U
2013

UNIVERSIDAD DE LOS ANDES

FACULTAD DE ODONTOLOGÍA

GUÍA DE TRABAJO PARA EL ÁREA DE INGLÉS EN LA ASIGNATURA INTRODUCCIÓN A LA INVESTIGACIÓN

Prof. BEXI PERDOMO
Departamento de Investigación- FOULA
Mérida, Venezuela
U-2013

UNIVERSIDAD DE LOS ANDES
FACULTAD DE ODONTOLOGÍA
DEPARTAMENTO DE INVESTIGACIÓN
BLOQUE CURRICULAR INTRODUCCIÓN A LA INVESTIGACIÓN
MÉRIDA – VENEZUELA
PROF. BEXI PERDOMO

Introducción

La asignatura Introducción a la Investigación permite al estudiante iniciarse en el ámbito de la investigación científica mediante la realización de un abordaje documental con un producto final consistente en un artículo científico de revisión. Para el logro de este objetivo es necesario conjugar conocimientos aportados por diferentes áreas del saber, dentro de los cuales se encuentra el inglés como herramienta para la lectura de textos. Dado que se trata de investigación científica con miras a la producción de un artículo de revisión, los textos a leer serán también textos científicos.

En este contexto, se busca que el estudiante desarrolle las habilidades de un lector eficiente, autónomo y crítico para lo cual se orientan las sesiones de clase hacia el uso de estrategias de lectura que le permita al el correcto procesamiento de información científica en una lengua extranjera. En el caso que ocupa al estudiante del primer año de la carrera de Odontología se ejercitan las habilidades para la lectura de textos científicos en inglés, una de las lenguas más usadas en un mundo globalizado y caracterizado por las facilidades de acceso a la información gracias a los beneficios de la tecnologías de la información y comunicación.

El presente recurso didáctico tiene como finalidad proveer al estudiante la oportunidad de estudiar los contenidos necesarios y ejercitar las habilidades pertinentes para desarrollar las competencias lectoras que le permitan aprovechar al máximo los artículos científicos que le sean de utilidad en la producción de su propio artículo de revisión. Se espera que algunas de las estrategias ejercitadas en este recurso sean de utilidad cuando el estudiante lea textos similares en otro idioma que éste pueda leer.

Unidad I

Objetivo 7: Conceptuar la lectura en lenguas extranjeras como un proceso de construcción de significados.

Contenido 7.1: La lectura. Lectura en lengua extranjera. El proceso de lectura y sus etapas.

Previo a la clase:

1. Leer el texto de presentado en este material titulado: La importancia de la lectura y su problemática en el contexto educativo universitario. el caso de la Universidad Juárez Autónoma de Tabasco (México)
2. Investigar sobre la importancia de la lectura de textos científicos en inglés en la formación del profesional de la odontología.
3. Investigar qué es: Odontología basada en la evidencia (OBE), inglés para fines específicos (ó inglés para propósitos específicos).
4. Leer el texto titulado: Levels of comprehension

En la clase:

1. Luego de discutir el texto leído, completa el siguiente cuadro:

La lectura es….
La lectura no es….
La lectura debe producir…..

2. Discutir acerca de la importancia de la lectura de textos científicos en inglés en la formación del profesional de la odontología. Para ello deberá hacer referencia a las fuentes consultadas.
3. Discutir sobre la importancia de la lectura en inglés en el ámbito de la OBE.
4. Discutir acerca de los diferentes niveles de comprensión.

LA IMPORTANCIA DE LA LECTURA Y SU PROBLEMÁTICA EN EL CONTEXTO EDUCATIVO UNIVERSITARIO. EL CASO DE LA UNIVERSIDAD JUÁREZ AUTÓNOMA DE TABASCO (MÉXICO)

Ariel Gutiérrez Valencia y Roberto Montes de Oca García
Universidad Juárez Autónoma de Tabasco, México

I. DEFINICIÓN DE LA LECTURA

Actualmente existe una gran diversidad de definiciones en torno a la lectura que son múltiples y acertadas, ya que en cada una de ellas se contemplan una serie de categorías conceptuales que ofrecen diferentes aspectos sobre esta capacidad eminentemente humana, y que permiten su análisis en toda su complejidad.

En este artículo se reconoce a la lectura " Como un proceso interactivo de comunicación en el que se establece una relación entre el texto y el lector, quien al procesarlo como lenguaje e interiorizarlo, construye su propio significado. En este ámbito, la lectura se constituye en un proceso constructivo al reconocerse que el significado no es una propiedad del texto, sino que el lector lo construye mediante un proceso de transacción flexible en el que conforme va leyendo, le va otorgando sentido particular al texto según sus conocimientos y experiencias en un determinado contexto." [1]

Desde esta perspectiva, el acto de leer se convierte en una capacidad compleja, superior y exclusiva del ser humano en la que se comprometen todas sus facultades simultáneamente y que comporta una serie de procesos biológicos, psicológicos, afectivos y sociales que lo llevan a establecer una relación de significado particular con lo leído y de este modo, esta interacción lo lleva a una nueva adquisición cognoscitiva.[2]

Es importante señalar que la concepción de lectura que se postula en este artículo contraria a la tradicional, pone énfasis en la actividad que despliega el lector y reconoce su papel activo para construir el significado del texto. Desde esta concepción constructivista, la lectura se convierte en una actividad eminentemente social y fundamental para conocer, comprender, consolidar, analizar, sintetizar, aplicar, criticar, construir y reconstruir los nuevos saberes de la humanidad y en una forma de aprendizaje importante para que el ser humano se forme una visión del mundo y se apropie de él y el enriquecimiento que le provee, dándole su propio significado.

Para leer el texto completo visitar
http://www.rieoei.org/deloslectores/632Gutierrez.PDF

Levels of Comprehension

The **three** levels of comprehension, or sophistication of thinking, are presented in the following hierarchy from the least to the most sophisticated level of reading.

- Least = surface, simple reading
- Most = in-depth, complex reading

Level One

LITERAL - what is actually stated.

- Facts and details
- Rote learning and memorization
- Surface understanding only

TESTS in this category are objective tests dealing with true / false, multiple choice and fill-in-the blank questions.

Common questions used to illicit this type of thinking are who, what, when, and where questions.

Level Two

INTERPRETIVE - what is implied or meant, rather than what is actually stated.

- Drawing inferences
- Tapping into prior knowledge / experience
- Attaching new learning to old information
- Making logical leaps and educated guesses
- Reading between the lines to determine what is meant by what is stated.

TESTS in this category are subjective, and the types of questions asked are open-ended, thought-provoking questions like why, what if, and how.

Level Three

APPLIED - taking what was said (literal) and then what was meant by what was said (interpretive) and then extend (apply) the concepts or ideas beyond the situation.

- Analyzing Synthesizing Applying

In this level we are analyzing or synthesizing information and applying it to other information.

FUENTE: Cuesta College. San Luis Obispo County Community College District. Academic Support. Disponible en: http://academic.cuesta.edu/acasupp/as/303.HTM

Adicional a la clase: Tomar notas de las principales conclusiones a partir de las discusiones hechas en clase. Hacer hincapié en cómo lo discutido y aprendido puede reflejarse positivamente en su formación profesional.

Unidad I (Continuación)

Objetivo 8. Utilizar de forma eficiente el diccionario bilingüe.

Contenido: El Diccionario bilingüe.

Previo a la clase:

1. Hacer la lectura titulada: **How to use a bilingual dictionary?** It's really not that simple….

How to use a bilingual dictionary? It's really not that simple…

1) Do you have a decent dictionary?

What you must have:

- each entry should have one or several examples of a sentence using the word in different contexts
- You should have separate entries for different meaning of the word, or at least different entries for noun/verb/adjectives/ adverbs… (and verbs have to be differentiated into transitive/intransitive = takes direct object (without preposition) / takes indirect object (with preposition) and the different possible preposition and different meaning
- Indication about the different fields/context this word could be used in

i.e. CULIN. means the context is food. If you're writing about base-ball, look further, SPORT maybe, or even BASE-BALL. One student used the word for batter (" pancake batter") while meaning baseball batter. Also a strike (base-ball) ended up being a strike (workers on strike for higher wages)

i.e: the word to translate "suit" in French is different if you are talking about a "wedding suit" or a "diving suit". Good dictionary will give you contexts, or type of situations when these words would be used.

- Somewhere in the entries for a word there should be one or several entries for all different locutions or idioms. Idioms are ways to use a word in a set sentence that is

very loosely related with the actual meaning of the words. i.e.: “I have a frog in my throat”. If you know what frog and throat mean, you might still not understand what the sentence mean.

- You will get to know your dictionary, and learn the meaning of different symbols (n., v., v.i., fem., pl., Culin., …). They should all be written down somewhere at the start. You need to eventually learn what they mean to be able to use a dictionary efficiently (and find their meaning when you don’t know)
- Level of language (old, slang…). Words will have different levels of use, an old word usually means it’s not used very much any more (but you might find it in a literary text). A slang word is best not used in a dissertation.
- Phonetics is a plus (but not compulsory)

2) How to look up a word?

- Do NOT trust electronic dictionaries, or use with caution. Words have different meaning in different context, and computers are not clever enough to know what context you are talking about. An electronic dictionary should have the same amount of information as a normal dictionary (see above) to be trusted, but electronic dictionaries often aim at being portable, which is good to travel and order at the restaurant, but not good enough to study French at university.

YOU are the computer deciding which definition to use.

- Do NOT trust online translators. Translating entire sentences with an electronic translator is cheating, but also completely inefficient and painfully obvious for the teacher.

- NEVER pick up the first meaning you come across, check all the following first:

- Are you looking at the right type of word (verb, noun, adjective, adverb)?

i.e.: Do not put the equivalent of “a squash” when you really want to say “ to squash” , unless you want to entertain the teacher.

- Is there more than one context this word could be used in? Find the right context
  i.e.: “diving” or “sport” for diving suit, “marriage” or “formal dress” for wedding suit.
- Are you looking at the most important word?

i.e. “diving suit”: the main word (noun) here is “suit”, try to find the “diving” context into the “ suit” entry. If this is not successful, go to the other word

- The word is not there. For a verb: Is it conjugated? Is it a past participle? Most dictionary will only have the infinitive. Usually they are pretty close, but if you are looking an irregular verb, you might not find it. Dictionaries cannot do everything for you.

For a noun: maybe you are looking for an irregular plural. Nouns are usually close enough to find.

- If you look up 2 words separately and the combination of them does not seem to make sense, ask yourself whether it is a set phrase or an idiom.

i.e.: in English if you read: " he gives in" and looked up " give" and " in" separately, it would not make any sense. They work together.

i.e.: if you look up " frog", "throat", and still cannot figure out what "having a frog in your throat" means. This is an idiom, it should be found in your dictionary somewhere in the " frog" and/or "throat entry"

- Look at the examples of sentences, see if they fit with the kind of things you want to say.
- If looking up a verb, check out if it's used with a preposition, and if different prepositions mean different things. Prepositions can make a big difference.

- Look at the level of language. Is it neutral, old-fashioned, slang? Beware of slang, it always seems milder in a foreign language. Better be too formal than not enough.
- Using a dictionary is like doing a puzzle, it's fun. At some point everything falls in place and fits. If one piece does not fit quite right, you're probably not done with the game yet.

Taken from http://www.wou.edu/~ivalm/dictionary.html

En clase

1. Discutir a partir de la lectura hecha.
2. Completar a partir de la lectura y discusiones hechas:

El propósito del texto es

De lo expresado en la lectura se concluye que las características de un buen diccionario bilingüe son:

_____

_____

_____

_____

_____

_____

Resuma dos acciones a evitar cuando se leen textos en inglés y se necesita consultar un diccionario

1_____

_____

_____

2. _____

_____

_____

Nombre algunas situaciones particulares se pueden presentar cuando se busca una palabra en el diccionario bilingüe

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Adicional a la clase: Para tener acceso a vocabulario especializado en el área de las ciencias de la salud e identificar algunos cognados (verdaderos y falsos) se sugiere revisar los artículos de Navarro, F. y Hernández, F. (1992), Navarro, F. y Hernández, F. (1993); Navarro, F. (2000); Navarro, F (2005).

Ejercicio práctico

Hacer una visita a la hemeroteca de para investigar acerca de las *revistas actualizadas disponibles en inglés* y llenar el siguiente formato.

Título de la revista (original en inglés y su traducción)	***Último ejemplar disponible (Volumen, número y año)***	***Título de un artículo que aparece en ese número***	***Traducción del título del artículo***

Evaluación Unidad I

La fecha e instrucciones serán dadas en clase.

Bibliografía consultada y sugerida en la Unidad I

Fernández, N (1999-2000). Hacia un uso correcto del diccionario en la lectura de textos científicos en inglés. *Revista de Investigación e Innovación en la clase de idiomas,* 11, 96-105.

González, J. (2006). Leyendo sin leer en sí: reflexiones sobre la lectura de textos científicos. ULPGC Biblioteca Universitaria. Artículo en línea recuperado en Febrero 15 de 2011 de http://acceda.ulpgc.es/bitstream/10553/4307/1/0233536_00000_0004.pdf

Hyland, K., & Hamp-Lyons, L. (2002). EAP: issues and directions. *Journal of English for Academic Purposes,* 1: 1-12.

Navarro, F (1995) Tercer listado de palabras de traducción engañosa en el inglés médico. *Medicina Clínica,* 105: 504-514.

Navarro, F. y Hernández, F. (1992). Palabras de traducción engañosa en inglés médico. *Medicina Clínica,* 99: 575-580.

Navarro, F. y Hernández, F. (1993) Nuevo listado de palabras de traducción engañosa en el inglés médico. *Medicina Clínica,* 102: 142-149.

Perdomo, B. (2007). Estrategias de lectura utilizadas por estudiantes de nuevo ingreso. *Kaleidoscopio* 4 (8): 160-168. Disponible en http://kaleidoscopio.uneg.edu.ve/numeros/k08/k08_art07.pdf

Unidad II

Objetivo 3. Identificar las etapas del proceso de lectura de textos en inglés que aporten información a la investigación documental.

Contenido 3.1
Proceso de lectura. Etapas

Previo a la clase:

1. Leer el texto: Key features of Reading

Key features of reading

By G.E. Tompkins
Pearson Allyn Bacon Prentice Hall

There are 5 stages in the reading process: prereading, reading, responding, exploring, and applying. The following list outlines the key features of each stage.

Stage 1: Prereading

- Activate or build background knowledge and related vocabulary.
- Set purposes.
- Introduce key vocabulary words.
- Make predictions.
- Preview the text.

Stage 2: Reading

- Read independently, with a buddy, or using shared or guided reading, or listen to the text read aloud.
- Apply reading strategies and skills.
- Examine illustrations, charts, and diagrams.
- Read the text from beginning to end.
- Read one or more sections of text to learn specific information.
- Take notes.

Stage 3: Responding

- Write in reading logs.
- Participate in grand conversations or other discussions.

Stage 4: Exploring

- Reread all or part of the text.
- Learn new vocabulary words.
- Participate in minilessons on reading strategies and skills.
- Examine the author's craft.
- Identify memorable quotes.

Stage 5: Applying

- Construct projects.
- Read related books.
- Use information in thematic units.
- Evaluate the reading experience.

En clase

1. Complete con la información extraída de la lectura Key Features of Reading.

La lectura es un proceso que comprende diferentes etapas. Aunque algunos autores hablan de tres de ellas, cuando se hace lectura de textos científicos con propósitos de investigación, se cumplen _____ etapas.

2. Escriba en el espacio destinado para tal fin, cada una de las etapas del proceso de lectura a las que pertenecen las siguientes actividades:

- Los estudiantes toman notas de lo que consideran la idea principal de los dos primeros párrafos. _____
- El estudiante elabora resúmenes con base en la lectura y relacionados con su proyecto de investigación. _____
- Los estudiantes contestan preguntas acerca de lo que esperan encontrar en el texto a leer. _____
- Los estudiantes identifican el nuevo vocabulario aprendido _____
- Los estudiantes responden preguntas escritas acerca del contenido del texto leído. _____
- Los estudiantes hacen predicciones de texto. _____

Ejercicio práctico

Para este ejercicio deberán leer en clase (sin haberlo preparado con anterioridad) el extracto del artículo titulado: '*Management of Epileptic patients in dentistry*' y contestar las preguntas que sobre el mismo se harán en el aula.

Pre-lectura. Realice dos actividades relacionadas con la etapa de pre-lectura. Anótelas y descríbalas en el recuadro

1
2

Lectura. Lea individualmente el texto, y use las estrategias que considera útiles para comprender el texto (subrayado, uso del diccionario, traducción, otras), lea buscando información específica que deberá escribir luego (conceptos, características, hechos, otros). Tome nota de las estrategias usadas en el siguiente cuadro.

Respuestas. Complete la siguiente información de acuerdo con la lectura:

La epilepsia es:

Una de las habilidades de las células cerebrales es:

El objetivo del estudio leído era:

Las convulsiones se definen como:

El conocimiento de la epilepsia es importante para el odontólogo porque…

Exploración.

1. Identifique vocabulario que antes de leer el texto le era desconocido, escríbalo en el siguiente cuadro:

Palabra en inglés	Traducción en el texto

2. Identifique un extracto del texto que usted considere de mayor importancia y señale por qué cree que lo sea.

Texto en inglés	Traducción	Razón por la cual lo considera más importante

Aplicación.

1. Llene el siguiente cuadro, para ello reflexiones sobre todo el proceso relacionado con la lectura del texto.

Se siguieron las etapas en el tratamiento del texto… si ( ) no ( )
Se usaron al menos dos estrategias en la etapa de pre-lectura… si ( ) no ( )
Las estrategias en la etapa de pre-lectura fueron la adecuadas, constituyeron una ayuda... si ( ) no ( )
Las estrategias usadas durante la lectura fueron de ayuda… si ( ) no ( ) algunas ( )
Si algunas estrategias no fueron útiles, nómbrelas (máximo 3) y señale la razón por la cual no funcionaron: a. _____ b. _____ c. _____
Entre las estrategias usadas se encuentran: a. Subrayado … si ( ) no ( ) b. Búsqueda de palabras desconocidas … si ( ) no ( ) c. Traducción escrita de todo el texto … si ( ) no ( ) d. Lectura de figuras y gráficos … si ( ) no ( ) e. Predicciones a partir del título … si ( ) no ( ) f. Otras: _____
Su experiencia de lectura fue: Exitosa ( ) Medianamente exitosa ( ) Muy poco exitosa ( ) Describa brevemente las razones que según usted influyeron en esa calificación de su experiencia de lectura: _____ _____ _____ _____ _____ _____

2. Elabore un resumen en el cual evalúe su experiencia de lectura. Para ello vuelva a las respuestas que dio en cuanto al uso de estrategias, tome en cuenta el tiempo que tenía para hacer la actividad y cotéjelo con el logro de los objetivos (su redacción en español es muy importante, cuide la coherencia textual).

3. Elabore un resumen con base en lo comprendido a partir del texto leído (su redacción en español es muy importante, cuide la coherencia textual).

Surgical Science, 2012, 3, 47-52
doi:10.4236/ss.2012.31008 Published Online January 2012 (http://www.SciRP.org/journal/ss)

Scientific Research

Management of Epileptic Patients in Dentistry

Yaltırık Mehmet[1], Özer Senem[1], Tonguç Sülün[2], Kocaelli Hümeyra[1]
[1]Department of Oral Surgery, Faculty of Dentistry, Istanbul University, Istanbul, Turkey
[2]Department of Prosthodontics, Faculty of Dentistry, Istanbul University, Istanbul, Turkey
Email: {myaltrk, tongucsulun, humeyrakocaelli}@yahoo.com, senemozr@hotmail.com

Received June 9, 2011; revised September 23, 2011; accepted October 13, 2011

ABSTRACT

Epilepsy has direct negative effects on sufferers' general dental condition and oral health, both of which are further affected by inadequate oral hygiene; poor oral hygiene itself is often also caused by epilepsy-related poor health. Consequently, tooth loss, caries and periodontal disease occur increasingly often in epilepsy sufferers and they need more dental treatment. However, in fact the epileptic patients can receive fewer and simpler treatment modalities. The aim of this study was to review and synthesize recent studies on dental treatment in epilepsy patients and to mention potential triggers for seizures in dental practice.

Keywords: Epilepsy; Dental; Seizure; Prosthodontic Treatment

1. Introduction

The human brain consists of millions of neurons, their extensions, and the supportive tissues found between those neurons. All brain cells have the ability to produce electrical currents and conduct them to other cells. It is by transmitting such electrical signals that the brain functions. In other words, it is the conduction of these electrical currents that enables us to act, to speak and to feel [1,2].

Seizures can be defined as the discontinuity of normal brain functions due to sudden electrical discharges which may be either excessive or inadequate; these result in episodic convulsions (such as involuntary motion), disturbances in perception, or alterations in consciousness. The outcome of such excessive discharge during electrical conduction is called seizure [2-4].

Epilepsy is a disease that involves seizures which are characterized by an alteration of perception, behavior and mental activities, as well as by involuntary muscle contractions, temporary loss of consciousness and chronic changes in neurological functions that result from abnormal electrical activity in the brain [3,5,6]. Epileptic seizures are reversible and recur frequently [2].

For centuries epilepsy was thought to be a disease related to the supernatural. Although Hippocrates claimed that epilepsy is a naturally occurring disease, the misbelieve that the cause of epilepsy was supernatural was common until the neuropathologic origin of epilepsy was reported in the 19th century [7]. In the early part of that century, John Hughlings Jackson defined Jocksonian seizures; in the middle of the 19th century, Robert Bently Todd defined the paralyses that may develop after long-term seizures [2]. Today, the diagnosis of an epileptic patient required at least three seizure episodes [1].

The aim of this study was to review and synthesize recent studies on dental treatment in epilepsy patients and outline the special concerns that dentists should take into account when providing care to these patients.

We searched the dental literature with Medline/Pubmed with an emphasis on peer-reviewed journals and Science Citation Index Expanded. Key words used were epilepsy, dental, seizure and prosthodontic treatment. We also scrutinized common textbooks on removable and fixed proshodontics. For additional information a hand search from relevant data were searched, too.

2. Epidemiology and Prevalence

Epilepsy is a disease that is frequently encountered by oral and maxillofacial surgery practices [2]. It is thought to affect millions of people worldwide, and has a prevalence of 0.5% - 0.9% in the general population [1,2,8]. Chapman *et al.* have reported that, epileptic seizures are the second most common medical incident in dental surgeries. They have stated that statistically every dentist notice in his/her professional life 1.5 times generalized tonic-clonic seizures by the patients [9].

It has been reported that the disease occurs independent of race, age and gender [2,10]. However, epilepsy has been occur more frequently in men than in women [2,5, 10,11].

Epilepsy has been observed most frequently in children under 1 year of age and in people over the age of 75

Unidad II (Continuación)

Objetivo 4. Desarrollar estrategias de lectura para profundizar en la búsqueda de información en inglés.

Contenido 4.1

El párrafo.
- Ideas principales.
- Ideas secundarias.

Previo a la clase

Leer el texto 'Paragraphs and topic sentences'.

En clase

1.- Responder:

Un párrafo es ….
La estructura del párrafo comprende _____, _____ y _____.
La idea principal es …..
Las características de un párrafo coherente incluyen:

Dos técnicas para establecer coherencia textual son:

INDIANA UNIVERSITY
BLOOMINGTON

Writing
TUTORIAL SERVICES (WTS)

Paragraphs and Topic Sentences

A paragraph is a series of sentences that are organized and coherent, and are all related to a single topic. Almost every piece of writing you do that is longer than a few sentences should be organized into paragraphs. This is because paragraphs show a reader where the subdivisions of an essay begin and end, and thus help the reader see the organization of the essay and grasp its main points.

Paragraphs can contain many different kinds of information. A paragraph could contain a series of brief examples or a single long illustration of a general point. It might describe a place, character, or process; narrate a series of events; compare or contrast two or more things; classify items into categories; or describe causes and effects. Regardless of the kind of information they contain, all paragraphs share certain characteristics. One of the most important of these is a topic sentence.

TOPIC SENTENCES

A well-organized paragraph supports or develops a single controlling idea, which is expressed in a sentence called the topic sentence. A topic sentence has several important functions: it substantiates or supports an essay's thesis statement; it unifies the content of a paragraph and directs the order of the sentences; and it advises the reader of the subject to be discussed and how the paragraph will discuss it. Readers generally look to the first few sentences in a paragraph to determine the subject and perspective of the paragraph. That's why it's often best to put the topic sentence at the very beginning of the paragraph. In some cases, however, it's more effective to place another sentence before the topic sentence—for example, a sentence linking the current paragraph to the previous one, or one providing background information.

Although most paragraphs should have a topic sentence, there are a few situations when a paragraph might not need a topic sentence. For example, you might be able to omit a topic sentence in a paragraph that narrates a series of events, if a paragraph continues developing an idea that you introduced (with a topic sentence) in the previous

paragraph, or if all the sentences and details in a paragraph clearly refer—perhaps indirectly—to a main point. The vast majority of your paragraphs, however, should have a topic sentence.

PARAGRAPH STRUCTURE

Most paragraphs in an essay have a three-part structure—introduction, body, and conclusion. You can see this structure in paragraphs whether they are narrating, describing, comparing, contrasting, or analyzing information. Each part of the paragraph plays an important role in communicating your meaning to your reader.

Introduction: the first section of a paragraph; should include the topic sentence and any other sentences at the beginning of the paragraph that give background information or provide a transition.

Body: follows the introduction; discusses the controlling idea, using facts, arguments, analysis, examples, and other information.

Conclusion: the final section; summarizes the connections between the information discussed in the body of the paragraph and the paragraph's controlling idea.

The following paragraph illustrates this pattern of organization. In this paragraph the topic sentence and concluding sentence (CAPITALIZED) both help the reader keep the paragraph's main point in mind.

SCIENTISTS HAVE LEARNED TO SUPPLEMENT THE SENSE OF SIGHT IN NUMEROUS WAYS. In front of the tiny pupil of the eye **they put**, on Mount Palomar, a great monocle 200 inches in diameter, and with it see 2000 times farther into the depths of space. **Or they look** through a small pair of lenses arranged as a microscope into a drop of water or blood, and magnify by as much as 2000 diameters the living creatures there, many of which are among man's most dangerous enemies. **Or**, if we want to see distant happenings on earth, **they use** some of the previously wasted electromagnetic waves to carry television images which they re-create as light by whipping tiny crystals on a screen with electrons in a vacuum. **Or they can bring** happenings of long ago and far away as colored motion pictures, by arranging silver atoms and color-absorbing molecules to force light waves into the patterns of original reality. **Or** if we want to see into the center of a steel casting or the chest of an injured child, **they send** the information on a beam of penetrating short-wave X rays, and then convert it back into images we can see on a screen or photograph. THUS ALMOST EVERY TYPE OF ELECTROMAGNETIC RADIATION YET DISCOVERED HAS BEEN USED TO EXTEND OUR SENSE OF SIGHT IN SOME WAY.

George Harrison, "Faith and the Scientist"

COHERENCE

In a coherent paragraph, each sentence relates clearly to the topic sentence or controlling idea, but there is more to coherence than this. If a paragraph is coherent, each sentence flows smoothly into the next without obvious shifts or jumps. A coherent paragraph also highlights the ties between old information and new information to make the structure of ideas or arguments clear to the reader.

Along with the smooth flow of sentences, a paragraph's coherence may also be related to its length. If you have written a very long paragraph, one that fills a double-spaced typed page, for example, you should check it carefully to see if it should start a new paragraph where the original paragraph wanders from its controlling idea. On the other hand, if a paragraph is very short (only one or two sentences, perhaps), you may need to develop its controlling idea more thoroughly, or combine it with another paragraph.

A number of other techniques that you can use to establish coherence in paragraphs are described below.

Repeat key words or phrases. Particularly in paragraphs in which you define or identify an important idea or theory, be consistent in how you refer to it. This consistency and repetition will bind the paragraph together and help your reader understand your definition or description.

Create parallel structures. Parallel structures are created by constructing two or more phrases or sentences that have the same grammatical structure and use the same parts of speech. By creating parallel structures you make your sentences clearer and easier to read. In addition, repeating a pattern in a series of consecutive sentences helps your reader see the connections between ideas. In the paragraph above about scientists and the sense of sight, several sentences in the body of the paragraph have been constructed in a parallel way. The parallel structures (which have been **emphasized**) help the reader see that the paragraph is organized as a set of examples of a general statement.

Be consistent in point of view, verb tense, and number. Consistency in point of view, verb tense, and number is a subtle but important aspect of coherence. If you shift from the more personal "you" to the impersonal "one," from past to present tense, or from "a man" to "they," for example, you make your paragraph less coherent. Such inconsistencies can also confuse your reader and make your argument more difficult to follow.

Use transition words or phrases between sentences and between paragraphs. Transitional expressions emphasize the relationships between ideas, so they help readers follow your train of thought or see connections that they might otherwise miss or misunderstand. The following paragraph shows how carefully chosen transitions (CAPITALIZED) lead the reader smoothly from the introduction to the conclusion of the paragraph.

> I don't wish to deny that the flattened, minuscule head of the large-bodied "stegosaurus" houses little brain from our subjective, top-heavy perspective, BUT I do wish to assert that we should not expect more of the beast. FIRST OF ALL, large animals have relatively smaller brains than related, small animals. The correlation of brain size with body size among kindred animals (all reptiles, all mammals, FOR EXAMPLE) is remarkably regular. AS we move from small to large animals, from mice to elephants or small lizards to Komodo dragons, brain size increases, BUT not so fast as body size. IN OTHER WORDS, bodies grow faster than brains, AND large animals have low ratios of brain weight to body weight. IN FACT, brains grow only about two-thirds as fast as bodies. SINCE we have no

reason to believe that large animals are consistently stupider than their smaller relatives, we must conclude that large animals require relatively less brain to do as well as smaller animals. IF we do not recognize this relationship, we are likely to underestimate the mental power of very large animals, dinosaurs in particular. (Stephen Jay Gould, "Were Dinosaurs Dumb?")

SOME USEFUL TRANSITIONS

(modified from Diana Hacker, *A Writer's Reference*)

To show addition:
again, and, also, besides, equally important, first (second, etc.), further, furthermore, in addition, in the first place, moreover, next, too

To give examples:
for example, for instance, in fact, specifically, that is, to illustrate

To compare:
also, in the same manner, likewise, similarly

To contrast:
although, and yet, at the same time, but, despite, even though, however, in contrast, in spite of, nevertheless, on the contrary, on the other hand, still, though, yet

To summarize or conclude:
all in all, in conclusion, in other words, in short, in summary, on the whole, that is, therefore, to sum up

To show time:
after, afterward, as, as long as, as soon as, at last, before, during, earlier, finally, formerly, immediately, later, meanwhile, next, since, shortly, subsequently, then, thereafter, until, when, while

To show place or direction:
above, below, beyond, close, elsewhere, farther on, here, nearby, opposite, to the left (north, etc.)

To indicate logical relationship:
accordingly, as a result, because, consequently, for this reason, hence, if, otherwise, since, so, then, therefore, thus

---

Luego de la clase

Repasar sobre los elementos de transición en un texto.

Ejercicio para resolver en el aula

1. Observe artículo titulado 'A case of maloccluded incisor teeth in a beaver (Castor canadensis)' y enumere los párrafos que contiene.

J. Vet. Sci. (2005), **6**(2), 173–175

JOURNAL OF Veterinary Science

Case Report

A case of malocclusion incisor teeth in a beaver (*Castor canadensis*)

Joong-hyun Kim[1], Jae Yeong Lee[1], Tae-Sung Han[1], Kyu-bo Han[1], Seong Soo Kang[2], Chun Sik Bae[2], Seok Hwa Choi[1]*

[1]*College of Veterinary Medicine and Research Institute of Veterinary Medicine, Chungbuk National University, Cheongju 361-763, Korea*
[2]*College of Veterinary Medicine and Biotechnology Research Institute, Chonnam National University, Gwangju 500-757, Korea*

A three-year-old female beaver (*Castor canadensis*) was referred to the Veterinary Teaching Hospital of Chungbuk National University. It had been raised in the Cheong-ju zoo and had a history of malocclusion caused by improper feeding. General anesthesia was induced, and preoperative intraoral dental radiographs of the rostal maxillary and mandibular dentition were taken and lateral and ventrodorsal extraoral radiographs of the cheek teeth were also taken. The radiographs were negative for apical pathology and revealed a normal appearance of the cheek teeth. The lesion was likely to be related to the excessive length of the maxillary and mandibular incisors. Odontoplasty was performed to reduce overgrowth of the crowns of the incisors. Sequential transverse sections were removed until the crown was reduced by approximately its original length. The pulp chamber was not approached during the operation, as confirmed by postoperative intraoral radiographic evaluation of the incisors. Recovery from anesthesia was uneventful and the beaver returned to normal masticatory activities immediately after the operation.

Key words: beaver, incisor teeth, malocclusion

Beavers (*Castor canadensis*) are the second biggest species in the largest mammalian order, Rodentia [2]. Characteristic of rodents are four prominent yellow or orange incisor teeth [2,4]. These teeth are necessary for the gnawing habits of these animals [2]. The dental formula for the beaver is 2 × (I 1/1, C 0/0, P 1/1, M 3/3) = 20. The incisor teeth continue to grow during the lifetime of the animal [5]. These continuously growing teeth are generally kept within appropriate sizes by attrition [1]. This unique feature sometimes contributes to a clinical problem when malocclusion or inadequate wear allows elongation of these teeth [2].

*Corresponding author
Tel: 82-43-261-3144; Fax: 82-43-261-3320
E-mail: shchoi@cbu.ac.kr

Normally, an object is gnawed by being held against the immobile upper incisors and jaw while it is cut by a fore-and-aft movement of the lower incisors and jaw [2,4]. Malocclusion is a condition in which the upper and lower teeth are malpositioned during chewing movements of the jaw. Malocclusion of the incisor in rodent is most often characterized by an altered clinical crown length, angulation and occlusal wear pattern, rather than altered positioning of the teeth.

There are several causes of malocclusion, including hereditary factors, nutritional imbalance, and lack of adequate dietary roughage. Affected animals eat less, lose weight, and waste food because of impaired prehension. A constant sign in advanced stages of the condition is excessive drooling, which causes wet, matted fur around the mouth, chin, chest, neck, and forelegs. Eventually, secondary bacterial infection and hair loss may occur. Unless corrected, death is common because of starvation or secondary complications [2].

To treat this form of malocclusion, the overgrown teeth are trimmed back to normal length and shape using instruments such as files, saws, or specialized dental equipment (a dental unit). Use of a speculum will help protecting the animal and the handler during examination and treatment. Unless the inciting cause is corrected (impossible if genetics), the corrective measure is only temporary, and the teeth will continue to grow abnormally. Animals with inherited malocclusion should not be mated [2].

A three-year-old female beaver was referred to the Veterinary Teaching Hospital of Chungbuk National University. It had been raised in the Cheong-ju zoo and had a history of malocclusion caused by improper feeding. The maxillary and mandibular incisors were malocculded, as a result of inadequate wear and consequent elongation of the clinical crowns.

General anesthesia was induced with 10 mg/kg ketamine (Ketamine, Yuhan Co.) administered intramuscularly. Once the animal was recumbent, preoperative intraoral dental radiographs were taken of the rostal maxillary and mandibular dentition using both dorsoventral and bisecting angle techniques at a range of exposure to acquire diagnostic

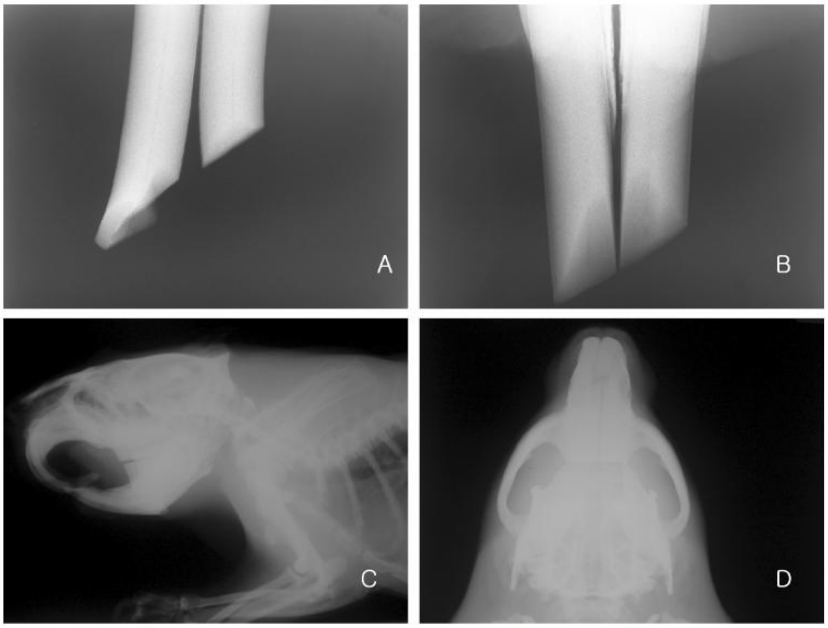

Fig. 1. Preoperative intraoral and extraoral radiographs of incisor teeth overgrowth in a female beaver. Intraoral dental radiographs of maxillary incisors (A) and mandibular incisors (B). Ventrodorsal extraoral (C) and lateral extraoral (D) radiographs of a whole skull. These radiographs do not reveal any periapical pathology involving the maxillary and mandibular incisors.

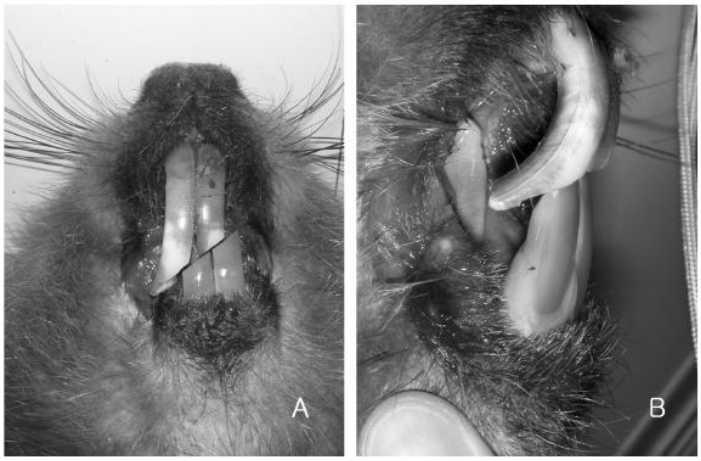

Fig. 2. A case of malocclusion and subsequent overgrowth of incisor teeth in a beaver (*Castor canadensis*). Four prominent yellow or orange incisor teeth, as shown in these pictures of a beaver are a characteristic feature of rodents.

radiographs. Lateral and ventrodorsal extraoral radiographs of the cheek teeth were taken (Fig 1). The radiographs showed no apical pathology associated with maxillary and mandibular incisors and revealed normal appearance of the occlusion of the cheek teeth. The original lesion was considered likely to be related to the excessive length of the maxillary and mandibular incisors from insufficient dental attrition causing malocclusion (Fig 2). In order to minimize the duration of anesthesia, radiographic examination and surgical procedure were carried out in a series. Odontoplasty was performed to reduce the overgrowth of the crown of the incisors using a flat and taper diamond bur (10 mm length) and a water-cooled, high-speed handpiece. Sequential transverse sections were removed until the crown was reduced to approximately its original length. The crown reduction described here was performed to prevent the occurrence of self trauma to the oral vestibule resulting in facial wound. The pulp chamber was never approached during the operation, as confirmed by postoperative intraoral radiographic evaluation of the incisors (Fig. 3). Recovery

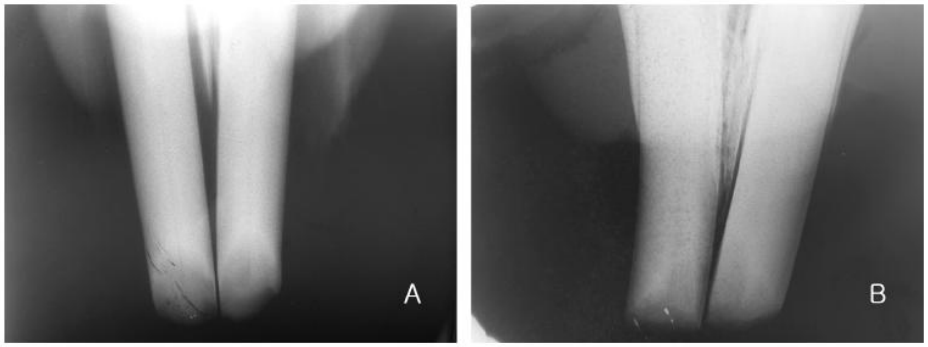

Fig 3. Postoperative intraoral dental radiographs of the rest part of the incisors. Maxillary (A) and mandibular (B) radiographs note the absence of a pulp exposure.

from anesthesia was uneventful and the beaver had returned to normal gnawing activities immediately after the operation.

Dental procedures are sometimes conducted on exotic species in less than optimal facilities, and require a flexible approach. The aggressive nature of many exotic animals, including beavers, may delay timely oral health care for logistical and personnel reason [3]. General anesthesia is necessary to enable thorough oral examination and dental treatment [4].

Malocclusion in rodent can be classified in traumatic and atraumatic [4,6]. Atraumatic malocclusion is normally not attributed to trauma. One of three basic forms of the atraumatic malocclusion is caused by improper wear. This is a result of functional problems such as abnormal chewing habits and eating behavior [4]. In this case, nutritional problem with bad feeding was thought as a cause of an atraumatic malocclusion that resulted in improper tooth alignment. The beaver was developed improper mastication, impaired oral closure and loss of appetite, but there was no evidence of severe weight loss, infection and so on.

Oral examination and radiographic evaluation of dental problems in rodents have been reported [4,6]. The location of the pulp chamber may vary between individual animals or between the mandibular and maxillary incisors. In addition, local occlusal and environmental factors may affect the location of the pulp chamber relative to the incisal margin of the tooth [3]. In this case, a thorough oral examination and intraoral and extraoral dental radiographs of the maxillary and mandibular incisor teeth was performed to rule out apical pathology and to decide reduction range of a crown. In visual examination of the periodontal problems and cheek teeth overgrowth, no significant abnormal conditions were founded.

When not complicated by involvement of the cheek teeth, overgrowth of the incisor can usually be treated and controlled by odontoplasty, apicoectomy or extraction. Confirming the location of the pulp chamber is of considerable importance before crown reductions are performed to ensure that the pulp is not penetrated during odontoplasty. In the present case, radiographs of the rostal incisors showed no pulp chambers present close to the incisal edge (Fig. 1). The crowns of the incisors were reduced in transverse sections using a dental unit, in order to promote normal dental attrition [6]. A diamond bur was used to trim the beaver's teeth because its permits rapid and accurate shaping and smoothing, unlike other implements such as bone cutters which crush, fracture or split the teeth, often resulting in exposure of the pulp. Pulp exposure may occur even when teeth are cut using a bur, requiring vital pulp therapy if the pulp chamber is exposed inadvertently, but there was no evidence of perforation of the pulp chamber in this case.

As the problem in this case was caused by poor husbandry rather than genetic abnormality, the procedure was not needed to be repeated regularly. Now, the zoo is modifying the environmental conditions, diet, and husbandry procedures of its animals in order to promote normal dental attrition and minimize the incidence of traumatic crown loss.

References

1. **Amand WB, Tinkelman CL.** Oral disease in captive wild animals. In: Harvey CE (ed.). Veterinary Dentistry. pp. 289-311, Saunders, Philadelphia, 1985.
2. **Clark JD, Olfert ED.** Rodents (Rodentia). In: Fowler ME (ed.). Zoo and Wild Animal Medicine. 2nd ed. pp. 727-747, Saunders, Philadelphia, 1986.
3. **Johnston NW.** Atraumatic malocclusion in two pygmy hippos (*Choeropsis liberiensis*). J Vet Dent 2002, **19**, 144-147.
4. **Wiggs RB, Lobprise H.** Dentistry in rabbits and rodents. In: Crossley DA, Penman S (eds.). Manual of Small Animal Dentistry. 2nd ed. pp. 67-91, British Small Animal Veterinary Association, Gloucestershire, 1995.
5. **Wiggs RB.** Fractured maxillary incisors in a beaver. J Vet Dent 1990, **7**, 21-22.
6. **Wiggs RB.** Pocket pet dentistry. In: Holmstrom SE (ed.). Veterinary Dentistry for the Technician and Office Staff. pp. 293-326, Saunders, Philadelphia, 2000.

2. Identifique la idea principal de los párrafos indicados por la profesora (recuerde usar las estrategias necesarias e ir evaluando la eficiencia de las mismas).

Párrafo _____	**Idea principal:**	**Estrategias usadas para la identificación de la idea principal:**
Párrafo _____	**Idea principal:**	**Estrategias usadas para la identificación de la idea principal:**
Párrafo _____	**Idea principal:**	**Estrategias usadas para la identificación de la idea principal:**
Párrafo _____	**Idea principal:**	**Estrategias usadas para la identificación de la idea principal:**

Unidad II (Continuación)

Objetivo 4. Desarrollar estrategias de lectura para profundizar en la búsqueda de información en inglés.

Contenido 4.2

Conectores

Previo a la clase

1. Revise la lista de conectores que aparecen al final de la primera lectura del contenido anterior (Paragraphs and Topic Sentences, Indiana University). Investigue otra lista de conectores que le pudiera ser de utilidad en los ejercicios de lectura en el aula y clasifíquelos según su función.

2 Leer el artículo de Khatib (2011) (Sólo las secciones de Introducción, estudios previos, discusión y las implicaciones y sugerencias para futuros estudios).

En clase

1 Observe el texto de Khatib (2011) para obtener información general sobre el mismo.

2. Identifique cada párrafo del artículo con el número correspondiente.

3. Llene el siguiente cuadro:

Párrafo y línea	Oración en la que se encuentra el conector (subrayarlo)	Función que cumple el conector (adiciona, contradice….)

Comprehension of Discourse Markers and Reading Comprehension

Mohamad Khatib
Assistant Professor, Allameh Tabataba'i Uinversity (ATU), Tehran, Iran
E-mail: mkhatib27@yahoo.com
Mahmood Safari (Corresponding author)
Hazrat Masumeh University, Qom, Iran
E-mail: mahmood.safari@gmail.com

Received: August 10, 2010 Accepted: February 9, 2011 doi:10.5539/elt.v4n3p243

Abstract

According to many research findings, the presence of discourse markers (DMs) enhances readers' comprehension of the texts they read. However, there is a paucity of research on the relationship between knowledge of DMs and reading comprehension (RC) and the present study explores the relationship between them. Knowledge of DMs is measured through examining the subjects' recognition of DMs. To carry out the research, 86 Iranian sophomores majoring in English took a test of DMs alongside a RC test. The correlation between their scores on the two tests was calculated using the software SPSS. The analysis revealed that there is high correlation between the students' knowledge of DMs (i.e., their correct recognition of discourse markers) and their reading comprehension (r_{xy} = .71). Moreover, high correlation carries a strong regression power and scores on a test of DMs could be a good indicator of the test takers' reading ability.

Keywords: Discourse marker, Reading comprehension, Correlation

1. Introduction

Since the last few decades, linguists have recognized that communication is not based only on sentence-level criteria (lexis and sentence structure) and that the study of language and language learning should involve longer stretches of text or what has come to be known as *discourse*. Many linguists have more enthusiastically explored the relationship between sentences in a text and labeled this relationship as *texture*. A set of sentences constitute a text if there is a relationship within and between the sentences, otherwise they would be only a bunch of unrelated sentences. These relationships are called cohesive relations (Yule & Brown, 1989, p.191). Different parts of a text (or a conversation or any stretch of language) are interlinked in various ways. Sometimes the underlying semantic relations between the sentences and propositions have the cohesive power and indicate texture (coherence); however, in many cases there are some linguistic elements which show the relationship between the facts and propositions in a text (cohesion). Yule and Brown (1989) refer to the latter as cohesive markers and mention *reference, substitution, ellipsis, lexical relationships, and explicit markers of conjunctive relations* as different types of cohesive markers.

The last category, explicit markers of conjunctive relations, has been widely studied and variously labeled by different scholars. Farser (1997, as cited in Warsi, 2001) mentions some of these labels: *discourse connectives* (Blakemore, 1987, 1992), *discourse operators* (Redeker, 1991), *discourse particles* (Schoroup, 1985), *phatic connectives* (Bazanella, 1990), *pragmatic connectives* (Van Djik, 1985; Stubbs, 1983), *pragmatic formatives* (Fraser, 1987), *pragmatic particles* (Ostman, 1989), *semantic conjuncts* (Quirk et al., 1985), and *sentence connectives* (Halliday & Hasan, 1976). Fraser (1997) refers to them as discourse markers and describes a discourse marker (DM) as a

> lexical expression which signals the relationship between the discourse segment of which it is a part, S2, and the foregoing segment, S1. Each DM has a core meaning, but the meaning is not conceptual, such as is the case for the noun 'boy' which denotes a young, male human, but rather procedural, where the DM signals how S2 is to be interpreted, given S1 (p. 3).

Halliday and Hassan (1976) developed an extended taxonomy of discourse markers containing four types: additives (e.g., and), adversatives (e.g., but), causals (e.g., so), and temporals (e.g., then).

Discourse markers have also interested many scholars in applied linguistics such as language teaching and language learning. Richards and Schmidt (2002) describes DMs as "expressions that typically connect two segments of

discourse but do not contribute to the meaning of either. These include adverbials (e.g., *however*, *still*), conjunctions (e.g., *and*, *but*), and prepositional phrases (e.g., *in fact*)"

A great number of studies have explored the effect of discourse markers on reading comprehension. In interactive approaches to reading, the manner in which the readers use the linguistic features to work out a meaning from the text is considered very important. Also, much emphasis has been placed on the manner in which readers combine the sentences and propositions to comprehend a text. Accordingly, cohesion has gained a great deal of interest in the field of reading. Research findings suggest that the presence of DMs facilitates text comprehension by decreasing reading time and improving content recall. Haberlandt (1982, as cited in Ying, 2006) found that target sentences preceded by a connective resulted in faster reading times than unconnected sentences. Ying (2006) suggests that "while the absence of DMs does not affect a sentence grammatically, it does omit a powerful clue about the speaker's perception of the relationship between prior and subsequent discourse" (p. 52). Therefore, DMs and their presence in a text are shown to enhance readers' comprehension of texts and provision of DMs in reading passages will facilitate second language learners' reading comprehension.

Majority of the studies on the effect of DMs on reading comprehension have examined the effect of the presence or absence of DMs on the subjects' comprehension of the texts they read through manipulating some original texts by adding or omitting some DMs and comparing the subjects' reading comprehension of the original and the manipulated texts. In most of the studies, subjects had higher RC scores on the tests which employed passages with more DMs than the tests involving texts with fewer DMs. The researcher felt that there is a paucity of research on the relationship between second language learners' knowledge of DMs (which could be measured by examining the subjects' correct recognition of DMs) and their reading comprehension. Therefore, the researcher decided to conduct a research in which a sufficient number of subjects (around 90 students majoring in English) would take a test of reading comprehension alongside a test of DMs. The results would show the relationship between knowledge of discourse markers and reading comprehension. To that end, the following research questions and hypotheses were put forth:

(1) Is there a significant relationship between the subjects' recognition of discourse markers and their reading comprehension?

(2) Is there a significant regression between the subjects' scores on a DMs test and a RC test?

The following null hypotheses were formed for the questions above:

(1) There is no significant relationship between the subjects' recognition of discourse markers and their reading comprehension.

(2) There is no significant regression between the subjects' scores on a DMs test and a RC test.

2. Previous studies

Discourse markers are widely studied in second language teaching and their effect has largely been explored on the four language skills. Researchers have investigated the effect of DMs on the learners' comprehension of written and spoken texts. There also has been much research on the use of DMs by native speakers and non-native speakers of different language levels.

Arapoff (1968), from a word count by Ernest Horn, estimated that roughly 50 of the 1000 most commonly used words in written English were sentence connectors. This count involved only single words and did not include common idiomatic discourse markers, such as *off course*, *in addition*, and *as a matter of fact* which may well be as highly frequent as single word DMs, like *otherwise*, *thus*, or *therefore*. She suggests that "just the fact that such words occur frequently makes them worth studying".

Ying (2006) studied the use of DMs by native speakers and Japanese and Chinese non-native speakers through investigating their English compositions. There was an obvious difference among the three groups of students in their preferences for particular types of discourse markers. Also, various kinds of misuse of discourse markers were found in the essays written by the non-native speakers. Geva (1996) studied the effect of the level of second language ability on the comprehension of DMs.

Moradan (1995) investigated the effect of explicit teaching of DMs on the appropriate use of DMs by students in their writings and found that the students' conscious awareness of forms and implications of DMs improved their appropriate use of DMs. He also found that comparison of DMs in the first language and English had a great advantage for the students. Therefore, he suggested that explicit instruction of DMs should be involved in language courses to help learners take advantage of their knowledge of DMs in reading comprehension and other language uses.

Warsi (2006) explored the use of contrastive discourse markers by native speakers and advanced Russian students of English. Some Russian subjects used markers appropriately in a range of functions, while some used them with a more limited range of functions.

There also has been some research on the role of DMs on listening comprehension, among which is the research by Eslami and Eslami-Rasekh (2007). In this study, two groups of students listened to two different versions of a lecture. The two versions were different according to quantity and type of discourse markers. Listening comprehension tests and their mean scores were compared and the findings clearly indicated that subjects comprehended the lecture better when discourse markers were included than when they were omitted.

In the area of reading, there has been much research on the effect of DMs on reading comprehension. However, there is no consensus on the exact effect of explicit DMs on text understanding. Three different findings are reported in the literature: markers would have a facilitating effect, an interfering effect or no effect at all. A handful of studies have suggested that DMs have a negative influence on reading comprehension as they make the linked sentences longer and add extra load on the reader's brain. Degand et al. (1998) suggest that

> It seems that connectives facilitate the comprehension process in that they improve threading process, but that they do not increase comprehension of the text. It might even be possible that they ease the reading task in such a way that they provide the reader with the "impression" of having understood the text instead of a real understanding (p. 1).

However, majority of the studies in this regard have indicated that DMs have a positive effect on reading comprehension. Most of the studies manipulated the texts by adding or omitting DMs and examined the effect of the presence or absence of DMs on the reading comprehension of the subjects.

Bahrami (1992) studied the effect of the number of DMs in the texts on the subjects' reading comprehension. He added 26 and 48 DMs to some original texts in a reading comprehension test and developed two extra versions of the same test. He administered the three tests among three groups of subjects with the same language ability level. The group who took the test with the greatest number of DMs performed better than the other two groups.

Akbarian (1998) and Degand et al. (1999) examined the comprehension of two groups of subjects with the same language ability, reading two versions of the same texts (original and manipulated ones whose DMs were deleted). The subjects who had the original texts, from which no DMs were omitted, performed better.

Innajih (2007) investigated the effect of explicit instruction of DMs on the reading comprehension of the second language learners. The participants in the treatment group were explicitly taught DMs types and their relation to reading comprehension for three months before they took the reading test. The results showed that the treatment group performed better than the control group on the reading test.

Finally, Stoodt (1972, as cited in Innajih, 2007), in a cloze study with fourth-grade American children, found a significant relationship between reading comprehension and the comprehension of discourse markers.

3. Method

3.1 Participants

In the first phase of the study 35 second-year students majoring in English Language and Literature from Qom University were selected to take the test for the development of the DMs test. Then, 33 second-year students of English at Islamic Azad University (Qom branch) took the final DMs test along with Story's (1997) discourse cloze test to help the researcher validate the DMs test (criterion validation). Finally, 91 students majoring in English Language and Literature and English Translation at Allameh Tabatabai', Qom, and Mofid universities took the final form of the DMs test alongside a reading comprehension test. The number of the female subjects and that of the male subjects were approximately the same (47 female subjects and 44 male subjects). The study was conducted at the end of their fourth semester. However, five subjects did not take the time to do the reading test properly and their scores were not included in the study.

3.2 Instrumentation

Three tests were used in the present study: a reading comprehension (RC) test, a test of DMs, and a discourse cloze test. All of them were multiple choice tests. The reading comprehension test and the test of DMs each contained 25 items and the discourse cloze included 13 items.

3.2.1 Reading comprehension test

Five passages of reading comprehension were selected from the Michigan Test's reading section. The four types of discourse markers in Halliday and Hassan's (1976) taxonomy (additives, adversatives, causals, and temporals),

alongside some other DMs beyond this taxonomy, such as intensifiers and exemplifiers, were identified in these texts. Then 20 more DMs were added to these five texts in a manner which preserved the naturalness of the texts. The DMs were added in places where the relationship between propositions and facts were indicated through the underlying semantic relations. These relations could have been indicated by DMs without changing the content and message of the text. The new texts were examined by two native speakers, an American undergraduate student of medical sciences (Jacob Williams) and a Canadian high school teacher of history (John Smith), and some university instructors of English and PhD candidates in TEFL. All of them approved of the naturalness of the texts. The final form of the reading texts ranged from 142 words long to 220 words long and contained six to ten discourse markers of different types respectively. The reading passages were followed by the original reading comprehension questions, which were global questions and examined the overall comprehension of the texts. Each passage was followed by five questions.

3.2.2 Discourse markers test

The discourse markers which were employed in the reading passages were identified and on the basis of these DMs a test was developed. The DMs used in the reading texts are:

> *as well as*, *besides*, *moreover*, and *similarly* (additive); *although*, *despite however*, *nevertheless*, *on the other hand*, *though*, and *yet* (adversative); *accordingly*, *because*, *consequently*, *for*, *since*, *so*, *therefore*, *thus*, *to conclude* (causal); *afterwards*, as soon as, *at first*, *finally*, *first*, *then*, and *until* (temporal); *actually*, *after all*, *as though*, *in case*, *in fact*, and *such as* (other types).

Forty multiple choice items were developed for these DMs. To do so, 40 original sentences of appropriate level of difficulty, which had one of these DMs, were found in natural and authentic texts. Then their DMs were replaced with a blank space and four choices of discourse markers were added to them, one of which completed the sentence correctly. In this way a test of discourse markers with 40 items was developed. 35 second-year university students of English took this test and an item analysis was performed on the test items. Henning's (1987) facility and discriminability indexes were used for verifying the appropriacy of the items. Items with an item facility ranging from 0.33 to 0.67 and item discrimination of 0.67 and above were considered appropriate. The upper and lower groups were defined as the upper and lower third, or 33%. They also had appropriate distracter efficiency. Twenty two of the items had the appropriate item facility and item discrimination and three of the remaining items had some small problems which were fixed to make appropriate items. These 25 items constituted the final form of the DMs test.

3.2.3 Discourse cloze

Story's (1997) discourse cloze test was used for the criterion validation of the developed DMs test. The test was one of a battery of diagnostic reading tests developed in a comparative study of construct validation techniques (Storey, 1994). A discourse cloze test is an extension of cloze procedure in which deletion of information carrying propositions are avoided, instead linguistic elements which establish interrelationships between the text propositions (cohesive devices and rhetorical markers) are deleted. The discourse cloze was a 13-item, multiple-choice, rational-deletion discourse cloze test.

3.3 Procedures

The final form of the DMs test was administered among 33 second-year university students of English together with Story's (1997) discourse cloze test. The discourse cloze test was used as a criterion for criterion validation of the developed DMs test. The scores on the two tests were analyzed by the software SPSS for the Windows and a significantly high correlation coefficient was shown to exist between the scores on the two tests ($r_{xy} = 0.77$). Then 91 second-year students of English took the DMs test alongside the reading comprehension test. Five subjects did not complete the reading test properly and were excluded from the study, leaving 86 subjects. The correlation between the DMs test and reading comprehension test was worked out by using SPSS program. The correlation was significant ($r_{xy} = 0.71$).

4. Data analysis

In this study, a test of reading comprehension and a test of DMs were administered among 86 subjects. The scores on the two tests were analyzed and a correlation analysis was performed on them. The correlation coefficient was 0.71, which suggests a high relationship between the subjects' ability to recognize DMs correctly and their reading comprehension. Recognition of DMs can be considered as knowledge of DMs.

5. Results

Table 1 shows the main characteristics of the scores of the 33 subjects who took the developed discourse markers test and Story's (1997) discourse cloze test. The mean (8 and 13.9) and standard deviations (2.3 and 3.4) of the two sets of scores indicate that the two tests have similar characteristics and the traits being measured by the two tests

are most probably the same. Remember that the DMs test contained 25 items and the discourse cloze test contained 13 items; therefore, the values of the mean and standard deviation of the discourse cloze test should be multiplied by 2 to be comparable to those of DMs test. Story's (1997) discourse cloze test measures the ability of the subjects to comprehend the relationships between text propositions and correctly recognize the appropriate cohesive devices (discourse markers and cohesive ties). Also the DMs test is supposed to measure the subjects' ability to comprehend the relationship between the two propositions in each item and correctly recognize the appropriate DMs. Therefore, if the scores on the two tests have similar characteristics it is logically possible to suggest that they are measuring the same trait and the DMs test is justified as a valid test of DMs.

Table 2 shows the correlation analysis on the two sets of scores. The correlation coefficient is 0.77 which indicates that the two measures are highly correlated. This high correlation between the newly developed DMs test and Story's (1997) discourse cloze test validates the DMs test and provides the justification for using the DMs test as a valid measure of DMs knowledge.

Table 3 displays the descriptive statistics of the 86 subjects' score on the reading comprehension test and the DMs test. The two sets of scores have similar means and almost the same standard deviation. The subjects who performed well on the DMs test did well on the reading test too and the ones who performed poorly on the DMs test got low scores on the reading test. This may indicate that the constructs being measured by the two tests have a great deal in common.

Figure 1 is the scatter plot of the scores on the two tests (RC test and DMs test). It visually shows that there is a high positive go-togetherness between the scores on RC test and DMs test. Before going to correlation table, we can observe that there is a positive correlation between the scores on the DMs test and those on the reading comprehension test. There seems to be a significant correlation between the scores on the two tests.

Finally, table 4 represents the correlation analysis on the scores of reading comprehension test and DMs test. The correlation coefficient is 0.71 which is significant at the 0.01 level. It means that there is a high relationship between the two measures.

6. Discussion

The high correlation between the RC test and the DMs test (.71) allows the researcher to reject the null hypothesis that "there is no significant relationship between the students' reading comprehension and recognition of discourse markers".

R^2 ($.71^2 = .50$) reveals that more than half of the variation in the scores of RC test can be accounted for by the knowledge of discourse markers (scores on DMs test) and that an examinee's score on a DMs test is much helpful in regressing his or her score on a RC test. Therefore, the second null hypothesis is rejected.

The subjects' recognition of discourse markers in the DMs test represents their knowledge of DMs; because the items require the subjects to first comprehend the relationship between the two propositions and then recognize the appropriate DMs. And since the same DMs as in the DMs test were used in the reading texts to indicate the interrelationship between the propositions in the texts, the subjects had to comprehend the DMs in order to have an overall comprehension of the texts. Therefore, the subjects' comprehension (or lack of comprehension) of the reading texts could be partly due to their comprehension of DMs in the texts and accordingly to their knowledge of DMs. The subjects who had a good command of DMs enjoyed a better comprehension of the texts and the subjects who had poor knowledge of DMs could not comprehend the interrelationships between text propositions and hence the overall message of the texts. We can conclude that one of the factors contributing to the overall comprehension of reading texts is the comprehension of DMs and the relationships between text propositions. Other factors include vocabulary, sentence structure, and background knowledge related to the content of the texts.

A study by Nunan (1999) indicated that the "background knowledge was a more important factor than grammatical complexity in the ability of the readers to comprehend the cohesive relations in the texts" (p. 260). Here, the subjects were able to better comprehend the cohesive devices probably due to the fact that they had the background knowledge and hence a better global comprehension of the texts. Thus, comprehension of DMs and cohesive relations, on the one hand, and overall comprehension of texts, on the other hand, are highly interrelated. What the results of the study suggest is that for a better global comprehension of reading texts, second language readers need to comprehends and recognize meanings and functions of discourse markers, that is, they require to have a good command of DMs. One suggestion could be explicit instruction of discourse markers, their meanings and functions in different contexts.

7. Implications and suggestions for further research

The present research attempted to verify the researcher's informed impression that there should be a high correlation between reading comprehension and the knowledge of DMs. The researcher had observed that his students had

problem comprehending the parts of the reading texts where they did no know the meanings and functions of DMs. After the correct meanings and functions of the DMs were provided by the instructor, they could comprehend the texts easily. This led the researcher to investigate the relationship between comprehension of DMs and reading ability. The research findings indicate a high correlation between the two. This suggests that, on the whole, students who have good command of DMs can comprehend reading texts significantly better than students who are poor at the comprehension and recognition of DMs.

What the results propose is that for a good reading comprehension an appropriate command of English DMs is required. The implication of the study for language teaching would be that we should pay more attention to discourse markers in reading comprehension courses. As the research by Innajih (2007) shows, explicit instruction of DMs is to the advantage of second language learners and it enhances their reading comprehension significantly. In fact explicit teaching of DMs seems to influence all language skills since they are important components of language. As some studies have shown (Moradan 1995, Nunan 1991), it is recommended that the instructor compare the DMs in English with those in the students' first language.

A high correlation suggests a strong regression power. If there is a high correlation between recognition of DMs and reading ability, scores on DMs items could be a good indicator of the test takers' ability to comprehend the relationship between the propositions in a text and therefore their overall reading comprehension. The suggestion is that DMs can be better exploited in reading comprehension tests. Discourse cloze tests are good choices to be included in reading comprehension test batteries. These tests mainly measure the test takers' overall comprehension of a text and the relationship between the parts of the text.

However, like all studies this research had limitations and could not include all the issues related to the topic. Therefore, there is need for further studies to shed more light on the issues. First, the study needs to be replicated as there is a paucity of research on the relationship between comprehension and recognition of DMs and reading comprehension. Second, many research findings suggest that different DMs affect reading comprehension differently. Different DMs impose different amount of 'cognitive load' (the psychological load imposed on the readers' processing capacity by linguistic constituents within text). DMs which have the same direction of reasoning as the reader's direction create less cognitive load. Therefore, further research can investigate the relationship between reading comprehension and different types of DMs separately. Third, interested researchers can study the relation between recognition of DMs and reading comprehension on other levels of language ability. It is hoped that more research on this topic will solve more problems in the field of second language reading.

References

Arapoff, N. (1968). The semantic role of sentence connectors in extra-sentence logical relationship. *TESOL QUARTERLY Vol. 2, No. 4.* doi:10.2307/3585921, http://dx.doi.org/10.2307/3585921

Akbarian, I. (1998). *The role of conjunctions in reading comprehension*. Unpublished MA thesis. Allameh Tabatabai University.

Bahrami, A. (1992). *English Discourse markers and their impact on the reading comprehension of Iranian students*. Unpublished MA thesis. Allameh Tabatabai University.

Brown, G. & Yule, G. (1989). *Discourse Analysis*. Cambridge University Press.

Degand, L., Lefèvre, N., & Bestgen, Y. (1999). The impact of connectives and anaphoric expressions on expository discourse comprehension. [Online] Available: www.springerlink.com/index/K4536732V16J6L51.pdf

Eslami, Z. & Eslami-Rasekh, A. (2007). Discourse Markers in Academic Lectures. *Asian EFL Journal, Vol. 9. Issue1*.

Geva, E. (1992). The role of conjunctions in L2 text comprehension. *TESOL QUARTERLY Vol. 26, No. 4.*

Henning, G. (1987). *A Guide to Language Testing*. Newbury House Publishers. doi:10.2307/3586871, http://dx.doi.org/10.2307/3586871

Innajih, A. (2007). The effect of conjunctive types on the English language reading comprehension of Libyan university students. [Online] Available: www.ecls.ncl.ac.uk/publish/text/TheEffectofConjunctive/

Moradan, A. (1995). *Significance of conjunctions as a cohesive device in teaching writing*. Unpublished MA thesis. Allameh Tabatabai University.

Nunan, D. (1999). *Second language teaching and learning*. Heiline &Heiline Publishers.

Richards, J. C. & Schmidt, R. (2002). *Dictionary of Language teaching and Applied Linguistics*. Pearson Education

Limited.

Storey, P. (1997). Examining the test-taking process: a cognitive perspective on the discourse cloze test. *Journal of Language Testing, 14(2), 214-231*. doi:10.1177/026553229701400205, http://dx.doi.org/10.1177/026553229701400205

Warsi, J. (2001). The Acquisition of English Contrastive Discourse Markers by Advanced Russian ESL Students. Unpublished PhD dissertation, Boston University. [Online] Available: http://jilaniwarsi.tripod.com/professional/id14.html

Ying, S. (2006). An Analysis of Discourse Markers Used by Non-nativeEnglish learners: It's Implication for Teaching English as a Foreign Language. [Online] Available: www.kuis.ac.jp/icci/publications/kiyo/pdfs/19/19_03.pdf

Table 1. Scores on the DMs test and the discourse cloze

	N	Minimum	Maximum	Mean	Std. Deviation
Discourse cloze	33	4.0	12.0	8.0	2.3
DMs test	33	8.0	23.0	13.9	3.4

Table 2. Pearson Correlation between the DMs test and the discourse cloze

	Discourse cloze	DMs test
Discourse cloze		.77**
DMs test	.77**	

**p < 0.01 N = 33

Table 3. Scores on the RC test and the DMs test

	N	Minimum	Maximum	Mean	Std. Deviation
Reading Comp	86	6.0	23.0	14.9	4.4
DMs test	86	4.0	23.0	12.4	4.3

Table 4. Pearson Correlation between the Reading Comprehension (RC) test and the DMs test

	RC test	DMs test
RC test		.71**
DMs test	.71**	

**p < 0.01 N = 86

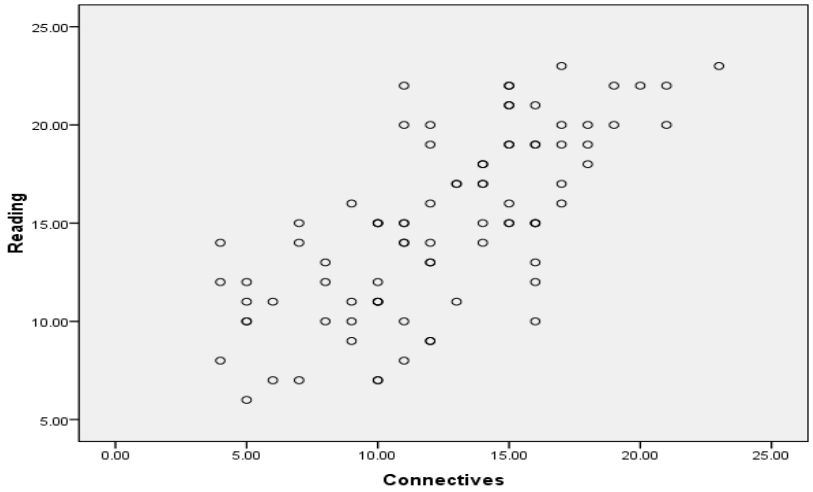

Figure 1. Correlation between the RC test and the DMs test

4 Llene el siguiente cuadro. Para ello haga la traducción de algunas oraciones que contengan conectores, explique la función del conector en el texto leído. Recuerde hacer uso adecuado del diccionario.

Ubicación de la oración (párrafo, líneas)	Conector o conectores encontrados en la oración	Traducción de la oración	Función de cada conector

Luego de la clase
Repasar sobre lo estudiado para la evaluación.

Evaluación Unidad II

Se hará una evaluación escrita. Deberá traer:
1.- El artículo titulado "Effects of diabetes on the osseointegration of dental implants" (debe traerse sin haberlo elido previamente, no deberá estar rayado).
2.- Una hoja de examen (no se aceptan evaluaciones en hojas de cuaderno u otro tipo).
La fecha de la evaluación y otros aspectos relacionados con ésta se indicarán en clase.

Referencias y Bibliografía

Khatib, M (2011). Comprehension of Discourse Markers and Reading Comprehension. *English Language Teaching (4)* 3, 243-250.

Perdomo, B. (2007). Estrategias de lectura usadas por los estudiantes de nuevo ingreso en la Facultad de Odontología de la Universidad de Los Andes, Venezuela. *Kaleidoscopio 4* (8), 160-168.

Tron, F.; Gilbert, D.; Mouquet, H.; Pascal, J.; Drouot, L.; et al (2005) Genetic Factors in Penphigus. Journal of Autoimmunity 24, 319-328.

Varaprasad, C. 1997. Some classroom strategies: Developing critical literacy awareness. *English Teaching Forum*, 35, 3, pp. 24–29.

Larousse. (1991). Gramática inglesa comunicativa. Editorial Larousse. (págs. 98-108).

Unidad III

Objetivo 9. Desarrollar estrategias de lectura para la comprensión de textos científicos en inglés

Contenido 9.1. Grupos nominales
-Sustantivos.
-Adjetivos.
- Adverbios.

Previo a la clase

1- Seleccionar un artículo científico de los que está consultando para su artículo de revisión el cual traerá a la clase (obligatorio).

2- Para hacer la discusión en clase deberá haber leído el artículo titulado: 'Nouns compounds and compressed definitions' (Master, 2003) (obligatorio). (Ver guía para su lectura).

Peter Master
UNITED STATES

Noun Compounds and Compressed Definitions

A NOUN COMPOUND IS A GRAMMATICAL STRUCTURE IN WHICH NOUNS ARE LINKED together to indicate a new concept. Adjectives are used in English to describe the characteristics of nouns, for example, *a long table, a broken table,* or *a painted table.* Nouns in noun compounds can also serve this function, though they usually describe categories rather than characteristics, for example, *a metal table, a picnic table,* or *a card table.* Noun compounds consisting of two nouns occur in many everyday activities, for example, *dinner plate, tooth brush, dish cloth, bookshelf, hair clip,* and *raincoat.* A few noun compounds are written as one word, though most are written separately. In American English today, noun compounds are usually not hyphenated. There are no rules that can tell you when to write a noun compound as a single word; if one is not sure, the only solution is to check a dictionary or a speller.

Noun compounds, which are also known as nominal compounds, often constitute a troublesome area of English grammar for students learning English as a second or foreign language. They are especially prevalent in professional texts in science and technology, business, medicine, law, and other areas of English for Specific Purposes (ESP). The difficulty usually lies in decoding the compounds rather than in understanding the individual words in the compound. For example, a student may know the word *dish* and the word *cloth,* but this would not necessarily tell her that a *dish cloth* is used for drying wet dishes. By teaching students how to decode noun compounds, we can help them overcome a common difficulty in reading advanced and specialized texts.

Decoding Noun Compounds

The difficulty of understanding noun compounds can be alleviated in most cases by teaching the parallels between the categories of English definitions and the categories of noun compounds. This relationship was noted by Bartolic (1978: 258), who found that "a greater number of nominal compounds have developed from the post-positional phrases which in a deeper analysis might be logically deduced as shortened forms of definitions." Definitions may be informal or formal. Informal definitions usually occur as appositive clauses (1) or by means of *this*-cohesion (2), as shown in the following examples, in which the term being defined is in boldface and the definition is underlined (Master, In press: 114, 197):

(1) **Latex,** the "blood" of the rubber tree, has many industrial uses.

(2) Scientists have discovered **a body of magma** under much of the eastern U.S. This pocket of molten rock may one day be used as a heat source for generating electrical power.

The pattern for the formal (Aristotelian) definition is "An A is a B that C." In this formula, A stands for the species being defined, B stands for the group or class to which A belongs, and C, usually in the form of a defining (restrictive) relative clause (or sometimes a prepositional phrase), stands for the characteristics that differentiate the species (A) from other members of the group (B). Formal definitions can be classified by the kind of question that the differentiating characteristic (C) answers about the word being defined. These questions are shown in Table 1. For example, a definition of carbon could be constructed as follows:

A (species being defined) = carbon

B (the group or class to which the species belongs) = element

C (differentiating characteristic answering question #5, Where is it used/found?) = It is found in all living things.

Formal definition: Carbon is an element that is found in all living things.

With the exception of the first question in Table 1, which requires an adjective + noun structure, noun compounds can be classified in the same way. Table 2 represents a synthesis of the classifications of noun compounds devel-

Questions to Generate the Defining Relative Clause in a Definition

1.	What are its characteristics?	(Properties)
2.	What is it composed of?	(Material)
3.	How does it work?	(Operation)
4.	What does it do?	(Purpose)
5.	Where is it used/found?	(Location)
6.	When is it used?	(Time)
7.	What does it resemble?	(Shape/form)
8.	Who discovered/uses it?	(Inventor/Professional user)

Table 1
Generating a defining relative clause in a definition.

Table 2
Classifying noun compounds

Categories of Noun Compounds

[1. Properties]	requires adjective + noun, e.g., strong wire, not a noun compound
2. Material	copper wire (wire that is made of copper)
3. Operation	friction brake (a brake that works by means of friction)
4. Purpose	air filter (a filter for cleaning air)
5. Location	field mouse (a mouse that lives in fields)
6. Time	night hawk (a hawk that hunts at night)
7. Shape/form	worm gear (a gear that is shaped like a worm)
8. (Inventor/Professional user)	Bunsen burner (a burner that was invented by Robert Bunsen)

oped by Jespersen (1942), Hatcher (1960), Li (1971), Levi (1973), and Bartolic (1978).

Presuming that the notion of "definition" has been practiced at length in earlier assignments, the decoding of noun compounds can be presented in four steps. The first step is to have students classify noun compounds using the seven classifications (the first does not apply to noun compounds) described above and then to define the noun compound in terms of its classification. For example, gear pump can be classified as #3 (operation), and then defined as "a pump that operates by means of gears," because a gear pump operates

Exercise 1

Instructions

Classify the following noun compounds according to the list below. Then define the noun compound in terms of the classification.

[1. Properties]	5. Location
2. Material	6. Time
3. Operation	7. Shape/form
4. Purpose	8. Inventor/ Professional engagement

Example: ___ gear pump
Answer: _3_ gear pump: a pump that operates by means of gears

Noun Compounds

1.___ long-wire antenna

2.___ passenger ship

3.___ computer industry

4.___ furnace gases

5.___ steam engine

Interpreting Noun Compounds

1 2 3 3 2 1
a water purification system = a system for the purification of water

1 2 3 3 2 1
an air quality program = a program to maintain the quality of air

by propelling liquids with elements that are shaped like gears. Misclassification of the noun compound at the outset would lead to a faulty decoding of the noun compound. For example, the misclassification of gear pump as #2 (material) would lead to the faulty definition "a pump that is made of gears"; misclassification as #4 (purpose) might lead to the faulty definition "a pump whose purpose is to move gears." An example of an exercise based on this step (Master, In press: 147) is shown in Exercise 1.

Formal definitions are often shortened if the B section (the group or class to which the A section belongs) is repetitive or obvious. For example, in the definition *A gear pump is a pump that operates by means of gears,* the B section *(a pump)* can be removed since this classification is part of the word being defined. This also requires removing the relative pronoun *that*. The resulting definition is *A gear pump operates by means of gears.* This shortened form, or some variation of it, often appears in appositive clauses.

The second step is to have students decode noun compounds by reversing the order of the words in the noun compound and inserting prepositions, adjectives and/or verbs, as shown in Table 3. Many students whose native languages allow nouns to be postmodified by adjectives (e.g., Spanish and French) need to be reminded that it is the final word in the English noun compound (system and program in Table 3) that is the head noun. Exer-

Table 3
Decoding noun compounds

Exercise 2

Instructions

Choose the correct definition for the noun compound on the left.

Example: worm gear	**a.** a worm that lives in gears **b.** a gear shaped like a worm
Answer:	**b.** a gear shaped like a worm

Noun Compounds

1. test data	**a.** data from a test **b.** a test of current data
2. camera platform	**a.** a platform for a camera **b.** a camera that sits on a platform
3. glass fiber	**a.** a kind of glass in the form of fibers **b.** a kind of fiber made from glass
4. voltage regulation	**a.** normal voltage as prescribed by regulations **b.** regulation of voltage
5. radar scan	**a.** a kind of radar that scans **b.** a scan performed by radar

Table 4
Reading simple noun compounds within a larger compound

Decoding Complex Noun Compounds

1 2 2 1
acid nitrate deposition = the deposition of acid nitrates

1 2 2 1
coronary heart disease risk = the risk of coronary heart disease

1 2 3
city water chemical contamination monitoring program =

3 2 1
a monitoring program for the chemical contamination of city water

cise 2 (Master, In press: 146) provides practice with this concept.

Complex Noun Compounds

After the decoding of simple noun compounds has been thoroughly practiced, the pedagogical presentation can be expanded to include complex noun compounds. As a third step, students can be shown that English also makes use of complex noun compounds that are made up of simple noun compounds. This requires a two-part decoding process. The first part requires the reading of the simple noun compounds within the larger compound in reverse order without reversing the elements of the simple compounds, as shown in Table 4. The second part is the reverse reading of the simple noun compounds within the larger compound. In Table 4, an acid nitrate is a nitrate attached to an acid group; coronary heart disease is a disease of the heart affecting the coronary arteries; city water is water supplied to a city, chemical contamination is contamination by chemicals, and a monitoring program is a program that monitors. The reason for the two-part process with complex noun compounds is that the reverse reading of every word in such a compound leads to a rather unwieldy description, e.g., a city water chemical contamination monitoring program

Exercise 3

Instructions

Change the words in italics into noun compounds.

Example: The *vent for air* should be open.
Answer: The air vent should be open.

Practice

1. Neurosurgeons are developing *a map of the system of nerves in humans.*
2. *A soil fumigant made from ethylene dibromide* has been recently tested.
3. *The risk of lip and throat cancer* is higher for cigarette smokers.
4. Researchers have located *the site for the binding of RNA.*
5. *The material for insulation that is made from formaldehyde* burned rapidly, releasing toxic fumes.

Exercise 4

Instructions

Make the phrases in italics into noun compounds.

Example: *The garage for parking at the airport* is already full.
Answer: The airport parking garage is already full.

Practice

A reduction in noise of approximately 6 dB could be effected by replacing the *existing assembly containing a blower fan* with *a blower, Model TL-1,* manufactured by Quietaire Corporation of Detroit, and by lining the ducts with Agrafoam, *a new product that performs soundproofing* developed by *the industry that makes automobiles* in Germany. A further reduction of 1.5 dB could be achieved by replacing *the tiles on the floor made of vinyl* with carpet, a practice that has been successful in *centers for the control of traffic in the air.*

is a program for the monitoring of the contamination caused by chemicals in the water of a city.

Finally, students must be very careful to use only those noun compounds that are acceptable in the language of the discipline in which they occur. Problems may arise if students try to create new noun compounds, especially if they contain three or more nouns. Step four concludes the pedagogical presentation by asking students to create acceptable noun compounds in context, as shown in Exercises 3 and 4 (Master, In press: 148).

Conclusion

Making learners aware of the linkage between definitions, which they are usually familiar with, and noun compounds, which they are usually not familiar with, provides a means of demystifying a complex area of English grammar and thus potentially aiding their ESP reading comprehension skills. The idea that noun compounds are compressed definitions, a kind of shorthand for the terminology in a specific field, should also help the student to understand that many noun compounds are not intelligible even to native speakers unless they work in a field or profession in which they have been exposed to the original definition of the term. Because technical knowledge is often required in order to correctly interpret certain noun compounds, which often cannot be deciphered when they are first encountered, they are best described as "reminders of a once-learned definition" (Master, In press: 146). Consequently, students should not be embarrassed when they encounter noun compounds that are difficult to understand. It is quite possible that the teacher also does not know their meaning.

References

Bartolic, L. 1978. Nominal compounds in technical English. In *English for specific purposes: Science and technology.* eds. M. Trimble, L. Trimble and K. Drobnic, Corvallis, OR: Oregon State University, pp. 257–277.

Blicq, R. S. 1981. *Technically-Write!* Englewood Cliffs, NJ: Prentice-Hall.

Hatcher, A. G. 1960. An introduction to the analysis of English noun compounds. *Word 16,* pp. 356–373.

Jespersen, O. 1942. *A modern English grammar on historical principles, Vol. VI.* London: G. Allen and Unwin.

Levi, J. N. 1973. Where do all those other adjectives come from? *Papers from the 9th Regional Meeting.* Chicago Linguistics Society.

Li, C. 1971. *Semantics and the structure of compounds in Chinese.* Unpublished doctoral dissertation. Berkeley: University of California.

Master, P. In press. *English grammar and technical writing.* Washington, DC: U.S. State Department Office of English Language Programs.

Peter Master is professor in the Department of Linguistics and Language Development at San Jose State University in California (USA). He is the author of *Systems in English Grammar* and *English Grammar and Technical Writing.*

Para la lectura del artículo se sugiere seguir la siguiente guía:

- Hacer las actividades de prelectura que considere oportunas.
- Lea individualmente el texto, y use las estrategias que considera útiles para su comprensión, durante la lectura buscará información específica (conceptos, características, hechos, otros).
- Complete la siguiente información con base en la lectura:

Un compuesto nominal es:
Un adjetivo sirve para:
Un compuesto nominal también es conocido como:
El objetivo del estudio leído era:
El modelo de la definición formal de Aristóteles consiste en:
¿Cuáles son las principales diferencias que se observan entre las tablas 3 y 4?

Describa los pasos que señala el autor para decodificar compuestos nominales

Luego de la clase

Ejercitar la lectura de oraciones con compuestos nominales.
Investigar sobre la estructura de la oración y tipos de oraciones.
Resolver los siguientes ejercicios:

---

1. **What is the everyday noun compound form of the following noun phrases?**
   a. a bag that is made of plastic
   b. soap that is used for doing laundry
   c. a book containing printed telephone numbers
   d. tickets for taking a trip on an airline
   e. a bench to sit on when playing the piano
   f. an iron that provides steam for pressing clothes

2. **Classify the following everyday noun compounds according to the list below. Then define the noun compound in terms of the classification.**

   a. Material **d. Location**
   b. Operation **e. Time**
   c. Purpose **f. Shape/form**

   1. dinner plate
   2. tooth brush
   3. dish cloth
   4. bookshelf
   5. hair clip
   6. raincoat
   7. water snake
   8. ball bearing
   9. silver ring

3. **Transform the following informal definitions into formal ones.**
   a. Helium, an extremely stable noble gas, was among the atmosphere's earliest components.
   b. A ruptured aneurysm, a blood-filled bubble in a blood vessel, often leads to a stroke.
   c. Sleep apnea, a life-threatening disorder characterized by frequently blocked breathing, is much more common among males than females.
   d. During his experiment, Hertz found that light falling upon metal would drive out a negative charge. This phenomenon is called the photoelectric effect.
   e. In the Haber-Bosch process, nitrogen reacts with hydrogen in the presence of an iron catalyst to produce ammonia. This reaction is the most widely used industrial method of nitrogen fixation.

4. **Classify the following noun compounds according to the list below. Then define the noun compound in terms of the classification, reversing the order of the words.**

1. Material	4. Location	7. Inventor/Professional engagement
2. Operation	5. Time	
3. Purpose	6. Shape/form	

a. gasoline engine	e. research engineer
b. brass terminal	f. morning sickness
c. belt sander	g. paper industry
d. air filter	h. dust particle

5. **Choose the correct definition for the multi-word noun compound on the left.**

1. carbon steel rod	a. a rod made of carbon steel b. a steel rod coated with carbon
2. aluminum alloy cylinder block	a. a block cylinder containing alloyed aluminum b. a cylinder block made from an aluminum alloy
3. battery charge indicator	a. a charge from a battery indicator b. an indicator that shows a battery charge
4. steam power plant equipment	a. equipment for a steam power plant b. an equipment plant powered by steam
5. cathode ray tube display unit	a. a unit that displays a cathode ray tube b. a display unit which uses a cathode ray tube

Unidad III (Continuación)

Objetivo 9. Desarrollar estrategias de lectura para la comprensión de textos científicos en inglés

Contenido 9.2. Estructura de la oración.

Previo a la clase

Traer un artículo de los que está consultando para su artículo científico

Leer el texto titulado ‘Types of sentences’ y detalle la estructura de los diferentes tipos de oraciones.

‘Types of sentences’

According to their grammatical structure, sentences may be:

a) Simple Sentence
b) Complex Sentence
c) Compound Sentence
d) Compound-complex Sentence

The type of sentence is determined by the number and type of clauses it contains. It falls into one of the following:

a) Simple Sentence
A simple sentence conveys a single idea. It has only one subject and one verb.

EXAMPLE: She **is** my girlfriend. / I **am** bored. / That **is** a fat monkey.
The verb in each sentence is in bold.

b) Complex Sentence
A complex sentence has one independent clause and at least one dependent clause. The independent clause is called the main clause, and the dependent clause is called the subordinate clause. These clauses are joined by conjunctions which include: as, as if, even if, if, because, unless, etc.

EXAMPLE: As she is a big bully, **I stay away from her**. / **I will do it** if I have the time.
The main clauses are in bold; the subordinate clauses are not.

c) Compound Sentence
A compound sentence is composed of at least two clauses or sentences joined together by a conjunction, i.e. words like: and, but, for, nor, or, so, therefore, either ... or, neither ... nor, not only ... but also, etc., or punctuated by a semi-colon. A compound sentence consists of at least two Independent or Main Clauses and verbs. The subordinate or dependent clause may or may not be present in a compound sentence. It is possible for a compound sentence to have three, four or more independent clauses. But commonly, it contains only two clauses.

EXAMPLE: I am skinny and you are obese. (Two main clauses joined by a conjunction.)
EXAMPLE: I know what you know. (Main clause: I know; subordinate clause: what you know)
EXAMPLE: I always tell you what I know but you never tell me what you know.
The last example shows a sentence with two main clauses and two subordinate clauses.

d) Compound-complex Sentence
A compound-complex sentence has at least two independent clauses and at least one dependent clause.

EXAMPLE:

Although the car is old, it still runs well, and we intend to keep it.
Dep. Clause **indep. Clause** **indep. clause**

Source: Myenglishgrammar.com (available at: http://www.myenglishgrammar.com/writing-sentences/5-types-of-sentences.html)

According to their function, sentences may be:

1. **Declarative Sentences** are used to form statements.
   Examples: "Mary is here.", "My name is not Mary."
2. **Interrogative Sentences** are used to ask questions.
   Examples: "Where is Mary?", "What is your name?"
3. **Imperative Sentences** are used for commands.
   Examples: "Come here.", "Tell me your name."
4. **Conditional Sentences** are used to indicate dependencies between events or conditions.
   Example: "If you cut all the trees, there will be no forest."

Source: scientific psychic. Available at http://www.scientificpsychic.com/grammar/enggram2.html

En clase

Oración en inglés	Tipo de oración (según gramática y función)	Traducción

Luego de clase

Practicar lo estudiado en la unidad. Leer sobre los diferentes tiempos verbales.

Unidad III (Continuación)

Objetivo 9. Desarrollar estrategias de lectura para la comprensión de textos científicos en inglés

Contenido 9.3 Tiempos Verbales.

Previo a la clase: Investigar acerca de los diferentes tiempos verbales en inglés y la manera como se forma cada uno.
Traer un artículo relacionado con su investigación en grupo en el Bloque Curricular (obligatorio).

En clase

Discutir sobre la lectura realizada.
Del artículo que trajo, extraiga oraciones para llenar el siguiente cuadro

Oración en inglés	Traducción	Tiempo verbal

Luego de clase
Haga la lectura de algunos párrafos de artículos que esté usando para su artículo de revisión de forma que ejercite lo aprendido sobre compuestos nominales, tipos de oraciones y lectura de los tiempos verbales.

Ejercicio formativo

El ejercicio se hará con el artículo que hayan traído, relacionado con su investigación. Es una actividad de evaluación formativa. Los demás detalles sobre el mismo se darán en clase.

Unidad III (Continuación)

Objetivo 9. Desarrollar estrategias de lectura para la comprensión de textos científicos en inglés

Contenido 9.4 Abstract. Key words (Mesh)

Previo a la clase

- Leer el material titulado: "Writing an abstract" y el artículo de BRKIÆ y otros (2003).
- Investigar qué son Mesh y su importancia.
- Traer artículos de los que están usando para su investigación en este bloque curricular.

En clase

- Discutir acerca de la importancia de un Abstract y los elementos que lo componen.
- Discutir acerca de los tipos de Abstract.
- Discutir acerca de los rasgos característicos del título, resumen y palabras clave en un artículo científico.

Ejercicio

Luego de la discusión del material recomendado. Seleccionar uno de los abstracts que trajo a clase y llenar el siguiente cuadro. Use las estrategias que considere necesarias para el logro del objetivo (recuerde ir evaluando su efectividad a medida que avanza).

Tipo de abstract	
Palabras clave	
Estructura del abstract	
Objetivo de la investigación	
Metodología empleada	
Conclusión del estudio	

Educational paper
UDC: 001.89:025.4:001.811

Silvija BRKIĆ
Marija VUČENOVIĆ
Zorica ĐOKIĆ

FACULTY OF MEDICINE NOVI SAD, NOVI SAD, SERBIA AND MONTENEGRO

Title, abstract, key words and references in biomedical articles

KEYWORDS: Medicine; Research; Writing; Publishing; abstracting and Indexing; Subject Headings

ABSTRACT

Scientists frequently communicate the results of their work in research reports. When writing scientific articles, authors must follow instructions and requirements of standard article format. A scientific paper should have, in proper order, a Title, Abstract, Introduction, Material and Methods, Results, Discussion, Conclusion and Literature. A title should be the fewest possible words that accurately describe the content of the paper. It should attract researchers' attention in order to be included in their investigation. An abstract is a short summary of the article. It concisely summarizes results and conclusion so that essential details of the paper can be understood in 100 - 250 words. The most commonly used are structured abstracts. Key words are provided below the abstract and describe the medical concepts characteristic for the whole article. Assign at least one, and an average of 5 to 10 key words. Indexing in biomedicine means using the Thesaurus of the American National Library of Medicine: Medical Subject Headings. It provides easy and fast access to precise information using key words assigned to each document. Reference citation is obligatory and integral part of scientific articles. It provides communication among the authors and binds scientific papers as well as whole scientific knowledge in certain fields.

Address correspondence to:
Dr. Silvija Brkić, Faculty of Medicine, Hajduk Veljkova 3, 21000 Novi Sad, Serbia and Montenegro, E-mail: brkics@uns.ns.ac.yu

The manuscript was received: 20. 07. 2003.

Accepted for publication: 03.09.2003.

INTRODUCTION

Results of scientific and professional research in the biomedical field appear quickly in public as publications at disposal to the world of science. When writing scientific articles, authors must follow instructions and requirements of standard article format (1-8). A scientific paper should have, in proper order, a Title, Abstract, Introduction, Material and Methods, Results, Discussion, Conclusion and Literature. Each part is of importance and deserves special attention.

TITLE

A title should be the fewest possible words that accurately describe the content of the paper. It should clearly indicate the contents and the problem, that is the object of paper providing its inclusion into certain scientific disciplines and areas. There are indicative and informative titles. Indicative reveal the area of investigation, and not answers the paper might offer, whereas informative titles convey messages of the paper on all its relevant elements. The title of the paper is the most often encountered part of any paper and it is the thing that editors and editorial boards, as well as organizational committees of scientific or professional congresses see first. Very often their decision whether the paper is going to be accepted for publication or not, depends on the title itself. Readers first scan the title in the contents of journals, in abstract bases, full-text bases and on Internet. The titles should attract researchers' attention in order to be included in their investigation. Sometimes, relevant papers are missed on "first pass" because they are not written by certain generally accepted rules. Unfortunately, there is not much guidance how to construct a title (1-10). Vancouver Requirements indicate that titles should be concise and informative (10); whereas instructions from New England Journal of Medicine state that they should be concise and descriptive, but not declarative. This means that authors should resist the challenge to condense the whole paper into the title.

In order to attract attention, titles should contain easily understandable, not too technical terms. It should be attractive, as concise as possible, but provide sufficient information. Style of writing and number of words in the title depend on the topic and on those who the paper is written for (health workers, specialists, scientists in the same or broader scientific field or general population). Many journals now limit title submission to 10 to 12 words, that is 100 characters. The titles should be written with distinct letters, not underlined and without a full stop at the end. Avoid subtitles and supertitles. Titles should never contain abbreviations, chemical formulas, trade names and jargon.

ABSTRACT

An abstract is a short summary of the article. It concisely summarizes results and conclusions so that essential details of the paper can be understood in 100 - 250 words. It is either indicative or informative. Indicative or descriptive abstracts deal with the contents of the paper, whereas informative abstracts readers about the objectives, methods, results and conclusions of a scientific article. Most abstracts are informative. They are designed to define each part of the paper in one or two sentences. Many journals require that abstracts consist of the same parts as the paper itself. Structuring of articles dates back to year 1665. The most commonly used and recommended structure is IMRAD format, which includes Introduction, Methods, Results and Discussion. At the end of 90s of the 20th century, clinical investigations and review articles started using structured abstracts (11-13). Ad Hoc Working Group for Critical Appraisal of the Medical Literature suggested authors of articles with direct clinical implications to write their abstracts with seven explicitly defined headings: Objective, Design, Setting, Patients, Interventions, Measurements and Main Results, and Conclusions and with a partially controlled vocabulary (14). The structured format was proposed to make literature searches more accurate. Guidelines have been suggested for review arti-

cle abstracts with six headings: Purpose, Data Identification, Study Selection, Data Extraction (including how data were assessed for quality), Results of Data Synthesis (including relevant descriptive statistics), and Conclusions (including future research needs and applications) (15). Detailed structured abstracts are recommended also for conference papers. The structured abstracts received significantly higher quality scores than non-structured abstracts and are more relevant. The advantage of structured abstracts is that they are more explicit and it is easier to understand the text written in shorter paragraphs, repeating the format of the whole paper. Structuring helps authors not to omit relevant data. The structured abstract is intended to make it easier for the reader to select important details and to assess the value and applicability of the study. Structured abstracts remind readers about the whole paper, and reveal errors regarding used methodology. Structured abstracts in English are convenient to non-English authors, but they are applied only to original, review and conference articles and not to case reports, original meta-analyses and so on. The structured abstracts are longer, require more space, variations regarding page format may be obstacles in searching bibliographic and abstract data bases, require a technical term glossary, limit author's style and creativity. They contain the most significant data from the paper, and some use them as primary source of information, without reading the whole article.

Apart from titles, abstracts are the most frequently read parts of articles. Abstracts should stand alone, below the title or at the end of the article. Writing a good abstract requires time and considerable attention to details. Words should be chosen carefully, both in the title and in the abstract. It should be easy to understand without reading the whole paper. Writing an abstract is a very important part of work. Very often the decision whether the paper is going to be accepted for publication or not, depends on the title and abstract. In abstract bases abstracts fully represent the contents of a complete paper. A well-prepared abstract will enable the reader to identify the basic content of the paper quickly and accurately and determine its relevance to their interest. The author has about 15 seconds to convince readers to read the rest of the paper. Abstracts should be written after the investigation is finished and the article written. They are mostly written in the same language as the article, but are also translated into one of the world languages. Authors should use terms familiar to readers, easy to understand, without ambiguities and full, connected sentences in a single paragraph that is several paragraphs in structured abstracts. Do not repeat information contained in the title or article. Do not state information or conclusions that are not stated in the article. Abstracts should be written in the past tense and in third person singular. Omit all references to the literature and the tables or figures, and omit obscure abbreviations and acronyms, even if they are defined in the main body of the paper.

KEY WORDS

Papers should contain key words provided below the abstract. Key words describe the medical concepts characteristic for the whole article. Assign at least one, and an average of 5 to 10 key words. They are of great help to those creating databases, to indexers in cross-indexing scientific articles and to users providing easy access to scientific sources. Indexing includes semantic processing of documents, content analysis and assigning key words to the analyzed article. It is necessary due to information explosion, huge quantities of knowledge and need for its methodical organization. Indexing in biomedicine means using the Thesaurus of the American National Library of Medicine: Medical Subject Headings (MeSH) (16), which has been accepted as a standard by biomedical libraries and journals all over the world. It provides easy and fast access to precise information using key words assigned to each document.

It is favorable for authors to assign key words themselves. Unfortunately, they often do it incorrectly, although in the field of biomedicine there are strict rules - Vancouver Requirements (10) according to which Medical Subject Headings (16) descriptors are to be used. The Thesaurus is available in Index Medicus, in MEDLINE on CD, and on the site of American National Library (17). It contains standard vocabulary terms that describe concepts covered in the database. When writing key words one should use English language and respect certain rules when assigning single, or multiple word subject headings as well as punctuation signs.

In certain cases regulations allow Non MeSH headings, if adequate headings are not available in the Thesaurus. In such cases apply a hierarchically "higher" term with a broader meaning than the one we wished to use. MeSH subject heading vocabulary changes are updated annually.

If authors are not sure if they have assigned good key words, that is descriptors and qualifiers, they may use words from the title and search the MEDLINE database and find out key words assigned by indexers of the US National Library of Medicine and if necessary make corrections of their own. If an article contains an abstract in Serbian language, authors should also provide key words in Serbian language, that is translate the English ones.

Using current information technology, Internet, abstract databases, full text databases and electronic publications it is possible to search literature using any word from the text, or a normative glossary, if available. Such searches provide a huge quantity of information, but only a small number is relevant. That is why highest precision is achieved using adequate descriptors.

REFERENCE CITATION

Reference citation is obligatory and integral part of scientific articles. It provides communication among the authors and binds scientific papers as well as whole scientific knowledge in certain fields. Citing scientific sources means quoting results, ideas, considerations, definitions, tables, figures, schemes, texts and so on, published in scientific papers or available in some other way. References, also known as "literature" and "bibliography", are listed at the end of a paper. Intellectual integrity, good scientific practice and ethical principles apply to citation of literature as well as to professional and scientific information.

Each citation from the list of references must be cited in the text, and each citation from the text must be listed in references. If we literary cite author's words, we must put them in quotation marks and note the number of citation in parenthesis. If the citation is too long, it can be paraphrased. In that case identify the source of information without quotation marks. There are many reasons for citation (1,18,19). It is of importance that references should include complete and accurate data so that they could be identified and found. However, citation must be done in accordance with generally accepted citation rules such as Uniform requirements for manuscripts submitted to biomedical journals (10) which is a numerical type and authors must strictly follow these rules. Arabic numerals are used in the text in parenthesis, by order of appearance, whereas the reference list also follows the rule in regard to their appearance in the text. This type is also used by US National Library of Medicine and is based on standards of American National Standards Institute (ANSI) referring to bibliographic references. Vancouver requirements include examples of reference citation from various sources of information, with precise data, their sequence and corresponding punctuation marks (10).

Examples of reference citation in the last Vancouver Requirements from 1997 deal with written sources (books, journals, congress reports...) (10). Computer communication provided access to information other than printed. Internet, huge quantity of information, easy and fast access, great number of web sites, full-text data bases are the reasons why users consider Internet the first choice in searching for information. Methodology of scientific research requires citation of sources of information in the list of references in order to provide information for other researchers. In contrast to unchangeable printed documents, information from Internet continuously changes and can be corrected. For example, Internet sites change addresses or disappear with great frequency as well as their contents. That is why there are special citing guidelines for citing electronic sources. Web site of the US National Library of

Medicine provides citation guides for electronic sources (17). These guidelines are based on ISO standards. However, analyzing these guidelines, we have attempted to find basic data on Internet "documents" including the author, title, place of publication, publisher, extent of the item and so on, and discovered that it was neither easy nor a successful task.
It is a standard practice for a citation to indicate that a publication is not in print format by placing after the title a word that describes the specific non-print medium - medium designator. The appropriate medium designator is placed in brackets. Because of volatile nature of electronic publications, three dates are important in citing them: the first when the publication was placed on the Internet or was copyrighted, the second date of any update or revision, and the third when the person doing the citing saw the publication. The first two dates are often absent, but it is very important to identify the date of citation.
Here are some sample Internet citations (20):
For a book:
Graber MA, Toth PT, Herting RL Jr. University of Iowa family practice handbook [Internet]. 3rd ed. Iowa City (IA): University of Iowa College of Medicine; 1997 Jul, ©1992-2000 [modified 2000 Nov 28; cited 2001 Mar 7]. Available from: http://www.vh.org/Providers/ClinRef/FPHandbook/FPContents.html
For a journal article:
Cruz AA, Coehlo RP, Lucchesi MC. Uper eyelid shape and position in the association of Graves' disease and myasthenia gravis. Digital J Ophtalmol [Internet]. 2000 [modified 2001 May 10; cited 2001 Mar 5];6(1):[about 6 paragraphs]. Available from:
http://www.djo.harvard.edu/meei/OA/Cruz/OA.html
For a home page:
NursingWorld [Internet]. Version 3.2. Washington: American Nurses Association; ©1995-2001 [cited 2001 Mar 12]. Available from:
http://www.ana.org/

CONCLUSION

Scientists frequently communicate the results of their work in research reports. The most important parts of a scientific paper are the Title, Abstract, Key Words and References. They are typically distinct sections, but always represent the paper as a whole and have a significant role in scientific communication. When writing scientific papers, these sections deserve special attention. Following instructions and recommendations for their construction, papers get more attractive for publishers, journal editors, organizational committees of scientific meetings and so on. Thus, their impact on researchers is getting even more valuable.

REFERENCES

1. Savić J. Kako napisati, objaviti i vrednovati naučno delo u biomedicini. Beograd: Kultura; 2001.

2. Hall GM, editor. How to write a paper. London: BMJ Publishing Group; 1998.

3. Brkić S, Đokić Z. Titles, abstracts and key words in biomedical literature. Archive of Oncology 2002;10(3):208-9.

4. Ray RA. How to write and publish a scientific paper. 5th ed. Phoenix: The Oryx Press; 1998.

5. Matthews JR, Bpwen JM, Matthews RW. Successful scientific Writing: a step-by-step guide for biomedical scientists. 2nd ed. Cambridge: Cambridge University Press; 2000.

6. Alaska Statewide High School Science Symposium. How to write your scientific paper. Alaska Statewide High School Science Symposium (modified 2001 Dec 18; cited 2003 Sep 1). Available from: http://www.uaf.edu/csem/ashsss/paper_guidelines.html#title

7. Supercourse. How to start to write a scientific paper. The Global Health Network University (modified 2003 Sep 8; cited 2003 Sep 9). Available from http://pitt.edu/ ^ super1/lecture/lec1331/index.htm

8. How to write a paper in scientific journal style and format (Internet). Lewinston: Bates College; c2002 (modified 2002 Dec 9; cited 2003 Aug 20). Available from: http://www.bates.edu/ ^ ganderso/biology/resources/writing/HTWtoc.html.

9. Lilleyman JS. Titles, abstract and authors. In: Hall GM, editor. How to write a paper. London: BMJ Publishing Group; 1996. p. 33-41.

10. International Committee of medical journals editors. Uniform requirements for manuscripts submitted to biomedical journals. N Engl J Med 1997;336(4):309-15.

11. Lock S. Structured abstracts. BMJ 1988;297:156.

12. Shanon S. Writing a structured abstract. Can Assoc Radiol J 2000;51(6):328-9.

13. Huth EJ. Structured abstracts for papers reporting clinical trials. Ann Intern Med 1987;106:626-7.

14. Ad Hoc Working Group for Critical Appraisal of the Medical Literature. A proposal for more informative abstracts of clinical articles. Ann Intern Med 1987;106:598-604.

15. Mulrow CD, Thacker SB, Pugh JA. A proposal for more informativ abstract of review articles. Ann Intern Medicine 1988;108:613-5.

16. National library of medicine. Medical Subject Headings. Index Medicus 2001;suppl.

17. www.nlm.nih.gov

18. Brkić S, Vučenović M, Đokić Z. Accurate reference citation and assignment of key words. Archive of Oncology 2002;10(2):100-1.

19. Sarić MR. Značaj vrednovanja naučnog rada za dalji razvoj nauke. In: Sarić MR, editor. Vrednovanje naučnog rada. Beograd: Srpska akademija nauka i umetnosti; 1997:7-30.

20. Karen Patrias. Citations to the Internet. Science Editor 2002; 25(3):90-2.

UNC COLLEGE OF ARTS & SCIENCES

Writing an abstract

What this handout is about

This handout provides definitions and examples of the two main types of abstracts: descriptive and informative. It also provides guidelines for constructing an abstract and general tips for you to keep in mind when drafting. Finally, it includes a few examples of abstracts broken down into their component parts.

What is an abstract?

An abstract is a self-contained, short, and powerful statement that describes a larger work. Components vary according to discipline; an abstract of a social science or scientific work may contain the scope, purpose, results, and contents of the work. An abstract of a humanities work may contain the thesis, background, and conclusion of the larger work. An abstract is not a review, nor does it evaluate the work being abstracted. While it contains key words found in the larger work, the abstract is an original document rather than an excerpted passage.

Why write an abstract?

You may write an abstract for various reasons. The two most important are selection and indexing. Abstracts allow readers who may be interested in a longer work to quickly decide whether it is worth their time to read it. Also, many online databases use abstracts to index larger works. Therefore, abstracts should contain keywords and phrases that allow for easy searching.

Selection

Say you are beginning a research project on how Brazilian newspapers helped Brazil's ultra-liberal president Luiz Ignácio da Silva wrest power from the traditional, conservative power base. A good first place to start your research is to search Dissertation Abstracts International for all dissertations that deal with the interaction between newspapers and politics. "Newspapers and politics" returned 569 hits. A more selective search of "newspapers and Brazil" returned 22 hits. That is still a fair number of dissertations. Titles can sometimes help winnow the field, but many titles are not very descriptive. For example, one dissertation is titled "Rhetoric and Riot in Rio de Janeiro." It is unclear from the title what this dissertation has to do with newspapers in Brazil. One option would be to download or order the entire dissertation on the chance that it might speak specifically to the topic. A better option is to read the abstract. In this case, the abstract reveals the main focus of the dissertation:

> This dissertation examines the role of newspaper editors in the political turmoil and strife that characterized late First Empire Rio de Janeiro (1827-1831). Newspaper editors and their journals helped change the political culture of late First Empire Rio de Janeiro by involving the people in the discussion of state. This change in political culture is apparent in Emperor Pedro I's gradual loss of control over the mechanisms of power. As the newspapers became more numerous and powerful, the Emperor lost his legitimacy in the eyes of the people. To explore the role of the newspapers in the political events of the late First Empire, this dissertation analyzes all available newspapers published in Rio de Janeiro from 1827 to 1831. Newspapers and their editors were leading forces in the effort to remove power from the hands of the ruling elite and place it under the control of the people. In the process, newspapers helped change how politics operated in the constitutional monarchy of Brazil.

From this abstract you now know that although the dissertation has nothing to do with modern Brazilian politics, it does cover the role of newspapers in changing traditional mechanisms of power. After reading the abstract, you can make an informed judgment about whether the dissertation would be worthwhile to read.

Indexing

Besides selection, the other main purpose of the abstract is for indexing. Most article databases in the online catalog of the library enable you to search abstracts. This allows for quick retrieval by users and limits the extraneous items recalled by a "full-text" search. However, for an abstract to be useful in an online retrieval system, it must incorporate the key terms that a potential researcher would use to search. For example, if you search Dissertation Abstracts International using the keywords "France" "revolution" and "politics," the search engine would search through all the abstracts in the database that included those three words. Without an abstract, the search engine would be forced to search titles, which, as we have seen, may not be fruitful, or else search the full text. It's likely that a lot more than 60 dissertations have been written with those three words somewhere in the body of the entire work. By incorporating keywords into the abstract, the author emphasizes the central topics of the work and gives prospective readers enough information to make an informed judgment about the applicability of the work.

When do people write abstracts?

- when submitting articles to journals, especially online journals
- when applying for research grants
- when writing a book proposal
- when completing the Ph.D. dissertation or M.A. thesis
- when writing a proposal for a conference paper
- when writing a proposal for a book chapter

Most often, the author of the entire work (or prospective work) writes the abstract. However, there are professional abstracting services that hire writers to draft abstracts of other people's work. In a work with multiple authors, the first author usually writes the abstract. Undergraduates are sometimes asked to draft abstracts of books/articles for classmates who have not read the larger work.

Types of abstracts

There are two types of abstracts: **descriptive** and **informative**. They have different aims, so as a consequence they have different components and styles. There is also a third type called **critical**, but it is rarely used. If you want to find out more about writing a critique or a review of a work, see the UNC Writing Center handout on writing a review. If you are unsure which type of abstract you should write, ask your instructor (if the abstract is for a class) or read other abstracts in your field or in the journal where you are submitting your article.

Descriptive abstracts

A descriptive abstract indicates the type of information found in the work. It makes no judgments about the work, nor does it provide results or conclusions of the research. It does incorporate key words found in the text and may include the purpose, methods, and scope of the research. Essentially, the descriptive abstract describes the work being abstracted. Some people consider it an outline of the work, rather than a summary. Descriptive abstracts are usually very short—100 words or less.

Informative abstracts

The majority of abstracts are informative. While they still do not critique or evaluate a work, they do more than describe it. A good informative abstract acts as a surrogate for the work itself. That is, the writer presents and explains all the main arguments and the important results and evidence in the complete article/paper/book. An informative abstract includes the information that can be found in a descriptive abstract (purpose, methods, scope) but also includes the results and conclusions of the research and the recommendations of the author. The length varies according to discipline, but an informative abstract is rarely more than 10% of the length of the entire work. In the case of a longer work, it may be much less.

Here are examples of a descriptive and an informative abstract of this handout:

> "Abstracts," UNC-CH Writing Center,
> <http://www.unc.edu/depts/wcweb/handouts/abstracts.html>

Descriptive abstract:

> The two most common abstract types—descriptive and informative—are described and examples of each are provided.

Informative abstract:

> Abstracts present the essential elements of a longer work in a short and powerful statement. The purpose of an abstract is to provide prospective readers the opportunity to judge the relevance of the longer work to their projects. Abstracts also include the key terms found in the longer work and the purpose and methods of the research. Authors abstract various longer works, including book proposals, dissertations, and online journal articles.

There are two main types of abstracts: descriptive and informative. A descriptive abstract briefly describes the longer work, while an informative abstract presents all the main arguments and important results. This handout provides examples of various types of abstracts and instructions on how to construct one.

Which type should I use?

Your best bet in this case is to ask your instructor or refer to the instructions provided by the publisher. You can also make a guess based on the length allowed; i.e., 100-120 words = descriptive; 250+ words = informative.

How do I write an abstract?

The format of your abstract will depend on the work being abstracted. An abstract of a scientific research paper will contain elements not found in an abstract of a literature article, and vice versa. However, all abstracts share several mandatory components, and there are also some optional parts that you can decide to include or not. When preparing to draft your abstract, keep the following key process elements in mind:

Key process elements

1. *Reason for writing:*
   What is the importance of the research? Why would a reader be interested in the larger work?
2. *Problem:*
   What problem does this work attempt to solve? What is the scope of the project? What is the main argument/thesis/claim?
3. *Methodology:*
   An abstract of a scientific work may include specific models or approaches used in the larger study. Other abstracts may describe the types of evidence used in the research.
4. *Results:*
   Again, an abstract of a scientific work may include specific data that indicates the results of the project. Other abstracts may discuss the findings in a more general way.
5. *Implications:*
   What changes should be implemented as a result of the findings of the work? How does this work add to the body of knowledge on the topic?

(This list of element is adapted with permission from Phil Koopman, "How to Write an Abstract,"http://www.ece.cmu.edu/~koopman/essays/abstract.html.)

All abstracts include

1. A full citation of the source, preceding the abstract.
2. The most important information first.

3. The same type and style of language found in the original, including technical language.
4. Key words and phrases that quickly identify the content and focus of the work.
5. Clear, concise, and powerful language.

Abstracts may include

1. The thesis of the work, usually in the first sentence.
2. Background information that places the work in the larger body of literature.
3. The same chronological structure as the original work.

How not to write an abstract

1. Do not refer extensively to other works.
2. Do not add information not contained in the original work.
3. Do not define terms.

If you are abstracting your own writing

When abstracting your own work, it may be difficult to condense a piece of writing that you have agonized over for weeks (or months, or even years) into a 250-word statement. There are some tricks that you could use to make it easier, however.

Reverse outlining:

This technique is commonly used when you are having trouble organizing your own writing. The process involves writing down the main idea of each paragraph on a separate piece of paper. For the purposes of writing an abstract, try grouping the main ideas of each section of the paper into a single sentence. For a scientific paper, you may have sections titled Purpose, Methods, Results, and Discussion. Each one of these sections will be longer than one paragraph, but each is grouped around a central idea. Use reverse outlining to discover the central idea in each section and then distill these ideas into one statement.

Revise, revise, revise

No matter what type of abstract you are writing, or whether you are abstracting your own work or someone else's, the most important step in writing an abstract is to revise early and often. When revising, delete all extraneous words and incorporate meaningful and powerful words. The idea is to be as clear and complete as possible in the shortest possible amount of space. The Word Count feature of Microsoft Word can help you keep track of how long your abstract is and help you hit your target length.

Example : Science Abstract

> Luis Lehner, "Gravitational radiation from black hole spacetimes" Ph.D. University of Pittsburgh, 1998 DAI-B 59/06, p. 2797, Dec 1998

The problem of detecting gravitational radiation is receiving considerable attention with the construction of new detectors in the United States, Europe, and Japan. The theoretical modeling of the wave forms that would be produced in particular systems will expedite the search for and analysis of detected signals. The characteristic formulation of GR is implemented to obtain an algorithm capable of evolving black holes in 3D asymptotically flat spacetimes. Using compactification techniques, future null infinity is included in the evolved region, which enables the unambiguous calculation of the radiation produced by some compact source. A module to calculate the waveforms is constructed and included in the evolution algorithm. This code is shown to be second-order convergent and to handle highly non-linear spacetimes. In particular, we have shown that the code can handle spacetimes whose radiation is equivalent to a galaxy converting its whole mass into gravitational radiation in one second. We further use the characteristic formulation to treat the region close to the singularity in black hole spacetimes. The code carefully excises a region surrounding the singularity and accurately evolves generic black hole spacetimes with apparently unlimited stability.

This science abstract covers much of the same ground as the humanities one, but it asks slightly different questions.

Why do this study

The problem of detecting gravitational radiation is receiving considerable attention with the construction of new detectors in the United States, Europe, and Japan. The theoretical modeling of the wave forms that would be produced in particular systems will expedite the search and analysis of the detected signals.

What the study does

The characteristic formulation of GR is implemented to obtain an algorithm capable of evolving black holes in 3D asymptotically flat spacetimes. Using compactification techniques, future null infinity is included in the evolved region, which enables the unambiguous calculation of the radiation produced by some compact source. A module to calculate the waveforms is constructed and included in the evolution algorithm.

Results

This code is shown to be second-order convergent and to handle highly non-linear spacetimes. In particular, we have shown that the code can handle spacetimes whose radiation is equivalent to a galaxy converting its whole mass into gravitational radiation in one second. We further use the characteristic formulation to treat the region close to the singularity in black hole spacetimes. The code carefully excises a region surrounding the singularity and accurately evolves generic black hole spacetimes with apparently unlimited stability.

Keywords

gravitational radiation (GR)
spacetimes
black holes

Fuente: University of North Carolina at Chapel Hill. The writing Center. Disponible en http://writingcenter.unc.edu/resources/handouts-demos/specific-writingassignments/abstracts

Luego de clase

Hacer una lista de posibles palabras clave en español e inglés para el resumen y 'abstract' del artículo que se encuentra escribiendo.

Evaluación Unidad III

1. Se hará un ejercicio similar al realizado en clase. Se hará en la fecha y condiciones que detallará la profesora en aula.
2. Se hará una evaluación final en la entrega del artículo de revisión (se verificará el uso de artículos científicos para la elaboración del artículo de revisión de su autoría).

Referencias y bibliografía

Wilking, T. (1989). The semantic interpretation of nominal compounds. AAAI Proceedings. Illinois, USA. 310-312.

BRKIÆ, S.; VUÈENOVIÆ, M. y ĐOKIÆ, Z (2003). Title, abstract, key words and references in biomedical articles. Archive of Oncology 11(3),207-9.

University of North Carolina at Chapel Hill (UNC) College of arts & sciences (2012). The writing center, Disponible en http://writingcenter.unc.edu/resources/handouts-demos/specific-writingassignments/abstracts