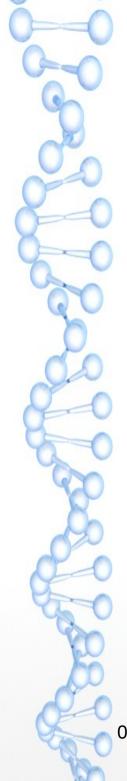# CSC 212: Issues in Computing

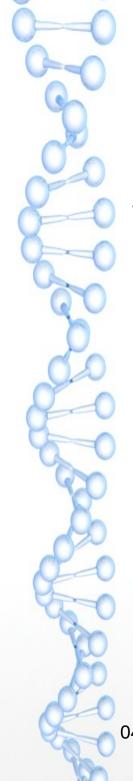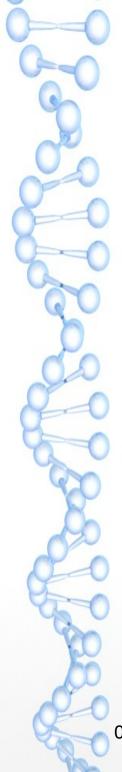## Computers in Education

Denis L. Nkweteyim

Outline

- **Computers in the Classroom**

- Edutainment

- E-learning

- Case Study: Research and Writing

  - Using Search Engines

  - Evaluating Search Results

  - Writing Styles

  - Zotero: A Citation and Bibliographic Tool
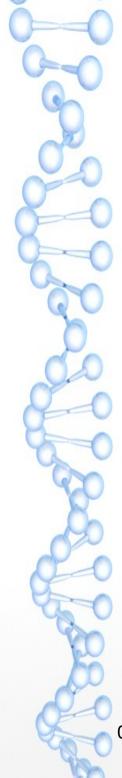
Computers in the Classroom

- Use of computer technology in the classroom
  - Computers have been in the classroom since the early days of computing
    - But early systems were based on mainframe (with its drawbacks)
    - Involved more with administrative tasks than with teaching
    - Some scientific simulations
  - Computer-Aided Instruction CAI (or Computer-Based Training, CBT)
    - Instructional software that students use to complete exercises
    - Became popular with the wide availability of the personal computer in the early 1980s
    - Commonly provided on CD ROM
    - Used by students, sports professionals for training, airlines for training using multimedia CBT simulations
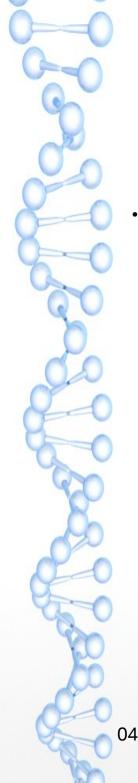
Computer-based training (CBT)

- Characteristics

    - Self-paced learning activities accessible via a computer or handheld device

    - Typically present content in a linear fashion, much like reading an online book or manual

    - Hence, used to teach static processes, such as using software or completing mathematical equations

    - Assessing learning usually done through multiple choice questions, or other assessments that can be easily scored by a computer such as drag-and-drop, radio button, simulation or other interactive means

    - Primary means of delivery: CD ROM

- Web-based training (WBT)

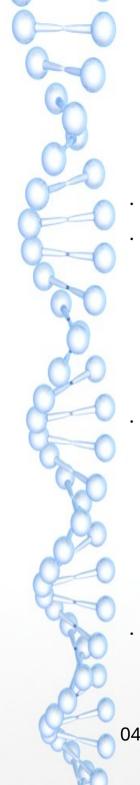   - CBT, but with the Internet being the medium of delivery

Computer-based training (CBT)

- Some advantages
  - Continuing education
    - Instead of limiting students to attending courses or reading printed manuals, students are able to acquire knowledge and skills through methods that are much more conducive to individual learning preferences
    - E.g., CBTs offer visual learning benefits through animation or video
  - Can be good alternative to printed learning materials since rich media, including videos or animations, can easily be embedded to enhance the learning
  - Can be easily distributed to a wide audience at a relatively low cost once the initial development is completed
  - Other advantages
    - Instant feedback
    - Positive response for correct answers or actions
    - Additional information for incorrect answers
    - Immediate scoring and results
    - Self-paced study
    - Multimedia content is appealing and sometimes more appealing (simulations for example) when compared to traditional media like books
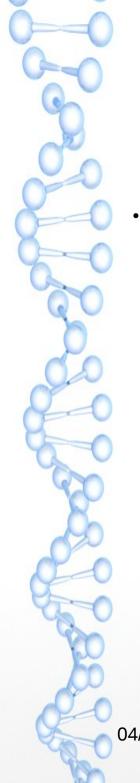
Computer-based training (CBT)

- ## Some limitations
  - The creation of effective CBTs requires enormous resources
    - Authoring software is often complex for the subject matter expert or teacher to be able to use effectively
    - Lack of human interaction (face-to-face with students) can limit both the type of content that can be presented as well as the type of assessment that can be performed
    - As a result, many CBT systems are now incorporating online discussion or other interactive elements
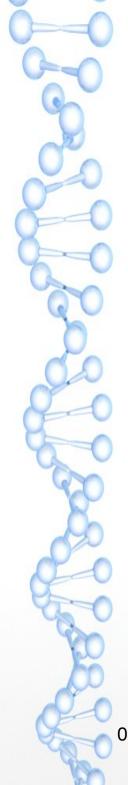
Computers in the Classroom

- Other classroom technologies
- Presentation software
  - Saves time
  - High quality of presentation
  - Simulations
  - Linking
  - Etc.
- Electronic whiteboard
  - A large interactive display that connects
  - to a computer and projector
  - Projector projects the computer's desktop onto
  - the board's surface where users control the
  - computer using a pen, finger, stylus, or other device
  - Interactive nature is appealing
- Widespread availability of notebook computers in the classroom
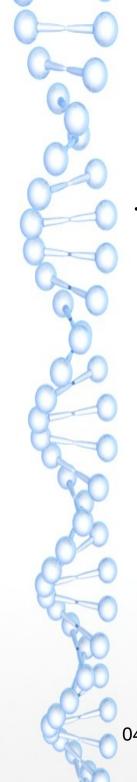
Computers in the Classroom

- Other classroom technologies
  - Specialized classrooms designed to provide students with access to the utilization of the most modern technology available
  - Example
    - Classrooms featuring computers with audio and video equipment designed to capture detailed recordings of lectures as a replacement for traditional note taking
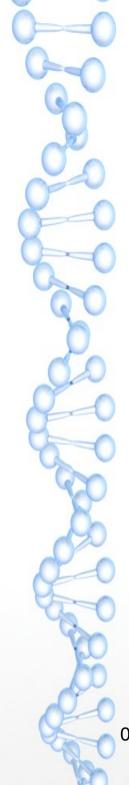
Outline

- Computers in the Classroom

- Edutainment

- E-learning

- Case Study: Research and Writing

  - Using Search Engines

  - Evaluating Search Results

  - Writing Styles

  - Zotero: A Citation and Bibliographic Tool
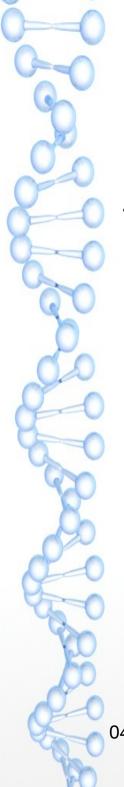
Edutainment (Educational entertainment)

- Education + entertainment
  - Any entertainment content that is designed to educate as well as to amuse
  - May comprise
    - Content with a high degree of both educational and entertainment value
    - Content that is primarily educational but has incidental entertainment value
    - Content that is mostly entertaining but can be seen to have some educational value
  - Media for edutainment
    - Film and television
    - Games
    - radio

Outline

- Computers in the Classroom

- Edutainment

- E-learning

- Case Study: Research and Writing

  - Using Search Engines

  - Evaluating Search Results

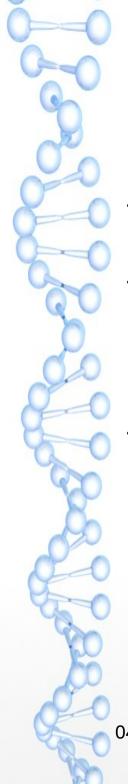 - Writing Styles

  - Zotero: A Citation and Bibliographic Tool
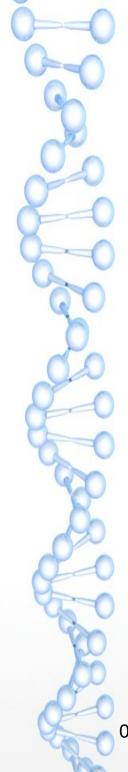
E-Learning

- Umbrella term used to describe all forms of electronically supported learning and teaching

    - Includes not only CBT, WBT that we have considered but also other virtual education opportunities and virtual collaboration (i.e., working together and sharing ideas and information using online technology)

    - Often involves both out-of-classroom and in-classroom educational experiences via technology

    - Content is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM

E-Learning

- Learning can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio.
- Quality of the e-learning is in the richness of its content and its mode of delivery
  - Can suffer from many of the same pitfalls as classroom training
  - Boring slides, monotonous speech, and little opportunity for interaction
- E-learning, however, can have several advantages
  - Use of software that creates very effective learning environments that can engulf you in the material
  - Potential to reach much wider audiences than the traditional classroom
  - Problem of large class size in the traditional classroom is not an issue
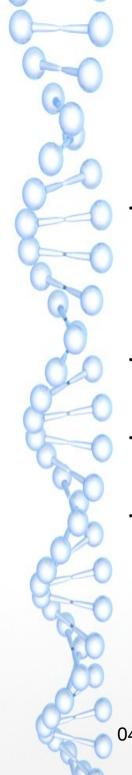
Communication technologies used in e-learning

- Asynchronous
  - Main idea
    - Participants may engage in the exchange of ideas or information without the dependency of other participants involvement at the same time
  - Gives students the ability to work at their own pace
    - Beneficial for students for whom regularly leaving home to attend lectures is difficult (people with health problems, or with child care responsibilities, for example
  - Uses technologies such as blogs, wikis, and discussion boards, email
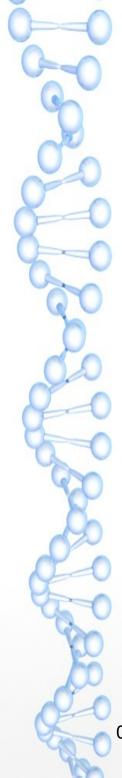- Synchronous
  - Involves the exchange of ideas and information with one or more participants during the same period of time
  - Example: A skype conversation or a chat room where everyone is online and working collaboratively at the same time

Communication technologies used in e-learning
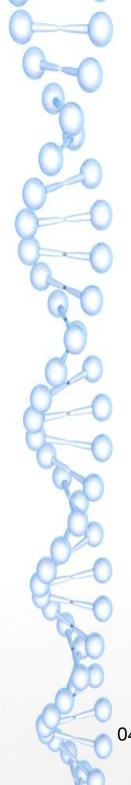
- Virtual classrooms and meetings
  - Provide a social learning environment that closely replicates the traditional classroom
  - May provide a recording feature
- Each class is recorded and stored on a server, which allows for instant playback of any class over the course of the school year
- Useful for students who want to review material and concepts for an upcoming exam
- This also provides students with the opportunity to watch any class that they may have missed
  - An example of such a system is available at Yaounde I and the Yaounde Polytechnique as part of the Pan African Online project
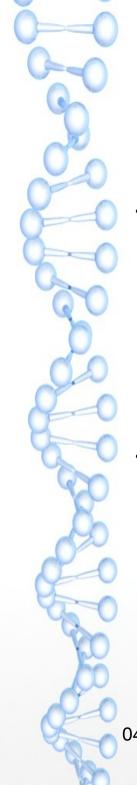
Communication technologies used in e-learning

- Virtual classrooms use a mix of communication technologies
- Synchronous mode example
  - Web conferencing that enables students and instructors to communicate with each other via webcam, microphone, and real-time chatting
  - Participants in a virtual classroom can also use icons called emoticons to communicate feelings and responses to questions or statements
  - Use of technologies like text notes, microphone rights, and breakout sessions that allow the participants to work collaboratively in a small group setting to accomplish a task as well as allow the teacher to have private conversations with his or her students
- Asynchronous mode example
  - Student listening to a lecture a second time
  - Student thinking about a question for a while without fearing that they are holding back the rest of the class
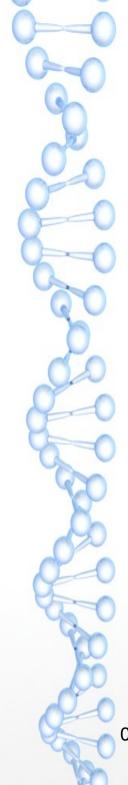
Other e-learning technologies

- In addition to virtual classroom environments, social networks have become an important part of E-learning

  - Conventional e-learning systems were based on instructional packets, which were delivered to students, accompanied by assignments that were evaluated by the teacher

  - New e-learning technologies place increased emphasis on social learning and use of social software such as blogs, wikis, podcasts and virtual worlds
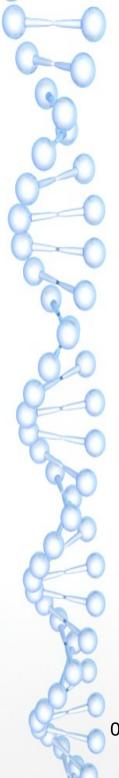
Two popular e-learning tools

- Blackboard Inc. and Moodle
  - Blackboard Inc.
    - Commercial
    - Educators can decide on whether their program will be blended or fully online, asynchronous or synchronous
    - Used by several universities and schools
- Moodle
  - Open Source Course Management System
  - Free to download
  - Provides blended learning opportunities as well as platforms for distance learning courses
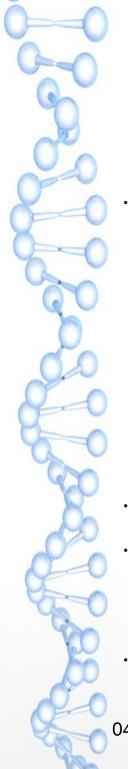
Outline

- Computers in the Classroom

- Edutainment

- E-learning

- Case Study: Research and Writing

  - Using Search Engines

  - Evaluating Search Results

  - Writing Styles

  - Zotero: A Citation and Bibliographic Tool
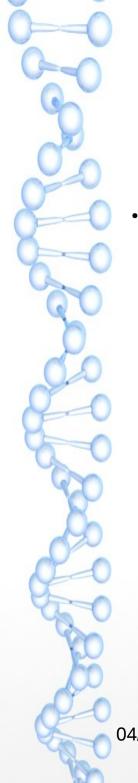
Using Search Engines
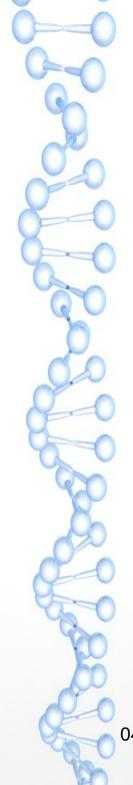
- We all know the basics of search
  - Open our favourite search engine, key in our search terms, and then we get a listing of our search results displayed using some ranking criteria
   - Hopefully, what we are looking for is amongst the top N items on the list
- Most important search guideline: Be specific
  - The more specific your search query is, the more relevant your search results will be
    - i.e., more of the documents that do not contain your search terms will be filtered out
  - For example, if you want information about installing DLink wireless routers, it makes more sense to search for
    - `Installing Dlink routers`, instead of
    - Installing routers
    - Better still, if you know your router's model number, include it in the query

Some Search Math
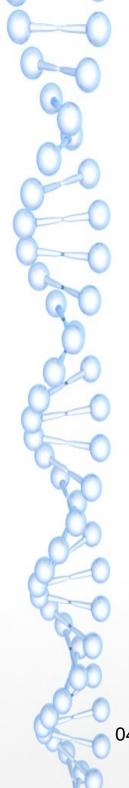
- Add (+)
    - Use + if you want to make sure that a search engine finds pages that have all the words you enter, not just some of them
    - Useful tool to narrow down your search particularly if too many pages are retrieved
    - For example, to find pages that have references to both DLink and Router, the query should include
        - +DLink +Router
        - Only pages that contain both words will be retrieved
-

- +Windows +2000 +bugs
    - Useful to narrow search to pages that contain Windows 2000 bugs, and not Windows 2000 in general
-

Some Search Math

- Subtract (-)

  - Useful to find pages that contain one word but not another

  - Useful in focusing search results when you get too many that are unrelated to your topic

  - Example: a query involving Obama –Barack will return pages that contain the name Obama, but without the name Barack

Some Search Math

- Use of quotation marks

    - Consider the following search

        - +limbe +botanic +garden

    - This query returns pages that have all these words, but not necessarily near each other

    - Example: you could get a page that talks about botanic gardens in general, and somewhere else on the page mentions Limbe

    - The following phrase search returns only pages that have the search terms appear exactly in the order specified

        - "Limbe botanic garden"

Some Search Math

- Combining symbols

    - We can do even more targeted searches by combining the symbols we saw on the previous slides
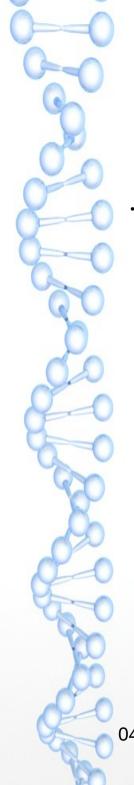
Outline
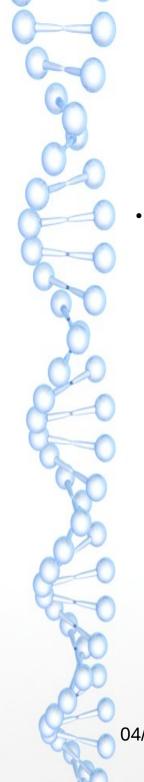
- Computers in the Classroom

- Edutainment

- E-learning

- Case Study: Research and Writing

  - Using Search Engines

  - Evaluating Search Results

  - Writing Styles

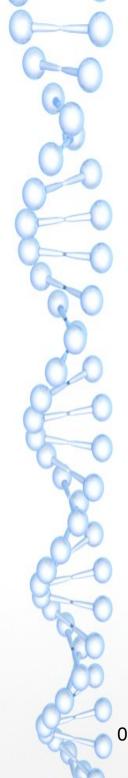 - Zotero: A Citation and Bibliographic Tool

Evaluating Search Results
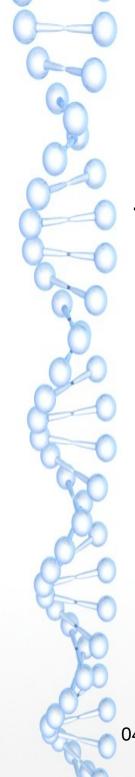
- A lot of the research that you will do as you search for information for your reports, term papers, etc., will be done on the Internet

- Important to note that the variety of information on the Internet is vast

    - Facts, opinions, stories, interpretation, statistics, etc.

    - Purpose of information varies: to inform, to persuade, to sell, to present a viewpoint, propaganda, to create or change an attitude or belief, etc.

    - Quality and reliability also ranges from very good to very bad

- Unlike most traditional information media (books, magazines, reports, etc.), no one has to approve content before it is published on the Internet

- One main job of the searcher is to evaluate what you locate, in order to determine whether it suits your needs in terms of accuracy, reliability, and value

Evaluating Search Results

- Some guidelines
  - Even before the search, determine what exactly you are looking for
    - Facts, opinions (authoritative or just anyone's), reasoned arguments, statistics, narratives, eyewitness reports, descriptions etc?
    - The purpose of your research: to get new ideas, to find either factual or reasoned support for a position, to survey opinion, etc.
    - This decision helps you screen sources quickly by testing them against your research goal
  - If, for example, you are writing a research paper, and if you are looking for both facts and well-argued opinions to support or challenge a position, you will know which sources can be quickly ignored and which deserve a second look, simply by asking whether each source appears to offer facts and well-argued opinions, or just unsupported claims.

Evaluating Search Results
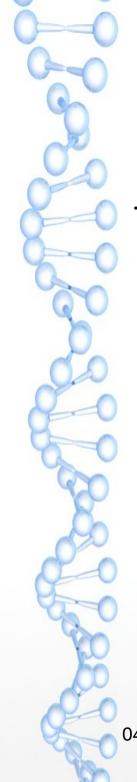
- Some guidelines

  - Keep an open mind

    - To be able to locate fair, objective material, the searcher must be fair and objective, too. Do not look only for sources whose ideas, findings, or arguments you already agree with

    - Although it is good to have a sense of where you think you are going, you should be open to opposing ideas as well

Evaluating Search Results
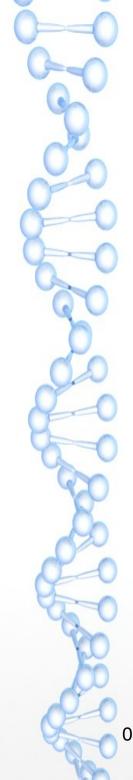
- Some guidelines
  - Source Selection Tip: Appraise the source's bibliographic citation
  - This is the written description of a book, journal article, essay, or some other published material
  - Most bibliographic citations have the following components (and possibly others)
    - Author, Title, Publication information
  -
  - These components can help you determine the usefulness of this source for your paper
  - One can similarly appraise a Web site by examining the home page carefully
  -

Evaluating Search Results
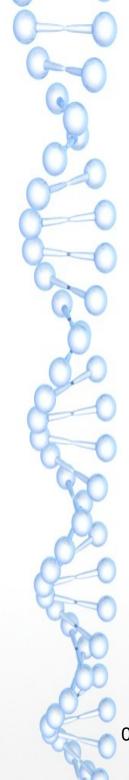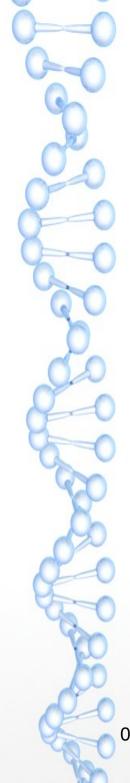
- Initial appraisal
    - The author
        - Author's institutional affiliation (and values and goals of that institution), educational background, past writings, or experience?
        - Have other reputable people mentioned this author? Has the author been cited in other bibliographies? Respected authors are cited frequently by other scholars
    - Date of publication
        - If source is a book, check the title page below the name of the publisher for the date of publication, or if not there, check the copyright date on the reverse of the title page. On Web pages, the date of the last revision is usually at the bottom of the home page, sometimes on every page
        - Is the source current or out-of-date for your topic? Topic areas of continuing and rapid development, such as the sciences, demand more current information. On the other hand, topics in the humanities often require material that was written many years ago

Evaluating Search Results
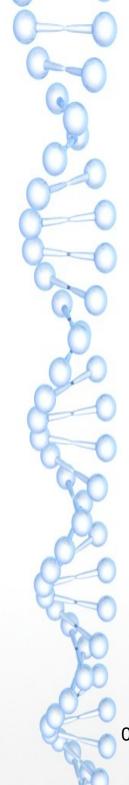
- Initial appraisal
    - Edition or Revision
        - Further editions indicate that the source has been revised and updated to reflect changes in knowledge and to correct shortcomings in earlier editions
        - Many editions may be an indication that the work has become a standard source in the area and is reliable
        - If your source is the web, check to see if page revision dates are indicated
    - Publisher
        - If the source is published by a university press, it is likely to be scholarly and the publisher probably has high regard for the source being published
    - Title of Journal
        - Is the source from a scholarly or a popular journal?
        - Scholarly journals would likely be best to the researcher

Evaluating Search Results

- Some guidelines
- Analyse the content
  - If source is a book, read the preface to determine the author's intentions for the book
  - Is the publication aimed at a specialized or a general audience? Is this source too elementary, too technical, too advanced, or just right for my needs?
  - Scan the table of contents and the index to get a broad overview of the material it covers
- Note whether bibliographies are included
  - The presence and quality of a bibliography at the end of a book or article may reflect the care with which the authors have prepared their work
- Read the chapters that specifically address your topic
- Scanning the table of contents of a journal or magazine issue is also useful

Evaluating Search Results

- Some guidelines
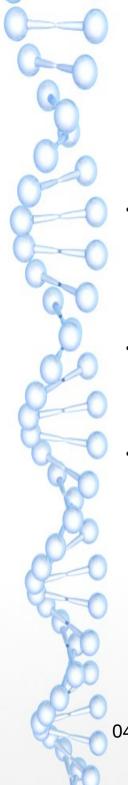
- Analyse the content: Coverage

  - Does the work update other sources, substantiate other materials you have read, or add new information? Does it extensively or marginally cover your topic?

  - Is the material primary or secondary in nature?

  - Primary sources are the raw material of the research process (e.g., journal and conference articles reporting research results)

  - Secondary sources are based on primary sources (e.g., books and encyclopaedias)

  - The researcher should choose both primary and secondary sources

Outline
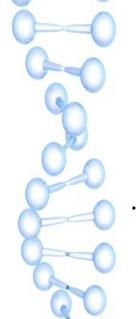
- Computers in the Classroom

- Edutainment

- E-learning

- Case Study: Research and Writing

  - Using Search Engines

  - Evaluating Search Results

  - Writing Styles

  - Zotero: A Citation and Bibliographic Tool

Writing Styles

- When you write a research paper or book, you are normally guided by a writing style (also known as style guide)

- There are hundreds of style guides in use

  - …and each one has its own way of getting things done

- Common examples of style guides

  - APA (The American Psychological Association)

  - CMS (The Chicago Manual Style)

  - MLA (The Modern Language Association)

Writing Styles

- Some examples of getting things done in different writing styles

  - Citing Books (Acknowledgement: Perdue University Writing Labs site)

Citing Books	Book citations in MLA generally require the author name, work title, publication city, publisher, year published, and an indication of the publication medium, such as print.	Book citations in APA generally require author name, publication year, work title, publication city, and publisher.	Book citations in CMS style generally require the author name, work title, publication city, publisher, and publication year.
General book format	Pollan, Michael. *The Omnivore's Dilemma*. New York: Penguin Group, 2006. Print.	Pollan, M. (2006). *The omnivore's dilemma*. New York, NY: Penguin Group.	Pollan, Michael. *The Omnivore's Dilemma.* New York: Penguin Group, 2006.
Single author	Pollan, Michael.	Pollan, M. (2006).	Pollan, Michael.
Two or three authors	Bell, James K., and Adrian A. Cohn.	Bell, C., & Cohn A. (1968).	Bell, James K. and Adrian A. Cohn.
More than three authors	Kernis, Michael. et al.	Kernis, M. H., Cornell, D. P., Sun, C. R., Berry, A., Harlow, T., & Bach, J. S. (1993).	Kernis, Michael and Others,
More than seven authors	Kernis, Michael. et al.	Kernis, M. H., Cornell, D. P., Sun, C. R., Berry, A., Harlow, T., & Bach, J. S...*Last Author's Name* (1993).	Kernis, Michael and Others,
Corporate/ Organization author	American Psychiatric Association.	American Psychiatric Association. (2005).	American Psychiatric Association.

Writing Styles

- Some examples of getting things done in different writing styles
  - Citing Books (Acknowledgement: Perdue University Writing Labs site)

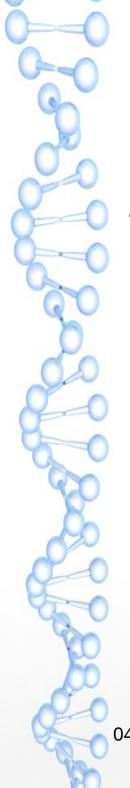|			
Unknown author	*Oxford Essential World Atlas.*	*Oxford essential world atlas.* (2001).	Oxford Essential World Atlas.
Two or more works by the same author	No change to name format; change noted by title.	Slechty, P. C. (1997). Slechty, P. C. (2001).	No change to name format.
Two or more works by the same author in the same year.	No change to name format; change noted by title.	Slechty, P. C. (1997a). Slechty, P. C. (1997b).	No change to name format.
Author with an editor	Poston, Ted. *A Draft of History.* Ed. Kathleen A. Hauke.	Poston, T. (2000). *A draft of history* K.A. Hauke, (Ed.).	Poston, Ted. *A Draft of History.* Edited by Kathleen A. Hauke.
Author with a translator	Laplace, P.S. *A Philosophical Essay on Probabilities.* Trans. F. W. Truscott and F. L. Emory.	Laplace, P. S. (1951). *A philosophical essay on probabilities.* (F. W. Truscott & F. L. Emory, Trans.).	P.S. Laplace. A Philosophical Essay on Probabilities. Translated by F. W. Truscott and F. L. Emory.
Editor with no author	*Consequences of Growing Up Poor.* Eds. G.J. Duncan and J. Brooks-Gunn.	Duncan, G. J., & Brooks-Gunn, J. (Eds.). (1997). *Consequences of growing up poor.*	Duncan, G.J. and J. Brooks-Gunn, eds.
Work in an anthology	Harris, Muriel. "Talk to Me: Engaging Reluctant Writers." *A Tutor's Guide: Helping Writers One to One.* Ed. Ben Rafoth. Portsmouth, NH: Heinemann, 2000. 24-34. Print.	Harris, Muriel. (2000). Talk to me: Engaging reluctant writers. In Ben Rafoth (Ed.), *A tutor's guide: Helping writers one to one* (pp. 24-34). Portsmouth, NH: Heinemann.	Harris, Muriel. "Talk to Me: Engaging Reluctant Writers." In *A Tutor's Guide: Helping Writers One to One,* edited by Ben Rafoth, 24-34. Portsmouth, NH: Heinemann, 2000.
Edition other than first	Helfer, M.S., R.S. Keme, and R.D. Drugman. *The Battered Child.* 5th ed.	Helfer, M. S., Keme, R. S., & Drugman, R. D. (1997). *The battered child* (5th ed.).	Helfer, M.S., R.S. Keme, and R.D. Drugman. *The Battered Child.* 5th ed.

Writing Styles
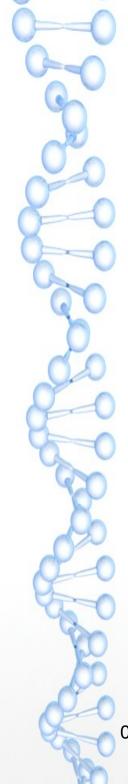
- Some examples of getting things done in different writing styles
  - Citing Articles in Periodicals (Acknowledgement: Perdue University Writing Labs site)

|			
Magazine	Poniewozik, James. "TV Makes a Too-Close Call." *Time* 20 Nov. 2000: 70-71. Print.	Poniewozik, J. (2000, November). TV makes a too-close call. *Time, 20*, 70-71.	Poniewozik, James. "TV Makes a Too-Close Call." Time, November 20, 2000.
Journal paginated by issue	Bagchi, Alaknanda. "Conflicting Nationalisms: The Voice of the Subaltern in Mahasweta Devi's *Bashai Tudu*." *Tulsa Studies in Women's Literature* 15.1 (1996): 41-50. Print.	Bagchi, A. (1996). Conflicting nationalisms: The voice of the subaltern in Mahasweta Devi's *Bashai Tudu. Tulsa Studies in Women's Literature* (15.1), 41-50.	Bagchi, Alaknanda. "Conflicting Nationalisms: The Voice of the Subaltern in Mahasweta Devi's *Bashai Tudu*." *Tulsa Studies in Women's Literature* 15.1 (1996): 41-50.
Daily newspaper	Krugman, Andrew. "Fear of Eating." *New York Times* 21 May 2007. A1. Print.	Krugman, A. (2007, May 21). Fear of eating. *New York Times*, pp. A1.	Krugman, Andrew. "Fear of Eating." New York Times, May 2007.
Editorial in newspaper	"Of Mines and Men." Editorial. *Wall Street Journal* east. ed. 24 Oct. 2003: A14. Print.	Of mines and men (2003, Oct 24). [Editorial] *The Wall Street Journal east*, p. A14.	**Cited in notes only.** 1. Editorial, *Wall Street Journal*, October 24, 2003.
Letter to the editor	Hamer, John. Letter. *American Journalism Review* Dec. 2006/Jan. 2007: 7. Print.	Hamer, J. (2006/2007, December/January). [Letter to the editor]. *American Journalism Review*, 7.	**Cited in notes only.** 1. John Hamer, letter to the editor, *American Journalism Review*, December 2006/January 2007.
Book or film review	Seitz, Matt Zoller. "Life in the Sprawling Suburbs, If You Can Really Call It	Seitz, M. Z. (2007, May 30). Life in the sprawling suburbs, if you can really call	Sietz, Matt Zoller. Review of *Radiant City*, Directed by Gary Burns and Jim Brown.

Writing Styles
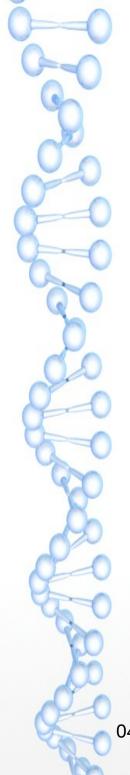
- Points to note

  - Different writing styles make different demands on the author

  - It is a heavy burden if the author is required master these rules for the different publishers s/he is submitting work to

  - There is need for automation of this process

Outline

- Computers in the Classroom

- Edutainment

- E-learning

- Case Study: Research and Writing

  - Using Search Engines

  - Evaluating Search Results

  - Writing Styles

  - Zotero: A Citation and Bibliographic Tool

Zotero: A Citation and Bibliographic Tool

- Several citation and bibliographic tools have been developed to help authors

  - In the process of properly citing reference works in their papers and books

  - In the process of generating properly formatted bibliographies for the works they cite

- Most of these tools are commercial

  - You need to pay for a license to be able to use them

- Zotero is free and open source, and can be use for the same purpose

Zotero: A Citation and Bibliographic Tool

- Zotero home page: www.zotero.org

Zotero: A Citation and Bibliographic Tool

Zotero is an extension for the Firefox web-browser

It runs in its own pane within Firefox, separately from web pages
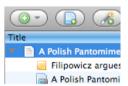
How do I install it?

Download Now — Zotero is installed by visiting zotero.org, clicking the download button on the page, and selecting the version of Zotero you wish to install.

How do I open Zotero?

Click the Zotero icon in the bottom-right corner of your browser window to open your Zotero library. This brings up a pane with all of your references, collections, and notes. You can close Zotero by clicking on the X icon in the upper right of the Zotero window or by clicking on the logo again. The Zotero window does not have to be open for you to do "quick saves" of material you want to add to your research collection.

What does Zotero do?

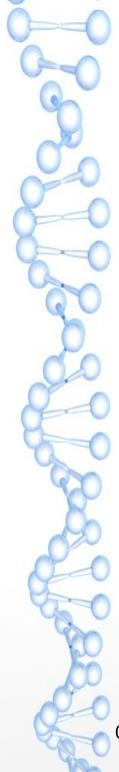Title
A Polish Pantomime
Filipowicz argues
A Polish Pantomi

Zotero is, at the most basic level, a citation manager. It is designed to store, manage, and cite bibliographic references, such as books and articles. In Zotero, each of these references constitutes an item.

What kind of items are there?
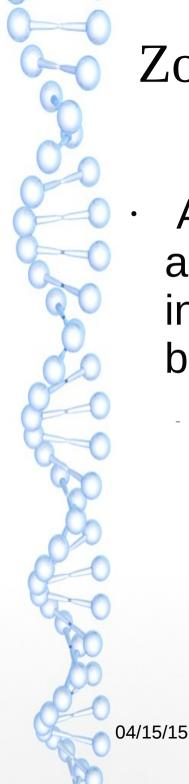
Title
Artwork
Audio Recording
Book
Book Section

Every item contains different metadata, depending on what type it is. Items can be everything from books, articles, and documents to web pages, artwork, films, sound recordings, bills, cases, or statutes, among many others.
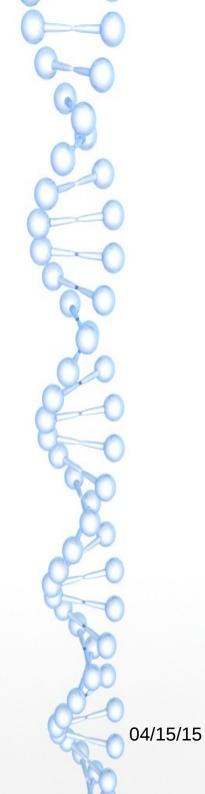
Zotero: A Citation and Bibliographic Tool

- Citation
    - Zotero uses Citation Style Language (CSL) to properly format citations in many different bibliographic styles. Zotero supports all the major styles (Chicago, MLA, APA, Vancouver, etc.) as well as several journal-specific styles

- Word processor integration
    - Zotero has plugins for Word and OpenOffice that enable users to insert citations directly from their word processing software

- Automatic bibliographies
    - With the word processor plugins it is possible to switch citation styles for the entire document at once or automatically generate a bibliography from the items cited

- See the Zotero Quick Start Guide for more information

Zotero: A Citation and Bibliographic Tool

- Apart from the Firefox extension, Zotero also has a standalone version that can be installed on your PC even without Firefox being present

  - This standalone version already has support for Word and Open Office word processors

A Tutorial on Zotero