Reading Speed: A Major Factor in Skilled Reading and a Source of Comprehension Impediment

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Abstract

The present study aims at investigating the effects of paced reading on improving Algerian students' reading speed without reducing their reading comprehension. It is hopefully intended to help teachers identify the most effective ways of enhancing reading efficiency for the Algerian students. The current study is stimulated by the fact that reading is by far the most eminent skill that plays a significant role in improving readers' language proficiency, especially in EFL settings. Actually, EFL learners basically rely on this skill to acquire knowledge as the FL is seldom spoken outside the classroom. Nevertheless, students, in general, endure serious reading difficulties which are mainly caused by the lack of reading fluency. They tend to plough through a reading print struggling in a word-by-word reading stumbling at every unknown word, which makes it more difficult to grasp the meaning of what they read. This is explained by the fact that spending more time and energy (not being automatic) at recognizing individual words overloads their short-term memory so that what is stored there is not meaningful to them. This, in fact, hampers their reading comprehension because the mental energy used by a person to process incoming information is a limited cognitive capacity.To achieve the aforementioned aim, an empirical study is carried out. The study sample is divided into two groups: an experimental group is submitted to paced reading training, and the control group is not trained at all. The results obtained in the pretest and post-test are analysed via the statistical student T-test. The latter showed an improvement in reading speed in favour of the experimental group participants without a concurrent decrease in their level of understanding.

Keywords: Reading Fluency, Reading Speed, Paced Reading, Word Recognition, Automaticity Theory, Short-Term Memory, Reading comprehension, Mental Processes, Cognitive Capacities.

Introduction

Is reading comprehension a mere understanding of a written print? Is it as simple as getting information from a text? Since reading is, after all, primarily comprehension, the key question to ask is what is a reader doing in his attempt to construct meaning when he is engaged in a mutual interaction with a written print?

While reading in English, the eyes do not glide continuously over each line of a print from left to right, they rather progress by little jumps or leaps called saccades; the eyes move then stop along the lines in a jumping or a saccadic movement. These intervening stops or pauses are called fixations. The eyes can only see or pick

information when they are still or motionless. When the eyes are in motion, they are functionally blind because their very rapid movement produces only 'a vague blur' or a vague image of the print (Wallace, 1980: 12; Smith, 1985: 20). Slow readers tend to read at the word level (word-by-word) making more fixations, whereas faster readers read through chunks picking up from 2.5 to 3 words per fixation.

If readers do not recognize the words rapidly enough, this will place heavy demands on short-term memory whose capacity is very limited and minimizes the cognitive energy available for comprehension. Hence, even though the decoding of words is accurate, it tends to consume the cognitive processes necessary for comprehension because it is slow and effortful (Perfetti, 1985 ; in Sthothard and Hulme, 1996; 98)

Admitting the fact that, skilled reading involves both speed and comprehension (Perfitti, 1985), and that slow and effortful reading is a major hindrance for EFL students to achieve an effective comprehension of what they read (Fraser, 2004), improving reading speed is a major factor for EFL educators. Starting from this point, the present study is intended to enhance first year LMD students' reading speed through paced reading without losing reading comprehension.

1.Background of the study

Reading speed, being a major factor in skilled reading and a source of comprehension impediment, is thoroughly examined. After defining reading comprehension and emphasizing reading speed as a vital factor for understanding to take place, "Automaticity Theory" being the theoretical support for reading speed is provided.

1.1 Reading Comprehension

A very lucid meaning attributed to comprehension is "understanding what you read" (McShane, 2005; 71). In fact, because the process of comprehension is more or less automatic for good readers, they tend to be unaware of how it proceeds. The definition of comprehension, however, is not as simple as it seems (McShane, ibid.). It is a very intricate process that entails as many definitions as reading; it is so mainly because comprehension is generally regarded as the essence of reading (Durkin, 1993; in Tankersly, 2005: 108).

For McShane (ibid., 70), a preferable definition would consider comprehension as an active process in which readers work at constructing meaning by being engaged in a mutual relation with the written print, relying on their general knowledge about the world to get a message from a text. In this regard, comprehension is conceived as bridging what is known to what is being ignored; linking what is novel to what has been already recognized. Schank (1982: 5) elaborates that the bulk of understanding is vested to discern what have been implied. According to him, much of what is written is generally implied; it is left to our memories to find out what is missing. Unless readers' background knowledge fits with the information printed in the text, reading comprehension is hampered (Badrawi, 1992: 16).

Reading comprehension is further defined by Durkin (1993; in Ma and Med, 2005: 5) as a process that involves an "Intentional thinking". According to this view, to understand a written print a reader engages his /her 'intentional', 'problem solving' and

thinking processes. In like manner, what is written in the text and what a reader generally knows bear on the meaning s / he constructs in his mutual interaction with the written passage (Harris and Hodges, 1995: 39; in NRP, 2000: 4-5). In this respect, as comprehension takes place, words are recognized and their meanings are accessed in the reader's memory. Phrases and sentences are quickly processed so that their meanings do not fade before the next ones are handled. In addition, as a reader attempts to get the message conveyed by the writer, some obstacles many hinder him/her from understanding a specific point or from constructing the general meaning. His engagement in identifying these problems, thinking about them and finding their solutions is part of the comprehension process. All these processes in which a reader shares either consciously or unconsciously render comprehension an active process in which a reader interacts with a text seeking at 'constructing' or 'making meaning' (Kruidenier, 2002: 77) rather than merely getting it from the text.

Although the preceding definitions put the intentional thinking processes readers involve in order to understand a text, as a central focus of their concern, and that the meaning they get is influenced by the knowledge outside their heads as well as information stored inside, these definitions fail to encompass many other factors which also bear on readers' ability to understand a written script. These factors are : the skills and abilities brought by the reader to the reading activity; the nature of the text being read, that is to say, its genre, subject, and the density and the quality of its writing; and the social and cultural factors which make up the context of reading (Ma and Med, *ibid*.).

1.2 Processes Affecting Reading Comprehension

Comprehension entails a number of sub processes: lower order (i.e., word level) and higher order processes (i.e., processes above the word level or text level) specific to reading (Pressley, 2000: 546).

1.2.1 Word Level Processes Affecting Comprehension

Word level processes are involved in decoding words and accessing their meaning in memory.

1.2.1.1 Decoding

Word level decoding, i.e., going from the printed word to some articulatory or phonological representations of the printed word, has genuinely proved to be a major impediment to reading comprehension. Unless he is able to decode, a reader's comprehension is impaired (Adams, 1990; Metsala and Ehri, 1998; Pressley, 1998; in Pressley, *op.cit.*, 546). Skilled decoders do not sound letter by letter when encountering an unfamiliar word; they are rather able to recognize word chunks such as suffixes, prefixes, Latin and Greek roots … etc. This in fact, affects word comprehension a great deal, in other words, the more readers develop the skill to recognize word chunks quickly, the more this facilitates their comprehension. This is mainly because both word recognition and word comprehension take place in short term memory which is limited in its capacity (5 – 7 elements). The more capacity is devoted to word decoding, the less capacity is available for its comprehension, the

more automatic and fluent word decoding is, the better its comprehension tends to be. So, at the level of word reading, comprehension efficiency depends heavily on decoding adequacy (Gough and Tunmer, 1986; in Pressley, *op.cit.*, 547).

1.2.1.2 Vocabulary

As comprehension very much depends on word level processing, the quantity of vocabulary a reader knows is tightly linked to his comprehension skills (Anderson and Free body, 1981; Nagy, Anderson and Herman, 1987; in Pressley, *op.cit.,*: 548). Experimental data find out that a more extensive vocabulary promotes comprehension skills (Beck, Perfetti and Mc Keown, 1982; Mc Keown, Beck, Omanson and Perfetti; 1983; Mc Keown, Beck, Omanson and People, 1985; in Pressley, *op.cit.*,548).

However, as skilled decoding tends to affect reading comprehension, decoding also relies much on understanding. That is to say, the more fluent the decoding, the less conscious effort is required for it, and the more conscious capacity is left over for comprehension of a word. On the other hand, skilled decoding of words depends partially on comprehension. In other words, as a reader decodes a word he has to consider the context in which it occurs in order to determine if the word decoded makes sense in the appropriate context. In like manner, a reader is able to detect a word which is wrongly decoded if it does not match to this context. (Pressley, 2000, *op.cit.*,547-548).

1.2.2 Higher Level Processes Affecting Comprehension

Text level processes are required in assembling words, phrases and sentences taking account of their semantic, syntactic, and referential relationships to construct the meaning of a written print (Daneman, 1991: 513).

1.2.2.1 Text Level Processes Affecting Comprehension

In order to understand a passage readers have to do more than just recognize and comprehend the individual words. They have also to assemble the successive words, phrases, and sentences to construct a meaningful representation of the whole text. Readers must go beyond the word level to extract meaning from sentences and more extended structures such as paragraphs and texts (Just and Carpenter, 1987; in Dechant, *op.cit*., 1991: 12). These higher level comprehension processes involve a number of component processes at the sentence and text levels.

At the text level, readers have to extract the underlying propositions which are considered as "functional units" in language comprehension; they are the smallest units of knowledge that can stand as separate assertion, and that can be expressed in words, even though not the written words themselves(McNamara et al, 1991: 491-492). For instance, the sentence "Regan gave a beautiful bible to Khomeini, who was the leader of Iran" Contains three propositions:

1. Regan gave a bible to Khomeini.
2. The bible was beautiful.
3. Khomeini was the leader of Iran

To understand a written print, readers are required to do more than assembling and integrating the successively encountered propositions in a text. Some of the propositions on which readers rely to construct a whole representation of a passage are not explicitly mentioned, but they are semantically or logically implied. It is on the basis of their knowledge of the world readers make inferences to understand what has been implied (Daneman, *op.cit.,* 1991: 515).

Nonetheless, reading is neither a question of decoding and understanding individual words, nor a matter of assembling words, phrases and sentences together to construct the meaning of a written print; reading further necessitates the development of general concepts which are vital for text comprehension.

2. **Reading Speed**

Reading rate is very important for effective and efficient reading. It is considered as being the backbone of reading fluency. Its significance lies in its role in determining the extent readers are fluent because a fast speed is a criterion of skilled reading. If reading fluency is defined, according to Fraser (2004: 137) as "the ability to read text rapidly, smoothly, effortlessly and automatically with little attention to mechanics of reading such as decoding", reading rate, according to Fraser (*ibid*.), is estimated as being "an accurate measure of reading fluency". It is used, according to Carver (2000: 78) to evaluate readers' quickness in covering words during reading and is recorded in words per minute.

Dechant and Smith (*op.cit.*,1961:222), however, state that an adequate definition of reading speed should entail reading rate in association with comprehension because reading speed is meaningless without understanding what is being read. They elaborate that readers cannot read quicker than they could understand; however, a great number of readers show excessive slowness than their comprehension allows. Therefore, reading speed has to be used to denote the rate at which readers understand a printed text. Being defined as "the ability to decode so many words per minute", reading rate is used, according to Eskey (2005; 568), to describe the process of reading in meaningful groups of words labeled "chunks". Being in the same thread of thought, Nelson (1948: 100) conceives reading speed as "the capacity with which meanings are accurately grasped". According to him, speed at which one understands meaning correctly is very essential since it represents an important measure of a reader's reading competence.

2.1 LaBerge and Samuels Automaticity Theory: Automaticity in Reading.

The Theoretical rational for the current study stems from LaBerge and Samuels (1974) model of automatic information processing in reading which is rooted in Huey's classic work (1908, 1968), *The Psychology and Pedagogy in Reading*. LaBerge and Samuels (1974:293) emphasize the importance of automaticity in reading relying on the argument of the limited capacity of attention in human beings. They contend:

> During the execution of a complex skill, it is necessary to coordinate many component processes within a very short period of time. If each component process requires attention,

> performance of the complex skill will be impossible, because the capacity of attention will be exceeded. But if enough of the component and their coordinations can be processed automatically, then the loads on attention will be within tolerable limits and the skill can be successfully performed. Therefore, one of the prime issues in the study of a complex skill such as reading is to determine that the processing of component sub skills becomes automatic
>
> (LaBerge and Samuels, 1974: 293).

As it has been articulated by LaBerge and Samuels, attention refers to the mental energy used by a person to process incoming information. This cognitive effort is a limited capacity; if a person manages to minimize the amount of attention needed to carry out a task, more attention would be available to be devoted to a concurrent task. They proposed that once a task becomes automatic, the attentional demands are reduced to a minimum. Thus, the more automatic the processing at earlier levels, the more attentional capacity is left for complex levels of processing.

Automaticity principle is relevant to complex processes such as those involved in reading. To shed light on the complex nature of reading, considering the stages readers proceed to become automatic readers would be of a paramount importance. Samuels (*op.cit.*,1999: 180) advances that the reading act entails two basic processes. The first process involves decoding, where readers see and pronounce the words either silently or out loud. The second process is comprehension; in order to understand what have been decoded; readers must access the words meanings (matching their definition with a definition held in readers' mental dictionary). Readers construct meaning relating the printed information to their own background knowledge. Both decoding and comprehension require paying attention.

In order to become automatic readers, students progress through two main stages as characterized by Samuels (*ibid.*, 178): a beginning accurate stage and a final automatic one. In the first stage, beginner readers spend much time and effort to decode the words (translate the printed words into their corresponding sounds). This process is performed at a conscious level and demands considerable attention and effort. At the automatic stage, however, word recognition (refers to linking the printed representation of a word to its meaning), becomes mechanical, attention free and hence carried out rapidly, accurately and effortlessly.

In this regard, and in line with the definition of automaticity – the ability to execute a complex process with little attention- Samuels conceives that practice in reading (extensive reading) enables the reader to decode with minimal attention and save the available cognitive resources for comprehension processes. In like manner, automatic students may feel the easiness of reading since they do not load their short term memory and what is stored there is meaningful for them (Samuels, *ibid.*, 182).

2.2 LaBerge and Samuels Model of Automatic Information Processing

The LaBerge and Samuels model of automatic information processing embodies five main components: visual memory, phonological memory, semantic memory, episodic memory, and attention.

2.2.1 Attention

Attention is the cardinal element in LaBerge and Samuels model of automatic information processing. It refers to the cognitive energy a person uses to process information, which is a limited capacity. In order to comprehend how the latter is used, consider it is use by both beginning and mature readers is worth noting

As it has been suggested by Samuels and Kamil (2002: 197) the decoding process is hard for beginning readers who must first learn to distinguish and remember visual features of letters, and then comprehend what has been decoded. The joint effort of decoding and comprehension may surmount the attention capacity of the students, and inhibits the two processes (decoding and comprehension) from co-occurring simultaneously. To compensate for this hindrance, students apply the attention switching strategy. They first direct their attention to decoding; once the decoding task is fulfilled, attention shifts comprehension processes. Although comprehension switching permits students to comprehend, it tends to consume too much time. In addition, it causes STM to be overloaded, which prevents them from recalling what they have red.

In contrast to beginning non-automatic readers adoption of attention switching strategy that allows them to either decode or comprehend at once, mature automatic readers can do both decoding and understanding simultaneously. Since their decoding task is very automatic, very little attention is allocating to it so that all the available attention is allowed for compression processes.

2.2.2 Visual Memory

It is at the visual memory that the visual stimuli from the printed page are processed. Units in the visual memory take different sizes. They could be a distinctive feature, a letter, a spelling pattern, or a word. At a very early stage of reading, before they become familiar with language letters, readers start by noting their distinctive features. Gradually these distinctive features would be unitized into a letter code. With sufficient practice certain letter combination would not be processed as separate letters but as a single visual unit (single spelling patters). These spelling patterns in their turn are further combined so that the word itself is processed as a single visual word unit.

2.2.3 Phonological Memory

Similar to the visual memory, which includes units of increasing size from the distinctive feature up to the word, the phonological memory entails distinctive features, phonemes, syllables and morphemes. Phonological memory utility lies in its function as a mediator between the visual and the semantic memory; In other words, before proceeding to the semantic memory for meaning processing, letters, spelling patterns, and words selected from the visual memory return to the phonological memory to meet their counterparts letter sounds, syllables, and morphemes for a reader may break a word down into parts and sounds them out before she recognizes the word meaning.

2.2.4 Episodic Memory

Events related to people, objects and time are stored in the episodic memory. Information in this memory consists of answers to "wh questions": When for time, where for location, who for people and what for objects.

2.2.5 Semantic Memory

The final element adressed in LaBerge and Samuels model is the semantic memory. It is where our general knowledge about the world is stored. In reading, unless the printed information fits adequately with a reader's general knowledge, his/her comprehension would be hampered. Accordingly, understanding of written materials is facilitated by the various types of experiential knowledge stored in the semantic memory.

Samuals and Kamil (2002: 198) Contend that the degree of automaticity differs from one reader to another and within the same reader. Even the most advanced readers do not automatically decode all printed words. There are special cases whereby additional attention is required to decode certain words, especially if they are rare or unfamiliar ones. Decoding speed is a key element in Samuels and LaBerge model. According to this model, a reader is required to be able to decode words rapidly and efficiently before being able to fully develop the more complex skills of reading. As decoding becomes more automatic, more attention is available for comprehension; with greater mental resources devoted to it, comprehension improves.

2.3 The Importance of Reading Speed in English as a Foreign Language (EFL)

One of the difficulties encountered by foreign language students (EFL) is slow reading. This problem tends to cause their embarrassment. Hayland (1990: 4), in his depiction of EFL students' reading, notes that the habit of slow reading changes their reading into a hard unpleasant experience, where students plough through a word for word reading of texts from beginning to end stumbling at every unknown word. This, in fact, causes them to fall behind with their reading assignments and to fail to appreciate the act of reading.

Hayland (*ibid*.,) adds that slow reading is the product of classroom methodology in reading lessons. Texts designed for reading are generally used as vehicles for the presentation and practice of language items such as vocabulary and sentence structures rather than the encouragement of reading itself (Nuttall, 1982: 19). This emphasis on linguistic patterns encourages the students to develop a word- by- word reading habit, thinking of it as the most convenient way to achieve a total comprehension of texts. This in fact, leads the students to feel insecure about skipping over words and shakes their confidence to be flexible readers (Hayland, *op.cit.*, 14).

Many factors are said to sustain slow reading in EFL students, among them is the lack of extensive exposure to the foreign language (L1). Unlike L1 adult readers whose reading automaticity (being able to see the words and read them quickly without decoding them letter-by-letter and finding their meaning immediately) tends to progress spontaneously as a result of a vast exposure to the L1, EFL students are faced with difficulties due to their limited reading experience with the FL. This

actually affects their reading automaticity as well as their reading comprehension (Grabe, 1991; in Nubucco, 2006: 70). Among the contributing factors to EFL students slow reading, according to Fraser (*op.cit.,* 2004: 146-147), are: the vast number of unfamiliar words students come across; non automatic word recognition, in other words, disfluent word decoding; un- efficient syntactic parsing, that is to say, lack of adequate grouping of words into meaningful chunks- which is mostly automatic in fluent readers; last but not least, the structural differences between writing systems proves to be very influential in EFL students reading fluency lacuna. Taking the example of Spanish and Arabic students of English as SL / FL, the Spanish students tend to read English faster than the Arabic ones although both of the Spanish and Arabic languages use alphabetic scripts. This is due the fact that the Spanish language is closer to the English one in its use of Roman alphabet (Handerson, 1983; in Fraser, *ibid*.,147).

Cohen, (1979; in Devine, 1988: 264) finds out that second language readers (L2 readers) tend to spend six times as long as native readers to read a text. This reading slowness stems primarily from a word- by- word deciphering which overloads their short term memory and intervenes with their reading comprehension (Eskey and Grabe, 1988: 233). Although EFL students contrive to comprehend a text, deficiency in fluent decoding shifts their reading into a hard effort- wasting task.

Reading fluency has been indicated as a good mystery. To understand the significant role fluency plays in reading instruction, teachers should be 'good detectives' to find its clues. One of the uncovered clues to reading fluency is reading rate (Meribeth, 2000: 534). Reading speed has been demonstrated as a cardinal variable in reading performance. Eskey (1970; in Carrell, 1988: 1), stressed that reading rate should not be overlooked; as students reach advanced levels of proficiency, they have to be able to read at a moderate rate and demonstrate a good comprehension as well. Unfortunately, reading speed has formerly been ignored by both researchers and teachers.

Ronald Carver (2000: x) asserts that reading rate has been ignored by both researchers and teachers. It is rarely measured either to assess reading development or to identify its problems. He asserts that the rate at which individuals read with accurate comprehension is a "major factor" which extremely influences readers' achievement (Carver, 2000: x).

It has been pointed out that reading teachers tend to give more emphasis to word recognition, vocabulary, and comprehension improvement at the expanse of fluency development. For them fluency is considered as a by product of to the aforementioned goals rather than a contributing factor in itself (Zutell and Rasinski, 1991; in Merribeth, 2000:535**)**. This, in fact, give ground for the reason why fluency is very restrictively introduced- if not at all-in the currently used reading textbooks.

Timothy Rasinsky (2000: 146) faced with the comment that reading speed is not very significant as long as the students are able to extract the meaning from the written print or as they are able to understand what is being read, stressed the fact that reading rate can not be ignored neither as an indicator of fluent reading, nor as an evidence of excessively slow processing of a text; although he strongly agrees that understanding what is being read is the end- product of reading.

According to Fraser (*op.cit.*,2004:135), slow, effortful reading hinders L2 / FL learners to achieve an effective and efficient comprehension of what they read and

hampers them from dealing with the required amount of reading. Hence, for her, improving reading fluency for L2 / FL learners is a major goal for L2 / FL educators. Being in complete accordance with her, Rasinski (*op. cit.*,) states:

> … the point I am hoping to make is that we need to take the notion of slow, in efficient disfluent reading seriously. Even with adequate comprehension, slow and laboured reading will turn any school or recreational reading assignment into a marathon of frustration for nearly any student
>
> (Rasinsky. *Op. cit*.,2000: 146)

He considers reading rate as an indicator of fluent and disfluent reading, and a tool for assessing students reading performance. It is according to reading rate authentic instructional activities can be included into a reading program.

Nuttall (1982:167) depicts the frustration caused by slower reading in her description of "the vicious cycle of the weak reader". Readers who do not comprehend tend to slow down their reading speeds; in so doing, they lose interest in what they read because reading is time consuming. As a result, they do not read much and hence they will not improve their reading rates. Nuttal states that by increasing reading speed, readers are invited to the "virtuous cycle of the good reader". If students are able to read quickly, they will enjoy reading. With reading practice their comprehension improves.

From the above discussion, it is proved that reading speed is very important for efficient reading; therefore, it needs be taken seriously by both teachers and curricula designers.

2.2.4 Class-Paced Reading Activity to Enhance EFL Students' Reading Speed

Increasing reading speed is a very important issue for EFL students, who devote an inordinate amount of time and energy when they read, and struggle to complete lengthy reading assignments. This difficulty, however, is not a kiss of death; training may enable them to enhance their reading speed. Furthermore, if students manage to read faster, they will be motivated to read more and, hence, broaden their reading horizon. The following activity, according to Anderson (1999:3) might be worth trying:

- **Class-Paced Reading**

Anderson (1999: 3) states: "The class paced reading activity allows the class to set a goal for a minimal reading rate". In other words, the class establishes a push speed or pacing speed which is beyond or above their normal reading speed. The students will be trained via different paced reading exercises to attain this speed when they read. In paced reading exercises, the teacher controls the time allowed for the readings (Champeau de Lopez, 1993: 1). Concerning the passages to be read, a mark is placed in the margin of the text next to the line containing each 100th word. The teacher then tells the students, with a tap on the desk, to move to the next mark, according to the speed the teacher is pacing (Champeau de Lopez, 1993; Anderson, 1999). For instance, if students are pacing at 150 words per minute, the tap would be every 45 seconds to read 100 words.

In this respect, Browning (2003: 1) asserting the significance of timed reading in reading speed development, states: "When teachers apply timed reading to their programme, they better prepare their students for the fast-paced world ahead of them". Anderson (1999; cited in Browning, 2003: 1) notes that improving reading speed through timed reading helps the students to meet the challenges they encounter in the collegiate playing field.

2.2.5 Measuring Reading Speed

A student's reading rate may be calculated by dividing the number of words in a text by the total amount of reading time. It is recorded in words per minute (w/m).

3. Research Methodology

3.1 Research Questions

The current study attempts to answer the following questions:

(1) Is it axiomatic that improving reading speed will lead to a lower understanding?

(2) Will training first year LMD students of English as a Foreign Language at Mentouri University of Constantine to enhance their reading speed through paced readings lead to an accompanying decrease in their reading comprehension?

Hence, this study attempts to investigate the effects of adopting a paced reading programme on improving reading speed preserving the same level of reading comprehension.

3.2 The Sample

In our study, we have opted for an experimental/control group design. The population, to which we wish to generalize the results of the experiment, is First year LMD students. Our sample consists of 56 participants divided into one experimental group and one control group of 28 students each.

Indeed, it is very time consuming to administer the same test for the whole sample in the same day. It needs a whole day for both pretest and posttest. Students are required to take the test individually; approximately 13 minutes per student are needed to accomplish the test (reading the passage, timing the reading, and answering comprehension questions).

In addition, during the whole treatment one has to make sure that the students have read the text silently only once, to record the time of their readings, and to calculate their reading speed; this process requires a small sample.

So, for reasons of time economy, practicality and accuracy one has decided to limit the sample's size to 56 participants. This sample includes the students who have taken the pretest, have been under observation during the treatment, and finally have been posttested.

3.3 Materials Used for Practice

In the current study, for the purpose of improving reading speed, training in paced reading exercises has been adopted. Moreover, timed reading has been used as a means of evaluating students' reading speed and reading comprehension in the pretest and posttest. These two types of exercises (timed and paced reading) are defined and adopted during the treatment as follows:

3.3.1 Timed Reading Tasks:

In a timed reading task the students read the passages at their normal or comfortable speed. When they finish reading, they calculate their reading speed by dividing the number of words in the text by the time they have taken to read it (Nuttall, 1985; Champeau de Lopez, 1993; Comon and Heavers, 1998). For example, if they took four minutes to read a 500 word text, their reading speed would be: 500/4 = 125 words per minute.

3.3.2 Paced Reading Tasks:

Anderson (1999: 3) states: "The class paced reading activity allows the class to set a goal for a minimal reading rate". In other words, the class establishes a push speed or pacing speed which is beyond or above their normal reading speed. The students will be trained via different paced reading exercises to attain this speed when they read. In paced reading exercises, the teacher controls the time allowed for the readings (Champeau de Lopez, 1993: 1). Concerning the passages to be read, a mark is placed in the margin of the text next to the line containing each 100th word. The teacher then tells the students, with a tap on the desk, to move to the next mark, according to the speed the teacher is pacing (Champeau de Lopez, 1993; Anderson, 1999). In our case, we are pacing at 150 words per minute, so the tap would be every 45 seconds to read 100 words.

In this study, one has followed the same steps of Cheryl Champeau de Lopez (1993: 2) who carried out a study in Venezuela aiming at improving reading speed using the following combination of timed reading and paced reading. Before indulging in the treatment, one has administered a pretest using a timed reading of about 500 words to evaluate the participants reading speed and comprehension. During the treatment, one has gone through training in a series of paced readings over eight weeks; and at the end of the treatment, one has delivered another timed reading identical to and serving the same purposes as the pretest.

3.3.2.1 The Pre and Post Tests Texts

Two texts of approximately 500 words have been selected from Gerald and Vivienne Mosback (1976) Practical Faster Reading.

3.3.3.2 The Treatment Texts

Twenty seven passages whose length ranges from 275words to 555 words are selected from three main sources: Gerald and Vivienne Mosback (1976) Practical Faster Reading (1976), Marcia J. Coman and Kathy L. Heavers (1998) How to

Improve your Study Skills (1998), and Margaret Baudoin et al (1994) Reader's Choice. The former source offers a course for non native speakers of upper intermediate and more advanced students in improving the reading of expository English by creating a kind of balance between increasing reading speed and improving reading comprehension. The latter two sources are used by teachers to implement first year LMD methodology lectures and provide whole sections with different exercises intended to improve reading speed as a means of better understanding.

3.3.3.3 Type of Texts

In the current study, we have opted to select expository texts to improve the speed of reading. This is based on the assumption that most of the knowledge first year LMD students receive in their lectures in English as a Foreign Language at Mentouri University of Constantine is expository or informational knowledge. This is found in the modules of Methodology, English for Specific Purposes, Civilization, and Written Expression except in the module of Literary Texts where students encounter narrative texts and poetry.

3.3.3.4 Simplicity of Texts

Nuttall (1982: 35) argues that: « if the students are to read faster and develop the skills of skimming and scanning, they practice on simple material ». A simple text, according to her, is one which is not dense (in which few words express a lot of amount of information) and not full of new words, complex sentences and difficult ideas. Being in accordance with Nuttall, Frazer (online pages) asserts that the text needs to be simple in terms of vocabulary, syntax, and content.

Both of them agree that this simplicity assists in the students' easy process of the material (Nuttal, 1985:88; Frazer, online pages).In addition, they stressed the role of this easy processing in attaining not necessarily a detailed comprehension of the print, but only a general understanding of it (ibid), which is the expected reading goal in the current study. In this respect, one has selected the passages that represent a great interest for the students in order to motivate them during the treatment. The topics of these passages are of general background knowledge that the students may find interesting. Furthermore, the difficult or unfamiliar words that may hamper the students' reading or slow them down have been substituted by other simpler synonyms to facilitate their process of reading.

3.3.3.5 Comprehension Tests

For the aim of assessing the participants' degree of reading comprehension in the current experiment one has opted for two types of comprehension tests: Multiple Choice Question (MCQ) and True / False Questions. By asking them to choose one out of four options in MCQ, their chance to guess the answer is minimized as compared to true/false questions where the answer is more likely to be a mere guess.

During the treatment stage, one has decided to apply both measures of testing, T/F questions and MCQ questions; more precisely five MCQ tests and five T/F tests

because (a) they are easy to be marked (b), they do not lend themselves to any form of personal judgment when marking the learners' answers because they provide only one possible correct answer. So, they are totally objective measures of evaluation.

The participants' reading comprehension of the texts has been calculated through percentages by allocating each true / false question or MCQ question 10 %, that is to say, ten questions equal to 100%. This means that, one correct answer represents 10 % comprehension of the text, 7 correct answers represents 70% comprehension, and 10 right answers represent 100 % comprehension.

3.4 Treatment Phases

3.4.1 The Pretest and Posttest Description

For the pretest one has prepared a text (see appendices A, B) taken from Gerald and Vivienne Mosback (1976: 43) of about 500 word. In order to measure the students' comprehension of the text, one has prepared ten multiple choice questions taken from the same reference. The 56 participants are pretested via a timed reading test. The pretest is administered individually. Every student is given out the text and is asked to begin reading only when he is given the word. Once the student finishes reading the passage silently at his own speed only one time, the researcher marks down his reading time using a stop watch, then, asks him to answer comprehension questions. The students should answer questions without looking back to the passage. Five or six minutes should be enough to answer the questions. Reading the passage and answering the questions should not take more than 10 to 12 minutes altogether (Mosback, 1976: ix).

Reading comprehension test is composed of ten multiple choice questions. Each question is allocated 10 %, this means that ten correct answers correspond to 100 % of text comprehension. For example, if a student answers six correct questions, it means that he has understood 60 % of the text. Reading speed is calculated by dividing the total number of words in the text (500) by the time the student spends in reading the passage.

The posttest was identical to the pretest in terms of text length and level of difficulty. It was administered in the same way, under the same conditions. The posttest passage was extracted from the same source as the pretest Practical Faster Reading 1976 by Gerald and Vivienne Mosback.

3.4.2 The Treatment

At this level, the experimental group students are trained to read under time limits moving gradually to read longer selections. They are now required to read as quickly as they can, but at the same time to understand as much as they can. That is to say, not only to be able to answer one question about a paragraph's main idea, but to get a general understanding of a text. To achieve this aim, a series of paced reading exercises is applied.

Before indulging in this practice, a push speed or a pacing speed is set (Anderson; 1999). One has used the result of the pretest to establish this speed goal. The average speed of the experimental group in the pretest is 109w/m. We have decided to establish 150w/m as our push pace or goal speed; that is to say, through paced reading activities the students are trained to read beyond their normal speed 109w/p to attain 150w/m at the end of the treatment.

Students have gone through a series of paced readings of eleven texts. In each session during the training phase, students in the experimental group are handed out a passage to practice paced readings. These passages contain marks indicating every 100 words on the left margin. The teacher (researcher), then, calculates the number of words needed to be read in one minute in order to achieve the class speed goal. In our case, our speed goal is to read 150w/m. The experimental group is expected to read 100 words every 45 seconds. As each 45 seconds period elapses, the teacher tells the class to move to the next mark. When the time allocated to read the passage ends, the students are required to stop reading and fold the sheet on which the passage is written. The teacher passes to collect the passages to be confident that they have been read only once. Students are encouraged to keep up with the established class speed goal.

After collecting the passages, reading comprehension questions' sheets are distributed. These questions are shaped in two ways: either 10 general true/false questions or 10 multiple choice questions (MCQ) four options each, for each paced reading. These comprehension questions are to be answered without referring to the text, each one is allocated a score of 10%.

Students in the control group do not practice paced reading exercises. They are asked to read the passages at their comfortable speed one time. When they finish, they mark down the time they spend to read and answer comprehension questions. Afterwards, we calculate their reading speed and score their reading comprehension answers.

3.5 Data Analysis:

3.5.1 Comparison of Results and Means

Our analysis is going to be divided into two parts. First, the comparison of the pre and post test means of reading speed and reading comprehension of the control and experimental groups. Second, a statistical analysis is followed which is the t test analysis.

3.5.1.1The Pretest Results

In the pretest, one has relied on the calculation of the means or the averages of reading speed and reading comprehension of control and experimental groups. To this end, one has divided the sum of the scores obtained in reading speed and the scores gained in reading comprehension by the number of the participants in each group (table 1).

	Control Group	Experimental Group

The Mean in Reading Speed (w/m)	106	109
The Mean in Reading Comprehension (%)	59%	60 %

Table 1: Pretest Reading Speed and Comprehension Means of the Experimental and Control Groups

Comparing the means of reading speed and reading comprehension of both control and experimental groups prior to the beginning of the study, as shown in table 1 above, there is no significant difference between the two groups in the pretest neither in reading speed (106 ≠ 109) a difference of 3 w/m, nor in reading comprehension (59 % ≠ 60 %). One may conclude that there is no significant difference between the results of the scores of subjects in the control group and the subjects in the experimental group in the pretest.

3.5.1.2 The Posttest Results

In the posttest, one has calculated the means or the averages of reading speed and reading comprehension of the control and experimental groups after the treatment period. The results are as follows:

	Control Group	Experimental Group
The Mean in Reading Speed (w/m)	103	131
The Mean in Reading Comprehension (%)	47%	46%

Table 2: Experimental Group Posttest Means of Reading Speed and Reading Comprehension

In terms of reading speed, one may easily deduce that the experimental group outperformed the control group. A difference of 28words per minute was reached in the posttest (table2). This explains that the experimental group has shown a progress in reading speed which is not the case of the control group.

Concerning reading comprehension, one may notice that the control and experimental group have shown a similar performance in pre and posttests. From table 1 we may remark a negligible difference between the two groups in the pretest (59 % ≠ 60 %). This slight difference which equals 1% remains the same in the posttest (47 % ≠ 46 %) as shown in table 2. This means that the experimental group has shown stability in reading comprehension as well as the control group.

The comparison of the means is not so worthy to build on it some interpretation of the results. To reinforce the conclusion drawn from this comparison and to give it more validity, we make recourse to a t test analysis.

3.5.2 The t Test Analysis

In the current study we have chosen the t test because it is widely used in language studies (Brown, *Ibid*. 165) . In addition, our hypothetical study describes two variables each of them is an interval scale (reading speed scores and reading comprehension scores), and seeks to compare the results of two independent groups (control and experimental group). These are the requirement of the t test which is used to test mean difference between two groups.

To calculate the t value, we apply the next formula.

$$t_{N1+N2-2} = \frac{\left(\overline{X}_1 - \overline{X}_2\right)\sqrt{\left(N_1 + N_2 - 2\right)N_1 N_2}}{\sqrt{\left(N_1 S_1^2 + N_2 S_2^2\right)\left(N_1 + N_2\right)}}$$

3.5.2.1 t Test for the Difference Between the Control Group and Experimental Group in Reading Speed in the Posttest:

One is still concerned with the null hypothesis and other possible outcomes for our study in the form of an alternative hypothesis.

Null Hypothesis

There is no significant difference between reading speed means for the experimental and control group. That is to say, $H_0 : \overline{X}_E = \overline{X}_C$

Alternative Hypothesis

Experimental group's reading speed mean is higher than that of the control group. That is to say, $H_0 : \overline{X}_E > \overline{X}_C$

The t Value for Reading Speed

$$t_{N1+N2-2} = \frac{\left(\overline{X}_1 - \overline{X}_2\right)\sqrt{\left(N_1 + N_2 - 2\right)N_1N_2}}{\sqrt{\left(N_1S_1^2 + N_2S_2^2\right)\left(N_1 + N_2\right)}}$$

$$t_{56+56-2} = \frac{\left(103-131\right)\sqrt{\left(56+56-2\right)\left(56\chi 56\right)}}{\sqrt{\left[\left(28\right)\left(422.53\right)+\left(28\right)\left(622.28\right)\left(56\right)\right]}}$$

$$t_{54} = \frac{-5761}{1279.94}$$

$$t_{54} = -4.50$$

Statistical Conclusion

With our one directional hypothesis, we predicted that the experimental group's reading speed mean will be higher than that of the control group. At 0.05level of significance, with 54 degree of freedom, the critical value for t is 1.67. Because the value of our calculated t exeeds the tabulated t (4.50>1.67), we reject the null hypothesis. Therfore, the difference between the two means of reading speed posttest for the control and experimental groups is highly significant.

Pedagogical Conclusion

In this empirical study, the implementation of paced reading exercises provides good results in improving students' reading speed. Consequently, our hypothesis, which speculates that paced reading exercises are effective for improving reading speed of first year LMD students at Mentouri University in Constantine, is significantly corroborated.

3.5.2.2 t Test for the Difference Between the Control Group and Experimental Group in Reading Comprehension in the Posttest

Null Hypothesis

There is no significant difference between reading comprehension means for the experimental and control groups.That is to say, $H_0 : \overline{X}_E = \overline{X}_C$

The t Value for Reading Comprehension

$$t_{N1+N2-2} = \frac{\left(\overline{X}_1 - \overline{X}_2\right)\sqrt{\left(N_1 + N_2 - 2\right)N_1N_2}}{\sqrt{\left(N_1S_1^2 + N_2S_2^2\right)\left(N_1 + N_2\right)}}$$

$$t_{56+56-2} = \frac{(9.42 - 9.14)\sqrt{(56 + 56 - 2)(56\chi 56)}}{\sqrt{[(28)(.15.27) + (28)(8.75)(56)]}}$$

$$t_{54} = \frac{57.61}{194.07}$$

$$t_{54} = 0.29$$

Statistical Conclusion

With our one directional hypothesis, we predicted that there will be no significant difference between the experimental and control groups reading comprehension means. At 0.05 level of significance, with 54 degree of freedom, the critical value for t is 0.29. Because the value of our calculated t is inferior to the tabulated t (0.29<1.67), we accept the null hypothesis. Therfore, the difference between the two means of reading comprehension in the posttest for the control and experimental groups is not significant.

Pedagogical Conclusion

The two groups are equivalent; they have the same level regarding reading comprehension. Consecontly, our hypothesis, which speculates that paced reading exercises are effective for improving reading speed without an accompanying decrease in reading comprehension, of first year LMD students at Mentouri university of Constantine, is significantly corroborated.

Overall t Test Analysis

On the one hand, t test results are significant in terms of reading speed (4.5); that is to say, students have shown a great improvement. On the other hand, t test results are not significant concerning reading comprehension (0.29); this justifies students' constant reading comprehension level from the pretest to the posttest.

3.6 Overall Discussion of the Results

The results obtained in the current study can be summarised as follows:

- In terms of the pretest results, the experimental and control groups revealed approximately the same averages in both reading speed (106 ≠109w/m) and reading comprehension (59%≠60 %).
- In the posttest , two main results are obtained. Firstly, as far as reading speed is concerned, the experimental group outperformed the control group (131≠103). This group of participants increased their reading speed from 109w/m in the pretest to 131w/m in the posttest. In other words, they read 28w/m faster than the control group participants who read at 103w/m. Secondly, both treatment groups exhibited the same level in reading comprehension (47% ≠ 46%).

- As far as the experimental group reading speed improvement is concerned, 23 participants out of 28(or 82.14% of the group) have increased their reading speed , Only 5 participants or 17.85% of the group have marked a decrease.
- Among the 82.14% who have improved their reading speed, there are participants who have reached 177w/m speed. This increase, In fact, equals 28w/m and exceeds our push speed or pacing speed (150w/m) set at the beginning of the study. Moreover, this improvement is above 50% if we consider the mean speed of the experimental group prior the experiment (109w/m).
- Our analysis of the experimental group reading speed posttest results, as shown in figure 1 below, reveals three main categories. The first category represents those whose reading speed improvement has reached our speed goal (150w/m). It constitutes 42.85%. The second category corresponds to those whose reading speed surpasses150w/m to reach 177w/m and which equals 32.14%. Nevertheless, about 25% of the experimental group still read at less than 110 w/m, that is to say a quarter of the experimental group have not demonstrated any improvement. This last category requires extensive training in paced reading exercises to enhance their reading speed.

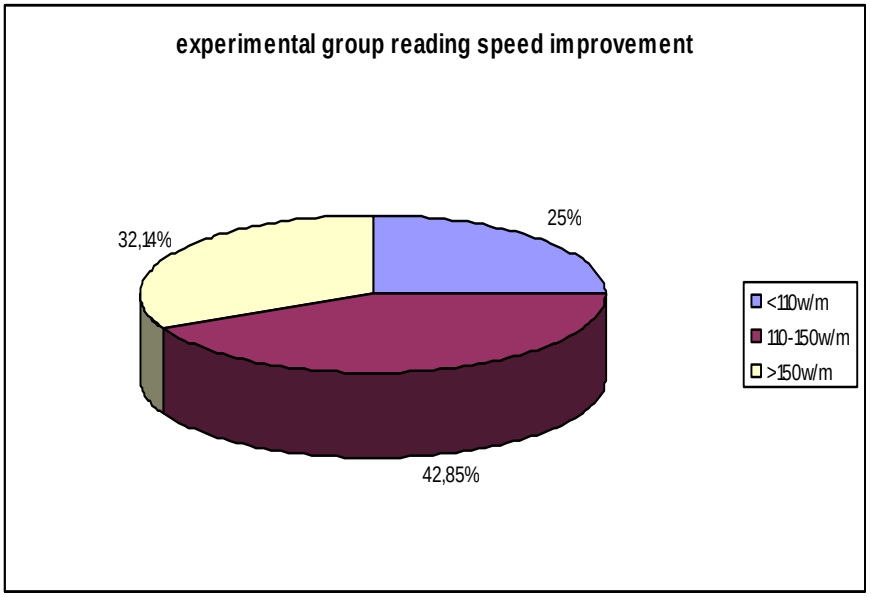

Figure 1: Experimental Group Reading Speed Improvement

- In terms of reading comprehension evolution, treatment groups' results reveal approximately equal reading comprehension levels between the control and experimental groups in the pretest (59% ≠ 60%) and posttest(47% ≠ 46%).
- Taking into account the experimental group posttest results, we have distinguished two main subgroups. One half of this group (50%) constitutes those whose reading comprehension falls below 50% (see figure 2 below). This subgroup participants tend to read at 110w/m. The other half of the experimental group represents the participants whose reading comprehension falls between 50% and 70% and whose reading speed reaches 154w/m. In fact, these participants have managed to increase their

reading speed from 107w/m in the pretest to 154w/m in the posttest. In other words, they have gained 47w/m which equals to 50% increase in reading speed. Besides this, they have succeeded to preserve an acceptable level of reading comprehension (50%-70%). There are even two participants who have been able to improve both reading speed and reading comprehension. One participant has increased his reading speed from 76w/m to 119w/m and his reading comprehension from 60% to 80%; another one has increased his reading speed from 94w/m into 131w/m and his reading comprehension from 40% to 70%.

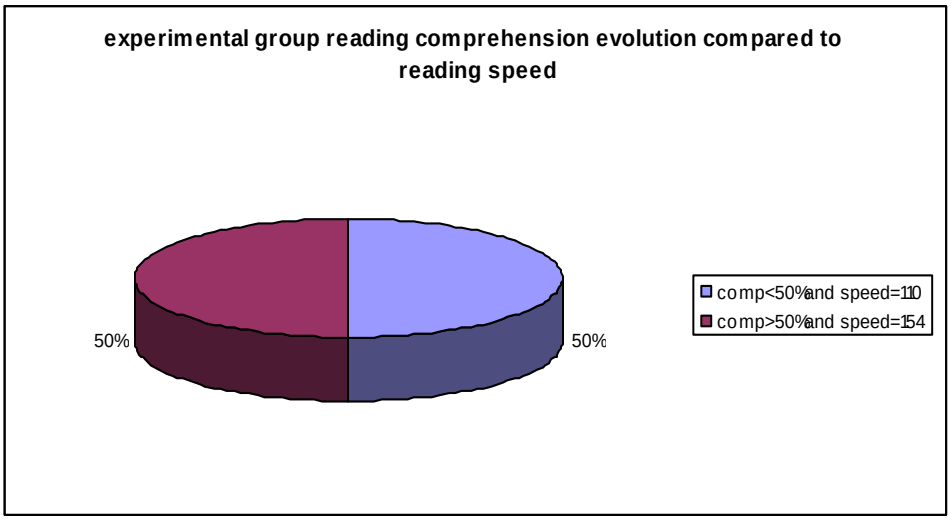

Figure2: Experimental Group Reading Comprehension Evolution Compared to Reading Speed

Conclusion

From our results analysis, regarding our study which seeks at creating a balance between reading speed and reading comprehension rather than improving speed at the expense of comprehension, it is worth noting that we have achieved two major findings: one is that reading speed can be enhanced through practicing paced reading, and the other one is that some promising gains may be expected in reading comprehension. Still, more ambitious gains would be attained in the future.

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Appendix A

The Pretest

To be or not to be Vegetarian

A strict vegetarian is a person who never in his life eats anything derived from animals. The main objection to vegetarianism on a long-term basis is the difficulty of getting enough protein – the body-building element in food. If you have ever been without meat or other animal foods for some days or weeks (say, for religious reasons) you will have noticed that you tend to get physically rather weak. You are glad when the fast is over and you get your reward of a succulent (tasty) meat meal.

Proteins are built up from approximately twenty food elements called 'amino-acids', which are found more abundantly in animal protein than in vegetable protein. This means you have to eat a great deal more vegetable than animal food in order to get enough of these amino-acids. A great deal of the vegetable food goes to waste in this process and from the physiological point of view there is not much to be said in favour of life-long vegetarianism.

The economic side of the question, though, must be considered. Vegetable food is much cheaper than animal food. However, since only a small proportion of the vegetable protein is useful for body-building purposes, a consistent vegetarian, if he is to gain the necessary 70 grams of protein a day, has to consume a greater bulk of food than his digestive organs can comfortably deal with. In fairness, though, it must be pointed out that vegetarians claim they need far less than 70 grams of protein a day.

Whether or not vegetarianism should be advocated for adults, it is definitely unsatisfactory for growing children, who need more protein than they can get from vegetable sources. A lacto-vegetarian diet, which includes milk and milk products such as cheese, can, however, be satisfactory as long as enough milk and milk products are consumed.

Meat and cheese are the best sources of usable animal protein and next come milk, fish and eggs.

Slow and careful cooking of meat makes it more digestible and assists in the breaking down of the protein content by the body. When cooking vegetables, however, the vitamins, and in particular the water-soluble vitamin C, should not be lost through over-cooking.

With fruit, vitamin loss is negligible, because the cooking water is normally eaten along with the fruit, and acids in the fruit help to hold in the vitamin C.

Most nutrition experts today would recommend a balanced diet containing elements of all foods, largely because of our need for sufficient vitamins. Vitamins were first called 'accessory food factors' since it was discovered, in 1906, that most foods contain, besides carbohydrates, fats, minerals and water, these other substances necessary for health. The most common deficiencies in Western diets today are those of vitamins.

The answer is variety in food. A well-balanced diet having sufficient amounts of milk, fruit, vegetables, eggs, and meat, fish or fowl (i.e any good protein source) usually provides adequate minimum daily requirements of all the vitamins.

NOM & PRENOM : ***PRE-TE S T***

Select the answer which is most accurate according to the information given in the passage.

1 A strict vegetarian
a) rarely eats animal products.
b) sometimes eats eggs.
c) never eats any animal products.
d) never eats protein.

2 We feel weak when we go without meat and other animal products
a) because we are reducing our food intake.
b) because we do not get enough protein.
c) because vegetables do not contain protein.
d) unless we take plenty of exercise.

3 Proteins are built up from
a) approximately twenty different foods.
b) about twenty different vegetables.
c) various fats and sugars.
d) about twenty different amino-acids.

4 Physiologically, life-long vegetarianism may not be good because
a) it makes people very thin.
b) the body must process too much waste.
c) the farmers lose money.
d) vitamin-deficiency diseases may result.

5 One thing in favour of vegetarianism is that
a) vegetable food is easier to digest.
b) animal food is less expensive.
c) vegetable food is cheaper.
d) it is good for the digestion.

6 The body's daily need for protein is
a) 90 grams.
b) 50 grams.
c) 70 grams.
d) at least 100 grams.

7 The digestive organs can comfortably deal with

a) any quantity of food perd ay.
b) less than 70 grams of food perd ay.
c) A limited quantity of food perd ay.
d) any amount of vegetable foods.

8 Vegetarianism is not suitable for growing children because they

a) need more protein than vegetables can supply.
b) cannot digest vegetables.
c) use more energy than adults.
d) cannot easily digest milk and milk products.

9 Slow and careful cooking of mest

a) preserves the vitq;ins.
b) breaks down the vitamins.
c) makes it easier to digest.
d) reduces the protein content.

10 Most nutrition experts today believe the food we eat should contain

a) more meat than vegetables.
b) more vegetables than meat.
c) fruit, cereals and fish as well as meat and vegetables.
d) as many different kinds of vegetables as possible.

Appendix B

Posttest

Extracted from Mosback, 1975

Modern Surgery

The need for a surgical operation, especially an emergency operation, almost always comes as a severe shock to the patient and his family. Despite modern advances, most people still have an unreasonable fear of hospitals and anaesthetics. Patients do not often believe they really need surgery – cutting into a part of the body as opposed to treatment with drugs.

In the early years of this century there was little specialization in surgery. A good surgeon was capable of performing almost every operation that had been devised up to that time. Today the situation is different. Operations are now being carried out that were not even dreamed of fifty years ago. The heart can be safely opened and its valves repaired. Blocked blood vessels can be cleaned out, and broken ones repaired or replaced. A lung, the whole stomach, or even part of the brain can be removed and still permit the patient to live a comfortable and satisfactory life. However, not every surgeon wants , or is qualified to carry out every type of modern operation.

The scope of surgery has increased remarkably in this century. Its safety has increased too. Deaths from most operations are about 20% of what they were in 1910 and surgery has been extended in many directions, for example to certain types of birth faults in newborn babies, and, at the other end of the scale, to life-saving operations for a person in his eighties. The hospital stay after surgery has been shortened to as little as a week for most major operations. Most patients are out of bed on the day after an operation and may be back at work in two or three weeks.

Many developments in modern surgery are almost incredible. They include the replacement of damaged blood vessels with similar ones made of plastic; the replacement of heart valves with plastic substitutes; the transplanting of tissues (take a tissue or organ from one into another) such as the lens of the eye; the invention of the artificial kidney to clean the blood of urine at regular intervals and the development of heart and lung machines to keep patients alive during very long operations. All these things open a hopeful prospect for the future of surgery.

One of the most revolutionary areas of modern surgery is that of organ transplants. Until a few years ago, no person, except an identical twin, was able to accept into his body the tissues of another person without reacting against them and eventually killing them. Recently, however, it has been discovered that with the use of x-rays and special drugs, it is possible to take tissues from one person to another which will survive for periods of a year or more. Kidneys have been successfully transplanted between non-identical twins. Heart and lung transplants have been reasonably successful in animals, though rejection problems in humans have yet to be solved.

'Spare parts' surgery, the simple routine replacement of all weak and useless organs by new ones, is still a dream of the distant future. As yet, surgery is not ready for such miracles. In the meantime, you can be happy if your doctor says to you, 'Yes, I think it is possible to operate on you for this condition.

NOM & PRENOM :

……

POST-TEST

Select the answer which is most accurate according to the information given in the passage.

01/ Most people are afraid of being operated on

a) in spite of improvements in modern surgery.
b) because they think modern drugs are dangerous.
c) because they do not believe they need anaesthetics.
d) unless it is an emergency operation.

02/ Surgeons in the early years of this century, compared with modern ones,

a) had less to learn about surgery.

b) needed more knowledge.
c) could perform every operation known today.
d) were more trusted by their patients.

03/ Open heart surgery has been possible

a) only in the last fifty years.
b) from prehistoric times.
c) since the nineteenth century.
d) since the invention of valves.

04/ A patient can still live a comfortable and satisfactory life, even after the removal of

a) his brain.
b) his lungs.
c) a major organ such as the stomach or one lung.
d) part of the stomach or the whole liver.

05/ Modern surgeons

a) do not like to perform operations of the new type.
b) are not as highly qualified as the older ones.
c) are obliged to specialize more than their predecessors.
d) often perform operations which are not really needed.

06/ Today, compared with 1910

a) five times fewer patients die after being operated on.
b) 20% fewer of all operation patients die.
c) 20% of all operation patients recover.
d) operation deaths have increased by 20%.

07/ Some of the more astonishing changes in modern surgery include

a) ear, nose and throat transplants.
b) valveless plastic hearts.
c) plastic heart valves.
d) leg transplants.

08/ The main difficulty with organ transplants is

a) it is difficult to find organs of exactly the same size.
b) only identical twins can give permission for their organs to be exchanged.
c) the body's tendency to reject strange tissues.
d) the patient is not allowed to use drugs after them.

09/ 'Spare parts' surgery

a) has yet to be come a reality.
b) will be available in the near furure.
c) is only possible for animals.
d) has been replaced by modern drug treatments.

10/ You can be happy if your surgeon can oprate because it means

a) he thinks your condition may be curable.
b) he is a good doctor.
c) he knows you will survive.
d) you are getting better already.