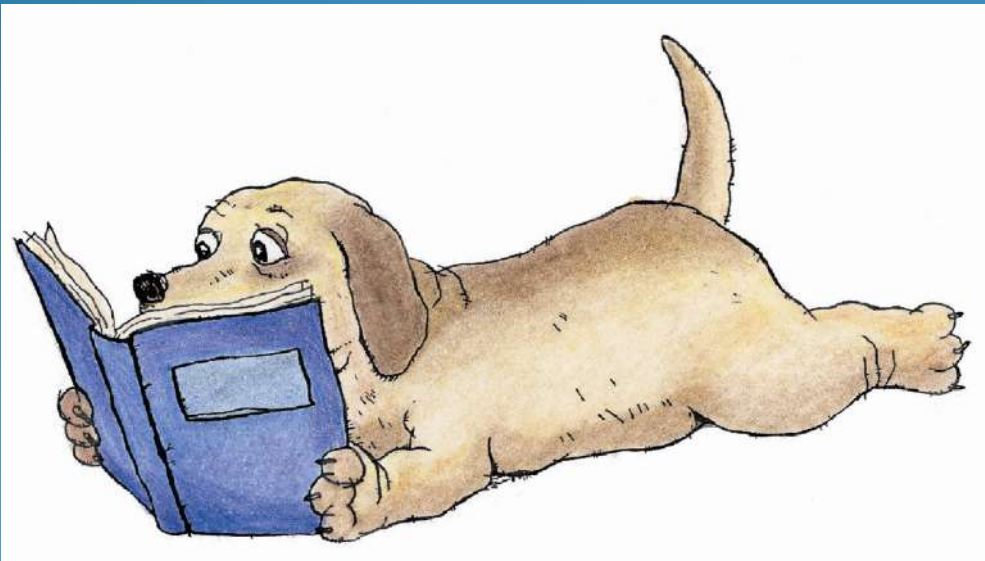


Reading Models



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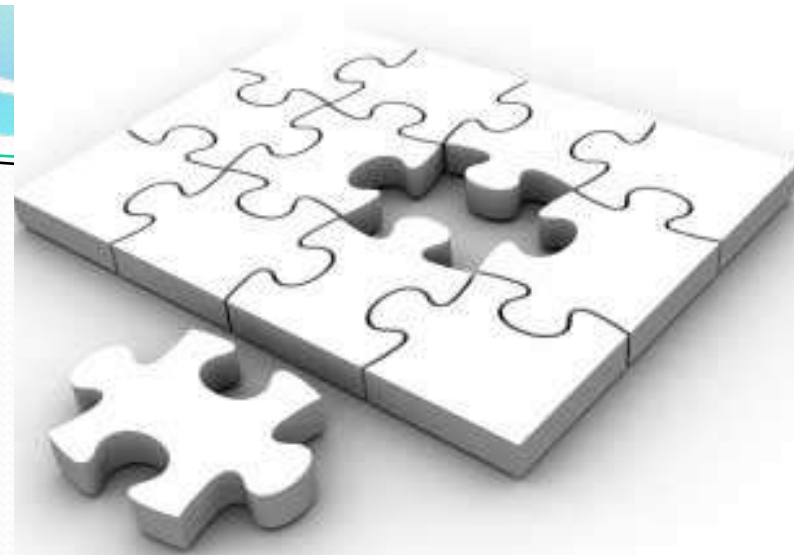
Pre questions

- Do you recognize every letter in all words when you read?
- How do you read a text when you need detailed information about it?
- How do you read a text when you need general information about it?
- To understand the text better, do you make use of your previous information related to the topic?



Content

- Behaviourists v. Cognitive psychologists
- Metaphorical reading models
- Bottom-up models
- Top-down models
- Interactive models
- Comparison of models
- Conclusion



Introduction:

Models of reading

- Reading research: specific importance by the 1960s.
 - *cognitive psychology*.
- Focus on behaviouristic aspects; not the process itself.
- Difficulty in explaining the mental event of reading (Eskey, 2005).
- No crucial attempts to build an explicit reading model: till 1960s.
- Impossible for behaviouristic researchers to understand the process of reading as they were occupied in behaviours of learners such as in spoken and written languages.
- “The behavio[u]rist asks: Why don’t we make what we can *observe* the real field of psychology?” (Watson, 1924-1925, p. 6).



Previous researchers

- Investigated eye movements in a behaviouristic aspect.
- Failure in explaining the complex mental process of reading.
- The first investigation into reading:
 - Javal (1879), the French ophthalmologist, verified the first depiction of the eye movements in the reading process.
 - Eyes do not move uninterrupted in the search of the graphic stimuli.
 - They quickly jump and also make pauses at particular parts of the text.



**What did behaviourists blame
for lack of reading
comprehension?**



Previous researchers blamed...

- Waldman (1958) examined the physical factors such as hyperopia, myopia, presbyopia, and astigmatism.
- Blamed them for the lack of reading comprehension along with tired eyes.

Huey and reading

- Huey's (1908, 1968) characterization is highly appreciated.
- Huey regarded reading as an information processing activity.
- Accelerated the exploration of significant advances in reading during the 1970s and 1980s (Harada, 2003).
- Insists on readers' active role, others were regarding it as a passive skill.
- Calls attention to the importance of repetition which addresses controlled and automatic processes in McLaughlin's (1987) *information processing*.

Thorndike and reading

- Thorndike's (1917) efforts deserve appreciation since he resembles the process of reading to
 - thinking.
 - a complex and dynamic reaction.
 - a problem that needs to be solved.
 - reasoning: then, good readers think clearly.
- His ideas accelerated reading comprehension studies rather than merely focusing on eye movements (Williams, 1978).

Bartlett and reading

- Bartlett (1932): another cornerstone in pre-cognitive reading psychology research era.
- Reading: as effort to achieve meaning.
- The impact of prior knowledge on reading comprehension.
- Like Huey and Thorndike, Bartlett's efforts were not taken into consideration in pre-cognitive reading psychology research era.

Impact of cognitive psychology

- Such studies helped researchers re-evaluate the process (Samuels & Kamil, 1988).
- Development of reading models accelerated after the 1960s.
- The passive perception replaced with an active one.
- Distinctions between the metaphorical models of reading:
 - **Bottom-up models:** refers to readers who combine small parts to see the big picture.
 - **Top-down models:** refers to readers who try to see the big picture from the first moment (Lewis, 1999).
 - **Interactive models:** by the late 1980s, readers combine elements of both bottom-up and top-down models as the most comprehensive description of the reading process (Anderson, 1999; Ediger, 2001; Wallace, 2001).

Other aspects of readers

- With the advent of top-down models, psychologists started to observe readers in a variety of different ways with the hope of helping reading researchers.
- Teachers were recommended to focus on other aspects of readers' in classes.
- For example:
 - Fry (1977, p. 13) directs reading teachers to investigate readers in terms of “[o]ral reading, ... [s]ilent reading, ... [e]ye movements, ... [e]ye-[v]oice [s]pan, ... [l]atency or response time, ... parts of the word, ... parts of a passage, ... [c]orrelation studies, ... [and v]arying teaching condition studies”.

Various reading models

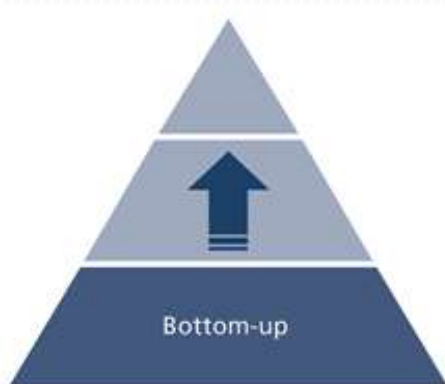
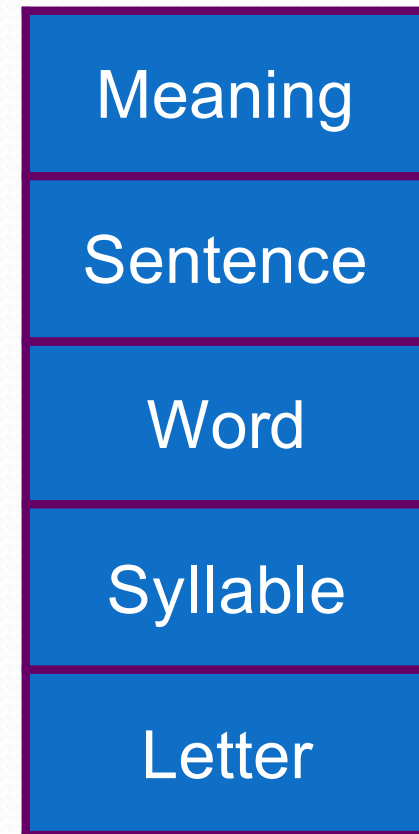
- Various reading models appeared.
- Classified in two broad categories (Grabe & Stoller, 2002, p. 31):
 - *metaphorical reading models*
 - bottom-up
 - top-down
 - interactive models
 - *specific reading models*
 - the psycholinguistic guessing game model
 - interactive compensatory model
 - word recognition models
 - simple view of reading model

Metaphorical reading models v. Behaviouristic research

- **The investigation of metaphorical models:**
 - goes beyond the boundaries of behaviouristic research.
- **Provides researchers:**
 - an understanding of what readers are doing during the reading process.

Bottom-up Models

- Go through a mechanical pattern by creating a piece-by-piece mental translation of the information in the text.
- The interaction between the reader and the text: little or no interference from the reader's own background knowledge.
- Readers need to succeed in each step.



Bottom-up Models

- Readers succeed in each step by beginning with the printed letter, recognising graphic stimuli, decoding them to sound, recognising words, and finally decoding meaning to achieve the general meaning (Alderson, 2000; Anderson, 1999; Grabe & Stoller; Nassaji, 2003).
- Also called *text-based view*, *text-driven models*, *data-driven processes*, *decoding*, *serial models*, *linguistic processes*, *skills-based approaches*, and *traditional models*.
- Resembled to *phonics approach*:
 - children start reading by learning symbol-sound correspondences.
- Requires great effort.
- Focuses on details.
- Showing the big picture is hard in bottom-up models.


Bottom-up Models

- *Bottom* as the smallest units such as ‘letters and words’ and *top* as a larger unit such as ‘phrases and clauses’ (Carrell, 1988).
- Readers become so automatic in recognizing such small units that they are unaware of handling of this process (Aebersold & Field, 1997).
- A *serial model* as reading starts with the printed word and continues with the recognition of graphic stimuli, decoding them to sound, recognising words, and decoding meanings (Alderson, 2000).
- “[D]ecoding written symbols into their aural equivalents in a linear fashion” (Nunan, 1999, p. 252).
- Bottom-up reading strategies are followed by readers who are low in proficiency as achieving the meaning is dependent on readers’ success at each step (Salataci, 2000).

Bottom-up processing



Nuttall, 1996, p. 17



**To understand
how readers recognize words,
try to read the following text.**

LaPec of etLster

- eseRarcsher at amebriCg nyiversUit onddcucte a tsuyd in rdreo to neveistigat the mtpiac of rorde of esttelr in orwsd. heTri ersulst ndicidate itltel mipatc for the ettelsr in the idmedl of the orswd; ovrheve, it is uqiet mpotirtan to lapec nitiisal and last etlster in hreit orrcetc lpacse. lthAouhg the rest emraisn to be ropblemcati, the orwsd are ecorgnizeabl insec eardesr denityif a word as a hwoel iwthotu eadglin iwht veyre ndiviidlua etltre in it.

Explanation

- The places of initials and last letters in the words which are longer than four letters are changed.
- In this case, it is rather complicated to recognize these words.
- Also try to read the following text.

Order of Letters

- Researchers at Cambridge University conducted a study in order to investigate the impact of order of letters in words. Their results indicated little impact for the letters in the middle of the words; however, it is quite important to place initials and last letters in their correct places. Although the rest remains to be problematic, the words are recognizable since readers identify a word as a whole without dealing with every individual letter in it.

Explanation

- The words in the second text are rather recognizable since the initials and last letters remain in their correct places.
- The places of only two letters were changed.
- This time replacement occurred in the middle of the words.
- Thus, by the help of this experience it can be inferred that initials and last letters in words are more important than the ones in the middle.

Top-down models

- Opposed to bottom-up models.
- Also called *inside-the-head view*, *cognitively-driven processes*, *schema theoretic models*, *schematic processes*, *conceptually driven processes*, *strategy-based approaches*, *the genre approach*, and *reader-driven models*.
- Bring background knowledge to the text is essential.
- One of the essential characteristics of efficient readers (Quinn, 2003).
- In such models readers' aims in reading the text and their expectations from the text lead the process of reading primarily (Grabe & Stoller, 2002).
- Resembled to *whole-word approach* where children start reading by learning words' global shape rather than symbol-sound correspondences in them.

Top-down models

- The importance of *schema* (Alderson, 2000).
- Bring background knowledge to the text (Carrell, 1985 & 1987; Carrell & Eisterhold, 1983; Grabe & Stoller).
- Form expectations about the forthcoming information in the text.
- Question their expectations while reading it.
- Identify genre with reference to particular characteristics that identify the type of the text (Wallace, 1992).
- Genres possess specific rules, enable readers to discriminate different types of written texts.
- *E.g.*, readers who are able to identify that they are about to read a letter expect to start with a salutation which is followed by the aim of the letter.
- To succeed, readers
 - need to be good at grammar and
 - know a large quantity of vocabulary.

Top-down processing



Nuttall, 1996, p. 16

Bottom-up processing



Nuttall, 1996, p. 17

The Psycholinguistic Guessing Game Model

- An example of top-down processing by Goodman (1967).
- Not necessary to read every letter or every word to achieve meaning as it is possible to interpret what the text is saying.
- The three major steps:
 - *hypothesising,*
 - *sampling,* and
 - *confirming.*
- To achieve the meaning, succeed in each step and get information that is based on background knowledge.
- Three components:
 - *process strategies,*
 - *background knowledge,* and
 - *conceptual abilities.*

Reading as ‘reduction of uncertainty’ (Smith, 1971)

- *Reading comprehension* is based on only a small portion of information that comes from the text.



**‘The captain ordered
the mate to drop the
an_____’**

Reducing uncertainty

- How do we reduce uncertainty in a text by dealing with four types of information?
 - **Graphic information:** knowledge of English spelling which directs readers with limited possibilities.
 - **Phonetic information:** the limited possibilities of sound.
 - **Syntactic information:** restricts that 'the' can be preceded merely by an adjective or a noun phrase.
 - **Semantic information:** focuses readers on the items that can be dropped and they find the missing vocabulary **anchor**.

Criticism: top-down models

- One of the limitations of top-down model.
- Requires the prediction of meaning with reference to context clues and integration of background knowledge:
 - Then, might be valid only for skilful and fluent readers who can be considered autonomous at reading (Eskey, 1988).
- Works improperly with less proficient readers.
- Top-down strategies as a compensatory strategy (Paran, 1997).
- To Paran, they should not be considered as a goal to achieve.
- Top-down strategies are effective only for readers whose linguistic ability is poor.

Interactive models

- The interaction of bottom-up and top-down models (Nara, 2003).
- Also called *parallel and the interactive compensatory model*.
- Integrate characteristics of both models (Anderson, 1999).
- The essential part of reading comprehension, the consistency of the author's and readers' background knowledge.
- “[R]eading [is] an interactive, sociocognitive process ..., involving a *text*, a *reader*, and a *social context* within which the activity of reading takes place” (Ediger, 2001, p. 154).
- Readers need to be fast and efficient in recognising the letters: similar to skimming a text in top-down models to get the main idea (Grabe & Stoller, 2002).
- Predicting the forthcoming information and integrating background knowledge with the text is an underlying principle in interactive models.

Interactive models

- Combines elements of both bottom-up and top-down models.
- Background knowledge is a major contributor to text understanding.
- Readers combine the reading material with their background knowledge.
- The reader needs to be fast in order to recognise the letters.
- Not only should the word recognition be fast, but also efficient.

Interactive models

- **The interaction between the reader and the text:**
 - deals with readers' prior knowledge which is relevant to the text and explains why activating schemata before reading and integrating this information with the text during reading results in better comprehension.
- **The interaction between bottom-up and top-down processes:**
 - deals with the interaction between bottom-up and top-down models of reading in which fluent readers need both decoding and interpretation skills.

Adegbite's (2000) 3 aspects

- Readers require an interaction with the text which is provided by
 - recognizing words,
 - decoding its content, and
 - constructing the meaning.
- Top-down and bottom-up procedures may assist to integrate the higher and lower levels of comprehension.
- Teacher-centred or learner-centred presentation is replaced with teacher-student and student-student interaction.
- Reading in such models encourages readers to explore the text culture and environment.

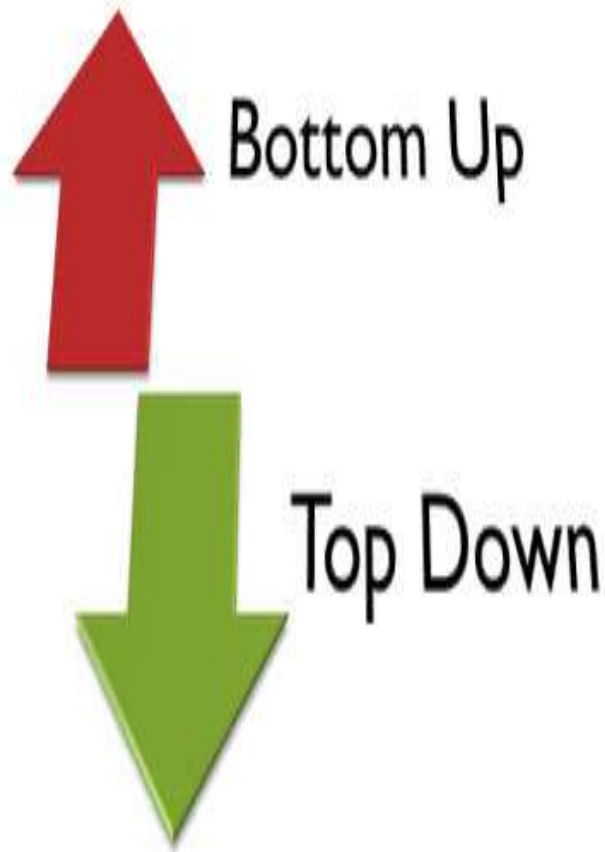
How to shift reading models

- When readers start reading, they focus on decoding the letters to understand what words mean (Ur, 1996).
- Little or no inference from their background knowledge.
- Understanding largely depends on decoding letters.
- As soon as they meet a meaningful context, they bring their own interpretation to the word rather than merely focusing on its exact component letters.
- Almost never “read anything in a ‘vacuum’” (Willis, 1981, p. 150).
- Readers already know something about the subject matter.
- The interaction between the text and readers is not a unique feature of proficient readers.
- Another interaction between the text and readers (Widdowson, 1980):
 - May derive the meaning that they need from the text.
 - The information derived from such an interaction can never be complete or precise.
 - Such an interaction highly depends on readers’ background knowledge,

Changing existing knowledge

- Reading is a kind of dialogue between the reader and the text (Ur, 1996).
- Reading process is not considered to be simply a matter of extracting information from the text (Grabe, 1988).
- New information which comes from the text may result in a change in readers' activated background knowledge.
- That is why reading is interactive rather than active or passive.

Comparing metaphorical models



- Bottom-up models = *lower-level processes*:
 - consist of recognizing orthographic and morpheme structures and processing phonemic information
- Top-down models = *higher-level process*:
 - the author's intended meaning becomes more argumentative.
- Reading: 'a multivariate skill',
 - the integration of lower-level and higher-level skills (Nassaji, 2003).

Comparing metaphorical models



- **top-down model:** looking at a forest
- **bottom-up model:** studying the individual trees in a forest
- **bottom-up model:** a passenger in a plane which flies low – watch the view in detail
- **top-down model:** a passenger in a plane which flies high – observe a wider view
- **interactive model:** the pilot in a plane – watch the view according to the needs



Improving reading

- Improving reading requires developing
 - a large vocabulary pool;
 - decoding meaning faster; and
 - becoming proficient both in bottom-up and top-down models to achieve detailed or general meaning according to readers' needs (Nara & Noda, 2003).

Flying and reading models

- Compare readers in bottom-up and top-down processes with passengers on a plane (Razi, 2004).
- Flying low is like reading in bottom-up processes:
 - Gives the advantage of seeing the details around
- Flying high is like reading in top-down processes:
 - Provides a general idea about the landscape in a short time.
- Passengers cannot control their height; similar to bottom-up and top-down processes.
- Being able to control the plane, becoming a pilot, like reading in interactive models.
 - focusing on the details or getting the general idea in accordance with their needs.

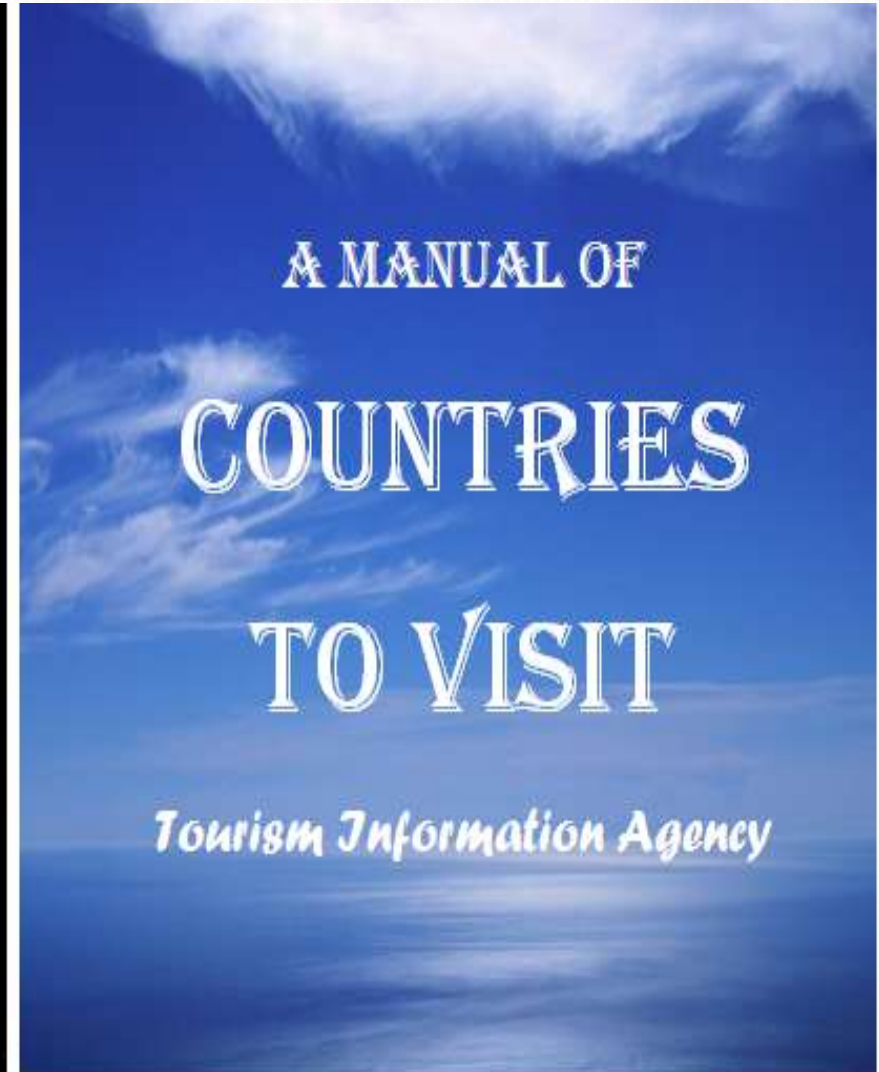


Example:

Fictional flight vs. reading a book

- Examine the following pictures to resemble reading a book to a fictional flight on Earth by using Google Earth on the computer.

Earth on Google Earth v. Cover of the Book



Explanation of the figure

- The picture on the left shows Earth and provides general information about it.
- It is impossible to see the details in this picture.
- The cover of the book also provides general information about the book.
- Again, you cannot receive detailed information from the book title.

Overview of Turkey on Google Earth v. Table of Contents of the Book



Turkey	89
St. Sophia Museum	91
Blue Mosque - Sultan Ahmet Camii	95
Pamukkale.....	99
Ephesus	105
Cappadocia Region	109
Pergamon	115
Sardis	119
Aspendus	125
Commagene Kingdom at Mt.Nemrut	129
Troy, Çanakkale	135

Explanation of the figure

- You can obtain general information about the landscapes of Turkey.
- Relatively, you can also get such information by examining the table of contents section of a book.
- Although, you can learn the name of the places in a specific country, you cannot learn the details of these places.

Overview of Çanakkale on Google Earth v. Info about Turkey in the Book



TURKEY

Turkey, known officially as the Republic of Turkey is a Eurasian country located 97% in Asia (mostly in the Anatolian peninsula) and 3% in East Thrace in Europe. Turkey is bordered by eight countries: Bulgaria to the northwest; Greece to the west; Georgia to the northeast; Armenia, Azerbaijan (the exclave of Nakhchivan) and Iran to the east; and Iraq and Syria to the southeast. The Mediterranean Sea and Cyprus are to the south; the Aegean Sea to the west; and the Black Sea is to the north. The Sea of Marmara, the Bosphorus and the Dardanelles (which together form the Turkish Straits) demarcate the boundary between East Thrace and Anatolia; they also separate Europe and Asia.

Turks began migrating into the area now called Turkey (derived from the Medieval Latin *Turchia*, i.e. "Land of the Turks") in the 11th century. The process was greatly accelerated by the Seljuk victory over the Byzantine Empire at the Battle of Manzikert. Several small beyliks and the Seljuk Sultanate of Rûm ruled Anatolia until the Mongol Empire's invasion. Starting from the 13th century, the Ottoman beylik united Anatolia and created an empire encompassing much of Southeastern Europe, Western Asia and North Africa. After the Ottoman Empire collapsed following its defeat in World War I, parts of it were occupied by the victorious Allies. A cadre of young military officers, led by Mustafa Kemal Atatürk and his colleagues, organized a successful resistance to the Allies; in 1923, they would establish the modern Republic of Turkey with Atatürk as its first president.

Turkey is a democratic, secular, unitary, constitutional republic with an ancient cultural heritage. Turkey has become increasingly integrated with the West through membership in organizations such as the Council of Europe, NATO, OECD, OSCE and the G-20 major economies. Turkey began full membership negotiations with the European Union in 2005, having been an associate member of the European Economic Community since 1963 and having reached a customs union agreement in 1995. Turkey has also fostered close cultural, political, economic and industrial relations with the Middle East, the Turkic states of Central Asia and the African countries through membership in organizations such as the Turkic Council, Joint Administration of Turkic Arts and Culture, Organisation of Islamic Cooperation and the Economic Cooperation Organization. Turkey's location at the crossroads of Europe and Asia makes it a country of significant geostrategic importance.

Explanation of the figure

- The photo on the left provides more detailed information about Turkey.
- You can receive more detailed information about the sight.
- Similarly, the text also provides detailed information about Turkey.

Details of Çanakkale on Google Earth v. Details about Çanakkale in the Book



ÇANAKKALE

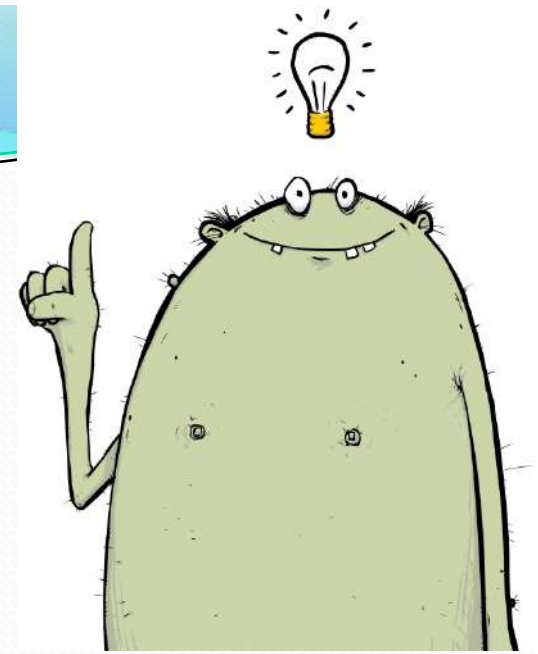
The city of Canakkale lends its name to the strait, whose shores touch both Europe and Asia, while connecting the sea of Marmara to the Aegean. Canakkale hosts the 60 km (38 miles) long strait, which is well-known as Dardanelles. It would be a privilege to enjoy the impressive scene of Dardanelles, which is one of the two straits that split the continents Asia and Europe. Throughout the history, anyone who controlled this gateway, commanded a highly strategic area. This has stimulated the importance of Canakkale province as the homeland of many civilizations and critical battles throughout the centuries. According to the Archaeologists, there are about 200 ancient sites in the province of Canakkale, where many of them are still unexcavated.

Explanation of the figure

- The photo on the left provides detailed information about Çanakkale.
- You can also receive such detailed information about Çanakkale by reading the text on the right.

Conclusion

- You have learned about the metaphorical models of reading.
- Do not read in bottom-up models all the time.
- You can learn the details but miss the main idea.
- Consider how you recognize and combine little pieces of information in bottom-up reading models.
- Remember the impact of background information on reading comprehension.
- In Chapter 6, you will learn about the techniques which are used to assess reading comprehension.



The End