

Common elements of a scientific paper

Title
Authors
Abstract
Keywords
Introduction
Methods; Materials and methods
Results
Extras:
 Figures
 Tables
Discussion
(Conclusion)
(Acknowledgements)
References

Abstract and/or Summary

**Abstract - lat. *abstrahere* - to drag away, single out
concise review of the paper
includes all parts of the work except the discussion**

**Should quickly convey important information about the
content so reader can quickly decide on further reading**

Summary - a list or indication of the main conclusions

About 200-300 words (in a single paragraph)

Abstract

Decision making questions:

What **question** does this paper tackle?

What **methods** were used?

What are the **main findings** and how they improve the topic's state of the art?

DON'T:

Waste words on background (intro)

Describe procedures in details

Omit the conclusion (what the results mean)

Abstract

Indicative abstract provides the essence of the work, without detailed info about the method and results (or conclusion)

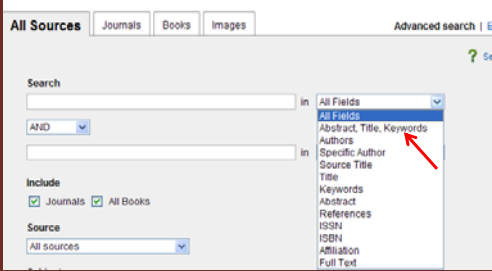
Indicative abstract - example

Using light to modulate biochemical agents in living organisms has a **significant impact** on photodynamic therapy and drug release. We demonstrate that a photoresponsive system can reversibly induce paralysis **in nematodes** as a model for living organisms when two different **wavelengths** of light are used to toggle the molecular switch between **its** two structural forms. This example illustrates how photoswitches offer great potential for advancing biomedical technologies.

Informative abstract presents the aim, methods, results and conclusions

Hom	<p>Making an abstract (more) effective</p> <p><i>Teacher – child relationships were examined as predictors of cortisol change in preschool children. ... [methods and results]</i></p> <p><i>... The findings extend earlier work by suggesting that cortisol change across the child-care day is influenced by teacher – child relationship characteristics.</i></p>
Het	<p>Based on monitoring of the stress hormone cortisol in children it has been previously found that daycare can be stressful for children. However, exactly which daycare activities are stressful is not known. We examined teacher–child relationships as predictors of cortisol change in preschool children. ... [methods and results]... Certain characteristics of teacher-child relationships are less stressful than others, and educators should consider these factors when designing their learning plans.</p>

Keywords	<p>Used to help database search</p> <p>Science direct http://www.sciencedirect.com/ Web of knowledge, Scopus...</p> <p>Supplementing / complementing the title</p> <p>Title: <i>Energy resources and feeding guild structure of macroinvertebrate assemblages in the hyporheic zone of calcite depositing lake outlets</i></p> <p>Keywords: Particulate organic matter, Tufa, Detritus, Flow velocity, Predatory pressure, Stable substrate, Karst</p> <p>Details, phrases, taxa, localities ...</p>
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The screenshot shows a search interface with a dropdown menu open. The menu items are: All Fields, Abstract, Title, Keywords, Authors, Specific Author, Source Title, Title, Keywords, Abstract, References, ISSN, ISBN, Affiliation, and Full Text. A red arrow points to the 'Keywords' option.

Keywords

Siltation disturbance in a mountain stream: Aspect of functional composition of the benthic community

Miliša, M. ✉, Živković, V., Kepećija, R.M., Habdija, I. 🌱

Author keywords
Benthos; Croatia; FFG; Fine sediment; Macroinvertebrates; Mining; Quarrying; Stress

Indexed keywords
EMTREE drug terms: oxygen
EMTREE medical terms: acidity; animal experiment; article; benthos; controlled study; Croatia; feeding; food availability; nonhuman; oxygen consumption; sediment species diversity; stream (river); turbidity; water temperature

Introduction

Describe the general field of the study

Refer to the state of the art. The most relevant studies pertaining to your work

Define the problem/question and state (count) the aims. What gap does your research fill?

Offer a hypothesis

PRINCIPLE: GENERAL → PARTICULAR
It should be understood by non-experts!

Acquiring the knowledge?

Problem - why doesn't the grass grow uniformly?
Observe the (environmental) difference between a normal and a stunted lawn
e.g. stunted grass is near growing evergreens
What does this mean to the grass ???
What do we know (about the impact of coniferous trees on the environment)?

Searching for papers

Scopus

<http://www.scopus.com/home.url>

Science Direct

<http://www.sciencedirect.com/>

Web of knowledge

<http://apps.webofknowledge.com/>

The collage shows three search engine interfaces. At the top is Scopus, with a search bar and a 'Search' button. Below it is ScienceDirect, also with a search bar and a 'Search' button. At the bottom is Web of Science, with a search bar and a 'Search' button. Red arrows point to the search buttons and filters in each interface.

Searching for papers

Wiley Online Library

<http://onlinelibrary.wiley.com/advanced/search>

Blackwell Search

<http://www.blackwellpublishing.com/search.asp>

Hrčak

<http://hrcak.srce.hr/>



Achieving a logical progression of the story

Link everything linearly!

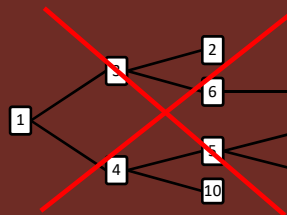
Phrase 1 - phrase 2 - phrase 3...

Paragraph 1 - paragraph 2 - paragraph 3

Do not branch, break or leave loose ends



WRONG WAY GO BACK



Achieving a logical progression of the story - nifty tricks

Making reading a journey rather than a pile of facts

1. Repetition
2. Connecting phrases
3. 'Relay'

Use in moderation!

Repetition

A An important socialization process for children is the development of
 B "persuasion knowledge," which is the ability to detect that advertisers "try
 E to make you buy things" (Robertson and Rossiter 1974). Understanding the
 B onset and extent of persuasion knowledge has been a topic of importance
 B for decades. A child's understanding of persuasion attempts is important
 B from a basic social science perspective because it represents a large field of
 C social understanding. Persuasion knowledge is also essential to the
 B development of healthy skepticism of and resistance to advertising. From a
 C public policy perspective, children's ability to understand persuasion is key in
 D understanding their vulnerability and, thus, any needed protection (Ringold
 D 2005) or educational intervention (Eagle 2007). It should also be central to
 B the development of industry self-regulation (Armstrong and Brucks 1988).
 E Indeed, the Children's Advertising Review Unit (2009) specifically invoked
 A considerations of "unfairness" in advertising directed at children (under age
 B 12) in its most recent self-regulatory guidelines. The goal of the current
 E research is to understand how children develop persuasion knowledge by
 A considering their individual social development.

Izradlanice CA Rodriguez

Connecting phrases

An important socialization process for children is the development of “persuasion knowledge,” which is the ability to detect that advertisers “try to make you buy things” (Robertson and Rossiter 1974). Understanding the onset and extent of persuasion knowledge has been a topic of importance for decades. A child’s understanding of persuasion attempts is important from a basic social science perspective because it represents a large field of social understanding. Persuasion knowledge is also essential to the development of healthy skepticism of and resistance to advertising. From a public policy perspective, children’s ability to understand persuasion is key in understanding their vulnerability and, thus, any needed protection (Ringold 2005) or educational intervention (Eagle 2007). It should also be central to the development of industry self-regulation (Armstrong and Brucks 1988). Indeed, the Children’s Advertising Review Unit (2009) specifically invoked considerations of “unfairness” in advertising directed at children (under age 12) in its most recent self-regulatory guidelines. The goal of the current research is to understand how children develop persuasion knowledge by considering their individual social development.

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Academic phrasebank advice on transitional words

	Idea A + Idea B +	Idea A + Idea B -	Idea A ↔ Idea B
Good {	In addition Furthermore Moreover	However Although On the other hand	Since Because Given that
Not so good? {	Besides Additionally	Meanwhile While	Consequently
	Također Nadalje Osim toga	S druge strane Suprotno Premda Ali No Međutim No, međutim	Jer Posljedično Radi Slijedi Ako ≠ ukoliko Ukoliko - utoliko

Relay

OBJECT An important socialization process for children is the development of “persuasion knowledge,” which is the ability to detect that advertisers “try to make you buy things” (Robertson and Rossiter 1974). Understanding the

SUBJECT onset and extent of persuasion knowledge has been a topic of importance for decades. A child’s understanding of persuasion attempts is important from a basic social science perspective because it represents a large field of social understanding. Persuasion knowledge is also essential to the development of healthy skepticism of and resistance to advertising. From a public policy perspective, children’s ability to understand persuasion is key in understanding their vulnerability and, thus, any needed protection (Ringold 2005) or educational intervention (Eagle 2007). It should also be central to the development of industry self-regulation (Armstrong and Brucks 1988).

OBJECT Indeed, the Children’s Advertising Review Unit (2009) specifically invoked considerations of “unfairness” in advertising directed at children (under age 12) in its most recent self-regulatory guidelines. The goal of the current research is to understand how children develop persuasion knowledge by considering their individual social development.

SUBJECT

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Methods; Materials and methods

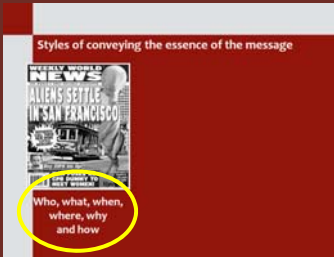
Details that enable reproducibility
It should be understood by experts!

Why and what for was a specific tool used
(especially for the statistics:
We used ANOVA **to detect differences because** our data was normally distributed)

Sometimes (in ecology often)
description of the study site

Well written Methods testify to the level of your competence

Ask yourself: could I repeat all of my work just based on what is written in the Methods?



Styles of conveying the essence of the message

Methods; Materials and methods

Tips 'n' tricks

Begin writing the M&Ms during your experiments (or earlier).

Match the **order** in which methods are described to the order of the results generated by those methods.

Be sure that each method used is described, even a quick sentence e.g. 'Toxin assays were performed according to (reference).'

Include citations for published procedures;
If you made any modifications - list them.

Describe statistical tests as **thoroughly** as possible.

Results

*Not everything that counts can be counted,
and not everything that can be counted counts.*

Carefully select only the relevant results



Carefully choose what to put in figures and tables

Put the most important in figures

DO NOT 'DESCRIBE' figures in the text, DO NOT REPEAT

Cite the figures and tables consecutively

Results should progress linearly

Put different results in different paragraphs (subchapters!)

Group together similar results in neighboring paragraphs