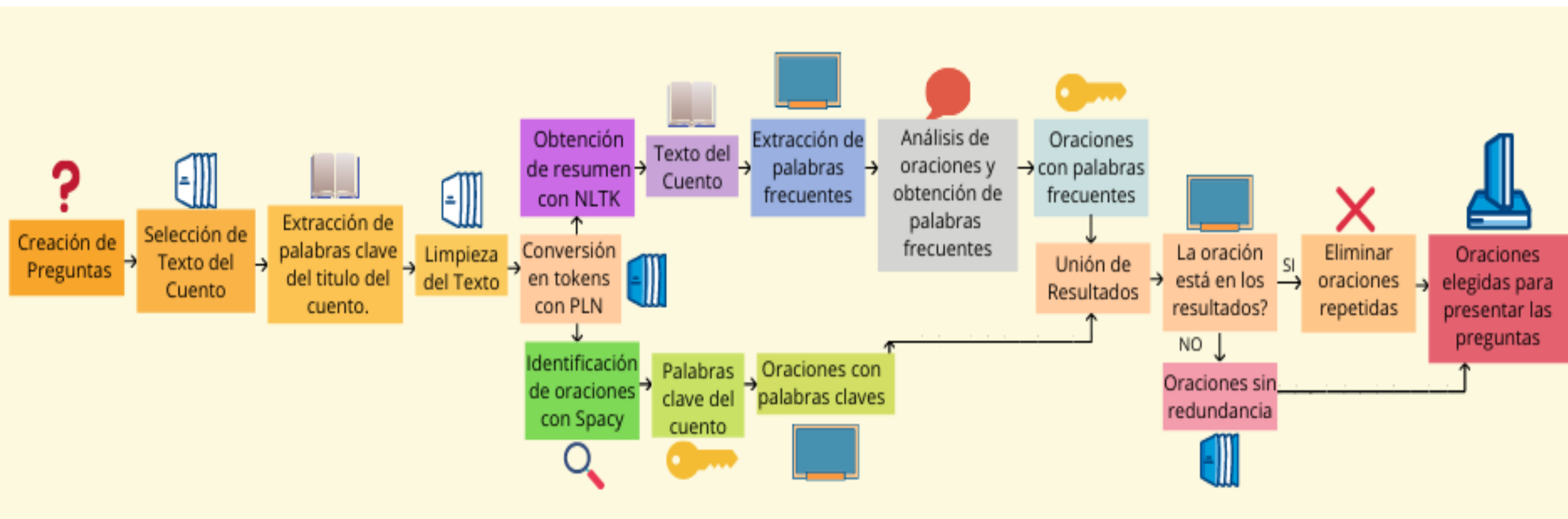


# PROPUESTA DEL SISTEMA: DIAGRAMA DE BASE DE DATOS

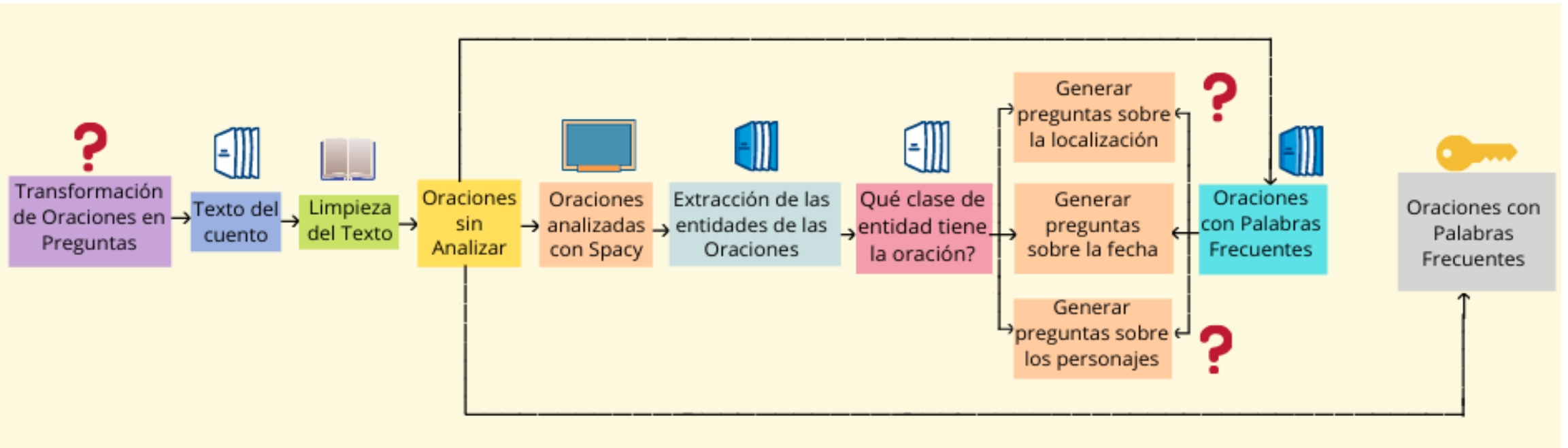




# PROPUESTA DEL SISTEMA: GENERACIÓN DE PREGUNTAS



# PROPUESTA DEL SISTEMA: GENERACIÓN DE PREGUNTAS





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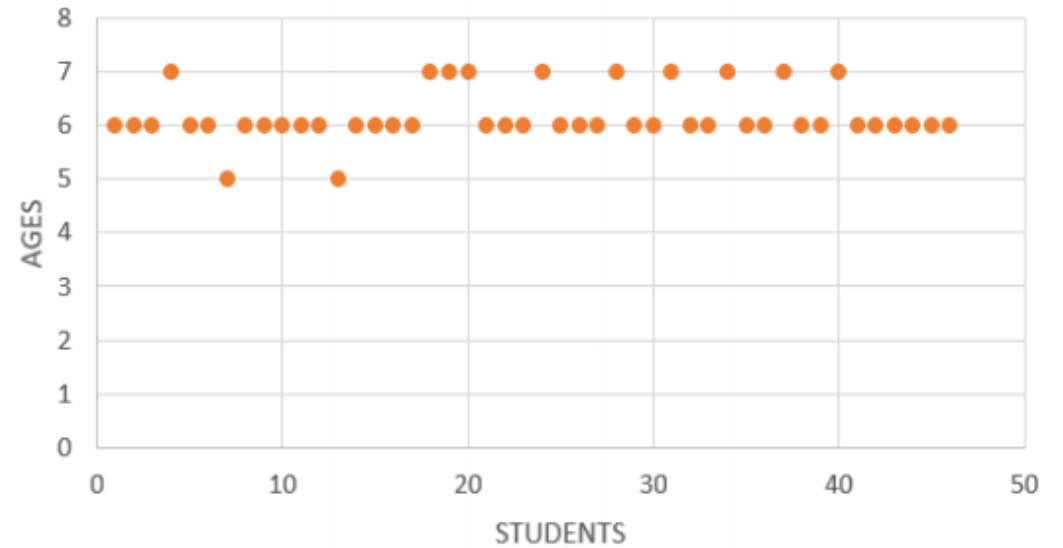
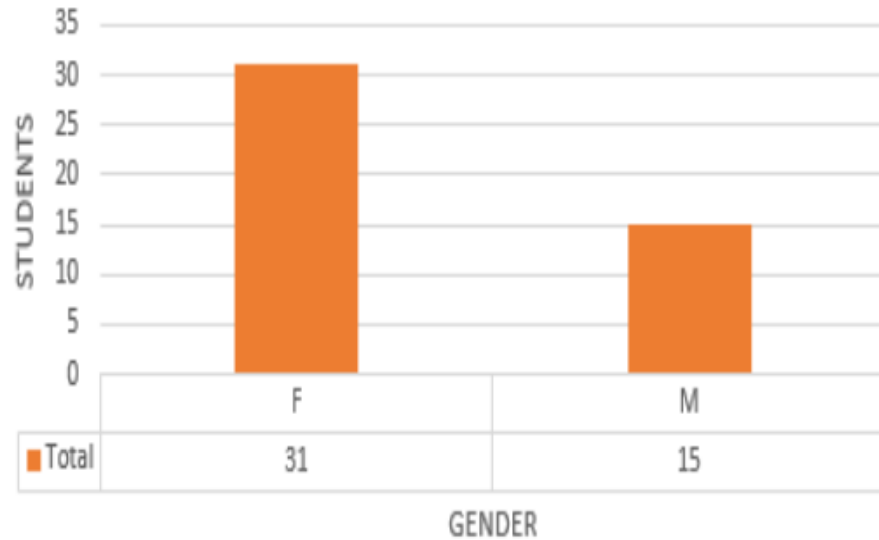
# RESULTADOS: PLAN DE EXPERIMENTACIÓN



Realizado a los cursos  
2"A" y 2"C"



# RESULTADOS: PLAN DE EXPERIMENTACIÓN



```
Console Terminal Jobs x
~|
> CronbachAlpha(data_cut)
[1] 0.8485871
> alpha(data_cut)

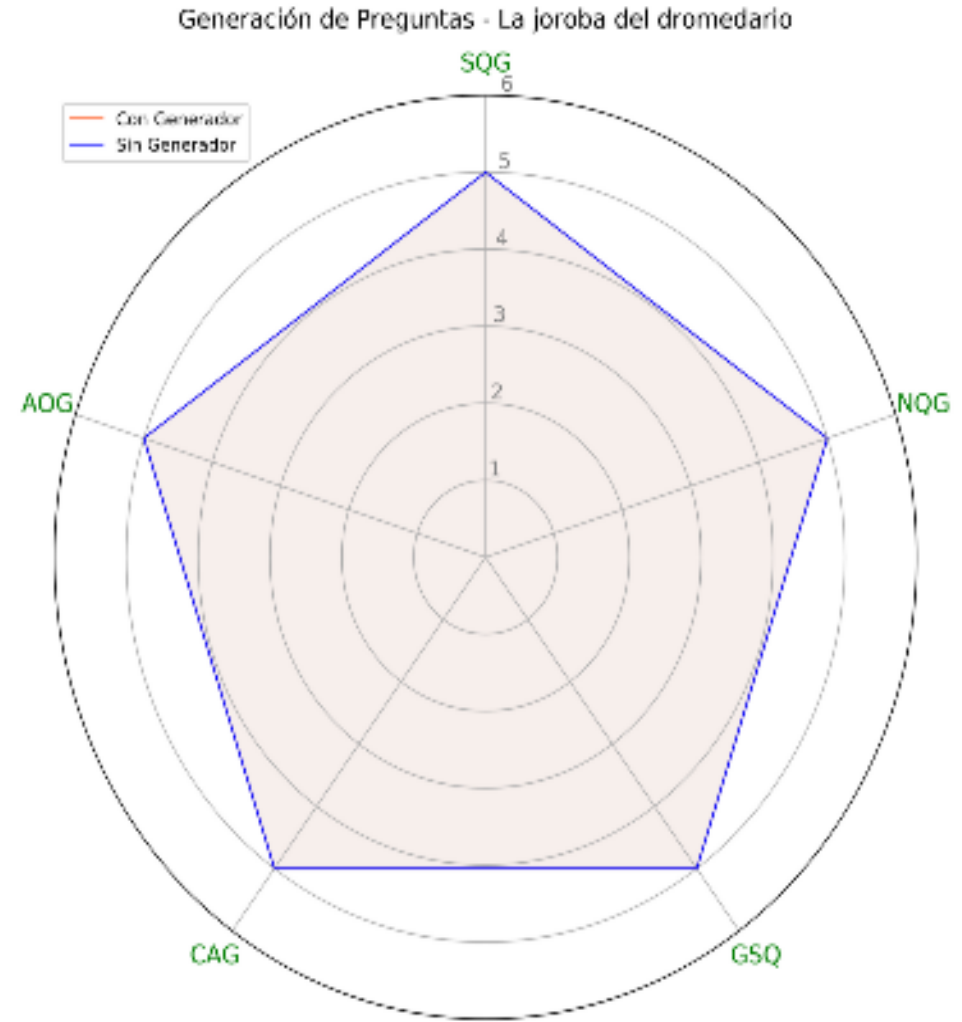
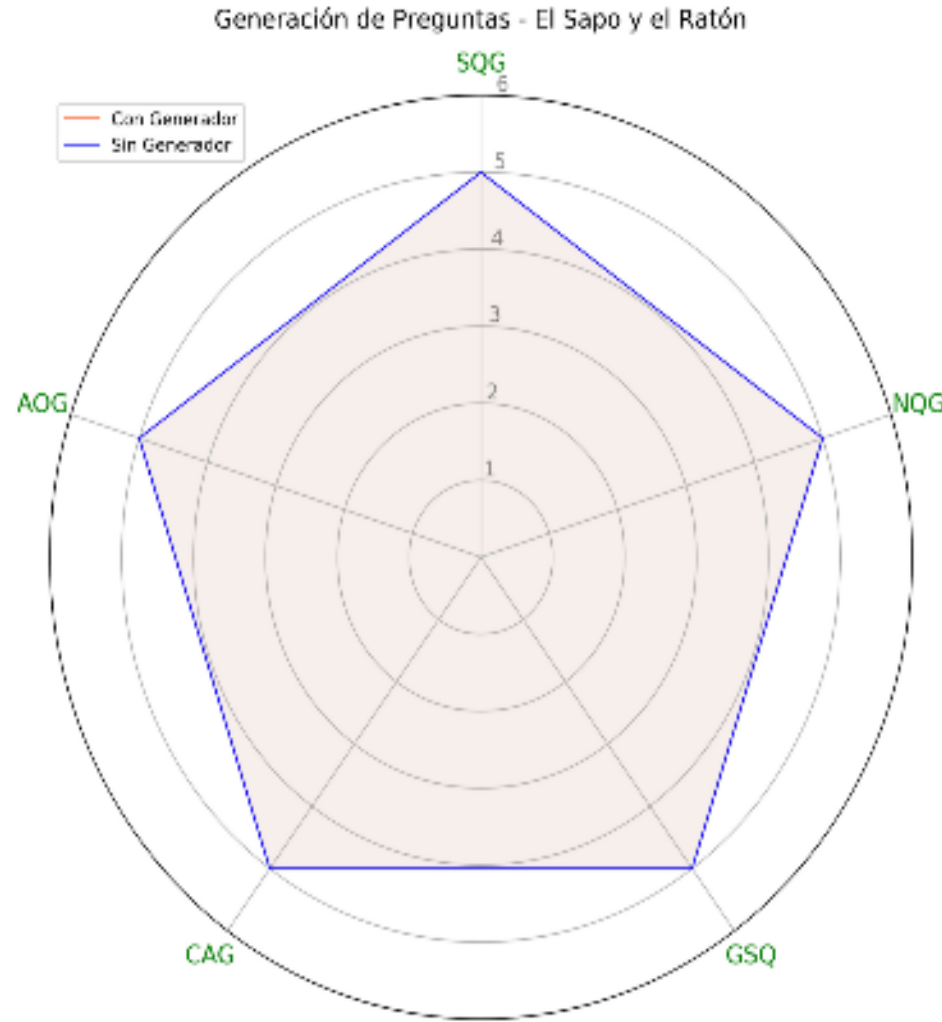
Reliability analysis
Call: alpha(x = data_cut)

raw_alpha std.alpha G6(smc) average_r S/N ase mean sd median_r
0.85 0.84 0.9 0.28 5.1 0.028 4.6 0.49 0.24

lower alpha upper 95% confidence boundaries
0.79 0.85 0.9
```



# RESULTADOS: GENERACIÓN DE PREGUNTAS



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# CONCLUSIONES

- Después de haber observado las estadísticas sobre la falta de lectura en el Ecuador y cotejado con los estudiantes de 5 a 7, podemos evidenciar que la implementación de ambientes virtuales no solo favorece al docente en el proceso pedagógico, sino que a su vez a los estudiantes los ayuda en dos puntos claves para su formación la primera que es la familiarización con la tecnología y la segunda que es la mejora de la dicción al momento de hablar gracias a la implementación de actividades lúdicas inmersas en la aplicación móvil, proporcionando una educación de calidad.

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# TRABAJO FUTURO

- Se propone como trabajo a futuro la creación de:



## INTELLIGENT TUTOR SYSTEM TO PROVIDE AUTOMATED SUPPORT TO LEARNING PRE-READ CONCEPTS FOR CHILDREN FROM 5 TO 7

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Universidad Politécnica Salesiana, Cuenca, Ecuador

**Abstract**—According to given facts by the Statistics and Census National Institute (INEC), the population aged 16 to 65 has problems with reading comprehension and pronunciation. In addition, much of the country's population has not acquired reading habits since childhood that support their interest in this topic on the grounds that teachers did not lend interest in this educational aspect. In other hand, based on results obtained in the PISA-D 2018 tests in which Ecuador participated for the first time explain that in the reading it reached 49% at a level 1, these figures show us that investment in education per child must increase considerably, fostering a solid foundation in their learning. In this line, in this paper, we present an intelligent and educational environment where teachers will be able to provide the necessary help to the level of need of students, who through an intuitive application, and didactic will allow them to learn while playing by improving each time their level of pronunciation and reading comprehension. The results show excellent levels of acceptance by both basic education teachers and students from 5 to 7 years old.

**Index Terms**—Pre-reading, Intelligent System; Expert System, Didactic Games, Education, Didactic Teaching.

### I. INTRODUCTION

In the field of learning, there aren't virtually tools that make it easier for teachers to keep an adequate control of how students advance in such educational training. Therefore, according to what was raised by Robles Bykbaev V; it will be of great interest to have technological tools that allow teachers to have a system that provides metrics to know the learning deficit in the subject of pre-reading that students between 5 and 7 years old [1].

In addition, the situation of education today urgently requires a significant increase in investment per child, fostering a solid foundation in their learning. With technological advancement, the possibility of creating new Information Technologies (IT) that in one way or another facilitates and optimizes the work within an organization. Likewise, the implementation of IT is oriented to various fields, one of these, is in educational institutions that work with children that require the development, stimulation and reinforcement of tasks and / or activities of cognitive development. Therefore, this project seeks to facilitate the learning of these children by generating new strategies that allow to develop new skills. This system will have a computer

control, which aims to improve the process of integrating technology as parallel elements to the teaching methods that are currently booming and that at every moment are constantly evolving which needs a great investment in technology and human resources, for their design, development and implementation, and unfortunately the disadvantage that many of the country's basic education institutions have is that they lack economic resources, computer tools or to develop such systems, resulting in not being able to adequately assist children.

A situation in which this article aims to develop and implement a collaborative and methodological model that significantly improves the learning teaching process in the classroom, through the use of good educational practices, updating the pedagogical methodology and the use of technological tools to improve the school performance and future development of students in both their student, work and personal life.

Over the years the technology sector has taken many social, cultural, economic, political, educational and, above all, personal areas of our lives; allowing us to automate processes and activities that we carry out daily. Education is one of the most important approaches for a nation, as properly prepared students who are properly guided by their teacher are able to achieve their goals and achieve the expected success in all aspects of their life. So, we should not forget that the most important and recognized achievements in the area of education are strongly linked to technology in areas such as expert systems, natural language processing, artificial intelligence, basic education, among other areas. For these reasons, in this article I present a web platform as a smart tutor that will provide pedagogical support to children from 5 to 7 years in pre-reading concepts. This system implements the following functionalities:

- It provides an educational environment with a database that will record real information of children ages 5 to 7 who belong to educational institutions.
- A web interface managed by teachers, where they will record both their data and children.
- There is a learning monitoring module where teachers will set up and level the necessary tests to corroborate



# DEMOSTRACIÓN

The screenshot shows a web browser window displaying the Learn-GO website. The browser's address bar shows the URL `learn-go.ups.edu.ec`. The website has a blue background and features the following elements:

- Top Right:** A button labeled "INICIAR SESIÓN" with a right-pointing arrow.
- Left Side:**
  - LEARN - GO:** The main title in large white letters.
  - Description:** "Plataforma estudiantil desarrollada con el fin de diagnosticar problemas relacionados con la prelectura en edades tempranas."
  - Benefit:** "Facilitando a los docentes tomar medidas preventivas sobre dichos problemas, mejorando así la calidad de la educación."
  - Button:** A blue button labeled "Descargar App".
- Center:** A colorful graphic titled "ACTIVIDADES" (Activities) in red, yellow, and orange letters. Below the title are four activity icons:
  - Emparejar:** Represented by a house icon.
  - Test:** Represented by a glowing lightbulb icon.
  - Minúsculas:** Represented by a green rounded square button.
  - Mayúsculas:** Represented by an orange rounded square button.
  - Fonemas:** Represented by a blue rounded square button.

At the bottom of the browser window, the Windows taskbar is visible, showing various application icons and the system tray with the date "16/9/2020" and time "19:57".

## COMPONENTES



# REFERENCIAS

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- [7] Phyton, “spacy 2.2.3”, 2019. Disponible en: <https://pypi.org/project/spacy/>



# PREGUNTAS



**GRACIAS POR SU ATENCIÓN**

