



## RADAR Advantages:

- Early detection of reading problems
- Assessment of reading competency
- Diagnosis of reading difficulties
- Detailed analysis of the reading process
- Monitor syllable specific reading difficulty
- Assessment of reading understanding

RADAR is not only for children with a diagnosed reading difficulty, but for anyone that wants to know more about their reading competency, regardless of age.



## Why choose RADAR

**It's fast:** It only takes 15 to 20 minutes for a full assessment.

**It's easy:** Simply read a text from a computer screen.

**It's objective:** The process and measurements are examiner independent.

**It's accurate:** Accuracy is currently above 92%.

**It's user friendly:** The reader does not need to wear or use any device.

**It's non-invasive:** The reader reads a text silently.

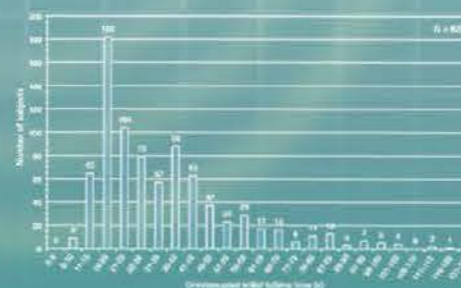
**It's re-testable:** Can be re-administered to evaluate the effectiveness of reading therapy.

**It's for everyone:** It can be used at any age.

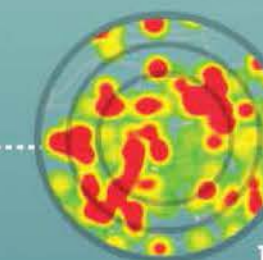
**Phaistos Disc** (estimated 3.500 years old)  
1908: was discovered by the archaeologist Luigi Pernier  
2016: has not been deciphered (read) yet...



RADAR is a fast and innovative diagnostic tool for assessing reading difficulties with special focus on dyslexia. Dyslexia is the most common reading difficulty and has a very large socioeconomic impact on society. Early detection can improve the educational process as well as various social and psychological problems for the individual, their family and society.



x : 0474  
y : 0332



**RAPID ASSESSMENT**

OF DIFFICULTIES & ABNORMALITIES IN READING



**RADAR  
METHOD**



## THE PROCESS OF READING



Reading is a complex cognitive process of decoding symbols in order to understand their meaning (reading comprehension). In the early stages of our development, we get familiar with the basic cognitive functions that are needed for reading. As reading evolves, it becomes an automatic process and the readers' attention is focused on analyzing the meaning of the text.

Reading is a tool for "conquering" a language, communicating with others and the way of gathering information and exchanging knowledge and ideas, which requires continuous training, development and refinement. Like all elements of language, reading is an interaction between the text and the reader.



## EYES & THE READING PROCESS



During the reading process the eyes move rapidly from one point to the next for flow and understanding of the text. It is therefore necessary to study the visual behavior and eye movements in order to understand the reading process.

In a typical reader the eyes move every quarter of a second (on average) while reading. While the eyes are focused on a single location, called a fixation, the information is gathered from the text and processed by the brain. The average time of a fixation is approx. 250-300msec and the average distance traveled by the eyes between two sequential fixations, called saccadic (horizontal) movement, is 7-9 characters. The backward movements, called regressions, take 10-15% of the total reading time for a typical reader.

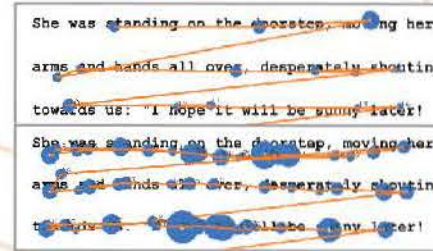
The visual path is currently studied by researchers as an accurate depiction of cognitive processing during reading.



## READING PROBLEMS AND DYSLEXIA



Rapid Assessment for Difficulties & Abnormalities in Reading (RADAR) is an innovative method for assessing reading difficulties with special focus on dyslexia. It was developed by a multidisciplinary team of scientists. Dyslexia is the most common cause for learning difficulty. It has a very large socioeconomic impact on society. Early detection has a large impact on a child's academic growth as well as on their emotional wellbeing. RADAR can play a crucial role to support Equal Opportunities policies. It is estimated that dyslexia's prevalence is 5-17% (Shaywitz et al. 1994) of the population. We now have better tools for diagnosing dyslexia and today's parents are more aware of possible reading problems.



Differences in reading of a typical reader (above) and a dyslexic reader (below)

## EVALUATE YOUR READING WITH RADAR



By recording the eye movements in real time, RADAR can accurately identify the reader's eye fixations and saccadic (horizontal) movements while reading a text, creating a reading path which contains vital information from which we can draw useful conclusions.

Gathering all this information, we can evaluate the reading process precisely and objectively, and identify which parts of the text pose difficulty for the reader or which parts are totally neglected.



Utilizing our smart software, Emmetrolexia, we are able to display specifically chosen words/texts while using eye tracking technology to capture eye movements from a distance. The eye movements are projected onto the displayed text where they are analyzed and compared with pre-recorded data from study groups. We recognize specific reading patterns and behaviors which are used to classify whether a child is dyslexic or not. Using RADAR technology, we can help both readers and specialists to:

- diagnose individuals who have learning or reading difficulties (e.g. dyslexia),
- assess the progress and efficacy of a specialist's therapy in an individual with learning or reading difficulties,
- assess the development of the reading ability of all individuals (normal or aberrant).

## THE PURPOSE OF RADAR



The ultimate goal for our multi-disciplinary team is to be able to evaluate the learning and reading efficiency of a reader using qualitative and quantitative parameters in a fast and effective manner.

Based on a series of eye movement parameters, RADAR can evaluate the reading fluency of the reader and underline potential problems during the reading process. The process is completely safe and non-invasive. The whole assessment does not last more than 20 minutes. The RADAR report will guide education specialists and teachers towards improvement in their education programs to meet the needs of the student, in order to optimize his/her capacity. The assessment is performed using RADAR device, which looks like a common computer, along with "Emmetrolexia" (a purpose built software), that will analyze and evaluate the reading fluency of the reader. RADAR and "Emmetrolexia" software are covered by national and international patents.

Based on all reading parameters recorded during reading, RADAR will identify the reading disability (if any) of the individual. In addition, RADAR will determine how much the individual deviates from typical readers, and the percentile position of this deviation for each reading parameter.