Contents

- PRELIMINARY SEARCH
- SEARCH STRATEGY
- SOURCE EVALUATION
- ANALYSIS OF AN APA FINAL ASSIGNMENT PAPER

DOING PRELIMINARY SEARCH

What is Preliminary Search

- **A preliminary search** is an initial investigation into a topic to gather background information and get an overview of available resources.
- This step is essential in the research process as it helps:
  - refine your research question
  - identify key concepts
  - and understand the scope of the topic.

Purposes of a Preliminary Search

- **Understanding the Topic**: Gain a basic understanding of the subject area.
- **Identifying Keywords**: Find relevant keywords and search terms.
- **Evaluating Resources**: Assess the types and availability of resources.
- **Refining the Research Question**: Narrow down or adjust the research question based on findings.
- **Identifying Gaps**: Discover gaps in the existing research that your study can address.

Steps

1. **Define the Topic**: Clearly state the topic/ research question.
2. **Identify Keywords**: List potential keywords and phrases
3. **Use Search Engines and Databases**: search engines (like Google) and academic databases (like JSTOR, PubMed, or Google Scholar).
4. **Review Summaries and Abstracts**: Read summaries, abstracts, introductory sections to get a quick understanding.
5. **Take Notes**: Record useful information, including citations and potential sources.
6. **Evaluate Sources**: Assess the credibility and relevance of the sources.
7. **Refine Keywords and Search Terms**: Based on initial findings, refine the list of keywords and search terms for more focused searches.

Types of sources

- **First Layer Source**
- **Characteristics:** These are common, easily accessible sources often used for gaining a general understanding of a topic. They typically include articles from newspapers, popular magazines, or news websites.
- **Examples:**
  - **Herald Tribune**
  - **The Guardian**
  - **New York Times**
  - **BBC News**
  - **CNN News**

Video Ad Feedback

How technology can change education

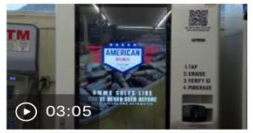
At the Human Capability Initiative, in Saudi Arabia, the CEO of online education company Coursera explains the importance of innovation and accessibility in education.

Stories worth watching • 13 videos

How technology can change education

Rare footage shows uncontacted indigenous tribe in Peru

Here's how Trump cookies divided this bakery's customers



Ammo vending machines are coming to 3 Southern states. See how they work

See a Japanese railway use a humanoid robot for maintenance

Types of sources

- **Second Layer Source**
- **Characteristics:** These sources provide more detailed information than the first layer, often from specialized journals or websites focused on a specific field. They are usually written by experts and provide more in-depth analysis.
- **Examples: Education Week**
- Article Title: ”Our technology future”
- By Laurence Goldberg — March 20, 2002
- Sponsor: EdTech Innovators
- URL/DOI: https://www.edweek.org/technology/opinion-our-technology-future/2002/03

ED-TECH POLICY OPINION

Our Technology Future

By Laurence Goldberg — March 20, 2002 9 min read

Laurence Goldberg

Contributor

> To have a truly transformational impact on education, technology must become ubiquitous. It must be seamless and nearly invisible.

Types of sources

- **Top Tier Source/Deepest Sources**
- **Characteristics:** These are the most reliable and in-depth sources, typically peer-reviewed journal articles or studies from reputable research organizations. They provide comprehensive data and analysis, often used as the foundation for academic and professional research.
- **Examples:**
  - **Journal of Educational Technology**
    - Article Title: Embracing Computational Thinking as an Impetus for Artificial Intelligence in Integrated STEM Disciplines through Engineering and Technology Education
    - Date of Publication: 16/6/2023
    - Sponsor: Educational Technology Research Association
    - URL/DOI: https://jte-journal.org/articles/10.21061/jte.v34i2.a.3

Research

Embracing Computational Thinking as an Impetus for Artificial Intelligence in Integrated STEM Disciplines through Engineering and Technology Education

Paul Asunda, Miad Faezipour, Joshua Tolemy, Milo Engel

Contents
Annotations & Comments
Related Articles
Abstract

Abstract

The scope and versatile nature of engineering and technology education as a discipline provide a platform for the integration of computational thinking (CT) into STEM education, accomplishing the goal of bringing not only computer science principles into the K–12 education but also the fundamentals of machine learning (ML) and artificial intelligence (AI) into the curriculum. Today, it is commonplace to say that artificial intelligence and machine learning technologies impact the workplace and continue to revolutionize as well as create new demands for solving daily world challenges. This article discusses the integration of computational thinking practices of decomposition, pattern recognition, algorithmic thinking, and abstraction as key to problem-solving practices that may enhance the development of AI and ML capabilities in high school students. The intent of this article is to contribute to ongoing discussions among educators, employers, parents, and all those concerned with how best to prepare a citizenry that is digitally revolutionized. Implications are offered for the assessment of CT integrated within STEM, curriculum, pedagogy, and professional development for STEM teachers.

Layer	Accessibility and Audience	Depth of Information	Reliability and Credibility
First Layer Source	Easily accessible, intended for the general public	Provides a general overview of the topic	Generally credible but not highly specialized; popular media sources
Second Layer Source	Accessible to those with a deeper interest in the field, often specialized journals or websites	Offers more detailed and specific information than first layer sources	More credible than first layer, written by experts or professionals
Top Tier Source	Primarily accessible to researchers, scholars, or professionals; peer-reviewed journals and reputable organizations	Provides highly detailed, in-depth information and comprehensive analysis	Highly reliable, often peer-reviewed, used as the foundation for academic research

Layer	Example Source 1	Example Source 2	Example Source 3	Example Source 4
First Layer Source	Herald Tribune Link	New York Times Link	BBC News Link	The Guardian Link
Second Layer Source	Education Week Link	EdTech Magazine Link	Teacher Magazine Link	Tech & Learning Link
Top Tier Source	Journal of Educational Technology Link	Educational Research Review Link	Computers & Education Journal Link	International Journal of Educational Technology in Higher Education Link

Where?

FIRST LAYER SOURCES:

- General news websites, popular magazines, and mainstream media outlets.
- These sources are intended for the general public and provide a broad overview of various topics.

1. **Online News Websites:**
    1. **Herald Tribune:** Herald Tribune
    2. **New York Times:** New York Times
    3. **BBC News:** BBC News
    4. **The Guardian:** The Guardian
2. **Popular Magazines:**
    1. **Time Magazine:** Time
    2. **Newsweek:** Newsweek
    3. **The Atlantic:** The Atlantic
    4. **National Geographic:** National Geographic
3. **General News Aggregators:**
    1. **Google News:** Google News
    2. **Yahoo News:** Yahoo News
    3. **MSN News:** MSN News

Where?

SECOND LAYER SOURCES:

- Typically accessible from specialized journals, trade magazines, and professional websites that focus on a specific field or industry.
- These sources provide more detailed and specific information than first layer sources and are often written by experts.

1. **Specialized Journals and Magazines:**
    1. **Education Week:** Education Week
    2. **EdTech Magazine:** EdTech Magazine
    3. **Teacher Magazine:** Teacher Magazine
    4. **Tech & Learning:** Tech & Learning
2. **Professional Organizations and Associations:**
    1. **International Society for Technology in Education (ISTE):** ISTE
    2. **Association for Educational Communications and Technology (AECT):** AECT
    3. **American Educational Research Association (AERA):** AERA
3. **Industry-Specific Websites:**
    1. **EdSurge:** EdSurge
    2. **Inside Higher Ed:** Inside Higher Ed
    3. **Chronicle of Higher Education:** Chronicle of Higher Education
    4. **Campus Technology:** Campus Technology

Where?

TOP TIER LAYER SOURCES:

- Highly reliable and in-depth, often found in peer-reviewed academic journals, reputable research organizations, and scholarly databases.
- These sources are essential for comprehensive research and provide detailed analysis and empirical data.

1. **Academic Databases:**
    1. **JSTOR:** JSTOR
    2. **Google Scholar:** Google Scholar
    3. **PubMed:** PubMed
    4. **IEEE Xplore:** IEEE Xplore
2. **University Libraries:**
    1. Most university libraries provide access to a wide range of academic journals and databases.You can access these resources through your university's library portal.
    2. **Example:** Harvard Library, Stanford Libraries
3. **Specific Academic Journals:**
    1. **Journal of Educational Technology:** Journal of Educational Technology
    2. **Educational Research Review:** Educational Research Review
    3. **Computers & Education Journal:** Computers & Education Journal
    4. **International Journal of Educational Technology in Higher Education:** International Journal of Educational Technology in Higher Education
4. **Research Organizations and Repositories:**
    1. **ERIC (Education Resources Information Center):** ERIC
    2. **ResearchGate:** ResearchGate
    3. **Academia.edu:** Academia.edu

EXAMPLE 1

- **April Wang**
- Topic: Technology in student-centered learning.
- **Sources:**
  - Google Scholar, CQ Researcher: Debate aspects.
  - TED Talks: Educational technology.
  - Specialized Databases: Scholarly articles and reports.
  - Track down influential articles.

EXAMPLE 2

- **Sophie Harba**
- Topic: Government legislation on food choices.
- **Sources:**
  - Web: Current news, government publications, organization info.
  - Library Database: Peer-reviewed articles.
  - Library Catalog: Books cited in blogs and websites.

EXAMPLE 3

- **Ned Bishop**
- Topic: Nathan Bedford Forrest's role in Fort Pillow massacre.
- **Sources:**
  - Library Catalog: Books.
  - History Database: Scholarly articles.
  - Historical Newspaper Database: Articles from 1864.
  - Web: Primary documents.

Research Log

- **Research Log**
- Record information for every source.
- Gather complete publication information from the start.
- **A "research log"** is a record or journal where a researcher documents the process and progress of their research. It is a vital tool for tracking and managing research work in a systematic and scientific manner.

SEARCH STRATEGY

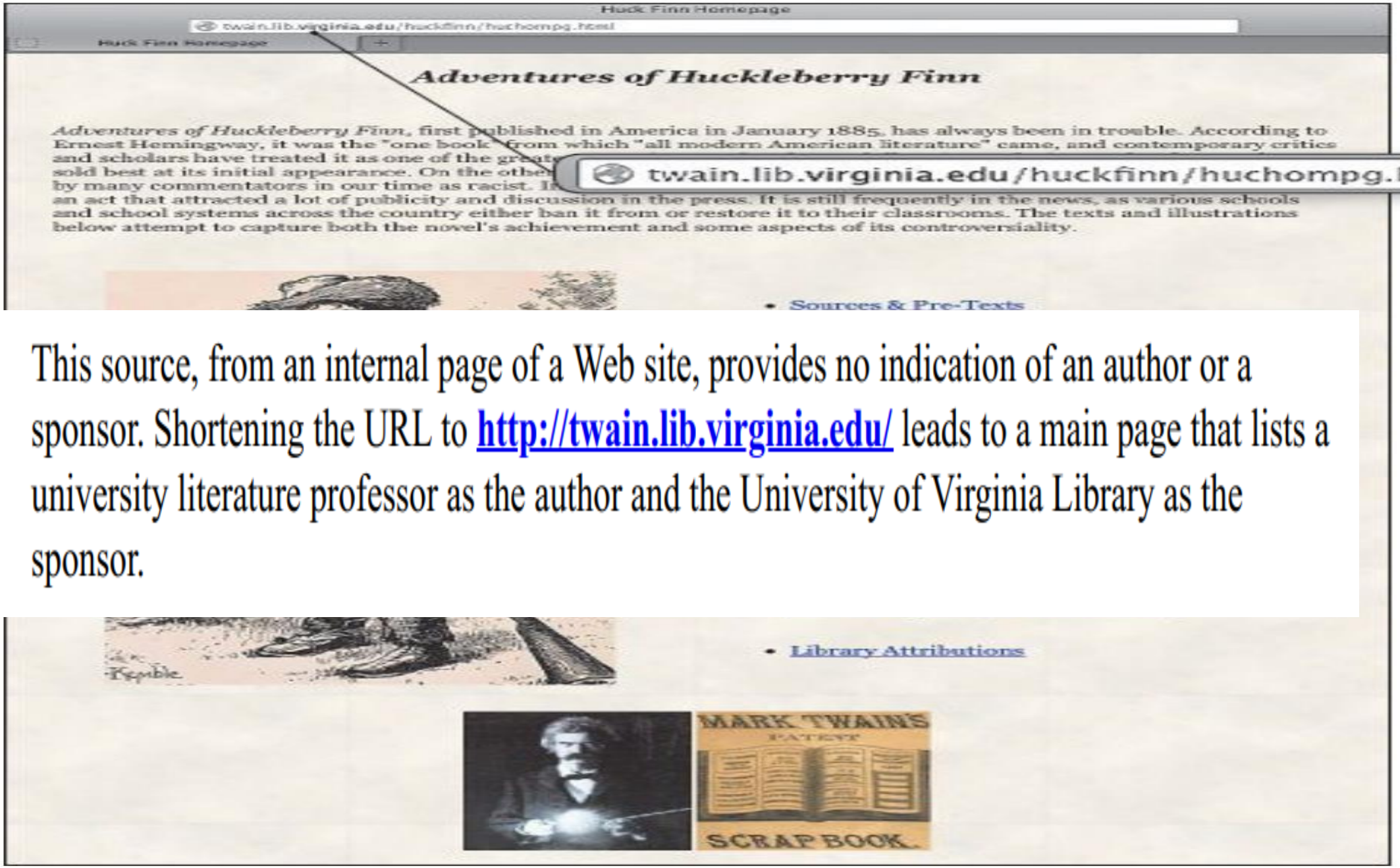
Using the library

- **Library Resources**
- Databases link to scholarly articles, studies, and reports.
- Librarians can help refine keywords and narrow your search.
- Use the online catalog for books.

Using the Web

- **Refine Web Searches**
- Use specific keywords for quality results.
- Refine searches by date or domain (e.g., site:.gov).
- Look for “about” links to learn about authors and sponsors.
- Check URLs for clues about sponsorship and reliability.

Check URLs for clues about sponsorship



This source, from an internal page of a Web site, provides no indication of an author or a sponsor. Shortening the URL to **http://twain.lib.virginia.edu/** leads to a main page that lists a university literature professor as the author and the University of Virginia Library as the sponsor.

Using bibliographies and citations

- **Shortcut to Reliable Sources**
- Scholarly books and articles list cited works.
- Popular sources may also refer to relevant sources.
- Follow citation trails to find influential authors and studies.

4 Practical Tips

Using Boolean Operators

- **AND**
- **Example:** "student-centered learning" AND "educational technology"
  - **Purpose:** Finds sources that include both terms, narrowing the search to more specific results.
- **OR**
- **Example:** "student-centered learning" OR "learner-centered education"
  - **Purpose:** Finds sources that include either term, broadening the search to include related concepts.
- **NOT**
- **Example:** "student-centered learning" NOT "traditional teaching"
  - **Purpose:** Excludes sources that include the second term, focusing the search on more relevant results.

Nesting Search Terms

- **Example:** ("student-centered learning" OR "learner-centered education") AND ("educational technology" OR "digital tools")
- **Purpose:** Combines multiple related terms to broaden the search within specific related topics. Nesting ensures the search engine processes the terms in the correct order.

Truncation

- **Example:** "educat*"
- **Purpose:** Finds variations of a root word, such as "education," "educational," "educator," etc. This broadens the search to include different forms of the word.

Field Tags

- **Example:**
- **Title:** title:"student-centered learning"
- **Author:** author:"John Doe"
- **Abstract:** abstract:"educational technology"
  - **Purpose:** Searches specific fields within a database, such as title, author, or abstract, to refine the search to the most relevant sections of the document.

Combining Techniques in a Preliminary Search

- **Example:**
  - Search Query: title:("student-centered learning" OR "learner-centered education") AND abstract:("educational technology" OR "digital tools") AND date:[2015 TO 2023]
  - **Explanation:** This search looks for articles where the title includes either "student-centered learning" or "learner-centered education," and the abstract includes either "educational technology" or "digital tools," published between 2015 and 2023.

- https://my.troy.edu/libraries/

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Full text not online? Interlibrary Loan can get it. Learn about ILL

Find articles, books, and more using Discovery

All | Articles | All Books | eBooks | Audio Visual | Dissertations | Journals

Keyword | Search

Available in Library Collection

Scholarly (Peer-Reviewed)

Resources

- Databases by subject and alphabetically
- Databases by name

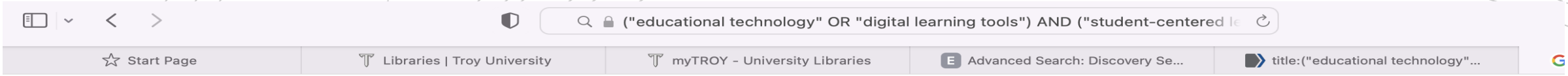
Services

- Interlibrary Loan (ILL)
  (How do I use this?)

TrojanBot

Practice

1. Find sources discussing both educational technology and student-centered learning, using OR to include related terms.
=> Search Query: ("educational technology" OR "digital learning tools") AND ("student-centered learning" OR "learner-centered education")
2. Find research paper with titles containing "educational technology" or "digital learning" and limits the results to sources published between 2018 and 2023.
=>Search Query: title:("educational technology" OR "digital learning") AND date:[2018 TO 2023]
3. Finds sources discussing educational technology and student-centered learning, excluding those related to corporate training.
=> Search Query: "educational technology" AND "student-centered learning" NOT "corporate training"



Google ("educational technology" OR "digital learning tools") AND ("student-center

All Images Videos News Shopping Books Flights More Tools

Scholarly articles for **("educational technology" OR "digital learning tools") AND ("student-centered learning" OR "learner-centered education")**

Strategies and tools used for learner-centered … - An - Cited by 74

How are we doing with **student-centered learning** … - Shehata - Cited by 8

… approach to develop an **educational technology** … - Abdelmalak - Cited by 56

Digital Commons@Hamline
https://digitalcommons.hamline.edu › viewcontent

Using Digital Tools to Instruct Student Centered Learning ...

by H Geinnotta · 2022 · Cited by 1 — "About two-thirds of teachers (65%) say they use **digital learning tools** to teach every day" (Gallup, 2019, p. ... **Educational Technology** Research &…

ResearchGate
https://www.researchgate.net › publication › 37402374...

(PDF) How Technology Supports Student-centered Learning

Sep 19, 2023 — PDF | This paper reports the research related to how technology supports **student-centered learning** which enables students to take ownership ...

SlideShare
https://www.slideshare.net › Education

educational technology 2 lesson 12 information ...

Mar 17, 2016 — **educational technology** 2 lesson 12 information technology in support of **student-centered learning** - Download as a PDF or view online for ...

LinkedIn
https://www.linkedin.com › ... › Educational Technology

UNESCO
https://www.unesco.org › weeks › digital-learning

Digital Learning Week

Digital Learning Week is UNESCO's annual flagship event on **digital learning** and the transformation of education. It was launched in **2023**, building on the ...

Missing: ~~title date~~

People also ask

What is the impact factor of educational technology?

How useful is technology for teaching and learning?

What is the nature of education technology?

What is the concept and scope of educational technology?

Feedback

SpringerOpen
https://educationaltechnologyjournal.springeropen.com

International Journal of Educational Technology in Higher ...

Date first published: 27 October **2023**. Micro-credentials and the Next New ... **digital learning** fields in higher education; contribute to the advancement ...

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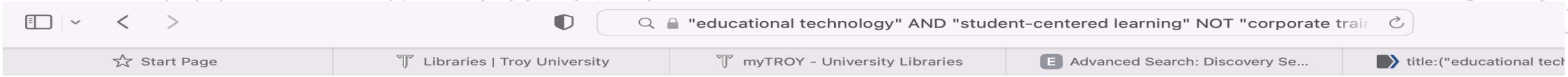
google.com.vn
https://books.google.com.vn › books

Proceedings of the 2022 3rd International Conference on ...



Google "educational technology" AND "student-centered learning" NOT "corporate

All Images Videos News Shopping Books Flights More Tools

Pdf Example Essay

ResearchGate
https://www.researchgate.net › publication › 29833242...

(PDF) The Impact Of Changing Technology: The Case Of E ...

Figure 1 below. Figure 1. The shift from teacher-centered to **student-centered learning** ... The Corporate Learning Factbook 2008: The U.S. **Corporate Training** ...

Clute Journals
https://clutejournals.com › article › download

The Impact Of Changing Technology: The Case Of E- ...

by N Yusuf · 2013 · Cited by 159 — which is promoting this shift from teacher-centered to **student-centered learning**, as shown in Figure 1. ... (2004) **Educational Technology** and E-...

getmagicbox.com
https://www.getmagicbox.com › Blogs

Why EdTech Matters to Everyone? - MagicBox

Apr 11, 2018 — ... **educational technology** is a way to replace teachers in the future. ... **Student Centered Learning** · Learning Experience Platform · Assessments ...

People also ask

What is student-centered learning with technology?

SOURCE EVALUATION

Why?

- **Purpose:**
  - Determine necessary sources and their functions.
- **Process:**
  - Evaluating is continuous and reflective.
  - Not linear: Plan, Search, Read, Re-evaluate.

Evaluation as a Continuous Process

- **Plan:**
  - What kinds of sources do I need?
- **Search:**
  - How can I find the most reliable sources?
- **Read:**
  - What positions do these sources take? Their biases?
- **Write:**
  - How do chosen sources support my point?

Think About Source Contribution

- **Functions of Sources:**
  - Provide background or context.
  - Explain terms or concepts.
  - Provide evidence.
  - Lend authority.
  - Identify gaps or contradictions.
  - Offer counterarguments.

Selecting Worthy Sources

- **Search Results:**
  - Scan databases, catalogs, and web search engines.
  - Look for relevance, currency, and reliability.

Previewing Articles, Websites, and Books

- **Articles:**
  - Check publication type, abstract, and summaries.
- **Websites:**
  - Verify sponsor, purpose, and date.
- **Books:**
  - Use table of contents, preface, and index.

Is It Scholarly?

- **Indicators:**
  - Formal language and presentation.
  - Academic authors.
  - Footnotes and bibliography.
  - Original research and analysis.
  - Description of research methods.

Read with an Open Mind and Critical Eye

- **Types of Sources:**
  - Primary vs. Secondary.
- **Bias Awareness:**
  - Identify potential biases.
  - Assess author's arguments.

Checking for signs of bias

- Does the author or publisher endorse political or religious views that could affect objectivity?
- Is the author or publisher associated with a special-interest group, such as PETA or the National Rifle Association, that might emphasize one side of an issue?
- Are alternative views presented and addressed? How fairly does the author treat opposing views?
- Does the author's language show signs of bias?

Assessing an argument

- What is the author's central claim or thesis?
- How does the author support this claim — with relevant and sufficient evidence or with just a few anecdotes or emotional examples?
- Are statistics consistent with those you encounter in other sources?
- Does the author explain where the statistics come from?
- Are any of the author's assumptions questionable?
- Does the author consider opposing arguments and refute them persuasively? (See A4-f.)
- Does the author use flawed logic? (See A3-a.)

Evaluate Web Sources Carefully

- **Authorship:**
  - Check for knowledgeable and credible authors.
- **Sponsorship:**
  - Identify the site sponsor.
- **Purpose and Audience:**
  - Determine site's purpose and intended audience.
- **Currency:**
  - Check publication and update dates.

How to Read Like a Researcher

- **Carefully:**
  - Understand main ideas and author's point of view.
- **Skeptically:**
  - Examine assumptions, evidence, and conclusions.
- **Evaluatively:**
  - Judge the source's usefulness for your research.
- **Responsibly:**
  - Read entire sources to understand arguments.

Evaluating All Sources

- **Signs of Bias:**
  - Assess political, religious views, and special interests.
- **Assessing Arguments:**
  - Evaluate central claims, supporting evidence, and logic.
- **Checklist for Web Sources:**
  - Confirm author, sponsor, purpose, audience, and currency.

ANALYSIS OF A SAMPLE ASSIGNMENT

- **Your final assignment:**

You are required to write a research paper of 1,500 words on a topic of your choice. Use a minimum of seven sources, some of which are books and some of which are periodicals (journals/magazines). At least two of your sources must come from articles (or books) published during the past three years. Write the research paper in the form required (APA).

⇒ a **literature review** paper

⇒ a **secondary research** paper

Criterion	Primary Research	Secondary Research
Definition	Collecting original data directly from the primary source	Using data that has already been collected and published by others
Data Source	Observations, interviews, surveys, experiments, field research	Books, newspapers, scholarly articles, reports, databases
Data Collection	Directly from the research subjects	Indirectly through published materials
Time and Cost	Usually more time-consuming and costly	Usually faster and less costly
Novelty of Data	New and original data	Existing data that has been previously published
Control Over Research Process	Full control over the data collection and analysis process	No control over the original data collection and analysis process
Purpose of Use	To gather specific data for the current research question or project	To review, synthesize, and analyze existing data to support new research

Examples	- Interviewing patients to gather opinions about healthcare services	- Using published health reports to analyze community health trends
	- Observing consumer behavior at a supermarket	- Reading and analyzing published studies on consumer behavior
	- Conducting an online survey on students' internet usage habits	- Using statistical data from educational organizations on students' internet usage
	- Performing lab experiments to test the efficacy of a new drug	- Analyzing published scientific articles on the efficacy of that drug

ANALYSIS OF THE SAMPLE

- SEE THE SAMPLE IN THE ZALO GROUP
- READ THE SAMPLE AND ANSWER QUESTIONS IN THE HANDOUT

Research Log: The Role of Technology in the Shift from Teacher-Delivered to Student-Centered Learning by April Wang

Research Questions:

1. In what ways is student-centered learning effective?
2. Can educational technology help students drive their own learning?
3. How can public schools effectively combine teacher talent and educational technology?

HOMEWORK

- **Prepare a report of preliminary search of your topic (10%)**

REPORT OF PRELIMINARY SEARCH

A. Topic:

B. Research Question:

I. What do you know about the topic? [summary of your current knowledge about the topic]

II. First Layer Source

1. **Source Name**
   - Article Title:
   - Date of Publication:
   - Sponsor:
   - URL/DOI:
2. **Source Name**
   - Article Title:
   - Date of Publication:
   - Sponsor:
   - URL/DOI:

III. Second Layer Source

3. **Source Name**
   - Article Title:
   - Date of Publication:
   - Sponsor:
   - URL/DOI:
4. **Source Name**
   - Article Title:
   - Date of Publication:
   - Sponsor:
   - URL/DOI:
5. **Source Name**
   - Article Title:
   - Date of Publication:
   - Sponsor:
   - URL/DOI:

IV. Top Tier Source/Deepest Sources

6. **Source Name**
   - Article Title:
   - Date of Publication:
   - Sponsor:
   - URL/DOI:
7. **Source Name**
   - Article Title:
   - Date of Publication:
   - Sponsor:
   - URL/DOI:

V. What have you learned from the sources? [Summarize the key findings and insights from the sources]

SAMPLE REPORT OF PRELIMINARY SEARCH

A. Topic:

The Role of Technology in the Shift from Teacher-Delivered to Student-Centered Learning

B. Research Question:

How does technology facilitate the transition from traditional teacher-delivered instruction to student-centered learning environments?

I. What do you know about the topic?

Technology is increasingly being integrated into education, changing the dynamics of the classroom. Student-centered learning emphasizes active learning, critical thinking, and personalized instruction, which technology can support through various tools and platforms.

II. First Layer Source

1. **New York Times**
   - Article Title: "Transforming Education: The Impact of Digital Tools on Student Learning"
   - Date of Publication: May 8, 2024
   - Sponsor: New York Times Education Section
   - URL/DOI: http://nytimes.com/education-digital-tools

III. Second Layer Source

1. **Education Week**
   - Article Title: "From Chalkboards to Tablets: How Technology is Reshaping Education"
   - Date of Publication: April 15, 2024
   - Sponsor: EdTech Innovators
   - URL/DOI: http://educationweek.com/chalkboards-to-tablets

IV. Top Tier Source/Deepest Sources

1. **Journal of Educational Technology**
   - Article Title: "E-Learning and Student-Centered Pedagogy: A Comprehensive Review"
   - Date of Publication: March 22, 2024
   - Sponsor: Educational Technology Research Association
   - URL/DOI: http://jetjournal.com/e-learning-review

V. What have you learned from the sources?

From these sources, it is evident that technology plays a crucial role in facilitating student-centered learning. Digital tools such as learning management systems, interactive apps, and online resources enable personalized learning experiences, foster collaboration, and enhance student engagement. The transition to student-centered learning is supported by empirical research demonstrating improved outcomes in critical thinking, problem-solving, and independent learning skills.