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*Artículos Científicos*

## **Análisis de la competencia lectora en la formación de estudiantes de bachillerato. Un estudio sobre los niveles de desarrollo logrados**

***Analysis of Reading Competence in the Formation of High School Students. A  
Study on the Levels of Development Achieved***

***Análise da competência em leitura na formação de estudantes do ensino médio.  
Um estudo sobre os níveis de desenvolvimento alcançados***

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### **Resumen**

El análisis de la competencia lectora en estudiantes de educación media superior se debe relacionar con las concepciones teóricas, las estrategias a implementar para su desarrollo, así como las propuestas de valoración sobre los desempeños que logran los educandos en los niveles de lectura literal, inferencial y crítica-analógica. El objetivo del presente trabajo fue diagnosticar la competencia lectora en alumnos de dicho nivel por ser una de las acciones comunicativas clave en su formación escolar y social. Para ello se hizo una revisión sistemática de la literatura especializada del tema de competencia lectora, con la finalidad de medir los niveles de desempeño de lectura en los educandos.

La investigación se abordó desde el enfoque cuantitativo con alcance descriptivo, porque se buscaron una serie de sucesos educativos para ser interpretados. El diseño fue no experimental transversal, ya que se aplicó una prueba de aptitud para la medición de la competencia lectora a



estudiantes de quinto semestre del ciclo escolar 2017-2018 de tres subsistemas: el Centro Escolar Pdte. Gustavo Díaz Ordaz, la preparatoria de la Benemérita Universidad Autónoma de Puebla (BUAP) y el Colegio de Bachilleres del Estado de Puebla (Cobaep). La selección de los sujetos de estudio partió de una muestra no probabilística al elegirse un subgrupo de la población derivado de las características propias de sus contextos escolares. La prueba estuvo constituida por un conjunto de preguntas que otorgaron una serie de resultados sobre el desempeño y manejo de la competencia lectora por los estudiantes de bachillerato.

Como resultado de la investigación, se encontró que los alumnos presentan varios niveles de comprensión como: 1) leer las líneas —la acción literal—; 2) leer entre líneas —la acción implícita—, y 3) leer detrás de las líneas —el punto de vista, los valores y los supuestos—. Por lo que es importante armonizar estos tres niveles de comprensión, los cuales son parte de la competencia lectora, porque cuando el estudiante domina un texto activa sus dimensiones de aprendizaje al hacer estimaciones y actuar en una situación compleja. El educando, desde la lectura, cuenta con la capacidad para generar representaciones mentales que constituyen la base del funcionamiento de esta competencia, como tema de interés en los sistemas educativos regionales, nacionales e internacionales.

Los subsistemas de educación media superior en el estado de Puebla deben impulsar estrategias que involucren a docentes y estudiantes para que aprovechen los acervos bibliográficos, así como que generen acciones que promuevan la lectura. Se trata de que los alumnos compartan momentos de estudio, consulta e investigación con propósitos muy diversos, con el fin de favorecer la interacción y el intercambio de ideas.

**Palabras clave:** competencia lectora, desarrollo, educación media superior, estudiantes, estudio comparativo.

## Abstract

The analysis of reading competence in students from upper middle education it must be related to theoretical conceptions, the strategies to be implemented for its development, as well as the evaluation proposals on the performances achieved by the students in the levels of literal, inferential and critical-analogical reading. The objective of the present work was to diagnose the reading competence in the students for being one of the key communicative actions in their school and social formation. In order to reach this, a systematic review of the specialized

literature on the topic of reading competence was carried out, in order to measure the levels of reading performance into the learners.

The research was taken from the quantitative approach with a descriptive scope, because a series of educational events were searched to be interpreted. The design was not cross-sectional experimental, since an aptitude test was applied for the measurement of reading competence to students of the fifth semester of the 2017-2018 school year of three systems: the Centro Escolar Pdte. Gustavo Díaz Ordaz, the high schools of the Benemérita Universidad Autónoma de Puebla (BUAP) and the Colegio de Bachilleres del Estado de Puebla (Cobaep). The selection of study subjects was based on a non-probabilistic sample, when a subgroup of the population derived from the characteristics of their school contexts was chosen. The test was made by a set of questions that gave a series of results on the performance and management of the reading competition by the high school students.

As a result of the research, it was found that the students have several levels of understanding such as: 1) to read the lines —the literal action—; 2) to read between lines —the implicit action—, and 3) to read behind the lines —the point of view, values and assumptions—. So, it is important to match these three levels of comprehension, which are part of the reading competence, because when the student dominates a text, he activates his learning dimensions when he estimates and performs in a complex situation. The student, from reading, has the ability to generate mental representations that are the basis of the functioning of reading competence, which reaches its relevance in contemporary scenarios for being the subject of attention in regional, national and international education systems.

The upper middle education subsystems of Puebla must promote strategies that involve teachers and students in order to take advantage of the bibliographic collections, as well as generating actions that promote reading. Students are expected to share moments of consultation, research and reading with different purposes encouraging the interaction and exchange of ideas.

**Keywords:** reading competence, development, high school, students, comparative study.

## Resumo

A análise da proficiência em leitura em estudantes do ensino médio deve estar relacionada às concepções teóricas, às estratégias a serem implementadas para o seu desenvolvimento, bem como às propostas de avaliação dos desempenhos alcançados pelos alunos nos níveis de leitura inferencial e literal e Crítico-analógico. O objetivo deste trabalho foi diagnosticar a competência em leitura em alunos do referido nível como uma das principais ações comunicativas em sua escola e treinamento social. Para isso, foi realizada uma revisão sistemática da literatura especializada sobre o tema competência em leitura, a fim de mensurar os níveis de desempenho em leitura em estudantes.

A pesquisa foi abordada a partir da abordagem quantitativa com escopo descritivo, pois buscou-se interpretar uma série de eventos educacionais. O desenho foi transversal não experimental, uma vez que foi aplicado um teste de aptidão para medir a proficiência em leitura de alunos no quinto semestre do ano letivo 2017-2018 de três subsistemas: o Pdte School Center. Gustavo Díaz Ordaz, o ensino médio da Universidade Autónoma Benemérita de Puebla (BUAP) e a Escola de Bacharéis do Estado de Puebla (Cobaep). A seleção dos sujeitos do estudo foi baseada em uma amostra não probabilística, escolhendo um subgrupo da população derivado das características de seus contextos escolares. O teste consistiu em um conjunto de perguntas que forneceram uma série de resultados sobre o desempenho e o gerenciamento da proficiência em leitura por estudantes do ensino médio.

Como resultado da pesquisa, os alunos tiveram vários níveis de entendimento, como: 1) ler as linhas - a ação literal; 2) ler nas entrelinhas - ação implícita - e 3) ler nas entrelinhas - o ponto de vista, valores e premissas. Portanto, é importante harmonizar esses três níveis de entendimento, que fazem parte da competência de leitura, porque quando o aluno domina um texto, ele ativa suas dimensões de aprendizado, fazendo estimativas e agindo em uma situação complexa. O aluno, a partir da leitura, tem a capacidade de gerar representações mentais que constituem a base do funcionamento dessa competência, como um tópico de interesse nos sistemas educacionais regionais, nacionais e internacionais.

Os subsistemas do ensino médio no estado de Puebla devem promover estratégias que envolvam professores e alunos para tirar proveito das coleções bibliográficas, além de gerar ações que promovam a leitura. Trata-se de estudantes que compartilham momentos de estudo, consulta e pesquisa com finalidades muito diferentes, a fim de favorecer a interação e a troca de idéias.

**Palavras-chave:** competência em leitura, desenvolvimento, ensino médio, estudantes, estudo comparativo.

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## Introduction

At present, people live in a society that presents significant changes, coming from globalization and modernization, the advancement of scientific and technological knowledge; and in which it is essential that the individuals that comprise it have a solid formation to adapt to the demands that the moment requires. Thus, in the face of this scenario, education plays an important role - especially in high school - because, once again, it is necessary for students to have the appropriate tools that allow them to cope with the new requirements of society. Until a few decades ago a certain set of knowledge was enough to confront and develop successfully in society. However, currently such knowledge represents only a fragment to solve some situations that arise in daily life.

Hence, our current Mexican education system will adopt the competence approach in the first decade of this century. The objective? That all students who belong to the upper middle level have the same characteristics and opportunities when they graduate from high school. This is how the importance of communication competence, specifically reading competence in the human development of our students, is manifested. Therefore, it is necessary to know the level of mastery of the reading competence presented by students of general baccalaureate, high school and preparatory schools of the Benemérita Universidad Autónoma de Puebla (BUAP), different subsystems that belong to the upper middle level in Puebla

In the so-called knowledge society there are large organizations, such as the Organization for Economic Cooperation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organization (Unesco), dedicated to delimiting the formation of students for each level and to apply constant international and national assessments in our country. So far, the results have shown that they have poor performance in reading competence. This is demonstrated by the 2015 PISA report (National Institute for Educational Evaluation [INEE], 2017), in which Mexico is below the OECD average (493 points) and above the Latin American average (417

points) with 423 points. This demonstrates that the performance in reading competence of high school students is at level two of the six presented in the program (INEE, 2017).

In the national context, one of the evaluations carried out each year is the National Plan for the Evaluation of Learning (Plan). It evaluates key learning in two specific areas: Language and communication and Mathematics, represented in four levels of achievement; Level IV is the highest. The most recent results, the application made in 2017, specifically in the area of language and communication, show that one third of the student population in upper secondary education is located in level I, with 34%; almost one in three students is located in levels II (28%) and III (29%), and finally, almost 9 out of 100 in level IV (Secretariat of Public Education [SEP], 2017)

Faced with this phenomenon that occurs recurring not only in the area of language but in a general way in the academic performance of our students, educational systems have been involved in a phase of renewal, evaluation and updating, attending and adopting, As stated above, the competency approach, which, from the perspective of Perrenoud (2004), is defined as follows:

The ability to effectively face a family of analogous situations, mobilizing multiple cognitive resources conscientiously and in a fast, relevant and creative way: knowledge, abilities, micro-competencies, information, values, attitudes, perception, evaluation and reasoning (p. 11).

The term competence is identified as something linked to knowing, knowing how to do and knowing how to be; translated as the set of knowledge and socio-affective, psychological and motor skills that allow the person to properly carry out an activity, a role, a function, using the knowledge, attitudes and values that he possesses. All this is difficult to do without the cognitive resources that Perrenoud (2004) points out, and that are related to the individual's knowledge, their ability to use it and apply it to specific situations.

In Mexico, at the beginning of the 21st century, a series of reforms to basic and upper secondary education have been made. Agreement 444 (SEP, October 21, 2008) establishes the competences that constitute the Common Curriculum Framework of the National Baccalaureate System, signed in 2008, and in which they are divided into generic and basic disciplinary, as well as the characteristics of graduation of high school students.

Agreement 444 (SEP, October 21, 2008) also proposes six categories for the arrangement of generic competences. For the purposes of this research, the communication category “Expresses and communicates” is emphasized, which seeks to develop in the higher education student the generic competence number four: “Listen, interpret and emit relevant messages in different contexts through the use of appropriate means, codes and tools”(p. 3). In the students of the educational level in question lies in the various ways in which the human being is able to communicate and establish relationships with others and the environment through communication. In addition to this, in article 6 the competence of communication is resumed, which is important because of its mainstreaming in the curriculum, because it is essential in all curricular disciplines and spaces; In addition to being transferable by strengthening the ability of students to acquire other skills and promote skills to communicate effectively in Spanish and essentially in a second language in different contexts, through the use of different means and instruments (SEP, October 21 of 2008). Those who have developed these skills will be able to read critically and communicate and argue ideas effectively and clearly orally and in writing. In addition to being oriented to the reflection on the nature of language and its use as a tool of logical thinking (SEP, 21 de octubre de 2008).

In the words of Dell Hymes (1971), communicative competence is related to knowing when to speak, when not, with whom, what and in what way; that is, it is the ability to form sentences that are not only grammatically correct, but also socially appropriate. Therefore, the term of communicative competence is understood as a set of skills related to human communication, that is, referring to the linguistic, social and cultural knowledge necessary for proper communication to be carried out in the context of real situations. .

The development of communicative competence is achieved with the sum of various subcompetencies, such as discursive competence, textual competence, sociolinguistic competence, linguistic or grammatical competence, pragmatic competence, and for the purposes of this research, reading competence.

## Reading competence

The reading competence is a key element for the formation of the human being, because through it the knowledge of all areas is accessed, it allows the subject to be incorporated into the current context and represents access to culture. If the domain of this competence is worked with students, the development of basic thinking skills will be ensured.

Escamilla (2008) highlights the importance of communication skills (the reader, among them) in studies and evaluations that are developed to determine the quality and effectiveness of educational programs and systems. A clear example is the Student Evaluation Program (PISA), which has been carried out since 2000 and whose purpose is to measure and analyze the performance of 15-year-olds on three specific topics: reading, mathematics and science.

PISA defines reading competence as “the ability to understand, use and analyze written texts to achieve the objectives of the reader, develop their knowledge and possibilities and participate in society” (OECD, 2006, p. 48). In this proposal, sponsored as can be seen by the OECD, it is highlighted, along with reading comprehension, interest and commitment to reading as a primary element. Together, these two elements are a tool for readers to develop in a variety of events. In this way, the importance of developing reading competence in high school students and retaking fundamental aspects for their process such as reading and understanding different texts involving the development of basic skills is visualized.

### Reading and understanding: central processes of reading competence

Over time, the concept or idea of reading has changed. Initially it was contemplated as the transfer of information, and thus, in this way, what the text contained was extracted; subsequently different studies were reflecting that this reading process should be more complete and models, levels, interests and purposes were established. In such a way that reading implied, from then on, interacting with the text; and at that time the subject came into contact with the context from different aspects of life: economic, historical, social, cultural and everyday through understanding and interpretation (Solé, 1998).

For high school students, the development of reading and understanding different types of texts represents multiple benefits. For example: the acquisition of most knowledge or increase their cultural level; through both skills knowledge is transferred from one generation to another; The student's sensibility is also awakened by providing various emotions.



Several authors who have defined the concept of reading have emphasized the importance of this since initial education. For Ferreiro (2002), reading is a process of coordination of information of diverse origin, whose objective is to obtain the meaning expressed linguistically, that is, the interpretation of the text is the assignment of meaning that the reader gives to it after a conventional reading; Much of its meaning comes from context.

Another view is that which defines reading as an interactive process between two fundamental elements: the reader and the text, and from this interaction an appropriation is achieved that allows the subject to build their own meaning. In this aspect we find that reading as an interactive process represents the medium that allows the subject to give a personal meaning to the text, attending to the set of knowledge and experiences acquired throughout life, and apply them to a specific context (Gómez, 1996, p. 311).

From another perspective, Kenneth Goodman (1982) affirms that reading is a process in which thought and language interact so that the reader obtains a sense of what is written; This is why it is a constructive process, in which it matters that the reader interacts actively in the text. The reader interprets and constructs literal meanings of the text, but also makes inferences that go beyond the words found in it. This is because the subject attends or refers knowledge of places, people, ideas, school learning, events, etc., which he has obtained throughout his life from the knowledge he has of the world; Emilia Ferreiro (2002) calls it "internal psychological context of organized semantic networks of world knowledge that are partially reflected in the reader's vocabulary" (p. 213).

Although over time different theoretical conceptions have been presented regarding the subject of reading, such as the ascending model, descending model and the interactive model, to name a few, it turns out that in some aspects or characteristics they should not be considered exclusive. each. Rather, they should be addressed to enrich the reading process.

Reading comprehension represents a complex cognitive ability in which multiple processes (lexical, syntactic, semantic) that also interact with each other are immersed; in such a way that the term corresponds to the ability to develop meanings through the recognition of more important ideas extracted from a text and the ability to establish relationships between them and the knowledge or experiences acquired previously. So in the educational field, reading has different purposes: one of them is that students acquire the habit of reading and relate to

literature, and another to use it as a strategy to learn content and knowledge from different areas and areas of life (Solé, 1998).

The achievement of reading comprehension occurs when the subject already knows how to read and write and is able to activate previous knowledge, interpret the text and have self-regulation processes; result of their life experiences and knowledge of the world. The interaction between the reader and the text is the basis of the process of understanding, that is, if the reading subject does not know, or does not establish relationships, it will hardly reach understanding, the generation of new knowledge and its learning will not be significant, so what you read will only be part of short-term memory.

### **Analysis of reading competence based on the three reading levels**

The diagnosis and analysis of the performance presented by upper secondary students based on reading competence is based on the proposal of the three reading levels of Donna Kabalen and Margarita de Sánchez (1997), who, according to the process paradigm, They have the following scale:

Literal level reading consists in obtaining information given explicitly in the text.

Inferential-critical level reading consists in establishing relationships between what is being read to suppose or infer data that is not given directly in the text. The inferences may come from the reader's assumptions or from the relationships between the data that are given directly in the text. Inferential reading is considered to be a cross-line reading.

Analog-critical level reading consists in relating what is decoded directly in the text or what is inferred, with other information extracted from another text or taken from reality or from some other context of the past, present or future. Analog reading allows comparing information and extending knowledge beyond what is given in the text (Kabalen and Sánchez, 1997, p. 20) (*italics added*).

The achievement of these reading levels presented by these authors depends on the development of cognitive processes that, with practice, will allow the development of reading competence by analyzing the information presented by the texts.

So that at the literal level nine basic thought processes enter: observation, comparison, relationship, simple classification, ordering, hierarchical classification, analysis, synthesis and evaluation. These processes will be specifically related to the explicit information presented by the texts; likewise, the development of these processes prepares the reading student to reach more complex levels of understanding. The reading of the literal level is intended for the upper middle student to identify explicit information in the text using the nine cognitive processes already specified, that is, any question that may be asked of it can be easily found in some line of the text.

The inferential level reading level is based on the literal level reading and its nine basic thought processes. However, as expected, it requires more complex processes, a deeper understanding, and for this the reader needs to develop synthesis, analysis and reasoning skills. These include "decoding and inference processes, deductive and inductive reasoning and knowledge acquisition" (Kabalen and Sánchez, 1997, p. 97). All this to interpret implicit messages and make inferences that allow, based on the previous knowledge of the reader, to obtain information that is not present in the text.

Finally, analogously to the previous case, the analog-critical and interpretative-critical level reading implies the previous reading levels, the literal and inferential. And even more: to achieve this level requires a set of thought processes that establish higher order relationships. Similarly, "it involves the application of four higher thinking processes: decoding, inference, functionalization and application" (Kabalen and Sánchez, 1997, p. 155). According to the authors, at this level the reader performs the following activities:

- a) Apply the levels of reading previously studied,
- b) interpret the themes of the writing,
- c) establish analog relationships of different kinds, for example between the present, the past and the future, between one reading and another, between sequences of events that occur in different contexts, etc.,
- d) makes judgments about what is read, and
- e) formulates its own conclusions (Kabalen y Sánchez, 1997, p. 155).

At present, it is of the utmost importance that high school students master the three levels of reading, with the aim that this domain allows them to be inserted in any context and make decisions in various situations of daily life.

## Method

### Design of the investigation

The research has a quantitative design with descriptive scope, because it seeks the discovery of facts to continue with the interpretation that allows to assess the results and provide classified data, based on procedures where phenomena and experiences are identified product of the construction and application of the instrument. The research process is based on the analytical and critical field, since it assesses the level of development that high school students have in relation to reading competence. The research is of a non-experimental transversal type, since it worked with an instrument in the modality of aptitude test to a group of subjects at the same time.

### Subjects of study

The instrument was applied in three subsystems of the upper middle level of the state of Puebla: BUAP High School October 2, 1968, campus 21 of the School of Bachelors of the State of Puebla and the Pdte School Center. Gustavo Díaz Ordaz. Specifically, it was applied to students in the fifth semester of the 2017-2018 school year. When proposing the teaching of a series of specific contents that favor the development and management of reading competence, the disciplinary field of language and communication was considered the object of study.

The selection of study subjects corresponds to a non-probabilistic sample (Hernández, Fernández and Baptista, 2014, p. 176): a subgroup of the high school student population was chosen: 50 students from each of the above-mentioned subsystems. The total number of participating students was 150, so the relevance of the field work derives from the choice of informant subjects with characteristics specified in the problem statement (Hernández *et al.*, 2014, p. 190).

### Instrument

The research instrument adopted the structure of an aptitude test, which was built according to the training approach in the area of language aimed at high school students. The test consisted of a set of questions, so that the information obtained from it evidenced a series of indicators regarding the levels of performance and management of reading proficiency by high school students.

The proficiency test is an instrument that allows the evaluation of student learning in high school to detect right or wrong in the student's responses. In addition, the teacher can assess learning behavior in different spheres of knowledge (Bernard, 2000). Based on a cognitive approach, it seeks to obtain records of knowledge oriented to reading competence, when the student contributes to his own internal activity the domains of language to transform the reality he receives into a symbolic interpretation. The test allows to extract information about the student's learning, when he describes what he has just done every certain time as a demonstration of what he knows regarding the specific contents of the subject.

The proficiency test sought to obtain information about the reading competence that students handle at the baccalaureate level, in order to generate a comparative exercise that enriches the dimensions of analysis and interpretation of the research. The test consisted of 16 questions and was structured in three study variables: Literal level reading, Inferential level reading and Critical-analog level reading (see table 1).

**Tabla 1.** Variables e indicadores de estudio del instrumento de investigación

Variables de estudio	Indicadores de estudio	Preguntas
Lectura de nivel literal	Dominio general del tema	1, 2, 8, 13
Lectura de nivel inferencial	Dominio de lenguajes	3, 4, 17
	Calidad de razonamiento	5, 9, 10
	Error y su naturaleza	14, 15
Lectura de nivel crítico-analógica	Abstracción	6, 7, 11
	Conciencia cognitiva	12, 16

Fuente: Elaboración propia

The proficiency test for the measurement of reading proficiency in the variable Literacy reading considers the indicator "General domain of the subject" in order to assess the student's knowledge relevant to the task and planning it. This variable is integrated with questions 1, 2, 8 and 13, which measure the set of knowledge that the student uses in the assigned task, the absences or doubts regarding the subject worked.

In the variable Reading of inferential level, the indicator "Language proficiency" is approached, where the student uses verbal and analogical records, located in questions 3, 4 and

17, to measure verbal comprehension and proficiency, as well as structural perception of thought with the contents it organizes. The indicator "Quality of reasoning" seeks to identify the logic that the student uses in the activity of inferring knowledge from others. Thus, questions 5, 9 and 10 represent the differential processes of the participant through the organization of the information presented to him. On the other hand, with the "Error and its nature" indicator, the aspects that affect the mistakes made by the student in the understanding, planning and execution of the test are sought. Questions 14 and 15 show the causes of the error, as well as the varieties of errors they can show.

Finally, the variable Reading of critical level presents the indicator "Abstraction" with the purpose of locating the domain of the contents that the student processes in the test. In questions 6, 7 and 11, they should answer considering data that the test does not contain and connect them on their own with the information presented to them. Likewise, the "Cognitive Consciousness" indicator considers the perception and procedures performed, because they are the students' knowledge about their own thinking. Questions 12 and 16 represent the level of security, process control and the achievement of objectives. The instrument also considers the general data of the students, which provide informative aspects: name, group, academic unit or school, age, gender.

## Procedures

The application of the instrument was carried out in three educational institutions of the state of Puebla, already specified above, and was answered by the participants between August and November 2017, who, in addition, were in the preparatory phase of graduation to continue with their Bachelor studies, or enter the workplace. The students at that time had already taken the subjects of the disciplinary field of language and communication.

Once the test was applied, the information was coded and a database was created that allowed the analysis and evaluation of the results. The responses issued by each of the informants were located, and a performance scale was used for their measurement. The measurement of reagents was handled from top to bottom, depending on the level of response of the student (see table 2).

**Tabla 2.** Escala de medición para asignar puntajes a las respuestas de la prueba

Escala	Rango	Atributos
5	Destacado	El estudiante acierta con puntualidad la esencia de la pregunta en su conjunto y en sus partes y la soluciona correcta y congruentemente en todos sus grados.
4	Bueno	El estudiante responde puntualmente, por lo que no ejecuta errores de relevancia, así que no se perciben vacíos en la construcción de la respuesta.
3	Regular	El estudiante evidencia algunos titubeos y debilidades en la elaboración de la respuesta, aunque en determinados referentes la respuesta es racional y lógica.
2	Suficiente	El estudiante evidencia variedad de incertidumbres en el planteamiento, proceso, desarrollo y construcción de la respuesta.
1	No suficiente	El estudiante evidencia el dominio mínimo de contenido y se muestra confundido a lo largo de la generación de la respuesta.

Fuente: Elaboración propia

## Results

This section shows the analysis, description and interpretation of the results of the application of the proficiency test, whose purpose is worth reiterating, is to measure, according to reading competence, the level of performance that show students from different subsystems of upper secondary education in the city of Puebla. In this analysis process, each of the elements contained in the test is addressed in order to understand how learners learn.

### Identification data

This section recovers the basic aspects of age, gender and school, which allow you to have an overview of the research subjects and their particular characteristics. The total number of subjects was 150 students, who represented three subsystems of the upper middle level (see table 3).

**Tabla 3.** Subsistemas de educación media superior en el estado de Puebla

Subsistema	Estudiantes
Preparatoria BUAP	50
Centro Escolar	50
Colegio de Bachilleres	50
Total	150

Fuente: Elaboración propia

The presentation of results derives from the choice of subjects as a non-probabilistic sample, as it is a subgroup of the population in which the choice of the elements does not depend on the probability, but on the characteristics of the research (Hernández et al., 2014, p. 176). Therefore, cases were selected for various purposes, such as examining the process of reading competence in one site to compare it with that of another when describing educational systems, processes and results, and thus generate recommendations in the development of institutions and practices Educational The second identification data that was requested was age, and in this aspect it is that 56% of the population is 17 years old and 43.3% manifest 18 years of age; in addition to the fact that everyone was in the transit of graduating from the upper middle level, as shown in table 4.

**Tabla 4.** Edad que presentan los sujetos de estudio

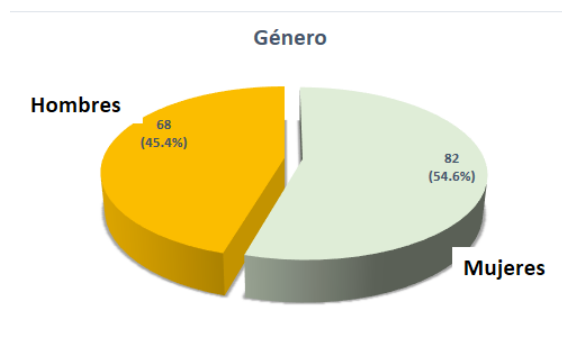
Subsistema	17 años	18 años	19 años
Preparatoria BUAP	33	16	1
Centro Escolar	25	25	0
Colegio de Bachilleres	26	24	0
Total	84	65	1
Porcentaje	56 %	43.3 %	0.7 %

Fuente: Elaboración propia

Regarding gender, the sample of the three subsystems testifies higher figures for women than men, because of the 150 students who participated, 82 are women and 68 are men, with a percentage of 54.6% and 45.4% respectively ( see figure 1)



**Figura 1.** Género que presentan los estudiantes de bachillerato



Fuente: Elaboración propia

The aptitude test that was applied to high school students in different subsystems consisted of a text from which 17 questions were derived. These questions were designed according to the reading levels of Kabalen and Sánchez (1997): literal, inferential and critical-analog, which were related to the paradigm of basic processes of thinking based on cognitive dimensions that indicates the scale of strategies of contextualized learning (Eseac): mastery of the subject, mastery of languages, quality of reasoning, errors and their nature, level of abstraction and cognitive awareness, proposed by Juan Antonio Bernad (2000).

The results obtained in the aptitude test indicate relevant data regarding the levels of performance of the reading competence that the students possess. But before continuing, it is important to note that a Likert scale was used for the assessment of the responses that measured performance levels from I to V and placed the exercises of the participants in the estimates: not sufficient, sufficient, regular, good and outstanding (see table 5).

**Tabla 5.** Nivel de medición para asignar puntajes a las respuestas de la prueba de aptitud

Nivel	I	II	III	IV	V
Rango	1.0 – 1.4	1.5 -2.4	2.5- 3.4	3.5 -4.4	4.5 – 5.0
Escala	No Suficiente	Suficiente	Regular	Bueno	Destacado

Fuente: Elaboración propia

## Literal Reading Level

The questions that were asked for this variable measured the level of student performance when making a literal reading of the text, which involves certain cognitive processes such as observation, comparison, relationship, classification and order. This variable was integrated by the questions:

1. According to the characteristics presented by the reading, he answers what type of text it is and argues the answer.

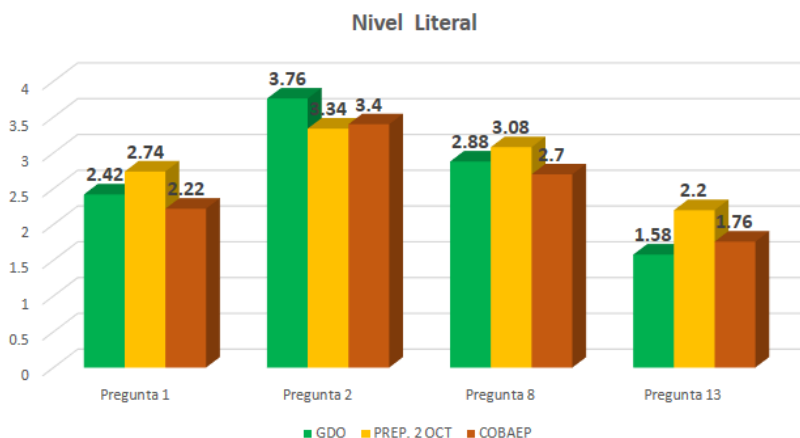
2. What ideas or concepts come to mind after reading the text?

8. List the rhetorical questions that the author throws and leaves open; and write what your purpose is.

13. Are the questions that were presented in previous lines related to any subject of the language area? Mention which ones.

The results obtained in this variable that responds to the literal level of reading proficiency are based on the “General domain of the subject” indicator, with questions 1, 2, 8, 13. The students of the three subsystems obtained a global average percentage of 2.64, which evidences a regular performance by these, by identifying in their responses a series of hesitations and weaknesses in the generation of the reading process with a literal level, although in certain references they were rational and logical (see figure 2).

**Figura 2.** Preguntas correspondientes al nivel literal



Fuente: Elaboración propia

With regard to the particularities of the answers issued by high school students, Figure 2 indicates that question two presents a percentage average of performance of inferential level with good value, but with a tendency towards the value of regulating (3.5), because It can be identified that students deduce the answer by making a relationship with their previous knowledge, so it is located that they partly understand the text of what is not literally written. On the other hand, question 13 was the most difficult for the informants, with respect to the relationship between the subject and the language area based on the text presented to them; The result obtained is a percentage average of performance of sufficient inferential level (1.8). In the comparative exercise, the representatives of the three subsystems are located at the literal level with regular performance: School Center (2.6), BUAP High School (2.8) and College of Bachelors (2.5).

In the task of promoting the levels of literal reading in high school, it is necessary to ensure the process of linking with previous knowledge so that students enrich the new information addressed and thus obtain their own conclusions. It is necessary that in the upper secondary education a series of strategies is implemented in order to boost literacy, which is an important mental activity of reading competence, because the act of reading is a communicative act and requires all the capacities of being human, taking into account that the approach to each text has its own dynamic.

At the level of literal reading, it must be ensured that the student deals with the ideas set forth in the text explicitly. An important point in relation to this level is that it is wrong to consider that the reading process is better as long as more details are remembered, since reading is an interactive practice, which means that it is not only part of the written material, but constitutes a work that occurs in two ways: from the text to the reader and from the reader to the text. In this way, it should not be forgotten in the teaching exercise that the reader selects the data that he considers relevant for his own reading process.

Undoubtedly, the complex understanding and interpretation of texts in students must be developed, so that from the teaching practice strategies that favor the different stages of reading development should be implemented, so that students continue with the process of Become readers

## Inferential Reading Level

The second variable is the one that corresponds to the inferential reading level. This level is based on the consequent, derivative and connection actions in the cognitive processes of the students. Here a series of implicit messages are interpreted, or those that are not expressed directly in the text, and are applied with greater degree of complexity to the processes of analysis, synthesis and reasoning, as well as to decoding and inference, deductive reasoning and Inductive and knowledge acquisition. The questions that make up this variable are:

3. Build a conceptual map of the text you read, but in an analogical way, relate it to the use of water.

4. Prepare a summary ...

5. Write in each line the organizational structure presented by the text, highlighting three main ideas that you consider in order of importance.

9. Find three arguments of the author regarding this social problem.

10. Prepare an evaluation chart of the positive and negative situations that occur in both countries.

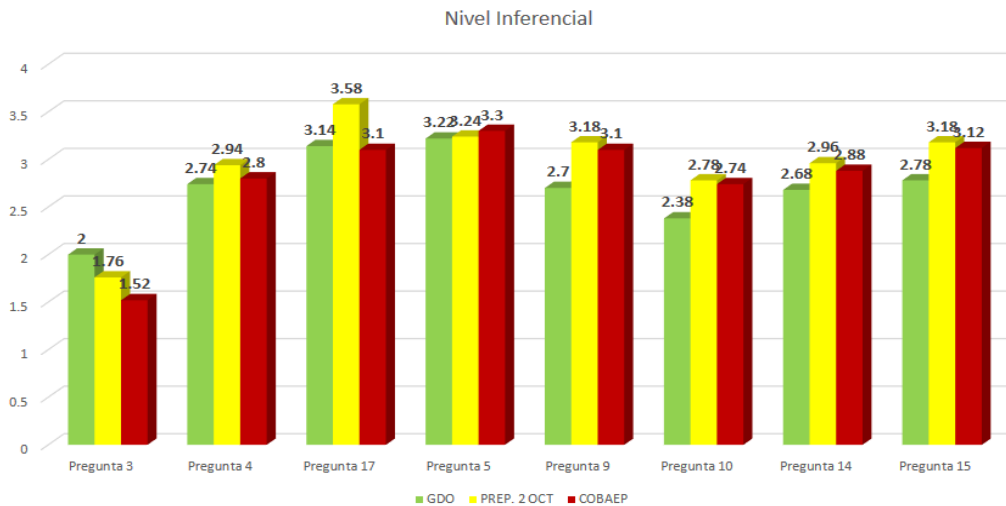
14. Explain which question has been easier for you to answer, write down their number and argue why.

15. Explain what question you have found most difficult to answer, write down their number and argue why.

17. Draw an icon that represents the care of forests or respect for trees.

The results obtained in this variable, which responds to the inferential level, are based on three indicators: "Language proficiency", with questions 3, 4, 17; "Quality of reasoning", which includes questions 5, 9, 10; and "Error and its nature", which links questions 14 and 15. At the inferential level of reading proficiency, according to the answers provided by the students of the three subsystems, a percentage average of 2.82 was obtained globally, what evidences a regular performance when identifying in his answers a series of hesitations and weaknesses to demonstrate the handling the reading with the inferential level (see figure 3).

**Figura 3.** Resultados del nivel inferencial



Fuente: Elaboración propia

The inferential level demands the elaboration of interpretations and hypotheses on the part of the reader, because the meaning of the text must prevail, and for each one those categories that verify a relevant situation in the generation of the meaning must be learned (Méndez, 2006, p. 148 ).

Figure 3 indicates that the answers provided by the informants in items 5 and 17 indicate a percentage average of regular performance of the inferential level (3.2). It should be stressed that students deduce the response by making a relationship with their organizational structure functions and mastery of their iconic language, which allows them to highlight main ideas by consideration in order of importance, as well as representation by way of drawing ideas which are understood after reading.

On the other hand, question three is the one with the greatest difficulty in the inferential performances of high school students. The result obtained was a percentage average of sufficient scale (1.76). Inconsistencies were detected in the construction of a conceptual map of the text that accompanied the aptitude test, when the informant subjects were asked to connect the graphic organizer by analogy with a specific content that they had to identify from the text, in this case water use In the comparative exercise, the students of the three subsystems were placed with a regular performance: School Center (2.7), BUAP High School (2.9) and Bacallaureate College (2.8).

The conceptions of the inferential reading level indicate an alternative procedure between the understanding that is directed jointly by the explicit data of the text and by the pre-existing knowledge in the reading student. Therefore, the meaning of the text is only partially explicit. Reading should be a constructive and inferential process, characterized by the formation and confirmation of hypotheses about what the text is about, hence knowledge schemes are adopted as explanatory referents, considered these as highly structured dimensions with which the knowledge and how it should be used. They contain a set of interrelated variables that do not take fixed values but prototypical ones.

The level of inferential reading active in students, and depending on the context and the main activity, the determination of a given scheme that provides an adequate interpretation of the situation presented in the reading. From the reading competence by inferential level, various reading processes must be ensured based on the perceptual function, understanding and resolution of a series of problems that can be identified.

The meaning does not reside in the words, nor in the phrases, nor in the paragraphs, not even in the text considered globally, but rather corresponds to the reading student, who punctually represents the information in the text and adjusts it to its context, knowledge about the world and its understanding purposes at a specific time, all of which appeals to its linguistic, situational, attitudinal domains, among others.

### **Critical-analog reading level**

This process is based on analogical reasoning, so the student is expected to apply the levels of literal and inferential reading and, based on that, interpret the theme of the writing to establish analog relationships of different kinds. The student must relate the facts that occur in the reading with other events that occur in their present, past or future daily life; also, establish relationships between one reading and another. At this level, critical judgments are made about what has been read and opinions or positions are expressed regarding its axiological scale, because it is capable of formulating its own conclusions. In total, five questions were asked:

6. Do you think that the author of the text “Forests” has a particular objective? Argue your answer.

7. Did you relate the contents of this text at any time to situations in your daily life? Name two examples or situations.

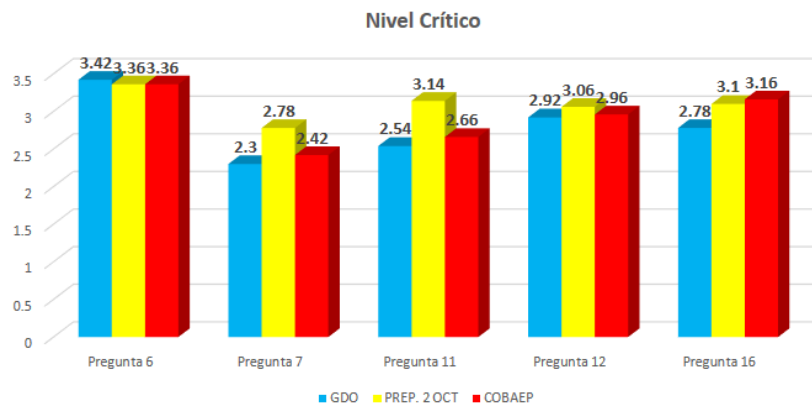
11. Mention why you think there are no reforestation programs in our country.

12. In your opinion, in the short or medium term can Mexico have an effective reforestation program? Argue your answer.

16. How have you done to realize what you had to answer to the questions that were presented to you?

The results obtained in this variable, which responds to the critical-analog reading level, refer to three indicators: "Abstraction", with questions 6, 7, 11; "Quality of reasoning", with questions 5, 9, 10; and "Cognitive awareness", with questions 12, 16. At the critical-analog level of reading competence, according to the answers provided by the students of the three subsystems, a percentage average of 2.92 was obtained globally, the highest result that occurs when coding the entire test; even so, this average points to a regular performance: the students expressed hesitation in the generation of the critical-analog reading process (see figure 4).

**Figura 4.** Resultados del nivel crítico



Fuente: Elaboración propia

At the critical-analog level, the metacognitive condition of reading learning must be developed, because it is the learner's awareness to act in the processing of the information that the reading throws. Baccalaureate students, from the critical-analog level, reached the highest score with respect to their performance in reading competence and externalize an acceptable level of knowledge about the use of strategies, especially critical to read and understand accurately; They were also competent in demonstrating their domain of abstraction and cognitive awareness (Calero, 2011).

Figure 4 indicates that question six presents a percentage average of critical-analog level performance with a tendency to a regular level (3.4). It can be seen that students regulate the cognitive processes of reading through the strategies for controlling progress in reading comprehension of different types of texts. On the other hand, question seven is the one that generated the greatest problem in the informants with respect to the relation that the subject has to the area of language from the text that was presented to them. The result obtained is a percentage average of performance of regular inferential level with a tendency towards sufficient (2.5). In the comparative exercise, the students of the three subsystems are located at the critical-analog level with regular performance: School Center (2.8), BUAP High School (3.1) and Baccalaureate College (2.9).

In the variable level of critical-analog reading, the sample of students in general had an acceptable performance with respect to the reading process of focusing attention on the main ideas of the text, coherence in the expression of opinions and compatibility with their knowledge previous. The baccalaureate student understands that, with the texts, he can modify his knowledge schemes by concurring with new ones offered by reading, since the meaning is only partially determined by the text itself. Reading competence from the critical-analog level drives knowledge structures that the student builds to understand the world around him and the learning he must acquire.

## Discussion

There are several levels of understanding: you can read the lines (the literal action), between the lines (the implicit action) and behind the lines (ideology or point of view, values and budgets). So today it is important to harmonize all of them as part of the reading competence, because, when a text is understood, the cognitive system is activated in the student that allows him to assess and act in a complex situation. From the literal, inferential and critical-analog reading, the high school student has the ability to generate mental representations that constitute the basis of its operation, as is the case of reading competence, which is relevant in the contemporary context because it is the object of attention in the educational systems in the regional, national and international spheres.



Reading at its different levels is the base tool for future learning to take place, so it is something that begins in the formation of the first years of schooling, and that longitudinally evolves towards a set of communicative competences that are built as strategies and develop throughout life in different social contexts, in the same interaction with the people we interact with.

Reading and writing in high school students provide multiple benefits: the acquisition of most knowledge and the strengthening of culture. Particularly, from the reading competence knowledge is transferred from one generation to another, and the sensitivity of the student is promoted by providing various tools for communication and command of verbal, iconic and analog language. The good development of reading competence is one of the elements that increases the probability of accessing a social scenario with greater opportunity; Therefore, it is important to assess the reading competence of the high school student as it is one of the key actions in their school and social training.

The development of strategies to promote reading proficiency requires not only knowledge, but also the reflection, reasoning and conscious application of teachers, as well as information management of other subjects and links with cultural fields that Let us communicate. This implies that teaching methods are more active, inclusive and collaborative, together with the application of different methodologies that enhance the development of reading competence.

## Conclusions

If you put high school students in need of reading, you can encourage motivational reading in them, so you must make available to young literary texts that respond to your tastes and preferences. With the use of strategies to promote reading comprehension, the development of cognitive abilities that allow young people to read, understand and appropriate the text is gradually being achieved. As an educational task it is clear that this is not exclusive to the subjects that make up the disciplinary field of language and communication, but extends to the other subjects that make up the curricular maps in high school.

It is recommended for subsystems of upper secondary education in the state of Puebla to promote reading projects that involve teachers and students to take advantage of the bibliographic collections, as well as to take care of the initiatives of the promotion of the reading spaces in the baccalaureates to that do not become another requirement of the education system. It is about

promoting a series of attitudes in the students so that they share moments of consultation, research and reading with very different purposes, favoring the interaction and the exchange of ideas.

It is suggested to high school teachers that in carrying out the teaching processes in the classroom do not overlook the previous knowledge of their students, to pay attention to those activities that are carried out before reading to help young people to meet the text from perspectives more in line with the intent of reading, to increase their vocabulary, consider keywords that appear in the reading, as well as generate in the student the active search for the meaning of reading.

Another recommendation for the baccalaureate teacher is to make students aware of the purposes for which they read, with the intention of generating an emotional intuition when approaching reading, which is increased if the teacher motivates them and makes them see the usefulness and relevance of reading. It is about the reading student being in a volitional state to understand what he reads. It is also advisable to make available to students all those baggage of words, synonyms, antonyms, analogies, as tools that they can use to better understand a text and take full advantage of it to strengthen reading skills.

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