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**Faculty of Letters and Languages**  
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**Experimenting the BNP Formulas' Effectiveness in Estimating EFL  
Learners' Reading Times: Hassani El Hadj Middle School Learners in  
Tiaret as a Case Study**

**A Dissertation Submitted to the Department of English in Partial Fulfillment of Master's  
Degree in Didactics**

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## *Dedication*

First, praises and thanks go to the Almighty Allah who has provided me with health and strength to complete this piece of research.

I dedicate this work to the source of happiness and love, my parents.

To my dear sisters and to the most precious people to my heart

To my best friend Kaid Houcin

**Khaled Mustapha Iheb BOUABDELLI**

*F*irst thanks to Allah for giving me this chance .

I, Mr Bouabdellah Moulay Nassim , dedicates this modest work to the dearest people to his heart:

*T*o my beloved father, Farid , thank you for your precious and priceless encouragement, thanks for being my everyone .

*T*o the most precious people to my heart, my sisters and brothers .

**Nassim Moulay BOUABDELLAH**

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## Abstract

This action research investigates the effectiveness of BNP readability formulas in estimating compatible reading times for Algerian middle school EFL learners in Tiaret. It also aims at exploring middle school EFL teachers' views on the use of BNP formulas as predictive readability tools. Adopting a mixed-method approach, the researchers made use of 06 teacher's interview and fieldwork experiments with 108 target learners. Both positive and negative feedback were provided by participating practitioner teachers on the usefulness of BNP formulas. Moreover, experiments' results demonstrate both minor and major variations between predicted and real reading times among the different categories of learners of the four middle school levels confirming the need for further research to improve the feasibility of BNP formulas to provide compatible reading times for all categories of Algerian middle school learners.

**Keywords:** Reading; Readability Formulas; BNP Formulas; Reading Time; EFL learners

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# **General Introduction**

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## General Introduction

Reading within the English language learning is widely recognized as an important skill, that EFL learners should master for better language development. The more they read, the better they write. Reading also creates and sustains motivation in the EFL classrooms. It is evident that learners who master the reading skill have a wide range of vocabulary thereby a correct pronouncing. It is noted that the reading skills among EFL learners have always been struggling to enrich their vocabulary. Nevertheless, it is good for them to know that reading represents a solution for their struggle.

Reading has played a crucial role in the overall development of language skills and even in academic success for decades. English language acquisition highly depends on reading since it's considered one of the most challenging and difficult tasks that most EFL learners face. Due to the complexity of the skill, many learners fail within the reading phase for the fear of not being able to achieve comprehension. EFL learners in classrooms are provided by different reading materials like texts, articles, dialogues that they must read since it enables them to acquire many things about the language and understanding different subject areas. English teachers need to achieve a successful reading lesson through applying appropriate and effective reading strategies while planning their Reading lessons.

Teaching reading is a complex process that draws upon an extensive knowledge base and repertoire of strategies. The role of teachers in boosting the reading skill within English language learning is very important. However, many Algerian English novice teachers are struggling while planning their reading lessons. They mainly struggle in selecting adequate texts that match learners' comprehension level; since they have no mediums to rely on while the selection of reading materials. Teachers also cannot evaluate their reading texts due to the lack of knowledge about all the devices that can do this task. Texts should not be very easy or very difficult so that learners can learn from the Reading material provided.

Additionally, time management is one of the main aspects that help teachers to deliver a successful reading lesson. Teachers should dedicate a correct timing for reading the texts they provide. However, unlike the European English teachers, Most Algerian middle school

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English teachers do not take into account the reading time necessitated to read a given piece of writing. They generally dedicate for granted a "five minutes" for all their pieces of writing without using any tools. The reading phase advocates a high importance for learners to read and understand meanings. However, most of the Algerian Middle English teachers are not aware of that element. These were the main reasons to conduct the present research in order to familiarize Algerian English teachers with the Readability formulas within planning/teaching a reading lesson

Many researchers and teachers all around the world , have developed many readability formulas that help EFL teachers in performing their tasks, as they predict the grade level required for students to read a specific piece of writing through the calculations that including those that depend on calculating the number of difficult words and sentences in the text. Some of them rely on calculating the number of syllabic wards and easy words in the text. Through the formula's usage, teachers can know if the text they tend to use is easy or difficult to their learners.

In 2022, Behira, Nait Brahim, and Pado published a new formula named BNP<sup>1</sup> Formulas devised for predicting Algerian middle school learners' reading times of the reading texts. It helpsteachers choosing the appropriate text for the learner by estimating the approximate reading time of the selected text. It relies on calculating the number of characteristics of the text and taking into account the schooling level and the learners' reading ability. Thus, BNP formulas help Algerian middle school English teachers prepare a good lesson plan with a correct timing, which is one of the most important features of time management. BNP formulas are easily accessed online on a website hosted the university of applied sciences of Stuttgart, Germany.

To examine the usefulness of BNP Formulas in estimating the suitable reading time for a given piece of writing, the following research question is put forward:

To what extent do BNP Formulas help Algerian middle school English teachers estimate approximate reading times that match their learners reading level?

As an attempt to answer the research question, the following hypothesis is put forward:

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<sup>1</sup> BNP refers to the initials of researchers' names 'Behira', Nait-Brahim', and 'Pado'.

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BNP formulas may help Algerian middle school English teachers predict approximate reading times that match their learners reading ability and pace which help them choose compatible texts (1)for better reading session time (2) to foster the target learners' reading skill.

Thirty six middle school learners and 6 middle school English teachers from Hassani El Hadj middle school at Tiaret participated in this study .The learners were provided with reading texts to read to compare their actual reading times with the estimated reading time provided by BNP Formulas. Additionally, the teachers were interviewed to elicit their feedback on the usefulness of BNP Formulas.

This research aims at investigating the usefulness and the effectiveness of BNP Formulas in providing Algerian middle school English teachers with readability tools that help select appropriate texts for their learners. It also aims at spotting potential BNP formulas deficiencies to provide their developers with suggestions to improve them for more accurate reading times'estimations.

The dissertation is composed of three chapters .The first chapter reviews the most important theories on reading. The second discusses the readability literature with reference to some readability formulas. The last chapter presents the collected data and attempts to analyse the study results.

# **Chapter One:**

# **Reading Skill**

## Chapter One

### Reading skill

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# Chapter One

## Reading skill

### I.1 Introduction

Reading has been a fundamental skill that attracts many scholars such as Grellet, Clark, Silverstein and Nunan within the EFL language teaching. This research attempts to provide more reading exploration. This chapter starts by defining both reading and teaching reading as skill, it also includes modals of reading, strategies and type of reading. Finally, it reviews several reading approaches.

### I.2 Reading's definition

Reading is one of the four language skills that have various definitions given by several researchers. Based on these definitions, we've named the most applicable one for our study. Grellet (7) states that "reading is a content process of guessing, and what one brings to the text is frequently more important than what one finds in it". Readers guess different meanings according to their backgrounds, own interpretation and have previous knowledge. They read between the lines to recognize authentic meaning and communication that they tend to represent them in other contexts, better than reading for the sake of looking for notions and insight.

Clark and Silverstein (17) define reading "as an active cognitive process of interacting with print and monitoring understanding to show meaning (1987)". That means that a reader's interaction with a text can be viewed as an interactive process. Thus, reading can be described as a form of discussion between the reader and the author. Noonan(70) argues that "reading is a dynamic process in which the elements interact with other factors outside the text in this situation, most specifically with readers' knowledge the existential content of the text". Additionally, reading is defined by Nuttall(12) as "the meaningful interpretation of published or written verbal symbols." This is the process by which the reader applies his understanding of vocabularies, syntax, discourse, and the real world. Reading therefore includes the relation between thought and language.

### I.3 Reading Comprehension

Reading comprehension is the ability to comprehend or construct meaning of the reading text based on the reader's skills and ability to process information. Reading comprehension, according to Grellet (3), is "understanding a written text, which means extracting the required information from it as efficiently as possible". Here reading

comprehension is defined as an individual's ability to understand texts by removing the necessary information. Teachers use reading comprehension to help their students comprehend different texts on their own in order to improve their reading strategies and reading skills in general. The purpose of the reading comprehension activities is to allow students to do careful reading in a non-competitive environment. Reading comprehension, according to Olson and Diller(42), is a term used to identify the skills demanded to understand and refer information provided in written material. As a result, many definitions of reading comprehension exist since scholars have not agreed on a single definition.

Kennedy (191-192), defines reading comprehension as follows:

Reading comprehension is a thinking process by which a learner selects reality information, or ideas from published material, decides how to relate it to prior knowledge he has acquired and judges their appropriateness and worth for meeting his own requirements and objectives.

Thus, in order to fully comprehend a written text, the reader must be able to use the information, ideas, and terminology presented in the text.

#### **I.4 Reading vs. Reading Comprehension**

According to some researchers, “reading ability is dependent on the efficiency of factor of reading process.” Sinatra and Royer,(45). As a communicative function, reading, according to Grellet (8), is an active skill that involves guessing, predicting, checking, and asking oneself questions. Reading comprehension, on the other hand, has two components that complete the process: vocabulary knowledge and text comprehension, in which the reader combines the vocabulary and various comprehension strategies. to develop his/her understanding of the different texts. Reading and reading comprehension are both mental processes, but reading does not always result in understanding the text. Perceiving a written text in order to understand its content can be done quietly(silent reading), and the understanding that results is related to as reading comprehension. While reading aloud a written text (oral reading) can be done with or without comprehension of the content. According to Grellet (8), "reading comprehension should not be separated from other skills such as reading and writing, listening, and speaking."

#### **I.5 Importance of Reading Comprehension**

When reading, most students may struggle to understand the written material since understanding the meaning of texts can be difficult. Readers may be able to understand each



word in the text, but they may not be able to grasp the overall meaning of the text. As a result, students will get demotivated.

Reading comprehension, on the other hand, is regarded as a vital component of language learning and plays a significant role in language instruction. Furthermore, reading comprehension influences the learner's language proficiency as well as English language. According to Byers, et al. (18-27), understanding is widely regarded as a necessary skill in all domains of learning. Reading comprehension is seen to be crucial since it develops linguistic understanding, which aids in reading ability. It has also demonstrated the ability to modify the reading manner based on the reading objective, as well as the development of an awareness of the structure of the written text in English. Reading comprehension necessitates the reader being an active constructor of meaning, and it is essential for understanding material for overall educational success.

Reading comprehension is regarded as a valuable strategy for improving reading proficiency since it allows students to gain a comprehensive knowledge of what is described in the text rather than obtaining meaning from individual words or sentences. Learners should focus on mastering reading skills first, which will allow them to attain comprehension, and then move on to mastering other abilities, because mastering reading skills will allow them to gain new vocabulary and improve their writing skills.

### **I.6 Components of Reading**

A significant amount of study on reading has been devoted to the assessment of reading and whether reading comprehension tests assess reading skills using different test items or whether the assignments are devised to measure the overall understanding of the material. Moreover, multiple searches found that researchers themselves were unable to agree on a specific test item evaluating a specific reading competence.

### **I.7 Teaching Reading as Skill**

Making reading classes interesting and relevant for students is one of the key discussions for teachers of second/foreign language reading. The fact that our students have such a wide range of interests makes it appear impossible to select materials that could satisfy everyone makes this a very difficult issue to address. The objectives of the reading course naturally influence the decision on a correct reading text. As a result, when selecting materials, second/foreign language reading teachers should concentrate on these objectives. According to Anthony, et al.(128), reading is the process of creating meaning through the dynamic interaction of the reader's prior knowledge, the information implied by the written

language, and the situational context of the reading situation. This seems to imply that the reader constructs the meaning of the text by attempting to connect it to what he or she already knows about the world based on cultural values, a native language, and discourse processes. This displays the comprehension process. On what level Dallmann, et al. can be categorized in a number of different ways, depending on what happens. One of the classifications implies that there are three possible levels of comprehension: factual, interpretive, and evaluative. Understanding what is written on the page in its actuality is referred to as factual reading. As you choose your materials, words and vocabulary should be a key consideration. Reading at the interpretive level is defined as reading where the reader understands the meaning that is expressed "in so many words," but can also be imply or inferred. In evaluative reading, the reader assesses what he has read through mental processes like determining the veracity of the content, forecasting outcomes, connecting the reading to personal experiences, etc. When creating strategies and/or activities and choosing the materials to be used in their reading classes, EFL teachers should take all of the aforementioned factors into account.

## **I.8 Models of Reading**

Many scholars and researchers are engaged in reading study, yet there are still differing perspectives on what reading is. These perspectives are frequently classified into three types of reading models: bottom-up, top-down, and interactive

### **I.8.1 Bottom-up Model**

According to this viewpoint, a reader starts with the written text (at the bottom) and generates meaning from the letters, words, phrases, and sentences contained therein, before processing the material in a linear method. Here, the reading process can be represented as:

1. Eye looks.
2. Words recognized.
3. Words allocated to grammatical class and sentence structure.
4. Sentences give meaning.

Clearly, in this approach, different readers are anticipated to arrive at the same interpretation of a particular text. Because the text as input, i.e., linguistic knowledge, is valued, they appear to play a relatively passive role. As a result, the reader's feedback is ignored, and his or her comprehension is impacted. Nunan (78-79).

### **I.8.2 Top-down Model**

Reading is viewed as a process in which readers progress from the top, higher level of mental stages, down to the text itself in this model of reading. This method prioritizes the

reconstruction of meaning over the decoding of form, the interaction between the reader and the text over the graphic shapes of printed pages. "Reading is not a passive but an active fluent process that involves both the reader and the reading material in the construction of meaning." (Anderson 1)

Naturally, the reader takes an active role in the reading process by bringing to the interaction his existing knowledge of the subject, assumptions about how language works, interest and attitudes about the text's content. The meaning of the reading materials is not only on the printed page, nor is it only in the reader's thoughts. Reading is viewed as a combination of the words on the printed page and the reader's prior knowledge in this paradigm. Because the amount of time necessary for the development of predictions is more than the amount of time required to just recognize the words, the interactive models of reading emerged.

### **I.8.3 Interactive Model**

Interactive theorists conceive the reading process is cyclical rather than linear. They proposed a link between the reader's mental processes, prior knowledge, and text processing. In top-down models, the reader relies on prior understanding and expectations to generate guesses about the text; in bottom-up models, the reader relies on what is in the text; in interactive models, he uses prior knowledge and predictions; and processes the words of the text simultaneously. (quoted in Alderson,; Hudson,; Nunan).

## **I.9 Types of Reading**

"Reading can be classified into two types: reading for pleasure and reading for information" (Superman,1). In other words, students must engage in four types of reading: intensive, extensive reading, receptive and interactive reading.

### **1.2.1. Intensive Reading**

Intense reading includes reading shorter texts to go deeper into a specific information. educators can help learners improve their reading skill, vocabulary, and grammar by inspiring them to read for general comprehension. The reader will extract all of the information provided in the passage during this activity. This means that learners read texts to gain understanding, while scanning took priority over text overview. Brown (35)," intensive reading brings attention to grammatical forms, discourse markers, and other surface structure details in order to understand literal meaning implications, rhetorical relationships, and the like." according to Long and Richards (33), It's a detailed in- class, led by the teaching of vocabulary and grammar points in a brief passage. In other words, the intensive reading

sequences are applied in class for a variety of objectives, including reading for communicative purposes, general understanding, or to extract specific information

### **I.9.2 Extensive Reading**

The term extensive reading refers to reading longer texts primarily for the enjoyment of the reader. During this type of reading teachers encourage students to choose what they read for themselves for their own enjoyment and to improve their language skills at the same time. According to Brown (36), "extensive reading is carried out to obtain a general understanding of texts." Learners should read texts that they understand, since reading for pleasure cannot be achieved if they do not understand the text extensive reading is defined by Long and Richards (216) as "occurring when learners read large amounts of high interest materials, generally out of class, concentrating on meaning, reading for understanding and skipping unknown words". A major purpose of extensive reading is to develop self-confidence and pleasure. Krashen (14) suggests that "the benefits of free voluntary reading included, enhanced language acquisition and literacy development, more ideas and information, greater success in life, loss of verbal memory, and more fun".

### **I.9.3 Receptive Reading**

It is a category of reading that students perform in class to gain comprehension. It is a deliberate and focused reading in which pupils attempted to maintain their attention and concentration on oral activities in order to get meaning. According to Brown (189), "perspective reading tasks include attending components language (words, letters, pronunciation, and other graphemes symbols)."

### **I.9.4 Interactive Reading**

It is a type of reading that students do inside or outside the classroom to show that they are connecting and communicating with the text. They are dealing with the text by using a variety of knowledge and strategies that have learned before to facilitate processing texts. According to Hedge (188), "reading can be viewed as a kind of dialogue between the reader and the text, or even between the reader and the author."

Overall, the four forms of reading are beneficial for students in terms of developing and improving their skills, as well as having goals for their reading.

### **I.10 Reality of Reading**

Reading is clearly regarded as a cognitive activity involving numerous tasks that the individual performs in order to comprehend the text. These cognitive abilities are summed up

in a set of skills (listening, speaking, and writing) that demonstrate how the reading process occurs in the brain and in the students' eyes. Thus, the reading process can take place with the assistance of other mental capacities (hearing, speaking, and writing), helping students to simplify their interactions with the text. In fact, you cannot think that there are important and unimportant skills. Furthermore, one cannot argue that some skills grow faster than others; all of them are considered to be the fundamentals of learning a new language. However, one should keep in mind that when one separates or devotes more attention to one ability than the other, communication and learning appear to be empty. According to Harmer (204), "the advantages of reading are reinforced by the benefits of listening." according to Harmer's interpretation. Students can benefit from reading to listening and vice versa, Furthermore, Alderson and Lyle (25) claim that "reading is not a separate process that takes place in the mind, but rather reading is a cognitive operation of meaning extraction." Reading, in this sense, is more than just a cognitive ability; there are further combined abilities that a person utilizes to effectively comprehend the text. For instance, when learners read, they listen, speak, and sometimes write, so reading requires a variety of skills, including listening, speaking, and writing. Both writing and reading influences have been regarded by scholars as two blanks in the same act. Reading and writing connections are combined. In addition, four factors demonstrated that good language readers are going to understand successfully as a result of developing reading writing connections. According to Vacca et al (367), good language readers frequently become good writers, and vice versa; students who write well prefer to read more; broad reading can benefit writing; and good readers and writers engage in both reading and writing.

Finally, we can argue that reading is not a separate activity that occurs in the brain, but rather reading includes various mental processes that a person must engage in order to understand the text and communicate with it.

### **I.11 Purposes of Reading**

It is obvious that each of us has our own motivation for reading. We may read to learn, enhance our skills, or find information, among other things. According to Harmer (2001:200), there are two motives for reading: instrumental and pleasant. The first means the reader must have particular objectives in mind. Furthermore, the second rationale implies that the reader can read for relaxation or amusement. In addition, Grebe and Stoller (13) claim that readers should have a goal in mind before they start reading. This aim is a quick decision made in order to accomplish the ultimate objective, which is universal comprehension. . According to Rivers and Timperley, as quoted in Hedge (195), "reading activities should have

some purpose from the start, and you must focus on the normal goals of reading." Reading objectives or reading decisions made by readers before to beginning reading activities are beneficial in that they become aware and conscious of why they have decided to read as well as how they intend to read. We are referring about how people will select the important information, not all of the facts offered in the text. For that purpose, Grebe and Stoller (13) have classified reading purposes under seven points.

- Reading to find the details that students require.
- To directly skim or scan the material for the purpose to find the relevant elements to read.
- To get knowledge from the text. Students can use reading as a learning tool by learning new things and gaining new knowledge from what they read.
- Students can read to learn new things. This suggests that students are acquiring and combining prior information with knowledge gained from the text through their reading.
- Furthermore, reading can lead to better writing and vice versa, because the more students read, the more they write.
- Also, there are several reading abilities. Students may read within the lines, as well as beyond them. This is known as critical reading, and students may read in order to criticize the text.
- Finally, students may read to gain a general understanding of the text.

Based on these purposes, students will be more aware and careful of their reading, allowing them to improve their skills in a clear and ambiguous manner. Furthermore, the more students have reading objectives, the more clearly, they read without any issues or problems.

Reading is still a necessary and essential ability when studying a foreign language. It gives learners unrestricted access to the language. That is, when students read more, their vocabulary expands, they learn new idioms, grammatical patterns, and cultural familiarity with the target language. Reading also helps students to actively interact with the new language and culture. Reading is vital in academics and has a significant impact on learning. Scholars have stressed the significance of acquiring reading skills and the benefits of reading, especially at a young age.

## **I.12. Reading Features**

There are various perspectives on the characteristics of the reading process. Some investigators saw reading as an interactive process, while others saw it as an intentional process, and still others considered it as a crucial process.

### **I.12.1 Reading as an Interactive Process**

Reading is viewed as an interactive procedure in which the reader uses all of his or her interests and abilities to obtain a general understanding of the text. This later completed by establishing a connection between the reader and the text, in which the reader performs a communication act with the text using prior knowledge including applying reading skills and strategies, applying grammatical rules to perform language, and also using the information provided in the text for better comprehension of the text. According to Hedge (1988), the term "interactive" can be interpreted in two ways: "first, it describes a dynamic relationship with a text as the reader" struggles" to make sense of it (text), while second, it refers to the interplay among various kinds of knowledge that a reader employs in moving through the text."The more the reader combines his/her prior knowledge with the knowledge offered in the book, the more understanding is gained and achieved at the end of the text. From this perspective, the reading process can be defined as a method of communication between the reader and the text in order to achieve complete knowledge.

### **I.12.2 Reading as a Purposeful Process**

Reading is regarded as a purposeful process in which readers should have objectives in mind when reading, as reading goals could help in text comprehension. Therefore, reading aims can simplify the needs of the learners in relation to the text that they are reading. Rivers and Timperley, quoted in Hedge (1995), have proposed a variety of reading objectives, some of them are specific and others are broad; we present them below:

- To gather information
- To respond to the topic
- To perform tasks for the sake of pleasure and enjoyment.
- To find out when and where things are.

What matters is that reading from this interpretation is a purposeful action. This indicates that the reader is planning his or her reading in a variety of ways before they start reading in order to acquire broad understanding in simple and clear ways.

### **I.12.3 Reading as a Critical Process**

Reading is seen as a critical process in which students recognize what the author means by what he or she writes. This can be attained through reading critically. In a reading classroom, for example, the teacher can guide students read the text silently. After finishing their reading, each learner understands the topic from his or her own point of view. Furthermore, there are variances in understanding the text, and these differences could start conversations and judgments among students regarding the meaning of the text, which

Alderson and Lyle (07) refer to as degrees of comprehension. Critical students, on the other hand, always read between the lines and outside the lines. As stated by Gray (197), in critical reading "texts are created in particular manners by the writers with the aim to shape what is seen by readers towards acceptance of the underlying ideology of the text." Finally, we can claim that critical reading can assist students build their own comprehension of the text, which will help in understanding.

Based on the elements described above, we argue that reading is a completely understandable process that includes interaction, purpose, and important features that make the reader's knowledge of the text easier and clear. To accomplish This, students attempted to link reading to other skills (listening, speaking, and writing) in a meaningful way in order to gain understanding, and this is the fact of the reading process.

### **I.13 Reading Strategies**

Reading strategies are methods used by the readers to improve their comprehension and perform better in reading texts. Brown (119) defines reading strategies as "specific methods of approaching a problem or task, modes of operation for achieving a particular end, planned designs for controlling and manipulating certain information". That is, reading strategies are methods in reading, and they are multiple. These strategies are as follow: text overview, scanning, predicting, and inference.

#### **I.13.1 Text overview**

Text overview refers to reading rapidly in order to obtain the main idea of the text. Françoise Grellet (19), states that "Skimming refers to a quick reading of the reading material to determine the gist of it, to understand how it is organized or to determine the tone or intention of the writer ". That is to say, skimming is reading quickly with one's eyes, classifying the main ideas of the text and looking only for the general or main ideas. According to Brown (308): Skimming consists of quickly running one's eyes across a whole text (such as an essay, article, or chapter) for its gist. It gives readers advantages of being able to predict the purpose of the passage, the main topic, or message, and possibly some of the developing or supporting ideas.

In other words, text overview is a technique that helps the reader to get quickly the gist or the main idea of the text. For instance, you have an exam in few days. You need to review the material you learned, but you don't need to re-read everything. By skimming, you can quickly locate the main information that you need.



Whereas, before reading the text students start text overview to assert the predictions from the content and structure of the text. This is another strategy that helps students to better understand texts while reading.

### **I.13.2. Scanning**

Grellet (19) claims that scanning is “to locate specific information and often we do not even follow the linearity of the passage to do so”. Yet, the reader is able to read the text in nonlinear way to find out a specific piece of information, ideas, words, phrases, without reading the whole text. Brown (308) defines scanning as: Scanning is a quickly searching for some particular piece of information in a text. Scanning exercises may ask students to look for names or dates, to find a definition of a key concept, or to list a certain number of supporting details. The purpose of scanning is to extract specific information without reading through the whole text.

This mean scanning is a strategy that allows readers to analyze the text carefully on particular details in a text.

Scanning aims to encourage teachers to plan a good lesson for their learners while reading texts. According to Grellet, when scanning, readers look for specific information and frequently do not follow the linearity of the passage.(136)

### **I.13.3Predicting**

Making prediction is a strategy which is based on reading comprehension, where the readers use information from a text including headings, images, and titles to look forward what they are about to read or what comes next. According to Grellet (17)“It is a faculty of predicting or estimating what is to come next, using grammatical, logical, and cultural clues,” This means that, predicting is making guesses about what will come next in the text you are reading. This strategy allows readers to make informed prediction and helps them to gain meaning from a text and increase their reading comprehension. Readers make predictions before reading as a means of relating their background knowledge to new information from a text so that they can gain meaning from the text. And they can use their existing knowledge about an author to predict what a text will be about.

Prediction, which is based on reading techniques of the reading process in general. 'Predicting,' according to Grellet, is the ability to predict what will happen next.

### **1.13.4. Inference (Deducing)**

Inference is the process of evaluating and drawing conclusions from information in a text. This strategy helps students improve their critical thinking abilities. According to Grellet

(14), "inferring" means "using syntactic, logical, and cultural clues to discover the meaning of unknown elements." In other words, authors provide the reader with key words that help the reader understand any ambiguous words by referring to their prior knowledge. According to Nuttall (114), "inference is the process by which readers draw implications and certain conclusions from facts, opinions, and arguments stated in the text." Inference serves as an introductory tutorial on four inference strategies: inductive learning, mystery, main idea and investigation.

The inference strategy assumes that teachers ask students to guess the meaning of unfamiliar words rather than looking them up in a dictionary.

#### **I.14. Stages of Reading**

During the reading process, each of the different activities mentioned previously serves as a brick by which the reading tasks are constructed. It has been suggested by many scholars (Cuq, Gruca, Nuttall) that reading tasks should be divided into three stages: pre-reading, reading, and post-reading.

##### **I.14.1 Pre-Reading**

The purpose of the pre-reading stage is to facilitate the students' entry into the text and to stimulate them to read. It is important that teachers activate students' prior knowledge about the text during this stage, for example, by discussing it orally. Furthermore, teachers should encourage students to make predictions based on different elements of the text, such as a title, an image, etc., in order to develop their critical thinking skills. During these activities, students get a chance to develop relevant knowledge and vocabulary that will assist them in comprehending and interpreting the text. As Matos (155) proposes:

An aesthetic reading should be privileged. This mode of reading allows the reader to establish an individual relationship with the text and appreciate its aesthetic qualities; it contrasts with different reading, which is a mode of reading that situates the text in a web of concepts supplied by teacher, critics and the norms of the text.

Therefore, if we want to promote aesthetic reading of texts, pre-reading activities should not expose too much detail about the text. In order to raise students' interest and prepare them for reading, they should tell them only what is necessary.

##### **I.14.2. While Reading**

During the reading stage, students are recommended to use their pre-formed hypotheses as a starting point for exploring the text. Then moving from a broad comprehension to text overview the text to check their theories and respond to questions such

selecting a text title or the sentence that best sum up the text. Despite the fact that readers acquire no specific details as a result of text overview the text, Wright and Brown (23) state that “the initial text overview of the text is a semantic strategy, which facilitates readers' confidence when approaching the text” Thus , the initial reading provides students with an overview of the text that will help them arrive at a more detailed understanding. The text overview phase should be followed by a second reading of the text that contains information about the text and develops different reading skills (inference, interpretation, and scanning), as well as activities about vocabulary and cultural references in the text.

### **I.14.3 Post Reading**

Finally, we achieve the post-reading stage, in which teachers inspire their learners to connect the text to their own experiences and then make a comparison between the cultural aspects presented in the text and their own culture. According to Schultz (2002), the text does not have an intrinsic meaning, but rather a meaning that the reader constructs by applying their skills and knowledge to shape the text's potential meanings. Gallas and Smagorinsky (58) explain that “readers have vast knowledge about the world cultural practices, themselves, social dynamic and other factors that they use to infuse coded texts with meaning”. However, different readers will interpret and relate the text differently, providing students the opportunity to take an active role while reading authentic texts of various types, improve their reading ability, and discuss and analyze the cultural, cognitive, and affective dimensions of the text in order to become good readers.

## **I.15. Major Approaches to Teaching Reading**

The present research aims to describe the multiple theories, findings, and perspectives about the teaching of reading, as well as explanations for its development. So far, three major ideas have been proposed to explain the techniques of learning to read which are as follows:

### **I.15.1 Traditional Bottom-up View**

In the 1950s, behaviorist psychologists influenced the traditional bottom-up Approach of reading. According to Omaggio (45-46), "learning was dependent on habit formation, brought about by the repeated association of a stimulus response," and language learning was created as "a response system that humans acquire through automatic conditioning process." That is, the approach known as audio-lingual was founded on behaviorism, which places an emphasis on drilling, repetition, and correction of mistakes.

### **I.15.2 Cognitive View (top-down processing)**

This idea describes the mind's fundamental potential for learning, providing a fresh explanation for how humans acquire their first language. This new technique investigates how learners perceive reading (Smith 78). Reading, in this view, is more than just extracting meaning from a book; it is a technique for linking information in the text to its meaning. Cognitive processes are crucial in the construction of meaning based on readers' prior information. Smith also states that reading is an intentional and deliberate action with a specific purpose that is dependent on the reader's previous knowledge (95).

Another theory related to top-down processing is the schema theory, which plays a role in reading strategies. This theory clarifies in detail how the learner prior knowledge communicates with the reading tasks and shows how their understanding of the world plays a crucial role in interpreting different texts. The underlying idea behind this hypothesis is that previous experiences help to develop mental frameworks that allow the reader to create new information and experiences. According to Anderson (469), "a reader comprehends a message when he is able to recall a schema that accounts for the objects and events described in the message." Pearson (38) defines comprehension as the conveyance of new and old information.

### **I.15.3. Meta-Cognitive View**

According to Block (55), the discussion over “whether reading is a bottom-up, language-based process or a top-down, knowledge-based process” is over. Readers not only sample the material, but they also confirm, reject, or create new hypotheses during reading. They demand activities before, during, and after reading. Before reading, the activities are to determine the purpose for reading and the form or genre of text.

### **I.16 Conclusion**

The literature reviewed in this chapter demonstrates the importance of reading skill in language learning. We explored the various definitions of reading proposed by various researchers. Furthermore, it presents several principles related to reading by employing different strategies such as text overview, scanning, predicting, and inference to understand the text. Reading skill consists of four types of activities: intensive, extensive, receptive, and interactive reading. The reader follows bottom up, top down, and the interactive model to obtain the intended meaning from the text. These models share the basic principle of the interactive approach.

# **Chapter Two**

## **Readability and its Formulas**

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## Chapter Two Readability and its Formulas

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## Chapter Two

### Readability and its Formulas

#### II.1 Introduction

Readability has been the subject of studies in many languages. Readability is assumed to be a simple concept, it can be very broad. This chapter attempts to provide more about readability formulas, particularly in areas related to readability level. It explores the history and the definition of readability then it present various readability formulas that were created by several researchers.

#### II.2 Readability's definition

Researchers have proposed some definitions of readability. Readability is defined by Richards and Schmidt (442) as the ease with which written materials can be read and understood. Dubay (3) defines it as what makes some texts easier to read than others. Basically, readability is concerned on how difficult the text is perceived by the reader. It has nothing to do with legibility or literacy. It is often confused with legibility, which concerns with typeface and layout.

It is so common in the research of readability that the level of difficulty is entirely in the text. Moreover, Pikulski (6) states in his articles that this may not be the case. He believes that the reader's personal qualities play a significant role in determining text readability.

Readability, according to Klare (14), focuses on the issue of matching between a reader and a text. It is a matter of selecting the appropriate reading text for a particular reader. If advanced readers are given easy texts that are below their reading level, they will usually become bored. Poor readers, on the other hand, will be discouraged if they are required to read texts that are too difficult for them.

The readability level of a text influences reading skills. If the text is above the level of the readers, they become frustrated and disappointed from reading it. Westwood (64) believes that readers must understand at least 97% of the words on the page in order to comprehend the text.

Based to the definition above, readability is the level of difficulty or ease with which a text can be understood by the readers. It is concerned with how easily a text conveys its intended meaning to the reader.

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### **II.3 Development of Readability Formulas**

Classic readability studies began in the late 19th century (DuBay, 10) and the first readability formula had been released in 1923 (Fry, 2002: 286; Klare, 15). More than 200 different readability formulas and over 1000 research in the topic have been written since then (DuBay, 2). However, only about 12 of these formulas are commonly used (Gunning, 176).

Readability research were generally focused on vocabulary factors such as difficulty, diversity, and range at the time of the first readability formula (Chall, 6). Especially in the late 1920s, attention switched to analyses of various distinct elements that were thought to be potential variables of text difficulty (Chall, 6). These variables have been reduced over time to semantic and syntactic components, with stylistic factors left out (Klare, 16). Even today, the majority of readability formulas still only consider the two components of syntactic and semantic difficulty when assessing the understanding of a text (Davison & Green 2; Fry, 287; Gilliland, 84; Gunning, 176). The former is frequently determined by average sentence length, whereas the latter is frequently determined by word length (counting letters or syllables) or frequency of unfamiliar words. Sherman first proposed these factors as indicators of text difficulty in the early stages of readability (DuBay, 2). Leaving stylistic considerations out, syntactic considerations (Klare, 16).

Within the last decade, the emphasis in schools has been on level methods that are based on characteristics of the text rather of the language itself (Stein Dzaldov & Peterson, 222). However, readability formulae are still in use and provide a more objective assessment. alternative since computers can calculate them (Fry, 287-289).

### **II.4 Factors Affecting Readability**

When assessing readability, it is essential to take into account the text's complexity. Many factors can influence a text's readability. Aside from the complexity of words and sentences, Johnson (121) claims that readability is also influenced by the reader's interest and motivation, as well as the readability of the prints.

Day (14) suggests six factors that are more specific and can cover both textual and reader variables. These factors will be discussed further below.

#### **a) Lexical knowledge**

Lexical knowledge is required for readers to process all of the information known about words and their relationships. A passage with familiar words must be easier to understand than one with unfamiliar words. The more unknown lexical items there are in the text, the more difficult it is for readers to read it with comprehension.



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## **b) Background knowledge**

Background knowledge of readers is important in understanding a passage. The more a reader knows about a specific topic, the more easily and precisely they can understand a passage about that topic. A teacher should give their students a reading text with familiar topics to help them comprehend it better.

## **c) Syntactic appropriateness**

The readability of a text can also be influenced by its syntactic constructions. If a text contains grammatical structures that the learners are unfamiliar with, they may struggle to understand the text. Simple grammatical constructions can assist students in accurately understanding a text.

## **d) Organization**

The term organization refers to the text's rhetorical organization as well as its clarity. A poorly organized passage may cause problems for students. Students who recognize the passage's organization will have a slightly easier time understanding it than those who do not.

## **e) Discourse phenomenon**

Discourses include considerations of cohesiveness and coherence, as well as the arrangement of topics and comments in a reading passage. The teacher should be able to know whether the learner have the ability to handle the passage's presentation of ideas and arguments, whether the cohesion markers and transition devices are within the learners' grammatical knowledge, and whether they can follow the writer's line of reasoning. A passage can be used as reading material if these factors are within the students' competence.

## **f) Length**

The length of the passage should be determined by the teacher for their students. A longer text takes longer to read. If a learner does not successfully complete the text in the allotted time, the lesson will be extended. When students read a long text, they become bored and frustrated.

## **II.5 Readability Formulas**

According to Klare (63), there have been over 100 readability formulas developed for the same perspective of reading process. Readability formulas are the most used procedures within the reading process, they are mainly used for measuring the readability level of a given text, through providing a numerical estimation of the reading skill necessary to comprehend a given input. Bruce and Robin (88) argue that readability formulas are procedures for assigning to a text a numerical estimate of readability which is defined by scholars as "ease of reading", interests, or ease of understanding" (p.5). Formulas are used to

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make predictions for the text's comprehension, but not an overall assessment of the ease of the comprehension, they can be useful means of detecting the text's difficulty in which it can suggest some revision. The text's prediction is made through the measurement of many features, including sentences, length, that are transformed to a mathematical equation, in which are going to be calculated to obtain major scales that describe the level of readability. Though, formulas do not determine the cohesion and clearness of the sentences, neither if they can be easy or familiar to the readers.

There are many distinct readability formulas, including Flesch Reading Ease Formula, Dale-Chall Formula, SMOG Formula, Fry Graph, to name but a few. They are used to score text by hands or computers through software programs to provide results in a form of school grades.

### **II.5.1 Flesch Reading Ease Formula**

The readability formulas do not provide an exact scales. The grade level scores within the same text can be different by several grades levels. For the seek of the formulas scales disagreement, many scholars have reviewed them. The flesh formula or Flesch Reading Ease Formula is one of the most used formulas is a formula used to measure the difficulty and the ease reading and understanding a text. through Two primary features in the formula which are the number of sentences and the syllables. As stated by Flesch ( 221), the "wide application" of the formula by many "academic institutions" encouraged him "to re-examine the formula and to analyze its shortcomings"(Behira et al.5)

The Flesch Formula depends on readability scores that ranges from 0 to 100. Each score describes a specific type of readability, in which the highest score is considered the ease in readability and understanding.

Score	School Grade	Text Difficulty Description
90 - 100	5 <sup>th</sup> grade	Very easy to read
80-90	6 <sup>th</sup> grade	Easy to read
70 -80	7 <sup>th</sup> grade	Fairly easy to read
60- 70	5 <sup>th</sup> & 9 <sup>th</sup> grade	Plain English
50- 60	10 <sup>th</sup> & 12 <sup>th</sup> grade	Fairly difficult to read
30 -50	College	Difficult to read
10-30	College graduate	Very difficult to read
0-10	Professional	Extremely difficult to read

**Tab1. Reading Flesch-Kincaid Formula Scores**

### **II.5.2 Dale-Chall Formula**

The flesch formula inspired Edgar Dale and Jeanne Chall to come up with new formula . Dale and Chall created The Dale-Chall Formula for adults and children above 4th grade as an improved Flesch Reading Ease Formula. It's unique because, unlike other formulas that use word-length to assess word difficulty, the Dale-Chall Formula calculates words , the grade level of a text based on sentence length and the number of words. These words are words that do not appear on a specially designed list of common words familiar to most 4th-grade students(Dale and Chall41).

The New Dale-Chall Formula is an accurate readability formula for the simple reason that it is based on the use of familiar words, rather than syllable or letter counts. Reading tests show that readers usually find it easier to read, process and recall a passage if they find the words familiar. Many factors contribute in text's readability change including the word count, font size and style, paragraph length and structure, and use of bullet points. Using the three following variables, number of syllables, Words with more than four syllables and Words with more than five syllables. will help readers to determine how easy the text comprehension is.(chall and Dale,66)

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The formula has gained a great reputation along time for being adequate and accurate to determine how easy or difficult the text is for readers through providing readability scores .

### **II.5.3 Fry Graph**

The fry readability graph has been a familiar, useful and respected tool since its publication in 1968. In its original form , the fry graph has a simple means of determining readability of prose , with a specific designation for grade level 1 through 12 followed by another broadly designated area ,”college”. However, in 1977 Edward Fry published an article updating the Formula. He explained minor adjustments in the role of word count, he extended the designation of 13 to 17 (Fry 229).

With this extension, the Fry Graph became the only truly easy to apply readability device that ranges from grades from 1 to 17, because it has undergone validation studies of its other levels (Crook and Paolo 77).

The Fry formula depends on the following three steps:

- Selecting samples of 100-word passages randomly
- Counting the number of sentences in all three 100-word passages,
- Estimating the fraction of the last sentence to the nearest 1/10th
- Counting the number of syllables in all three 100-word passages.

The fry formula is used in several domains like Libraries , schools, Technical , manuals, Businesses , Insurance , Banks , Advertising , Publishing .However, it's mainly useful in education. Since it grades pupil's comprehension in different grades starting from elementary to college grades. It classifies them based on their level of understanding of the text. The formula has a great importance especially when it comes to education since it describes the grade level of someone's audience that they have to understand the input, which help authors to clarify their writing, making them more clear , concise and readable.

### **II.5.4 SMOG Formula**

In 1969 the clinical psychologist G. Harry McLaughlin created the SMOG formula. The word SMOG stands for Simple measure of gobbledygook , it represent a frame work that measures the necessary number of education years to understand the input .The SMOG formula was created based on lengthy texts ,30 sentences or more ( Journal of reading , 639)

Harry McLaughlin included polysyllabic words with multiple syllables in order to find the most effective calculation .When the SMOG formula was first published in 1969, it was questioned for its simple calculation method , since it estimates the years of education that can

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any person needs to read a given text which was known as the SMOG grade . McLaughlin start the calculation by using a piece of 30 sentences or longer , after he moved to count thirteen sentences , ten near the beginning and ten in the middle of the text and the last ten from the end Next , he counts every word with three or more syllables to square- rooting the number he have got to be rounding to the nearest ten . Finally, he adds 3 to the figure found in order to be indicated as the final reading grade (Journal of reading , 646)

The formula seems easy, but it has been proven an excellent measure in education and in health care. It created in the pre computer age through manual sampling in which it improves efficiency and accuracy .The SMOG formula is one of the most popular formulas used almost in all the different sectors. The health care domain largely depends on the Formula, since it calculates the comprehension medical use of the other formulas used in health care.

Parkinson's disease information called SMOG "the Gold disease ". The study was based on a patient who showed an development in the internet usage. The patient is unfamiliar with the healthcare lexis, he struggled to understand them. As a result, the patient used a bunch of different formulas to understand the lexis. However by the end the patient found that the SMOG formula was the best formula and the preferred one to tackle the lexis. At end of the Parkinson's disease patients who use the internet, the SMOG formula ensures clarity for them; the study found that they struggled in resources comprehension.

### **II.5.5 Automated Readability Index**

Like the previous formulas, the ARI formula was created for military purposes since it is based on automated counting method that provides valid and accurate results. The formula deals with assessing the grade level necessary to read a piece of writing. It counts characters and sentences rather than syllables. The Characters determine how much is hard or easy the lexis is within a text (Kincaid et al.21).

S	Approximate age	Grade level
01	5-6 years old	Kindergarten
02	6-7 years old	First Grade
03	7-8 years old	Second grade
04	8-9 years old	Third grade
05	9-10 years old	Fourth grade
06	10-11 years old	Fifth grade
07	11-12 years old	Sixth grade
08	12-13 years old	Seventh grade
09	13-14 years old	Eighth grade
10	14-15 years old	Ninth grade
11	15-16 years old	Tenth grade
12	16-17 years old	Eleventh grade
13	17-18 years old	Twelfth grade
14	18-22 years old	College

**Tab2. Automated Readability Index Formula description**

The automated readability index calculates the internal text including the number of characters words and sentences, the word difficulty number of letters per word represents the word difficulty and the number of words per sentence represents the sentence difficulty .The ARI formula provides scores that represents the approximates the age needed to understand the text . The scores consist of two factors, the first one deal with the sentences and words structure, it measures the average number of words per sentences, while the second one deals with the average number of syllables per word. Sometimes the ARI formula provides results that are not accurate and do not correspond to the above chart, this generally doesnot reflect any age or grade mentioned. The researcher needs to check the text and make the necessary edits to ensure that the writing resonates with the intended target audience (Kincaid et al.25-26)

The Automated Readability Index formula has been used within a financial domain dealing with lapses in communication, in which sentences and words were calculated for reading adults material, with other factors that any reader has a purpose can read with less difficulty. The speed of the formula is considered as one of the most powerful features, since the ARI formula is unique with its speed and efficiency in the technical domains.As a result, the

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ARI formula reaches many audiences around the world because of its wide resources and clarity.

### II.5.6 Gunning Fog Formula

Robert Gunning Associates developed the gunning fog index formula to help businessmen to improve their writing .It generates a grade level between 0 and 20 that estimates the level required to understand a piece of writing . The formula is determined through the achievement of different scores (Świeczkowski et al .3). The follow table describes the scores within the gunning fog formula:

<b>Fog index</b>	<b>Reading level by grades</b>
17	College Graduate
16	College Senior
15	College junior
14	College sophomore
13	College freshman
12	High school senior
11	High school junior
10	High school sophomore
9	High school freshman
8	Eighth grade
7	Seventh grade
6	Sixth grade

**Tab3. Gunning Fog Formula's scores**

Gunning Fog formula calculation was manual with a simple an easy process that's accessible for anyone since it does not need any equipment .The calculation simplicity allowed the experts to develop new versions of the formula , in which it test the readability of the whole text ensuring accuracy and simplicity .

Gunning Fog formulais used by researchers in reducing the difficulty of abstracts with raising simplicity and clarity of abstracts . Besides , they propose visibility within their research pages . Additionally, Within the fog index formula not all the complex words are taken as difficult words . removing some syllables generates other words different in meaning and sometimes determines other frequency which is a normal use that affects the text readability .

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## II.5.7. Spache Readability Formula

The Spache formula was introduced by George Spache in 1952, a formula for primary-grade materials. It is a readability English test for the fourth grade level. It compares words within the same text to make lists of common words for specific age groups of the fourth grade, and to maintain interests within children's reading. George created the formula based on other formulas meant to adults, he observed them, and their calculation system in order to come up with a modern version. It was a reaction of seeing a neglected age group in which he worked on that group using complicated formulas

(Journal of Evaluation and Research in Education, 7)

The Spache readability formula identifies a "difficult word process" through the following steps:

- Counting the familiar words and classifying them on the revised Spache word list,
- Classifying these words into regular verbs that end by "ing, ed, es" and into plural and possessive ending like first names, single letters.,
- Performing the same process with difficult words.
- They classify difficult words within a word list that would be used for the calculation process.

The Spache formula deals with two major variables including sentences length and the unfamiliar words. The last variable are measured which allows the analysis of the unfamiliar words, the formula collects data from different samples of 100 -150 words in order to calculate the number of hard words with an estimation of the lengthy sentences. The division of the figures obtained in step 3 to arrive at the exact average sentences length (ASL) and the division obtained from step 2 make the formula be able to multiply the results by 100, to arrive at and the percentage of difficult words (PDW). Next, experts compare the Spache's readability Index with the following formula  $(0.141 \times ASL) + (0.086 \times PDW) + 0.839$  in order to get the right word list for children below the fourth grade.

## II.5.8. Coleman and Liau Readability Index

The index was created by a critical of syllabic techniques experts named Coleman and Liau in 1975. The present formula was developed by computer, so that it depends on an advanced formula based on digital method. It counts the number of words and sentences of hard copy texts, instead of manually hard-coding the text. Unlike, the previous formulas, the Coleman and T.L Liau formula counts the number of syllables or coding the text. Therefore,



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the texts can easily be analyzed and scanned into word processor for the calculation process using use a free OCR program to recognize character . The formula provides the school level that any child needs to understand a piece of writing (Jatinderkumar ,15 .19)

The Coleman-Liau formula is widely used in schools and hospitals since it is used along with other formulas . the cooperation between this formula and other formula provides an advanced method for the calculation of the readability within a text . It provides also value to western –European texts in which it used for comparative purposes and evaluating the lengths of words. Besides ,the formula is highly used within the Law sector . It is used to gather judge’s written judicial opinions during court case . Judges have difficulty in writing a whole range of readable opinions ; so that using the Coleman –Liau formula would make them reduce the length words to be able to discuss the court cases within less readable opinions .

### **II.5. 9 Lix Readability Formulas**

Carl-Hugo once started the formula relied on the different text features as variables including sentence length , complexity , unfamiliar words. However, he eliminated all the previous features to rely on only one variable which was accurate including sentences (Anderson , 92). The following equation describes the calculation process of the Lix formula

$$\text{Lix} = \text{percentage of words} + \text{average number of words per sentence.}$$

The previous formulas discussed calculate the syllables and the number of hard words within a piece of writing , that works well with English texts , but with the non – English text Lix formula focus much more on the sentences in which it calculates the percentage of words within seven or more letters . Like the Spache , and fry formulas , Lix calculates the average words per sentences(journal of reading , 96)

### **II.10 Rix readability formula**

A decade after , an Australian teacher called Jonathan Anderson created the Rix formula . The teacher studied the validity and the usefulness of the Lix formula, so that to convert it to the grade level ,since many scholars and teachers find it helpful . He converted the Lix scores to grade through using the several distinct tests. He used a cloze testing a type of comprehension tests in which experts predict the omitted words of the passage in order to indicate a high level of accuracy of Lix . Then, he used a recall testing to test the number of memorable words that showed a positive feedback about the accuracy of the Rix version (Journal of reading , 92).

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## II.11 Forecast formula

In the 1970 s, the creation of formulas was trend , in which many formulas were created , among them the Forecast formula . It improved the military training documents that include surveys, questionnaires and multiple choices tests . Unlike many formulas , the forecast one analyzes the documents and school materials through complete sentences and vocabulary elements above the fifth grade (Heidi ,27)

The Forecast formula is highly used in the following domains :

- The forecast formula is mainly concerned with calculating the readability , and the functional literacy including the ability to identify, interpret ,communicate and compute
- It improves the material used by readers ,
- It is a fundamental base for technical writers and a means for research tools with more reliable results
- The forecast formula's results are mainly education grades of 9-10 .

## II.12 Linsear Write Readability Formula

John O'Hayre published Linsear write formula for the first time in 1966, in which he pointed out the importance of clarity . It is a based text formula with monosyllabic sores . The calculation process is based on counting a 100 word sample with one syllables word except for auxiliaries and indefinite articles. Then, counting the number of sentences in the 100 word sample, in which each semicolon or period provides three pointes . The scores are the result that got through counting each three points within the whole piece of writing. The following table shows how scores are described within the Linsear write formula.

The scores	Description
70- 80 points	Average and adult readers
- 70 points	Too hard going
+85 points	Too simplistic

**Tab4. Linsear Write Readability Formula's scores description**

The Linsear formula takes the style into account, in which strong verbs are highly advocated rather than the usage of passive phrases that includes auxiliaries or article. it focus on the active voice writing since it will engage readers within the research . For instance, "I investigated the problem" is way better than" the problem have been investigated "in readers eyes (Journal of Reading ,13)

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## II.13BNP Readability Formulas

Created by Behira, Nait-Brahim, and Padoin 2022, BNP formulas are the first formulas that predict reading times for Algerian middle school EFL learners. The formulas give an extreme importance to the reading skill to help English teachers who have difficulties in selecting a suitable text for their student's level. The formulas are not only dedicated to teachers but also to textbook writers that need tools to adapt the Algerian middle school EFL textbooks. Besides, the formulas help teachers in estimating approximate reading times for learners to do a specific task within a reading session, it can play a vital role in the selection of the adequate text, the planning of the reading lessons and within the change or the modification of the texts that do not fit the student's level or do not fit the set reading time. Algerian textbook writers can use BNP formulas in order to determine the suitability and the appropriateness of the text length and consistency they include to match the target learners. They also provide teachers with the estimated reading time for each text (Behira et al. ).

Algerian middle school teachers and textbook writers can make use of BNP Formulas accessing the website:

<https://transfer.hft-stuttgart.de/pages/ulrike.pado/behira/index.html>

The website includes a space in which users can insert manually their texts. It calculates the number of characters within the inserted text, with many other options, including choosing the suitable grade among the four middle school grades (1<sup>st</sup>, 2<sup>nd</sup>; 3<sup>rd</sup> and 4<sup>th</sup> grade) and choosing the right category that describes students' level. The following table shows the available categories on the website and their representations:

<b>The category</b>	<b>Schooling Scores</b>	<b>Learner' Profiles</b>
Mixed ability group	English scores range from <b>0</b> to <b>20</b>	Standard learners
High ability group	English scores range from <b>16</b> to <b>20</b>	Learners with a very good level of English
Good ability group	English scores range from <b>13</b> to <b>15.9</b>	Learners with a good level of English
Average ability group	English scores range from <b>10</b> to <b>13.9</b>	Learners with an average level of English
Low ability group	English scores range below <b>10</b>	Learners with a low level of English

**Tab5. BNP Formulas categories representations (Behira et al. 2022)**

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## **II.14 Conclusion**

A readability formula is an instrument to estimate the difficulty level in understanding reading text. Amount of difficult words ,amount of words in a sentence and the length of sentences got the readability score based on the formula in the reading text .It is not only determined by the achievement of the goal in teaching reading ,but also by how interestingly and attractively the text is written .

# **Chapter Three**

## **Data Collection and Analysis**

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## Chapter Three

### Data Collection and Analysis

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## Chapter Three

### Data Collection and Analysis

#### III.1 Introduction

This chapter discusses the research method used in this study . It explains the research presentation and interpretation of the data . Additionally , It discusses the instruments and data collecting techniques used that include a BNP formulas predictor as the way of measurement and a teacher's interview . It defines the method and provides a clear comparison of the results obtained at Hassani El Hadj middle school in Tiaret .

#### III.2 Research Design

In this research, an experimental research was used as a research design, not to test the correlation between variables. But to test the effectiveness of BNP formulas in estimating reading time .

Research method is a set of technical procedure that arrange systematically and logically along with scientific principles. The researcher used an experimental research with analysis quantitative approach. The experiment focuses on analyzing and interpreting recorded time to learn about the effectiveness of BNP formulas in estimating reading time .

The material includes texts of different sizes and different levels from easy to difficult and other documents. The texts deal with various themes ( letters, biographies , folk tale from Sambas , stories) , which pupils may have a background knowledge on them .

Therefore, content analysis is a research method applied to written materials in sort of tables obtained through counting the pupil's time consumed in reading and the timing provided from the predictor , besides an interview with experienced English teachers.

Although the analysis process of effectiveness and the usefulness of the Predictor for Algerian Middle School EFL Learners use a mathematical pattern in this research to compare between the reading Time provided from that Predictor and the reading time consumed by pupils from Hassani El Hadj Middle school. The difference between the two time recorded was described.

#### III.3.Data Collection

In this research the data was taken from two sources. The first one was the time provided from the BNP reading time predictor for Algerian Middle School EFL Learners, and the second was the pupil's reading time spent in reading texts in the classroom. The texts were

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taken and updated from English textbooks and the Internet in order to fit the pupil's level and grades.

In this research the researchers used a timer to collect the data and the tables themselves include levels, grades, time recorded in form of hours, minutes and seconds. They provide a detailed comparison between the time recorded within each level and grade.

The participants, have been given a thoughtful attention , in which the researcher took into consideration their mental trait, popularly known as the 'Big Five' include conscientiousness, agreeableness, openness to experience, extraversion and locus of control. As a result the researcher has chosen the participants carefully . The data were analyzed through transcription , interpretation .

Moreover , in this research, the sample of pupils was taken from the fourth middle school levels of Hassani El-Hadj Middle School in Tiaret . Each grade's sample was divided into groups according to their levels "high ability , low ability and average ability" . After every English class four to six pupils from all the three level categories within the same grade are provided with a text to read . The reading time consumed from each pupils was taken separately. The timing recorded will be analyzed and compared to the timing provided by the predictor.

### **III.4 Research Instruments**

Instrument of the research is equipment that is used by the researcher to collect the data, in which it is important to get the accurate data. It means that an instrument is some tools that were used to get data which was done by analyzing or observing certain object to collect the appropriate data.

The instruments of this research were BNP formulas and pupils from all the four levels from Hassani El Hadj middle school and some teachers from different school from all over the state of Tiaret . The PNB reading time predictor was used as a way of measurement, and the recorded time got from pupils reading within many sessions . The analysis would be useful as a direction for the EFL teachers and predictor reading time developer to measure reading time based on the level and reading abilities .



### III.5 Data Analysis

To analyze the data some steps were used .First , the pupil's grades, reading abilities “ high, low and average “ were used as the resource of this research. After selecting the pupils, texts were compiled and updated. Second ,the number of sentences, number words, and characters of each text were counted . Third, researcher used the PNB formulas Predictor to calculate the time needed to read a various given texts . Then, a timer was used to record pupil's reading time of the same texts . The results provided from both the predictor and the research participants were classified in form of tables. The researcher compared between the two. Results were described and given further explanation related to the reading time within the BNP formulas , besides determining the grades of each reading texts by comparing the result of the scores as shown in the readability table .

Text	Title	Number of		
		words	sentences	characters
1	Ducks	30	6	159
2	My family	48	8	239
3	Dear diary	98	14	527
4	A tragic accident	79	7	436
5	A message from our planet the earth	61	12	328
6	Dear Shanti	217	23	1114
7	J k Rowling	105	11	627
8	Beauty and the beast	248	26	1314
9	Last summer Holiday	103	11	534
10	camping	122	11	689
11	Thomas Alva Edison	172	18	1000
12	The stingy and the generous (A folk tale from sambas)	211	21	1125

**Tab6. Text's Counts**

### III.5.1 Experiments

BNP formulas predictor is a site that calculates the time needed to read a given text by Algerian middle school learners created by Younes BEHIRA , Abdelghani NAIT-BRAHIM , and Ulrike PADO. It's created by English teachers. Each level is presented based the pupil's abilities “ high, low ,average , mixed abilities”. The focus of this research was the time consumed in reading texts . The recorded time within the whole grade and levels showed a different results. All time scores were classified in tables .

BNP Formulas and teacher’s interview were used to explore the usefulness of the BNP formulas in estimating the reading time. The scores of the reading time were gotten by counting the characters , identifying the level and the grade from the BNP Reading Time predictor . After using a timer , the researcher continued to calculate the consumed time within the pupil's reading using several texts within the same level and grade in order to gather as much as possible results through using a timer , then they were classified in the table .Furthermore, the researcher made a comparison in which he complied the two timing and interpreted them in a form of tables that show the variations noticed between the two time scores.

#### ❖ Experiment 1

Level	Category	BNP Estimated Reading Time scores	Learner	Learner’s Reading Time	Variations	
First year	High-ability	00:00:30	L1	00:01:04	+34s	low
			L2	00:01:05	+35s	low
			L3	00:01:31	+1m1s	low
	Average -ability	00:01:00	L4	00:01:42	+42s	low
			L5	00:01:11	+11s	low
			L6	00:01:01	+1s	low
	Low- ability	00:01:30	L7	00:02:23	+53s	low
			L8	00:02:55	+1m25s	high
			L9	00:02:12	+42s	low

**Tab7. Text 01 readability scores**

Table 8 demonstrates that three readers from three first year middle school learners’ categories were selected for this experiment .Their estimated reading times for Text 1 (ducks) are compatible with their real reading time except for one low- ability learner (L8) with +1m25s .

❖ Experiment 2

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
First year	High-ability	00:02:00	L1	00:02:20	+20s	low
			L2	00:02:44	+44s	low
			L3	00:02:15	+15s	low
	Average - ability	00:04:00	L4	00:04:22	+22s	low
			L5	00:03:57	-03s	low
			L6	00:04:35	+53s	low
	Low- ability	00:04:30	L7	00:04:42	+12s	low
			L8	00:05:56	+1m26s	high
			L9	00:04:55	+25s	low

**Tab8. Text 02 readability scores**

Table 9 demonstrates that three readers from three first year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 2(family) are compatible with their real reading time except for one low-ability learner (L8) with +1m26s.

❖ Experiment 3

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading time	Variations	
First year	High-ability	00:02:00	L1	00:02:14	+14s	low
			L2	00:03:03	+1m03s	low
			L3	00:02:16	+16s	low
	Average - ability	00:04:00	L4	00:04:56	+56s	low
			L5	00:04:43	+43s	low
			L6	00:04:56	+56s	low
	Low- ability	00:05:00	L7	00:06:11	+1m11s	low
			L8	00:06:21	+1m21s	high
			L9	00:06:13	+1m13s	high

**Tab9. Text 03 readability scores**

Table 10 demonstrates that three readers from three first year middle school learners' categories were selected for this experiment.Their estimated reading times for Text 3 (Last summer holiday) are compatible with their real reading time except for two low-ability learners (L8 and L9) with +1m21s and +1m13s respectively.

❖ Experiment 4

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
First year	High-ability	<b>00:02:00</b>	L1	00:03:04	+1m04s	low
			L2	00:03:38	+1m38s	high
			L3	00:02:58	+58s	low
	Average-ability	<b>00:02:30</b>	L4	00:03:34	+1m04s	low
			L5	00:03:27	+57s	low
			L6	00:03:15	+45s	low
	Low-ability	<b>00:03:30</b>	L7	00:03:55	+25s	low
			L8	00:04:59	1m29s	high
			L9	00:04:02	+32s	low

**Tab10. Text 4 readability scores**

Table 11 demonstrates that three readers from three first year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 4 (Dear diary ) are compatible with their real reading time except for one high-ability learner (L2)with +1m38s and a low-ability learner (L8) with +1m29s

❖ Experiment 5

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
Second year	High-ability	<b>00:01:00</b>	L1	00:01:09	+9s	low
			L2	00:01:11	+11s	low
			L3	00:01:14	+14s	low
	Average -ability	<b>00:01:30</b>	L4	00:01:52	+25s	low
			L5	00:01:45	+15s	low
			L6	00:02:13	+43s	low
	Low- ability	<b>00:02:00</b>	L7	00:02:17	+17s	low
			L8	00:03:05	1m05s	low
			L9	00:02:22	+22s	low

**Tab111. Text 5 readability scores**

Table 12 demonstrates that three readers from three second year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 5 are compatible with their real reading time.

❖ Experiment 6

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
Second year	High-ability	00:01:30	L1	00:03:38	+2m08s	high
			L2	00:03:04	+1m34s	high
			L3	00:02:58	+1m28s	high
	Average - ability	00:02:00	L4	00:03:04	+1m04s	low
			L5	00:03:12	+1m12s	low
			L6	00:03:25	+1m25s	high
	Low- ability	00:03:00	L7	00:03:59	+59s	low
			L8	00:03:55	+55s	low
			L9	00:04:02	+1m02s	low

**Tab12. Text 6 readability scores**

Table 13 demonstrates that three readers from three second year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 6 (A tragic accident) are compatible with their real reading time .Except for three high- ability learners (L1)with +2m08s , (L2) with +1m34s ,(L3) with +1m28s and an average -ability learner (L6) with +1m25s

❖ Experiment 7

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
Third year	High-ability	00:02:00	L1	00:02:23	+23s	low
			L2	00:01:57	-03s	low
			L3	00:02:13	+13s	low
	Average - ability	00:03:00	L4	00:03:47	+47s	low
			L5	00:04:24	+1m24s	high
			L6	00:03:58	+58s	low
	Low- ability	00:04:00	L7	00:05:23	+1m23s	high
			L8	00:05:18	+1m18s	low
			L9	00:04:49	+49s	low

**Tab13. Text 7 readability scores**

Table 14 demonstrates that three readers from three third year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 7 (camping) are compatible with their real reading time .Except for an average -ability learner (L5) with +1m24s and a low- abilities learner (L7)with +1m23s.

❖ Experiment 8

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
Third year	High-ability	<b>00:02:30</b>	L1	00:02:25	-05s	low
			L2	00:02:55	+25s	low
			L3	00:02:23	-07s	low
	Average -ability	<b>00:04:30</b>	L4	00:05:16	+46s	low
			L5	00:05:31	+1m01s	low
			L6	00:05:24	+54s	low
	Low- ability	<b>00:05:30</b>	L7	00:06:43	+1m13s	low
			L8	00:05:56	+26s	low
			L9	00:06:25	+55s	low

**Tab14. Text 8 readability scores**

Table 15 demonstrates that three readers from three third year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 8 (Thomas Alva Edison) are compatible with their real reading time.

❖ Experiment 9

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
Third year	High-ability	<b>00:03:00</b>	L1	00:04:11	+1m11s	low
			L2	00:04:14	+1m14s	low
			L3	00:04:22	+1m22s	high
	Average -ability	<b>00:05:00</b>	L4	00:05:39	+39s	low
			L5	00:05:44	+44s	low
			L6	00:06:25	+1m25s	high
	Low- ability	<b>00:06:00</b>	L7	00:06:04	+4s	low
			L8	00:06:16	+16s	low
			L9	00:06:12	+12s	low

**Tab115. Text 9 readability scores**

Table 16 demonstrates that three readers from three third year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 9(the stingy and the generous ) are compatible with their real reading time .Except for one high- ability learner (L3) with +1m22s and an average learner (L6) with +1m25s.

❖ Experiment 10

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
Fourth year	High-ability	<b>00:03:00</b>	L1	00:03:34	+34s	low
			L2	00:04:02	+1m02s	low
			L3	00:04:28	+1m28s	low
	Average - ability	<b>00:04:00</b>	L4	00:04:32	+ 32s	low
			L5	00:05:22	+1m22s	high
			L6	00:05:34	+1m34s	high
	Low- ability	<b>00:05:00</b>	L7	00:06:21	+1m21s	low
			L8	00:06:44	+1m44s	high
			L9	00:06:05	+1m05s	low

**Tab16. Text 10 readability scores**

Table 17 demonstrates that three readers from three fourth year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 10 (Dear Shanti) are compatible with their real reading time .Except for two average - ability learners (L5)with +1m22s , (L6) with +1m34s and a low -ability learner (L8) with +1m44s

❖ Experiment 11

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
Fourth year	High-ability	<b>00:01:30</b>	L1	00:01:31	+01s	low
			L2	00:01:35	+05s	low
			L3	00:01:33	+03s	low
	Average - ability	<b>00:02:30</b>	L4	00:02:33	+03s	low
			L5	00:02:43	+13s	low
			L6	00:02:32	+02s	low
	Low- ability	<b>00:03:00</b>	L7	00:04:35	+1m35s	high
			L8	00:05:21	+2m21s	high
			L9	00:04:18	+1m18s	low

**Tab17. Text 11 readability scores**

Table 18 demonstrates that three readers from three fourth year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 11 (J K Rowling) are compatible with their real reading time. Except for two low- ability learners (L7)with +1m35s and (L8) with +2m21s .

## ❖ Experiment 12

Level	Category	BNP Estimated Reading Time scores	Learner	Learner's Reading Time	Variations	
Fourth year	High-ability	00:03:30	L1	00:03:49	+19s	low
			L2	00:03:35	+05s	low
			L3	00:03:45	+15s	low
	Average - ability	00:05:00	L4	00:05:25	+25s	low
			L5	00:06:34	+1m34s	high
			L6	00:05:57	+57s	low
	Low- ability	00:06:00	L7	00:07:08	+1m08s	low
			L8	00:07:43	+1m43s	high
			L9	00:07:12	+1m12s	low

**Tab18. Text 12 readability scores**

Table 19 demonstrates that three readers from three fourth year middle school learners' categories were selected for this experiment .Their estimated reading times for Text 12 (Beauty and the beast) are compatible with their real reading time .Except for one average - ability learner (L5) with +1m34s and a low- ability learner (L8)with +1m43s .

### III.5.2Teacher's Interview

The teacher's interview is addressed to six teachers of English from Hassani El Hadj middle school in Tiaret who participated in the research experiments. It includes nine questions that aim to identify their techniques and strategies they use while teaching reading, and identify the types of difficulties Algerian teachers encounter during teaching reading as a skill. It aims to look for the main reasons of the difference in time occurred between the time that the reading time predictor has provided and pupil's time consumed. Before shedding light on the analysis of the teachers' answers to the research interview , it is worth mentioning that the participant teachers were most helpful since they collaborated in calculating the time that pupils consumed from different levels and categories .

#### ❖ **Question one:**How long have you been teaching English?

The aim behind question one is to reveal the number of years during which teachers have been teaching English in order to discover the duration of experience which they get through teaching English subject. Based on the participant's answers and data collected; the results show that the teachers possess enough experience in teaching English as a foreign language . The experience ranges from 7 to 14 years. Four of them have the experience of



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more than 10 years in teaching English .However, two of them have experienced teaching English in less than 10 years .

- ❖ **Question two:**What kind of texts do you usually use and how do you deal with the reading phase of the chosen text ?

The basic aim of this question was to find out the types of texts which teachers usually use that are engaging and easy for learners to read in less time and effort . The participants state that they use challenging , interesting texts that fit pupil's level .the type of the texts are related to the syllabus . The teachers estimate that a typical step is used which is a silent reading for 5minutes with a brief explanation of the difficult words in the text.

- ❖ **Question three:** What techniques or strategies do you use to teach reading skills?

Question three was given on the basics of the determination of the most known and popular strategies and techniques used b English teachers in teaching a PDP frame work. Most of them follow the instructions of the text book used in classrooms with the usage of text overview and scanning and jigsaw method that boost pupil's comprehension of the text.

- ❖ **Question four:**What difficulties did you face while teaching reading skills?

The goal of question four is to identify the main problems that teachers may struggle with while teaching reading skill . The problem that most of the teachers face is low level of pupils in English language and their efficiency in reading comprehension .Also , teachers believe that the time of reading cause a problem for them since some pupils read in few minutes less than other pupils do.

- ❖ **Question five:** Haveyou everwondered whichfactors determine the time to read a text?

The purpose of question five is to know how much notions Algerian English teachers have about reading time, and to know how English teachers estimate the importance of the time factor within areading lesson. The teachers believe that pupil's level, the length of the text, and difficult words are great factors to determine the time to read a text.

- ❖ **Question six:**How much time do you usually give to your pupils to read a given text and on what basis do you do so?

Concerning question six, the researcher attempts to investigate the approximate time that researchers usually give to pupils for reading. In addition to that, to investigate on which basis they provide the estimated reading time. The participants claimed that they used to give 10 minutes because the pupils read alone the text without teacher intervention. However, now

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since they explain the difficult words and they help pupils with the text 's comprehension they provide only 05 minutes that is not changeable with all types of texts .

- ❖ **Question seven:** Have you ever heard about a reading time predictor for Algerian Middle school EFL learners?

Based on question seven the researcher seeks to know whether English teachers have ever know the existence of a reading time predictor and if they used it before . The results show that all of the teachers heard about a reading time predictor at university or from a colleague or they see it in the internet and they tempt to use it. However they stop its usage because it they questioned its proficiency.

- ❖ **Question eight:** There is a huge difference between the time that the reading time predictor has provided and pupil's time consumed in reading. In your opinion this difference is due what exactly ?

Question eight attempts to figure out the reasons of the predictor's deficiency using the teacher's experience. Most of the teachers claim that pupil's characteristics is one of the main factors, since every single pupil capacity is way diffident from the other one ( pupil's diversity ) . The predictor only categorises pupils without having a deep description of the mental abilities, attitudes, personalities, interactions among learners. In addition, they believe that vocabulary,lexis, being familiar with the topic of the text are importantfactors.

- ❖ **Question nine:** Would you please suggest some effective technique and strategies to estimate a approximate reading time for English texts and how can researcher develop the predictor for more a adequate results ?

The objective behind question nine is to gather the effective technique and strategies to develop the reading time predictor and how teachers can estimate an approximate reading time for their English texts. They provided the following strategies:

- Training pupils to read.
- Motivating pupils to read the English texts in less time and effort.
- Preparing pupils for reading (board discussion of themes).
- Selecting topic of interests that engage pupils inreading.
- Teachers take into account their pupil's level
- Looking for more online reading strategies that have an estimated reading.
- BNP Formulas' designers should give much more importance to the diversity of pupil's capacities and interests.

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### III.6 Conclusion

The present study focuses on testing the efficiency and the ability of the BNP formulas predictor to correctly and accurately predict the time needed by the students to read a specific text. Many scholars have criticized readability formulas as these formulas are considered insensitive towards the change in the factors included, words and sentences length and presence in vocabulary list (Anderson & Davison, 1988, Pearson cited in Carrel 1987, Urquhart 1985). The results of this study, however, indicate that the predictor has predicted many times the correct timing that it took the students to read a specific text, but on the other hand, it also failed in predicting many times the correct time to read other texts.

Each level has been given four different texts to all the categories. The First year "high category" has scored (00:00:34) in reading the first text "ducks", the same time of the predictor (00:00:30). However, it's not the case with low and average abilities that was (00:01:42). Along with, the most categories from the rest three levels have scored timing much way different from the one the predictor provided; the second year high category has scored (00:02:04) while reading the text of Diary, while the predictor gave the following timing (00:03:04). In addition to, third and fourth years low category, pupils have scored 00:05:23 in reading the text of camping and 00:07:08 in reading the text of beauty and the beast; while the predictor provided the following time (00:04:00) to read the text of camping and 00:06:00 to read beauty and the beast. This research gives the description that the predictor of reading time is incorrect in most cases.

Based on the results of reading time provided, it proves that the predictor has made 08 false predictions out of 12 predictions moving from one category to another. The result finding of the text 8,9,10,11,12 shows that the predictor failed mainly in predicting the exact time for reading these texts within all the abilities.

The results of analysis and the comparison between the BNP readability time predictor and the time spent by students during reading shows that the time the predictor provides is not necessarily to be correct, in some cases it is wrong. It may cause a problem during the planning of the lesson, so in the case of a wrong prediction, the teacher will disturb the most important element of the classroom management, which is time management. In fact, in the expected conclusion it is for a predictor to work over twenty-four hours correctly, not once that it predicts correctly, and another time it makes a mistake. As a result, the teacher is unable to get the correct time from the predictor every time he asks for.

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The analysis of the teacher's interview revealed that teachers prepare well for the reading lessons, assigning great importance to the texts they present to their students, they're easy, challenging, interesting texts that fit pupil's level and related to the syllabus. They explain the texts and rely on silent reading, which most inspectors focus on.

Teachers use many techniques and strategies like the jigsaw, text overview and scanning to enhance the learner's focus and a good text's comprehension. On the other hand, teachers encounter many problems while dealing with the support while teaching a reading lesson including poor English level and the inability to understand the vocabulary of the text. As a result the teachers without exception provide 05 minutes to their pupils in order to read the given text without consulting any predictor since they claimed that the predictors lack credibility in showing results.

The teachers who answered the interview are the same teachers who collaborated in gathering the data. They noticed the difference in time that occurred between the time provided by the predictor and the time spent by the pupils while reading. The teachers relied on their great experience (from 10 to 14 years of teaching English language) to explain the imbalance. They claimed that there are many factors that the predictor could not take into account while calculating the time including pupil's characteristics, diverse mental capacity. In addition to that, they believe that pupil's level of English and being familiar with the topic of the text are important factors that controls the necessary time for reading a given text.

Teachers still face difficulties to determine the necessary time to read a given text since they rely only in their experience including some visible details noticed in the pupil's performance because they did not use a correct predictor that provide them with an exact time to read a text.

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This chapter attempts to discuss the results of the findings of both research tools namely the experiment and the teacher's interview. The researcher attempted to interpret and scrutinize the answers to answer the validity of the hypothesis made at the beginning of the research . After analyzing the data from the comparison between the time scores gathered from reading texts using the PNB formulas and the time spent by pupils , the researcher found that the PNB formulas estimated a compatible reading time for almost the given texts. Based on the results estimated by the predictor for twelve reading texts ,it indicated "88" minor variations and "20" major ones out of 108 variations moving from one category to another. The result finding shows that the predictor succeeded mainly in predicting a compatible reading times for Algerian middle school EFL target learners in Tiaret.

# **General Conclusion**

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## General Conclusion

The concept of readability has developed over time, in line with theories about reading process .Traditionally, scholars and teachers have focused largely on the correctness of the input and the features of the text itself for a successful reading lesson .However , now teachers and scholars give much more focus to the timing dedicated for reading those texts and to what features are responsible for estimating the reading time within a reading session .

More recently, as more attention has been given to the role of time in reading sessions, as well as to the ability of estimating the right necessary time for reading a given passage. Scholars have tried to use different formulas among them the BNP ones in order to detect successfully readability through a time reading predictor, that enables EFL middle school teachers to calculate the reading necessary for their text .

The present research attempted to analyze the effectiveness of the BNP formulas in estimating the reading time of a given text by including and exposing details about reading skill and timing consumed by pupils from Hassani El Hadj middle school and the comparison between the timing consumed by both the pupils reading and the predictor .

This dissertation was divided into three chapters after the general introduction of the study , the first chapter was devoted for the presentation of the theoretical background of the our work .The second chapter tackled the different formulas existing with much more focus on the BNP one, since it's the formulas tested within this study. The third chapter which was practical delved with the research design, the results concluded by some suggestions for the middle school EFL teachers and future researchers .

The research's methodology was based on a fieldwork experiment the researcher has conducted in the middle school of Hassani El Hadj with a target learners from the four levels including different categories in order to record the time consumed while reading several texts. Besides an interview with experienced EFLteachers for further data and examination. The reading time estimated to read the texts were also provided from an Algerian middle school reading time predictor, quantitative data was obtained that was deeply examined and compared .

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The analysis of the information obtained all the way through conducting the two previously mentioned research procedures allowed to testify the hypothesis we set in the beginning of the study. It revealed that the BNP formulas estimate a compatible time for readability. The results of analysis show that the predictor results are valid.

After the analysis of the present study which was about examining the effectiveness of the BNP formulas in estimating IFL learners reading time. It's helpful to add some suggestions and recommendations for teachers and designers for better mastery of the time management while teaching reading lesson. BNP Formulas should be used by English teachers. Additionally, teachers must give extra value to the time they give for their pupils to read given text and they must look for new and creative ways to make a better use of time during reading. Moreover, teachers should conduct the same action research in their own schools with different target learners to test the effectiveness of the BNP formulas on a large scale to back up validity of the formulas in predicting congruent reading times.

To sum up, the present study tries to answer different questions related to the effectiveness of BNP formulas in providing feasible results of time readability. Experiments' results of this study demonstrate few major variations between predicted and real reading times among the different categories of learners.



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# Appendices

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## Appendix 01

### **Text 1 :** Ducks

These are ducks . They live in a pond. They can fly and swim . they can give us eggs just like chickens . they are white and brown . they say quack quack .

### **Text 2 :** My family

Not many years ago. I lived in a small town with my family . it was so wonderful to be close to the nature. In my childhood i used to spend my free time playing hide and seek with my friends. Also I used to Play with my spinning top . At nights my mother used to read us fairly tales to my sister and I. On weekends my parents used to take us to the park and we used to ride our bicycles together. My sister and i didn't use to eat junk food , because my mother worried about our diet We were healthy kids.

### **Text 3 :** A tragic accident .

yesterday Morning at nine o'clock , a tragic accident occurred on the main road to the town hall . I was waiting for the bus when suddenly two cars collided in the cross road . One of drivers was speaking on his mobile when the other one wasn't seatbelt. Unfortunately, he died at once. Some people come quickly to help , but a policeman on duty told to keep away . He asked his colleagues to call an ambulance. I felt sad about them.

### **Text 4:** A message from our planet earth

Dear children ,

I'm unhappy . My seas and rivers are dirty . My forests are dying. The air is full of smoke. Garbage is every where in my cities. They are growing bigger and noisier and my animal's Park is getting smaller. Some of my animals are in danger. What will you do to help me ? Please help me.

with love

Mother earth .

### **Text 5:** J K Rowling

Joanne Kathleen Rowling better known under JK Rowling is a British writer. She wrote "Harry Potter" series. She was born in July 1965 in England. She started writing at the age of 6 . In 1999, she wrote her first "Harry Potter" in Portugal where she lived with her Portuguese husband and their daughter Jessica . Later, she divorced and returned to England . She had a difficult life there. She was jobless , until her first " Harry Potter" was published . JK

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Rowling became very famous and rich. Her books were sold more than 400 millions copies .  
In 2006 , she received an honorary degree from the University of Aberdeen .

**Text 6:** Dear diary

Today is my unforgettable 12th birthday party. Lots of people are coming. They are my friends and my family. They give me some presents and they are doing things that I like. Suryo is playing the guitar and Sally is standing next to Suryo. She is playing the violin. They are playing my favourite music. Everybody is singing Nidji's song for me. In the middle of the room, Nani is dancing a beautiful dance. It is great. Aunt Uilly is serving all the guests a glass of coke. My Parents are chatting. I really like this party.

**Text 7:** Dear Shanti

It was my birthday last week and my family gave me a small party. I invited my best friends to the party. There were about 15 people in the party, including my parents and my sister, Putri. It was a great surprise that my uncle Awang could come too. He works in a small company in Bengkulu, Sumatra. There were some presents for me. My parents gave me a new Harry Potter novel. They know that I love reading. My sister bought me a Spiderman CD game. Both of us like playing video games and we often play together. Butet, my best friend, gave me a CD of a song collection from my favourite singers. She really knows my hobby. And I really like the present from my uncle. He did not give me any books or CDs but he taught me and my friends to play a traditional game from Bengkulu. The game has a funny name: Palak Babi. Palak is from the word Kepala or head, in English we say Pig Head. My friends and I played it in the yard. It was very exciting. We were tired because we had to run a lot but we enjoyed the game. Do you like playing traditional games, Shanti? Please write me back, okay.

Best regard,

Iwan

**Text 8 :** Beauty and the Beast

Once upon a time there was a prince. He was good looking and very rich. He lived in a beautiful castle together with his staffs and servants. One rainy dark night, a woman came to his castle. She was old and ugly. The prince did not like her and sent her away. After he sent the woman away, she turned into a beautiful fairy. She cast a spell over the prince and his castle. The prince became a beast. He was no longer good looking. He looks very ugly instead and all his servant turned into furniture.

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One day, an old man named Maurice was travelling past the castle. It was raining so hard so he decided to enter the castle. When the beast saw him, he captured him. After some time, Maurice's daughter, Belle, began to worry about him. She started to look for him. Finally, she arrived in the castle and she found her father there. She asked the beast to let her father go but he refused. Belle, then, agreed to stay in the castle so that her father could go home. While Belle was staying at the castle, the beast slowly changed. He was not mean anymore. Belle began to like him and finally they fell in love with each other. Right after she declared her love for him the spell was broken. The beast and his servants became human again. Then, the beast and Belle got married. They lived happily ever after.

**Text 9:** Last summer holiday

Last summer holiday, my family and I spent one night at the countryside. We stayed in a small house. It had a big garden with lots of colourful flowers and a swimming pool. First, we made a fire in front of the house. Then, we sat around the fire and sang lots of songs together. After that, we came into the house and had dinner. Next, we sat in the living room and watched a movie. Finally, everybody fell asleep there. We woke up very late in the morning and had breakfast. In the afternoon we went home. We were all very happy.

**Text 10:** Thomas Alva Edison

Thomas Alva Edison was one of the greatest inventors of all time. He lived from 1847 until 1931. He was born in Milan, Ohio in 1847. In 1854 his family moved to Port Huron, Michigan. When he was 12, he got very sick. As a result, he became partially deaf. He attended school for only three months there. So his mother taught him reading, writing and arithmetic. In 1862, Edison saved a boy from being run over by train. The boy's father operated telegraph machine. As thanks, the father taught Edison how to operate the telegraph. Later, Edison made improvement to the telegraph. In 1876, Edison started the first industrial research laboratory at Menlo Park, New Jersey. One of his inventions is the long lasting light bulb. Thomas Alva Edison died in 1931. When he died all electric current in the country was turned off. Although he did not have enough formal education and was deaf, he became a famous inventor. Once he said "genius is one percent inspiration and ninety-nine percent perspiration".

**Text 11:** The stingy and the Generous (A folk tale from Sambas)

Long, long time ago there lived two brothers. They had completely different characters. The big brother was very stingy and greedy. He never shared his wealth with poor people. The little brother was exactly the opposite. He was generous and kind to poor people. He even had no money left because he had shared it with the poor. One day the generous brother was

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sitting in his garden when suddenly a little bird fell on his lap. It was wounded. He took care of it, fed it and put it in a nice cage. After the bird was healthy, the generous brother let it fly. After some time the bird returned to him and gave him a watermelon seed. The generous brother, then, planted the seed and watered it until it grew into a good watermelon plant. Yet, the plant was very strange. It had only one fruit; a big and heavy one. When the watermelon was ripe enough, the generous brother picked it and cut it into two. How surprised he was. The watermelon was full of gold. The generous brother sold the gold and became very rich. He built a big house and bought a very large field. Still, he never forgot to share his wealth with the poor.

### **Text 12 : Camping**

Camping is hobby of people of different ages. They usually go camping on weekends or holidays. They live outside their house for one or more days. They bring food, clothes and other daily needs with them. They often bring some cooking utensils and cook their own food. They spend several days, or even weeks in a tent. They do a lot of activities, like fishing, swimming, watching birds and wildlife, and playing games. Camping helps people free themselves from the stress of city life. They leave the city and move closer to nature. Many people believe that camping is very good for health. Hiking around a campsite or swimming in a river or sea nearby is a good exercise for the body.

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## Appendix 02

### ❖ Teacher's interview

I would like to thank you for accepting to answer this interview . The present interview is a second research tool of academic investigation attempting to achieve the main purpose which is investigating the usefulness of the PNB formulas estimating reading time .I would be very thankful if you would accept to provide answers to the following questions .

**1.** How long have you been teaching English ?

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**2.** What is your experience in teaching English especially in teaching reading skills ?

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**3.** What techniques or strategies do you use to teach reading skills ?

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**4.** What problems did you face while teaching reading skills ?

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**5.** Have you ever wondered what are the factors that determine the time to read a text ?

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**6.** How much time do you usually give to your pupils to read a given text and on what basis do you do so ?

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**7.** Have you ever heard about a reading time predictor for Algerian Middle school EFL learners ?

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**8.** There is a huge difference between the time that the reading time predictor has provided and pupil's time consumed in reading . In your opinion what are the main reasons of this difference ?

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**9.** Would you please suggest some effective technique and strategies to estimate a approximate reading time for English texts and how can researcher develop the predictor for more a adequate results ?

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## ملخص

للقراءة في تقدير أوقات القراءة المتوافقة لمتعلمي اللغة الإنجليزية كلغة BNP تبحث هاته الدراسة الميدانية في فعالية صيغ أجنبية في المدرسة المتوسطة الجزائرية في تيارت. ويهدف أيضاً إلى استكشاف آراء معلمي اللغة الإنجليزية كلغة أجنبية كأدوات قراءة تنبؤية. استجوب الباحثون الاساتذة المعنيون كعينة BNP في المدارس المتوسطة حول استخدام صيغ بالاضافة الى تجاربهم على نصوص مختلفة. تُظهر نتائج التجار باختلافات طفيفة و اخرى مرتفعة نوعا ما بين أوقات القراءة المتوقعة والحقيقية بين الفئات المختلفة من المتعلمين في المستويات المدرسية الأربعة، مما يؤكد الحاجة إلى مزيد لنتوقع أوقات قراءة متوافقة لجميع فئات متعلمي المدارس المتوسطة الجزائرية BNP من البحث لتحسين جدوى صيغ

**الكلمات المفتاحية:** قراءة؛ صيغ المقرئية؛ صيغ BNP

للمقرئية؛ وقت القراءة؛ متعلمي اللغة الإنجليزية كلغة أجنبية.