

Literature Reviews integrating AI tools

Dec. 2024



Leonel Morgado

Full Professor

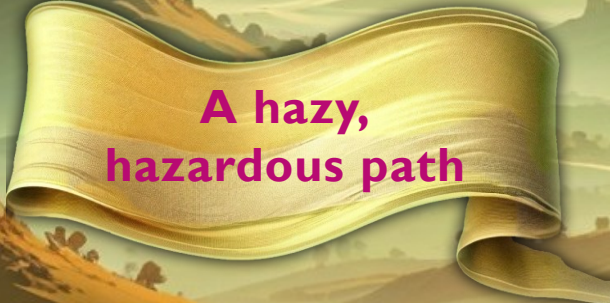
Universidade Aberta



Translation of the original Portuguese text at:
<http://hdl.handle.net/10400.2/17001>



Exploratory Review: discovering the terrain and your purpose



A hazy,
hazardous path

The image shows a winding path through a hazy, mountainous landscape. The path is white and leads through a valley. The mountains are layered and hazy, with a sun or moon in the sky. The overall tone is golden and hazy.



Lots of paths and
options

The image shows a landscape with multiple paths leading through a valley. The paths are white and lead through a valley. The mountains are layered and hazy, with a sun or moon in the sky. The overall tone is golden and hazy.



Realize objectives
and priorities

The image shows a landscape with a winding path leading through a valley. The path is white and leads through a valley. The mountains are layered and hazy, with a sun or moon in the sky. The overall tone is golden and hazy.

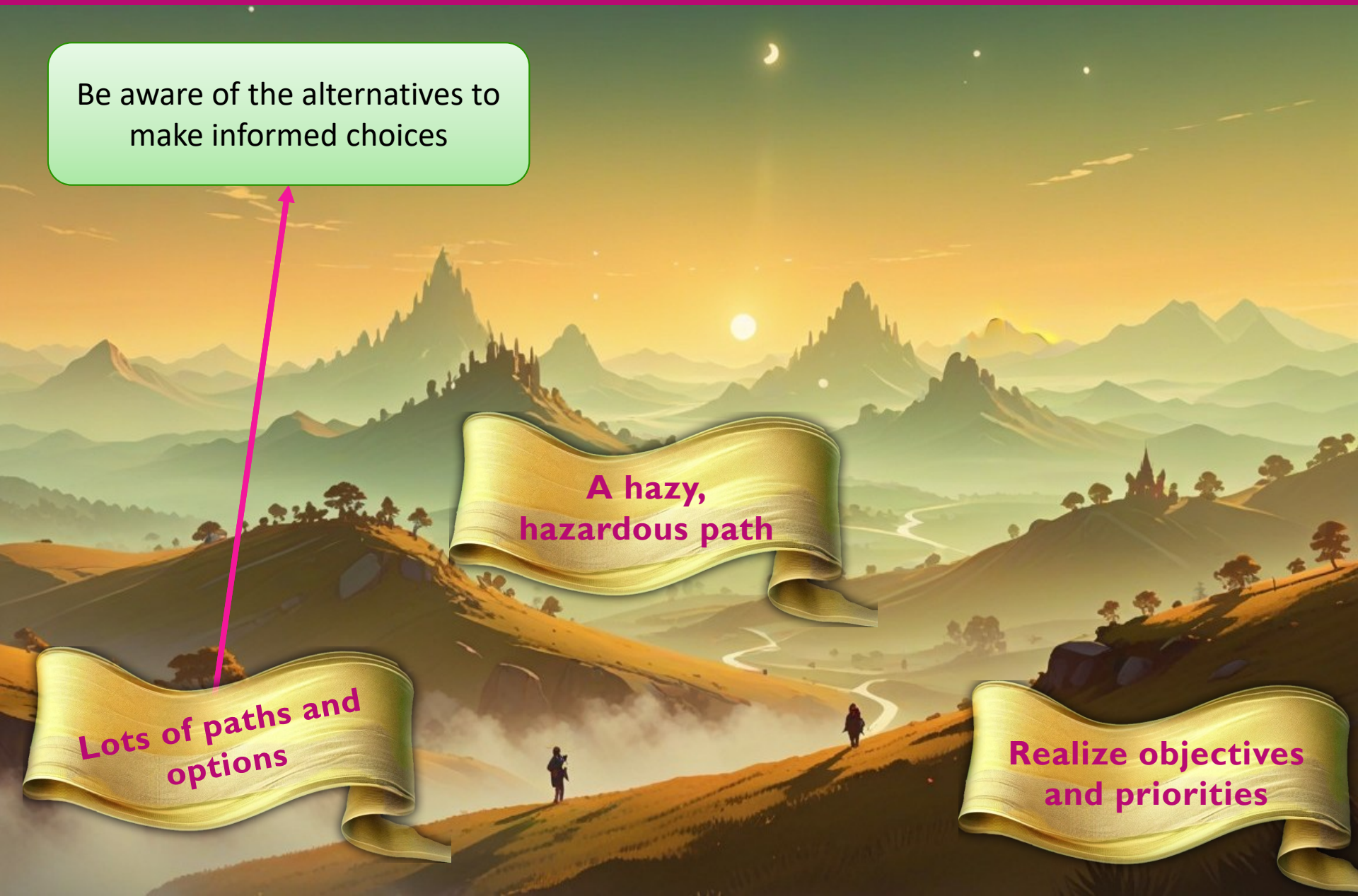
Exploratory Review: discovering the terrain and your purpose

Be aware of the alternatives to
make informed choices


A hazy,
hazardous path

Lots of paths and
options

Realize objectives
and priorities



Exploratory Review: discovering the terrain and your purpose



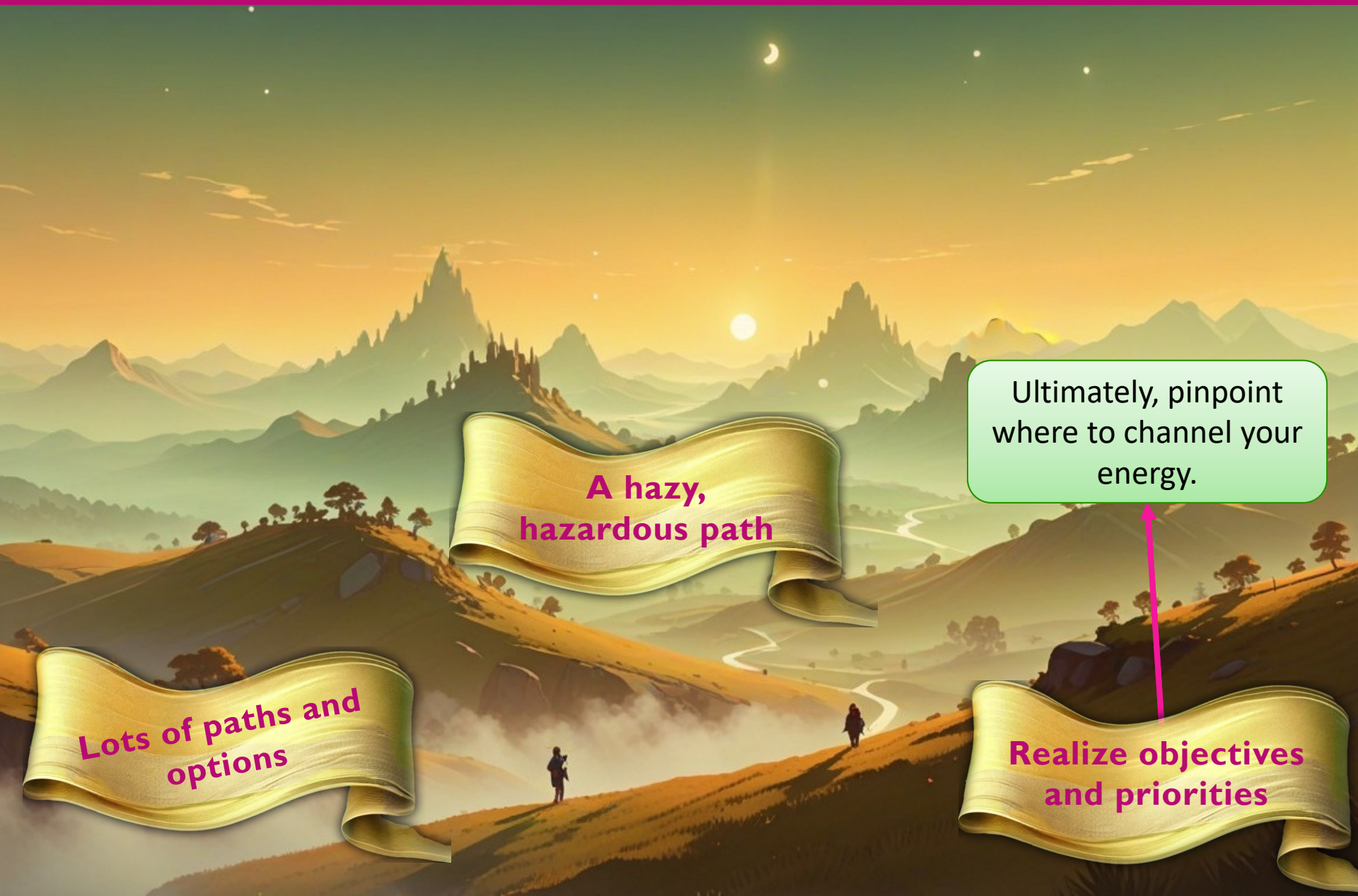
Become aware of potential hardships.

A hazy, hazardous path

Lots of paths and options

Realize objectives and priorities

Exploratory Review: discovering the terrain and your purpose



**A hazy,
hazardous path**

**Lots of paths and
options**

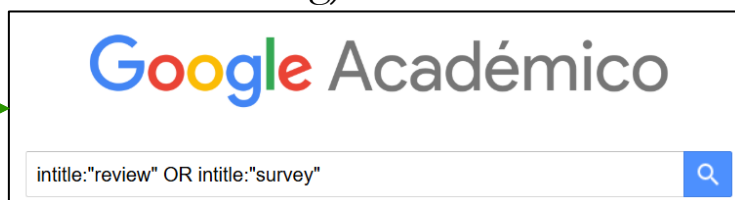
Ultimately, pinpoint
where to channel your
energy.

**Realize objectives
and priorities**

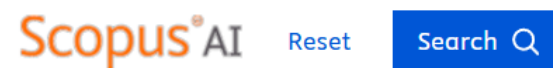
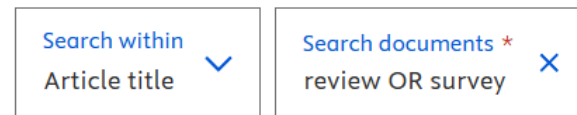
Terminology and search locations

review
survey

Panoramic articles: analysis of area, theme, or problem, yielding a general and current overview (at the time of writing).



<https://scholar.google.com/>



<https://www.scopus.com/>

predatory

Journals and conferences unconcerned with the quality of the work, only aiming to obtain publication fees from authors and institutions.

Morgado, Leonel (2018). Recomendações na escolha de revistas e conferências para iniciar revisões bibliográficas e publicação: bom senso e necessidade de fugir a editoras predadoras - <http://hdl.handle.net/10400.2/7333>

indexadas

Journals and conferences listed by entities that require quality and rigor of their practices. However, standards vary widely, and some indexing entities are fraudulent.



How to access the papers?

Often, scholar.google.com provides direct links to the papers, or even to the PDFs.



For those not available in open, free access, it is necessary to use online libraries:



This is done by entering institutional credentials (student login) directly on the publishers' and/or library websites, or by accessing via VPN:



<https://portal.uab.pt/si/ligacao-vpn/>
<https://eduvpn.utad.pt/>



What if they are not available that way?

Search for their exact title (“within quotes”) on Google; many are available somewhere:



Others can be found in repositories that aren't fully indexed by Google:



<http://www.researchgate.net/>

academia.edu

<https://www.academia.edu/>

Or using the Robin Hood of free and open access to science:



sci-hub

to open science

<https://sci-hub-links.com/where-is-sci-hub-now/>

Or asking colleagues from other institutions for copies, in social media groups, such as (and there are many others, on various networks):

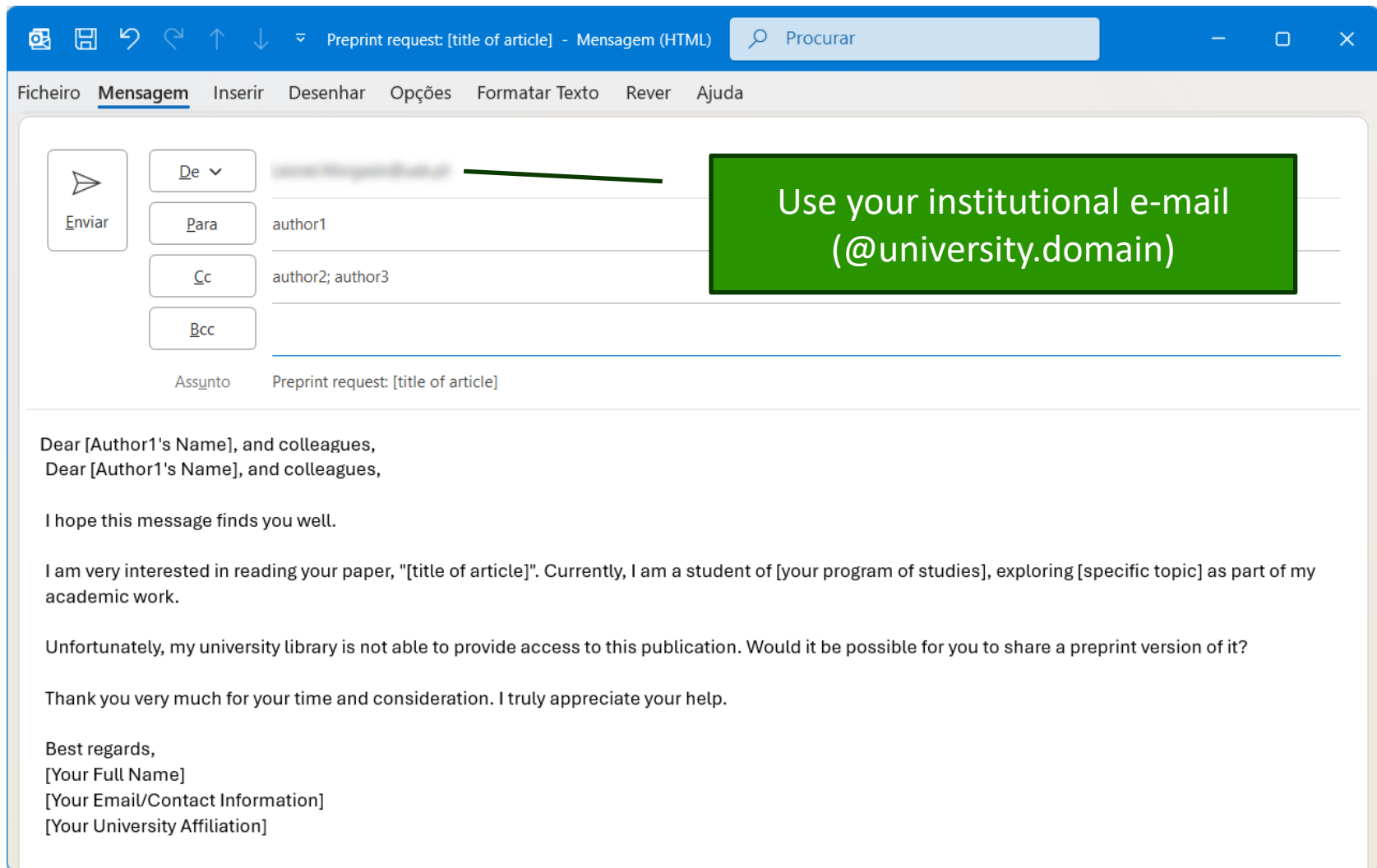


<https://www.facebook.com/groups/150621641784982/>

j'ai besoin d'un article scientifique

What if none of these methods work?

You may contact the authors to request a preprint. Many authors will be happy to provide one.



The screenshot shows an email client window with the following details:

- Subject:** Preprint request: [title of article] - Mensagem (HTML)
- Menu:** Ficheiro, Mensagem, Inserir, Desenhar, Opções, Formatar Texto, Rever, Ajuda
- Send button:** Enviar
- From:** [Redacted]
- To:** author1
- Cc:** author2; author3
- Bcc:** [Empty]
- Assunto:** Preprint request: [title of article]

Callout Box: Use your institutional e-mail (@university.domain)

Email Body:

Dear [Author1's Name], and colleagues,
Dear [Author1's Name], and colleagues,

I hope this message finds you well.

I am very interested in reading your paper, "[title of article]". Currently, I am a student of [your program of studies], exploring [specific topic] as part of my academic work.

Unfortunately, my university library is not able to provide access to this publication. Would it be possible for you to share a preprint version of it?

Thank you very much for your time and consideration. I truly appreciate your help.

Best regards,
[Your Full Name]
[Your Email/Contact Information]
[Your University Affiliation]

The idea first unfolds (exploratory review)...

**We know only scant
search alternatives...**

**We barely know what
the area encompasses...**



... then it narrows down (focused review).



**We found out where to
focus our efforts...**



**We can now disregard
some aspects.**

A journey towards a focused topic

Defining the scope

Concept

Context

Perspective

Finding the evidence

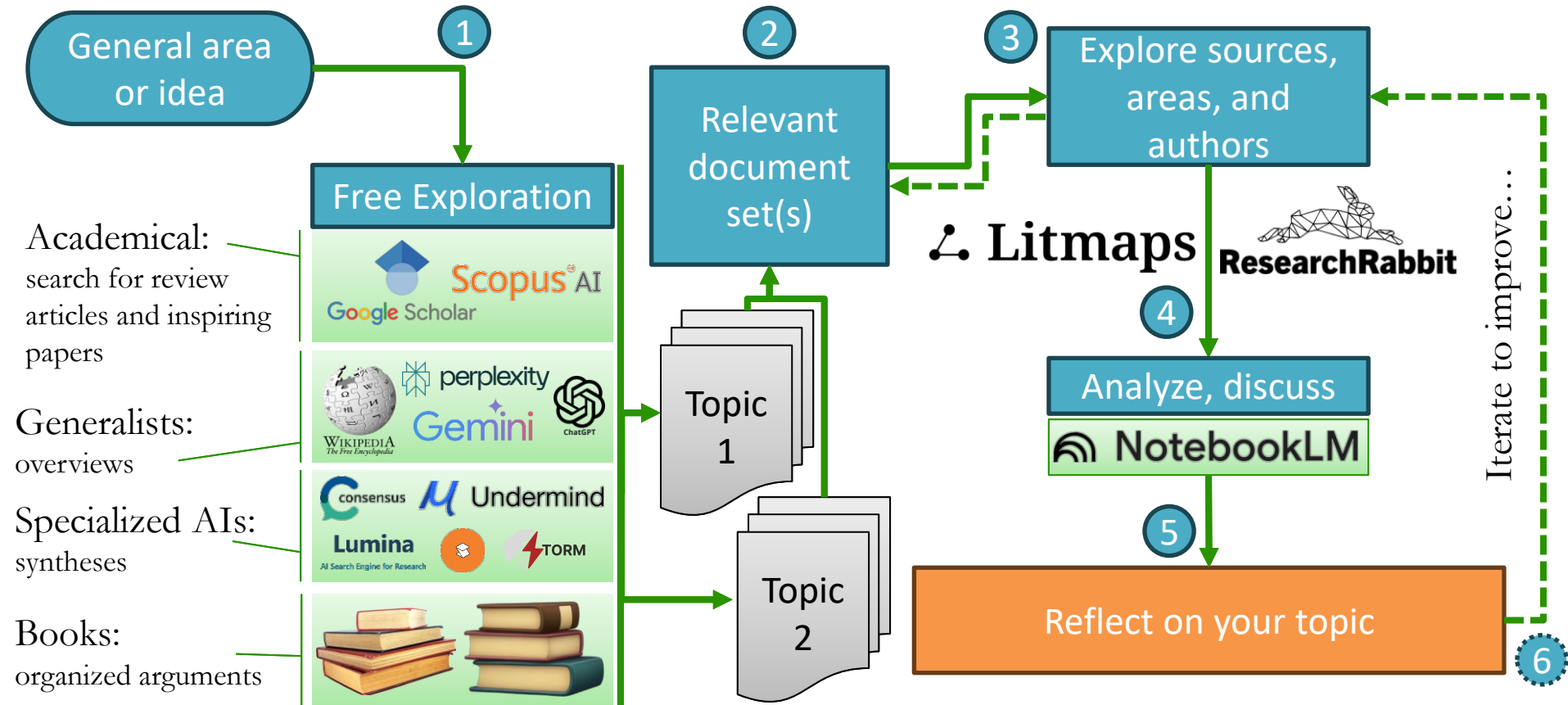
“State of the art”: current knowledge and its gaps

If it needs updating...

Systematic review of the focused topic

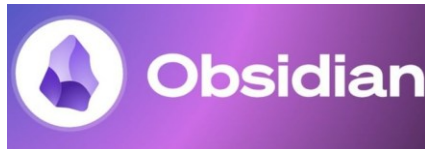


First stage: defining the scope



zotero

Organized references



Organized notes

Concept

Context

Perspective

Example 1a – Searches in Google Scholar

The screenshot shows a Google Scholar search for "(intitle:'review' | intitle:'survey') 'immersive learning'". The search results list several articles, with annotations pointing to specific parts of the search and results:

- Search Bar:** The search query is "(intitle:'review' | intitle:'survey') 'immersive learning'". Green arrows point to "intitle:'review'" and "intitle:'survey'", with a callout box stating "Use 'intitle:' to enforce terms in titles".
- Results:** The first result is "Exploring immersive learning experiences: A survey" by MA Kuhail, A ElSary, S Farooq, A Alghamdi (2022). A red arrow points to the year "2022" with a callout box: "Too many? Filter by dates." Another red arrow points to the word "survey" with a callout box: "Sense of content? Excerpts!".
- Second Result:** "Finding the gaps about uses of immersive learning environments: a survey of surveys" by D Beck, L Morgado, P O'Shea (2020). A red arrow points to the year "2020" with a callout box: "Too many? Filter by dates." Another red arrow points to the word "survey" with a callout box: "Sense of content? Excerpts!".
- Third Result:** "Immersive learning frameworks: A systematic literature review" by FA Fernandes, CSC Rodrigues (2023). A red arrow points to the year "2023" with a callout box: "Too many? Filter by dates." Another red arrow points to the word "review" with a callout box: "Sense of content? Excerpts!".
- Fourth Result:** "Investigating immersive learning technology intervention in architecture education: a systematic literature review" by A Ummihusna, M Zairul (2022). A red arrow points to the year "2022" with a callout box: "Too many? Filter by dates." Another red arrow points to the word "review" with a callout box: "Sense of content? Excerpts!".
- Fifth Result:** "Exploring Immersive Learning Experiences: A Survey" by MA Kuhail, A ElSary, S Farooq, A Alghamdi (2022). A red arrow points to the year "2022" with a callout box: "Too many? Filter by dates." Another red arrow points to the word "survey" with a callout box: "Sense of content? Excerpts!".
- Sixth Result:** "Immersive Learning: A Systematic Literature Review on Transforming Engineering Education Through Virtual Reality" by AR Muzata, G Singh, MS Stepanov, I Musonda (2024). A red arrow points to the year "2024" with a callout box: "Too many? Filter by dates." Another red arrow points to the word "review" with a callout box: "Sense of content? Excerpts!".
- Seventh Result:** "Learning outcomes of immersive technologies in health care student education: systematic review of the literature" by GV Ryan, S Callaghan, A Rafferty, MF Higgins (2024). A red arrow points to the year "2024" with a callout box: "Too many? Filter by dates." Another red arrow points to the word "review" with a callout box: "Sense of content? Excerpts!".

Use "intitle:" to enforce terms in titles

Indicators of the type of work: *review, survey*
Or keywords in the area...

Too many? Filter by dates.

Sense of content? Excerpts!

Field, type? Publication venue!

Field of the journal or conference...

Has maximum coverage but includes scientific publications with low credibility.

Example 1b – Searches in Scopus

Many search options (not just "either titles or everything" as in Google Scholar)

Indicators of the type of work: *review*, *survey*

Or keywords in the area...

More aware data filtering.

Direct access to the abstracts

Filter by actual area and other criteria.

Lower coverage: only indexed sources... but with higher credibility.

Welcome to a more intuitive and efficient search experience. [See what is new](#)

Search within: Article title, Abstract, Keywords | Search documents: "Immersion Learning"

Save search | Set search alert | Add search field

Documents | Preprints | Patents | Secondary documents | Research data

1,826 documents found

Refine search: Search within results

Filters: Year (Range/Individual), Author name, Subject area

Document type: Article (7), Conference paper (3), Book (1), Review (1)

Publication stage: Keyword, Affiliation, Funding sponsor, Country/territory, Source type (Journal: 8, Conference proceeding: 2, Book: 1, Book series: 1), Language, Open access

Document title	Authors
1. Impact of the use of Virtual Reality glasses on student's learning: an empirical study Impacto del uso de gafas de Realidad Virtual en el aprendizaje de los alumnos: un estudio empírico	Díaz García, V., Carrero Márquez, O., García Chamizo, F.
2. Transforming Education with Photogrammetry: Creating Realistic 3D Objects for Augmented Reality Applications	Ravichandran, K., Mohan, V.
3. Breaking the Bottleneck: Generative AI as the Solution for XR Content Creation in Education	Linares-Pellicer, J., Izquierdo-Domenech, J., Ferri-Molla, I., Aliaga-Torro, C.

Example 2 – Generic AI Query

The image shows a screenshot of the Perplexity AI search interface. The search query is "What is the state of the art in immersive learning?". The results are organized into sections: "Fontes" (Sources), "Perplexity" (Summary), "Advanced Technologies", "Innovative Learning Spaces", "Industry Involvement", and "Applications and Benefits".

Annotations with arrows point to various parts of the interface:

- Freeform prompting** (green box) points to the search query.
- Critically assess which sources are being used. There will usually be a mix of generalist & academic sources... or omitted.** (orange box) points to the "Fontes" section.
- See what different themes emerge. Have we considered them all? What terminology emerges?** (blue box) points to the "Advanced Technologies" section.
- Use co-intelligence: discuss the results, debate alternatives, details, criteria...** (yellow box) points to the "Advanced Technologies" section.
- Being generalists, they will tend to go to common places or to more consensual positions based on the training they received.** (purple box) points to the "Advanced Technologies" section.
- They will tend to mix primary sources with secondary sources (generalist texts) and to hallucinate or speculate.** (purple box) points to the "Advanced Technologies" section.

Fontes

- State-of-the-Art Immersive Technology Suite - Trafford College (trafford.tscg.ac)
- Immersive Learning: The Next Frontier of Higher Education (campustechnology)
- What is Immersive Learning? - Thinkific (thinkific)
- Mostrar todos

Perplexity

Immersive learning is at the forefront of educational innovation, leveraging cutting-edge technologies to create engaging, interactive, and experiential learning environments. The state of the art in immersive learning encompasses several key aspects:

Advanced Technologies

Immersive learning utilizes state-of-the-art technologies such as:

- Virtual Reality (VR): Fully immersive digital experiences that transport learners to simulated environments 3.
- Augmented Reality (AR): Overlays digital information onto the real world, enhancing learning experiences 3.
- Mixed Reality (MR): Combines elements of both VR and AR for a hybrid experience 3.
- Extended Reality (XR): An umbrella term encompassing VR, AR, and MR technologies 4.

These technologies are being integrated into classrooms and training programs to create more engaging and effective learning experiences 2 3.

Innovative Learning Spaces

Educational institutions are investing in advanced facilities to support immersive learning:

- Trafford and Stockport College's 'Innovate Suite': A state-of-the-art CAVE (Cave Automatic Virtual Environment) that immerses students in interactive 3D environments 1.
- Meta's initiative: Donating equipment and resources to 15 U.S. universities to make classrooms more immersive 2.

Industry Involvement

Major tech companies are actively contributing to the advancement of immersive learning:

- Apple: Developing AR tools like ARKit and Swift Playgrounds for interactive learning experiences 2.
- Google: Integrating generative AI with databases to enhance user experience in education 2.
- IBM: Utilizing AI and machine learning to personalize learning experiences 2.

Applications and Benefits

Immersive learning is being applied across various disciplines and offers numerous advantages:

- Enhanced engagement: Students feel like they're at the center of the action, activating multiple senses and increasing understanding 3.
- Hands-on education: Provides tactile learners with practical, experiential learning opportunities 3.
- Distraction-free environment: VR headsets have shown to increase test scores by 5-10% by minimizing external distractions 3.

Perguntar acompanhamento

Example 3 – Query to Specialized AIs

Undermind

Home Search History Pricing Logout

Research topic

Effectiveness of immersive learning methodologies in ensuring skill transfer to job tasks for manufacturing workers.

Share this report Save to favorites: How was this search? Excellent Good Ok Bad

Discuss the results with an expert

Immersive learning methodologies (ILMs), such as virtual and augmented reality, are effective in transferring skills to on-the-job manufacturing tasks, particularly for complex and high-risk scenarios, by reducing errors and improving task performance compared to traditional methods ([1], [6], [9], [11], [19]).

You can find the full report and references below, but I can answer your questions about them directly. What do you want to know?

Create a table comparing the top results Identify important open questions Write a short review article Describe the timeline of research Explain key background information

I want to know more about...

Immersive learning methodologies (ILMs), such as virtual and augmented reality, are effective in transferring skills to on-the-job manufacturing tasks, particularly for complex and high-risk scenarios, by reducing errors and improving task performance compared to traditional methods ([1], [6], [9], [11], [19]).

Key Findings: 1. Overall Effectiveness of ILMs

- Skill Transfer and Error Reduction:**
 - ILMs significantly reduce training errors ([1], [12], [11]) and improve task performance ([6], [8]).
 - VR-based training enhances skill application for complex manufacturing tasks over time ([11], [19]), though initial performance may lag compared to physical training.
 - Tailored immersive environments ensure higher relevance and better outcomes ([3], [7], [19]).
- Task Complexity and Engagement:**
 - ILMs are most effective for complex, detail-oriented tasks like welding ([20], [27]), CNC machining ([4]), or hydraulic maintenance ([9]).
 - For simpler, repetitive tasks, immersive methods show diminishing returns in learning outcomes ([2], [19]).
- Retention:** VR-trained participants retain skills longer compared to traditional or video-based approaches ([11], [17]).

2. Factors Influencing Effectiveness

- Fidelity and Realism:**
 - Higher fidelity systems (e.g., with haptics) increase engagement but do not always lead to better outcomes ([2], [23], [28]). Simplified systems can perform comparably in skill transfer ([2], [17]).
- Feedback Modalities:**
 - Immediate and multimodal feedback (e.g., haptics and visual cues) improves training effectiveness, especially for procedural and psychomotor skills ([14], [28], [20]).
- Training Design:**
 - Customization to specific manufacturing tasks enhances ILM success ([3], [7], [21]).
 - Open-ended, adaptive systems addressing multiple solution paths are underexplored but could improve skill transfer for dynamic manufacturing conditions ([24]).

Categories of papers

Timeline and citation network

Discovery progress: ~67.0% complete (~24-46 papers found)

Each AI is different in what it does.

State of the art on immersive learning for manufacturing on effective application of skills to the workplace

See BrainSTORMing Process

The references are real academic articles.

They open up a wide diversity of possible perspectives.

The criteria they used may not be the ones you assume.

They may not detect inconsistent uses of terms between the sources.

STORM

Table of Contents

summary

Historical Context

Technologies Used in Immersive Learning

- Virtual Reality (VR)
- Augmented Reality (AR)
- Mixed Reality (MR)
- Simulation Training
- Gamification
- Interactive Elements

Pedagogical Approaches

- Understanding Immersive Learning
- Key Features of Immersive Learning

summary

Immersive learning for manufacturing represents a transformative approach to workforce training, utilizing advanced technologies such as virtual reality (VR), augmented reality (AR), and mixed reality (MR) to enhance the application of skills in real-world scenarios. As the manufacturing sector grapples with a significant skills gap—projected to contribute to a shortage of 2.1 million jobs by 2030—immersive learning has emerged as a critical solution to prepare a competent workforce equipped to meet modern challenges.[1][2] By fostering engaging and interactive environments, these technologies not only facilitate hands-on practice but also bridge the divide between theoretical knowledge and practical application, significantly improving skill retention among trainees. **The notable advantages of immersive learning in manufacturing include the ability to simulate realistic scenarios, improve safety protocols, and promote a culture of continuous improvement.** This method enables employees to practice skills in a safe setting, reducing the risks associated with traditional training methods.[3][4] Furthermore, immersive learning strategies often incorporate elements such as storytelling and gamification, which enhance learner engagement and motivation, leading to more effective training outcomes.[5][6] **Despite its benefits, the implementation of immersive learning technologies is not**

concerns also present significant challenges as these technologies collect sensitive information during training sessions.[10] **Overall, immersive learning stands as a promising avenue for**

Healthcare Applications

Aviation and Aerospace

Soft Skills Development in Customer Service

Augmented Reality in Manufacturing

Logistics Enhancements through Immersive Technology

Challenges and Limitations

- Initial Investment and Cost Concerns
- Technical and Content Development Hurdles
- Resistance to Change
- Compatibility and Scalability Issues
- Privacy and Data Security Concerns
- Addressing Skills Gap and Workforce Shortages

Future Trends

- Increased Adoption of Extended Reality (XR)
- Emphasis on Personalized Learning Experiences

increasingly recognized the limitations of conventional training—particularly in addressing the skills gap and preparing a workforce for modern challenges—immersive learning began to gain traction. A notable statistic highlights this need, with 63% of manufacturers expressing concern that young entrants into the workforce lack the necessary skills, and Deloitte projecting a potential shortage of 2.1 million jobs by 2030[2][3]. The integration of immersive technologies such as augmented reality (AR), virtual reality (VR), and mixed reality (MR) into manufacturing training has transformed the landscape, allowing for lifelike scenarios that enhance skill acquisition and retention. These technologies facilitate hands-on simulations, enabling employees to engage with equipment operations and safety protocols in a safe, controlled environment[4][5]. Furthermore, storytelling and scenario-based learning emerged as essential components of immersive training. By developing narratives within the training environment, organizations have found that they can significantly enhance the learning

Example 3 – Using books

In books...



books.google.com › books › Traduzir esta página
Immersive Education: Designing for Learning

Paula MacDowell, Jennifer Lock · 2023
This book focuses on designing and being a designer of immersive education.

Pré-visualizar Mais edições



books.google.com › books › Traduzir esta página
The Immersive Classroom: Create Customized Learning ...

Jaime Donally · 2022
With this book, readers gain insights into customizing tools through app hacking and app smashing, and discover how pushing the use of augmented reality (AR) and virtual reality (VR) tools beyond their intended purpose can maximize their ...

Pré-visualizar Mais edições



books.google.com › books › Traduzir esta página
Implementing Augmented Reality Into Immersive Virtual ...

Russell, Donna · 2020
While highlighting the benefits for virtual reality, its role in remote learning, the logistics of simulation, and branches of it such as gamification, this book is ideally intended for teachers, school administrators, teacher educators, ...

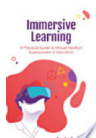
Pré-visualizar Mais edições



books.google.com › books › Traduzir esta página
Immersive Learning: Designing for Authentic Practice

Koreen Olbrish Pagano · 2013
Use immersive learning design to train others using new technology. Discover a framework for thinking in terms of immersive learning design. Outline the process of designing for immersion.

Pré-visualizar Mais edições



books.google.com › books › Traduzir esta página
Immersive Learning: A Practical Guide to Virtual Reality's ...

Craig Frehlich · 2020
Some say power is influence. If this is true, then virtual reality has "superpowers" because of its ability to make the unreal viscerally real, engaging and immersive.

Pré-visualizar Mais edições



books.google.com › books › Traduzir esta página
Creating Immersive Learning Experiences Through Virtual ...

Mazhar Hussain, Shaik, Nawaz Hakro, Ahmed · 2024
This book provides case studies, evidence-based knowledge and practical guidance regarding ethical concerns, theoretical foundations, practical applications, and pedagogical strategies.

Pré-visualizar

Preface

Introduction

1	VR and Conceptual Understanding	
2	The Importance of VR Lesson Guides	5
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	Lesson Guide: Cooperation and Working as a Team	46
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... authors have structured the information on the topic.

...and we can explore the authors' public curricula to see their background, experience, and positioning in the field.

amazon



Analysis of subsets of relevant articles

The screenshot displays the ResearchRabbit interface with several key sections:

- Left Panel:** Features the ResearchRabbit logo and a collection named "Knowledge Tree of IL". It lists three articles with their authors and years: Beck et al. (2021), Arantes and Cláudia (2022), and Gaspar and Gütli (2019). A green arrow points from the "Add Papers" button to a callout box.
- Center Panel:** Shows "3 Selected Papers" and options to "Remove from" or "Add to Other Collection". It includes sections for "EXPLORE PAPERS" (Similar Work: 523, Earlier Work, Later Work: 2), "EXPLORE PEOPLE" (These Authors: 22, Suggested Authors: 46), "EXPLORE OTHER CONTENT" (Linked Content), and "EXPORT PAPERS" (BibTeX, RIS, CSV). A green arrow points from the "BibTeX" option to a callout box.
- Right Panel:** Displays "Similar Work" with a list of related articles, including "Immersion revisited: A review of existing definitions of immersion and their relation to different theories of presence" (2016) and "Unifying Protocols for Conducting Systematic Scoping Reviews with Application to Immersive Learning Research" (2020). Below this is a network graph titled "Connections between your collection and 50 papers". The graph shows a complex web of nodes and edges representing co-authorship and citations. A callout box is overlaid on the graph.

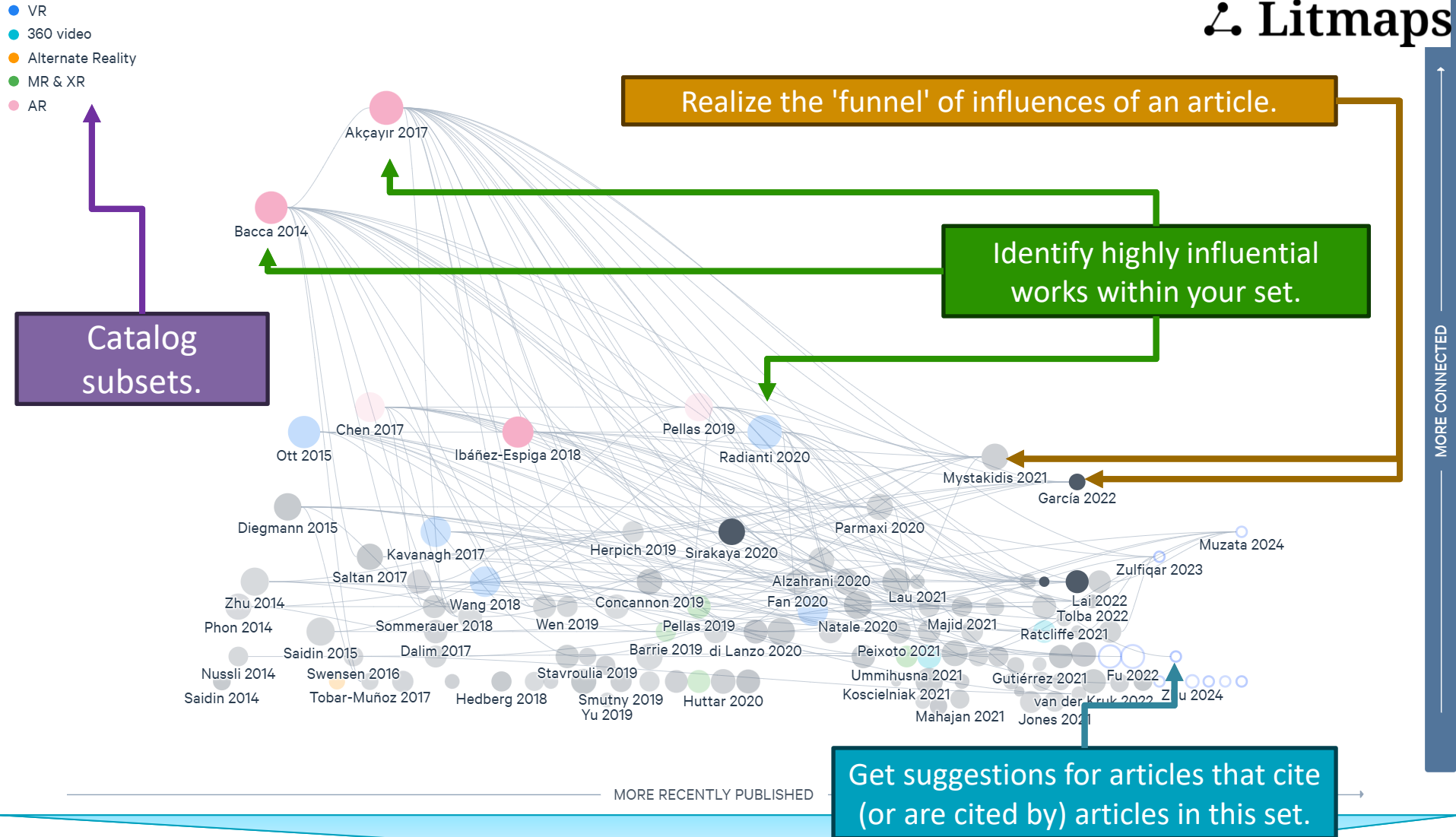
Visually explore related topics and article suggestions.

Import or export to Zotero or other tools.

Visually explore relationships of co-authorship, citation...

Analysis of subsets of relevant articles

 Litmaps



Explore readings and extract insights

Origens

+ Adicionar fonte

Selecionar todas as fontes

- Educational_Practices_and_Str...
- Preprint Ancient Greek Techno...
- Siiman et al.pdf
- jucs_26_08_1043_1073_beck.p...

Chat

Turn them into podcasts to listen while walking, exercising, etc. (peripatetic study).

Immersive Learning Research

4 origens

Este artigo analisa a literatura sobre práticas e estratégias educativas em ambientes de aprendizagem imersivos, focando-se no metaverso educacional. Os autores mapearam 47 estudos, identificando 45 estratégias e 21 práticas, agrupadas em cinco clusters: "Contexto Ativo", "Colaboração", "Envolvimento e Estruturas de Apoio", "Presença" e "Aprendizagem multimídia real e virtual". A visualização resultante fornece um quadro para a tomada de decisões sobre o uso do metaverso na educação, destacando as práticas e estratégias mais suportadas pela literatura e a diversidade dentro dos clusters. O estudo aborda a necessidade de ultrapassar uma perspectiva tecnocêntrica, focando-se nas limitações e possibilidades. Finalmente, são apresentadas limitações e possibilidades.

Adicionar nota | Vista geral de áudio | Documento de resumo

Podes sintetizar ideias-chave destes trabalhos?

Comece a escrever... 4 origens

Quais os principais métodos de análise utilizados no estudo sobre práticas e estratégias de aprendizagem imersiva? Como o artigo "Educational

Studio

Vista geral de áudio

Clique para carregar a conversa. Carregar

Notas

+ Adicionar nota

Guia de estudo | Documento de resumo

Perguntas frequentes | Linha cronológica

Nova nota

A gerar...

- Ambientes Imersivos de Aprendizagem... Absolutamente! Aqui está a linha do tempo detalhada, o elenco de personagens e as...
- Ambientes Imersivos e Análise Qualitativ... Guia de Estudo: Ambientes de Aprendizagem Imersiva e Análise de Dado...
- Aprendizagem Imersiva: Práticas,... Claro, aqui está o FAQ de 8 perguntas com base nos documentos fornecidos,...
- Aprendizagem Imersiva e IA na Educação Documento de Briefing: Análise de Fontes sob Dados Qualitativos com IA Este documento ap...
- Ambientes Imersivos e Análise Qualitativ... Guia de Estudo: Ambientes de Aprendizagem Imersiva e Análise de Dado...

Work with sets of documents.

Discuss ideas... and save them as notes.

Turn them into podcasts to listen while walking, exercising, etc. (peripatetic study).

Reflect – Concept, Context, Perspective

You need to identify
your purpose.

Express it as...

Concept

Context

Perspective

purpose



Reflect – Concept, Context, Perspective



This is the overall areas of the problem. Its main idea, field of interest, the topic you plan to investigate.

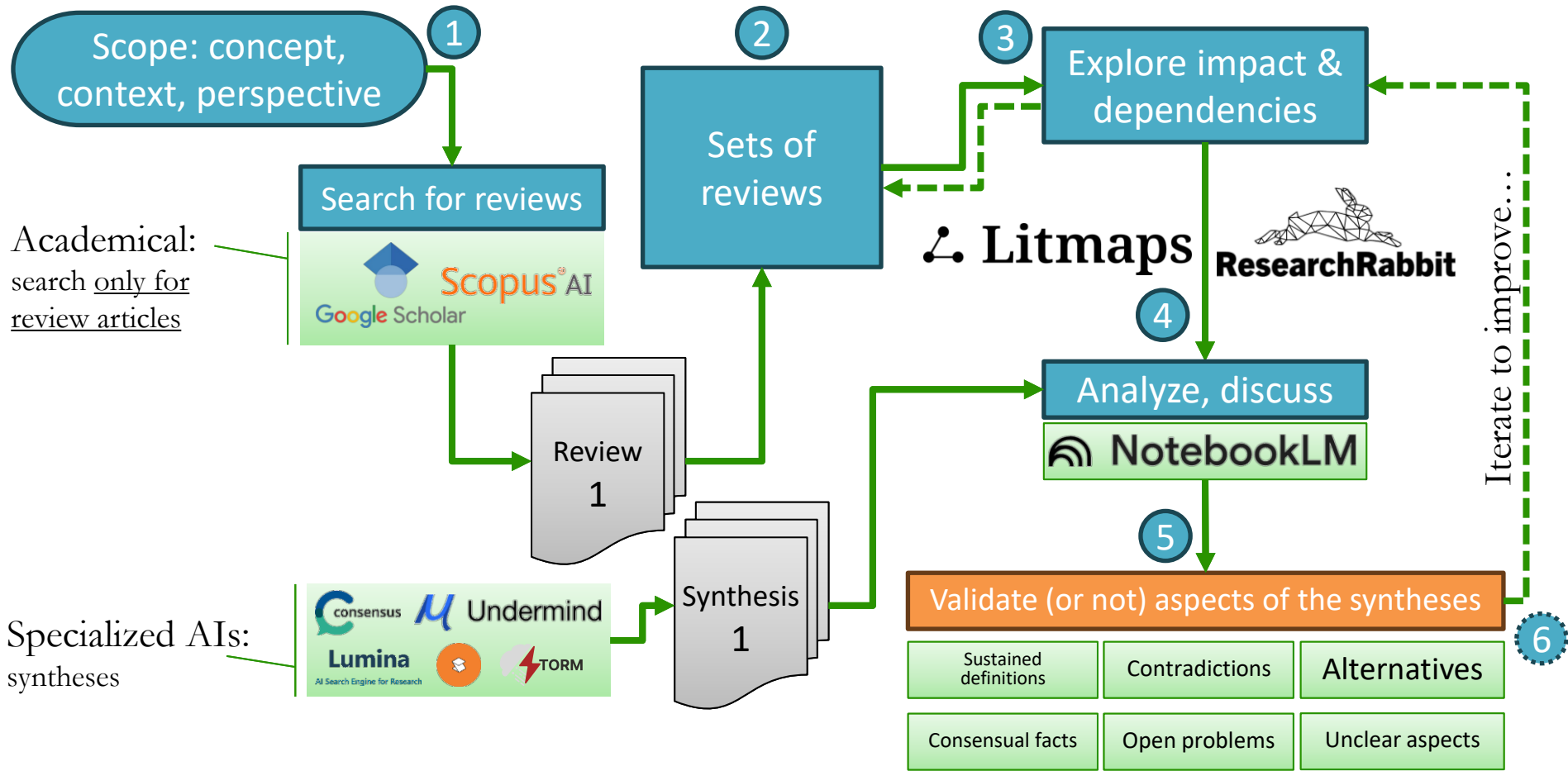


It is the delimitation of the area in which you intend to analyze the **concept**. Where the concept arises, where it is applied, who is involved, etc. – these and other ways to bind the concept.



This is the lens through which you intend to view the **concept** within the **context**. It must clarify your overall intention.

Second stage: Finding the evidence



zotero

Organized references



Organized notes

“State of the art”: current knowledge and its gaps

If necessary, move on to the third stage: systematic literature review (...coming up in the next episode 😊)



How should one read and choose throughout this process?



First, choose only from the title and publication outlet! ("Maybe" means it is of interest at this stage – we only use this criterion to exclude.)

☰ "immersive learning" "master students" 🔍

Académico Cerca de 250 resultados (0,11 seg)

INTERACTIVE TECHNOLOGIES IN ENHANCING ENGLISH LANGUAGE PROFICIENCY FOR STUDENTS OBTAINING MASTER'S DEGREE IN MANAGEMENT ...

O Nagachew'ska, G Drapaluk - *Перспективи та інновації науки*, 2023 - perspectives.pp.ua
... skills of management and marketing **master's students**. The ... , providing dynamic and **immersive learning** experiences that ... language teaching for **Master's students** in management and ...
☆ Guardar 📄 Citar Artigos relacionados Todas as 2 versões

EXPLORING NEW REALITIES: UNIVERSITY STUDENTS' VIEWS ON IMMERSIVE TECHNOLOGY IN EDUCATION

K Varadharajulu, M Lara - *INTED2024 Proceedings, 2024* - library.iated.org
... and **immersive learning**, indicating a range of envisioned applications by the students. ... sample, with the remainder being **Master's students**, all from Erasmus University Rotterdam. ...
☆ Guardar 📄 Citar Citado por 1 Artigos relacionados

A holistic approach to academic competences: Creating an immersive learning experience

K Meesters, Y Wang - ... *Excellence Awards 2020: An Anthology of ...*, 2020 - researchgate.net
... The course is a mandatory course for pre-**master students**, switching from an University of Applied Sciences to the "IM" Master Program at Tilburg University. It is attended by ...
☆ Guardar 📄 Citar Artigos relacionados Todas as 2 versões

Engaging students in COVID times with immersive learning and Self-driven Challenge Based Learning

X Crusat, IM Martínez - *2021 IEEE Global Engineering ...* 2021 - ieeeexplore.ieee.org
... In addition some **Master students** have already started their professional career before joining the Master. But this is not an obstacle for their motivation and interest for having an impact ...
☆ Guardar 📄 Citar Citado por 1 Artigos relacionados

CREATING AN IMMERSIVE LEARNING ENVIRONMENT IN THE NETWORKING LAB: IMPROVING STUDENTS' LEARNING AND RESULTS THROUGH DESIGN ...

B Bordel, R Alcarria, MA Manso, J Cira - *ICERI2023 Proceedings, 2023* - library.iated.org
... Specifically, the general learning level increased in a very significant manner for **master students**, while ... Satisfaction in **master students** increased in a very significant manner as well. ...
☆ Guardar 📄 Citar Citado por 2 Artigos relacionados

What did we intend when searching for this?

Examples:

Title: if we're not looking for English-language learning, we'll ignore this one.

Title: if we are not after student perspectives, we'll ignore this one.

Outlet: if we are not seeking an Engineering perspective, we'll ignore this one.

Etc. ●
●
●

And then we choose only from the abstract!

("Maybe" means it is of interest at this stage – we only use this criterion to exclude.)

The screenshot shows the Scopus search interface. At the top, the search query is "Immersive learning" "master students". Below the search bar, there are 12 documents found. Three documents are highlighted with orange boxes and arrows pointing to their abstracts:

Document title	Authors	Source	Year
1 Group virtual reality simulation in the adult nursing curriculum: Student and lecturer experiences	Godbold, R., Cairnduff, K.	British Journal of Nursing, 33(19), pp. 922–929	2024
2 Virtual Reality in Fluid Power Education: Impact on Students' Perceived Learning Experience and Engagement	Azzam, I., Elbreidi, K., Breidi, F., Molas, C.	Education Sciences, 14(7), 764	2024
3 Immersive Storytelling and Gamification Elements as a Tool for Foreign Language Epideictic Speech Development	Odinokaya, M., Krylova, E., Pyatnitsky, A., Simonyan, A.	Lecture Notes in Networks and Systems, 1204 LNNS, pp. 162–188	2024

What did we intend when searching for this?

By checking the abstracts, one may quickly judge if the work falls outside our scope.

The significance of practical experience and visualization in the fluid power discipline, highly tied to students' success, requires integrating immersive pedagogical tools for enhanced course delivery, offering real-life industry simulation. This study investigates the impact of using virtual reality (VR) technology as an instructional tool on the learning and engagement of 48 mechanical engineering technology (MET) students registered in the MET: 230 Fluid Power course at Purdue University. An interactive VR module on hydraulic grippers was developed utilizing the constructivist learning theory for MET: 230 labs, enabling MET students to explore light- and heavy-duty gripper designs and operation through assembly, disassembly, and testing in a virtual construction environment. A survey consisting of a Likert scale and short-answer questions was designed based on the study's objective to evaluate the students' engagement and perceived attitude toward the module. Statistical and natural language processing (NLP) analyses were conducted on the students' responses. The statistical analysis results revealed that 97% of the students expressed increased excitement, over 90% reported higher engagement, and 87% found the VR lab realistic and practical. The NLP analysis highlighted positive themes such as "engagement", "valuable experience", "hands-on learning", and "understanding", with over 80% of students endorsing these sentiments. These findings will contribute to future efforts aimed at improving fluid power learning through immersive digital reality technologies, while also exploring alternative approaches for individuals encountering challenges with such technologies.

Etc. ●
●
●

While reading the remaining ones, use Keshav's three-pass method

How to Read a Paper

S. Keshav

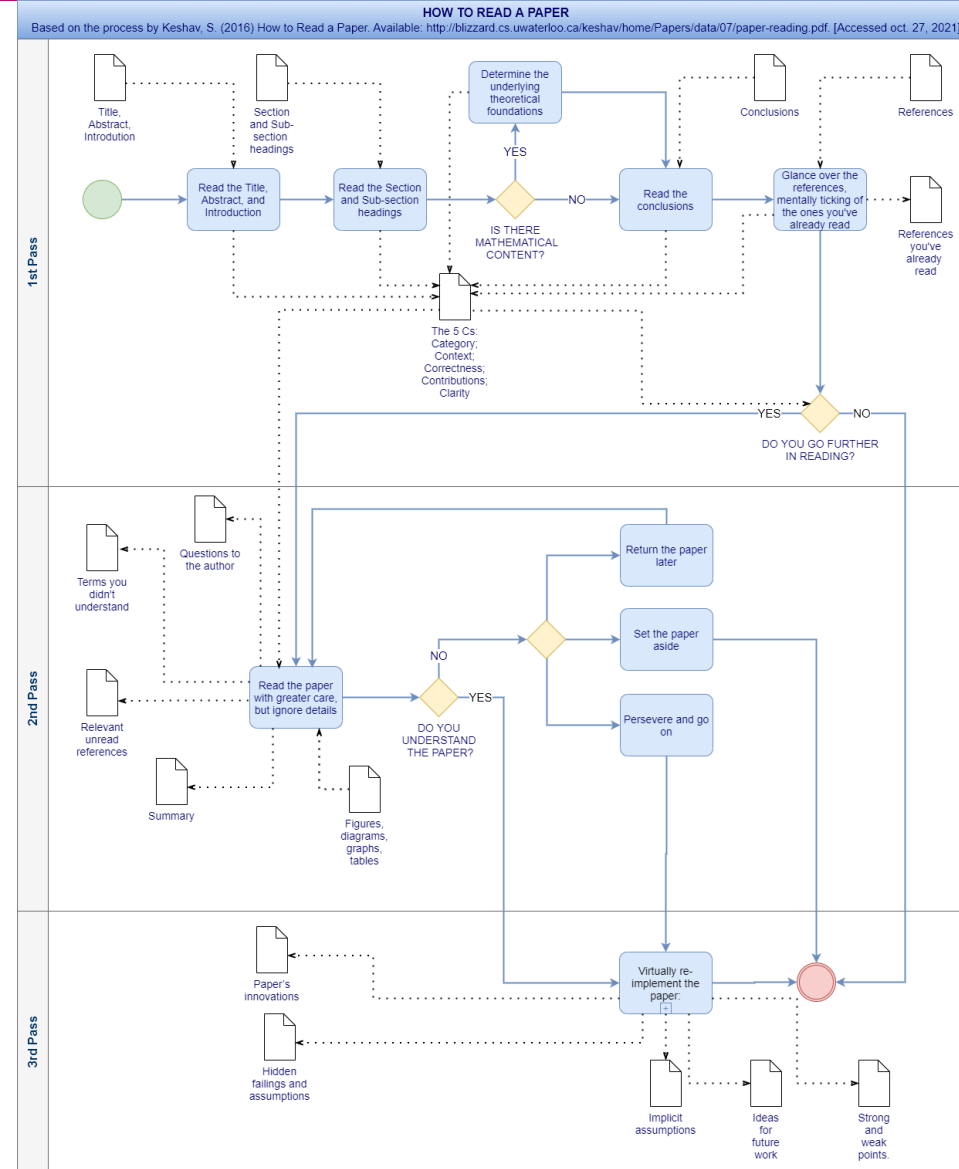
David R. Cheriton School of Computer Science, University of Waterloo
Waterloo, ON, Canada
keshav@uwaterloo.ca

Avoids dispersion and saves time, since in each of the three stages one can establish:

- if the article is relevant for our scope;
- how it is relevant (why we will be reading it).

Diagram of the process in "How to Read a Paper" de S. Keshav (2016)

<http://hdl.handle.net/10400.2/11312>



While reading, consider (1):

Ferfolja, T.; Burnett, L. (2002).

Getting Started on Your Literature Review – A General Guide for Postgraduate Research Students.

<http://www.lc.unsw.edu.au/onlib/pdf/Litrev.pdf>

In 1984, Jenny Cushman, in her **perceptive** article, 'The Chinese community in Australian historiography' made a passionate plea for historians to move away from studies of Australian attitudes to "relocate the Chinese experience within the Chinese community itself". She further urged researchers to investigate the way Chinese customs, legal notions and kinship relations were adapted to the Australian physical and social environment. **It is tempting to credit** many of the succeeding changes to Cushman's appeal. However, the new approaches **must** be viewed within the context of the changing tide of historiography and the impact of 'multiculturalism'.

Attitude marker: words or phrases that indicate a writer's assessment of or attitude to an issue

Emphatic expressions: Words or phrases which relate to the strength of the claim or to your degree of confidence in what is said.

Hedging expression: word or phrases which make statements about the degree of certainty, possibility or probability of a question

...
But to say this is to point to wider **implications** for history making in Australia. The Eurocentric histories of the past **cannot simply be** corrected by including the 'Chinese', especially if clear ethnic separations based on assumed single identities are maintained. **It is necessary** to go beyond Orientalist contrasts between us and them, Australian and Chinese, and to engage in a re-examination of sites of difference and dialogue. These sites will show the need to envisage multiple identities. They **may** also **sometimes point** to shared experiences of a shared world. Separate histories of ethnic peoples are not enough, especially if they serve to contain and exclude these peoples. Instead there is a need for a new synthesis in Australian history. The **crucial need for historians** is to personally engage with the contemporary politics of difference.

Relational marker (underlined): words or phrases that indicate, explicitly or implicitly, the writer's relationship to the audience or the scholarly community in which they are writing.

Text source: Ryan, J. (1997). Chinese Australian history. In W. Hudson & G. Bolton (eds) *Creating Australia: Changing Australian history*. Allen & Unwin, Sydney.(pp. 75, 77)

While reading, consider...(2)

In 1984, Jenny Cushman, in her perceptive article, 'The Chinese community in Australian historiography' made a passionate plea for historians to move away from studies of Australian attitudes to "relocate the Chinese experience within the Chinese community itself". She further urged researchers to investigate the way Chinese customs, legal notions and kinship relations were adapted to the Australian physical and social environment. It is tempting to credit many of the succeeding changes to Cushman's appeal. However, the new approaches **must** be viewed within the context of the changing tide of historiography and the impact of 'multiculturalism'.

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While reading, consider...(3)

environment. **It is tempting to credit** many of the succeeding changes to Cushman's appeal. However, the new approaches **must** be viewed within the context of the changing tide of historiography and the impact of 'multiculturalism'.

Emphatic expressions: Words or phrases which relate to the strength of the claim or to your degree of confidence in what is said.

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While reading, consider...(4)

Hedging expression:
word or phrases which make statements about the degree of certainty, possibility or probability of a question

.....

But to say this is to point to wider implications for history making in Australia. The Eurocentric histories of the past **cannot simply be** corrected by including the 'Chinese', especially if clear ethnic separations based on assumed single identities are maintained. **It is necessary** to go beyond Orientalist contrasts between us and them, Australian and Chinese, and to engage in a re-examination of sites of difference and dialogue. These sites will show the need to envisage multiple identities.

.....

They may also sometimes point to shared experiences of a shared

While reading, consider... (5)

for a new synthesis in Australian history. The **crucial** need for historians
is to personally engage with the contemporary politics of difference.

Relational marker (underlined): words or phrases that indicate, explicitly or implicitly, the writer's relationship to the audience or the scholarly community in which they are writing.

If the article is indeed of interest to you...

***IMMEDIATELY* note the bibliographic reference.**

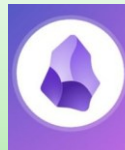
If you don't do this, it may be difficult to identify the article again later.

If you copy text, place it *IMMEDIATELY* within quotation marks.

If you don't do this, there is a high chance that you will forget that the text was copied, and that is plagiarism.

zotero

Organized references



Obsidian

Organized notes

**Are your
friends in
this! 😊**

Note-taking is for you and your theme!

(They're not for "proving I read it," "just in case," or "because it sounds important.")

10th International Conference of the Immersive Learning Research Network
Practitioner Proceedings ILRN2024

DOI: <https://doi.org/10.56198/5M1RHFUMB>



Tutorial—Authoring a Personal GPT for Your Research and Practice: How We Created the QUAL-E Immersive Learning Thematic Analysis Helper

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Abstract. Thematic analysis in qualitative research is a time-consuming and systematic task, typically done using teams. Team members must ground their activities on common understandings of the major concepts underlying the thematic analysis, and define criteria for its development. However, conceptual misunderstandings, equivocations, and lack of adherence to criteria are challenges to the quality and speed of this process. Given the distributed and uncertain nature of this process, we wondered if the tasks in thematic analysis could be supported by readily available artificial intelligence chatbots. Our early efforts point to potential benefits: not just saving time in the coding process but better adherence to criteria and grounding, by increasing triangulation between humans and artificial intelligence. This tutorial will provide a description and demonstration of the process we followed, as two academic researchers, to develop a custom ChatGPT to assist with qualitative coding in the thematic data analysis process of immersive learning accounts in a survey of the academic literature: *QUAL-E Immersive Learning Thematic Analysis Helper*. In the hands-on time, participants will try out QUAL-E and develop their ideas for their own qualitative coding ChatGPT. Participants that have the paid ChatGPT Plus subscription can create a draft of their assistants. The organizers will provide course materials and slide deck that participants will be able to utilize to continue development of their custom GPT. The paid subscription to ChatGPT Plus is not required to participate in this workshop, just for trying out personal GPTs during it.

Keywords: ChatGPT, GPT, Qualitative Analysis, Thematic Analysis.

1 Introduction and Background

A critical aspect of qualitative research is conducting thematic analysis. This involves a time-consuming process involving selection, extraction and assigning of meaning to relevant text excerpts. A crucial step of this process is the coding of the materials under analysis. This is the process where researchers (e.g. coders) apply their grounding and criteria to the materials, either as a whole or segmented, to generate codes, which basically are descriptive labels that surmise the main piece of information in the materials [1]. Given that people will experience subtle differences or equivocal interpretations in their grounding, and varying levels of adherence to coding criteria, the quality of the process is improved through extended involvement of multiple coders: triangulation. Triangulation is the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena [2]. It also has been viewed as a qualitative research strategy to test validity through the convergence of information from different sources. Thus, coding can be a weak point in the thematic analysis process because of insufficient number of coders, insufficiently trained coders, or simply due to differences in understanding and application of grounding concepts and coding criteria.

We sought to experiment with using an artificial intelligence variety, called Large Language Models (LLMs), to address these shortcomings through a publicly-available chatbot interface, ChatGPT. From its inception, artificial intelligence has made significant breakthroughs beyond answering standard search engine queries toward

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When taking notes, avoid future misunderstandings and prevent losing TODAY's effort:

- **In what sense are the concepts used?** (“They use ‘immersion’ this way, not that way...”, “They follow the theory of...”)
- **What idea or contribution caught your interest?** (“They explain this well...” / “They report that something like this happened” / “They measured this and got...”)
- **What contextual aspects are relevant?** (People, tech., methods, locations...)

zotero

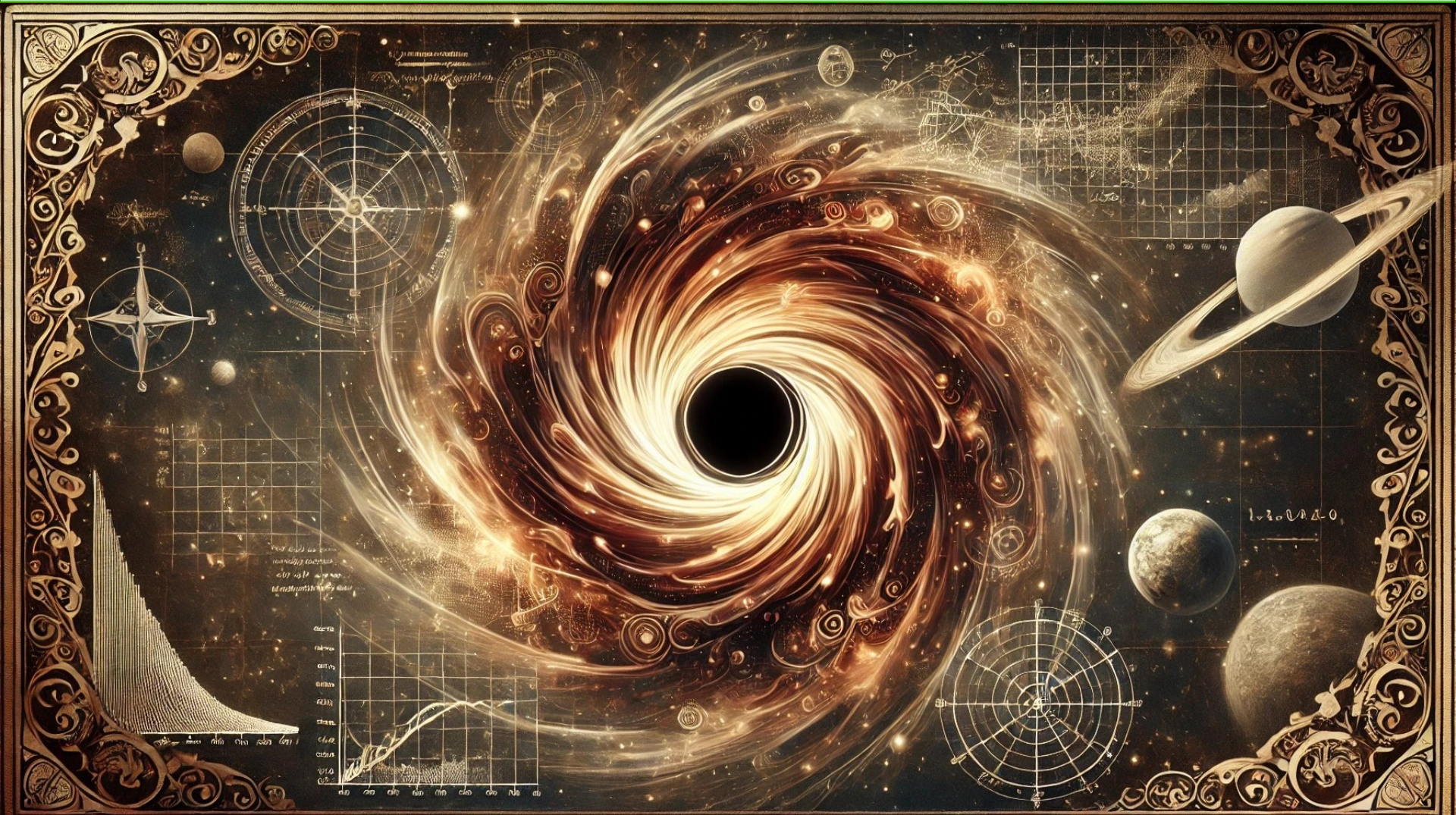
Organized references



Organized notes

When do we stop?

What is our “event horizon”?



When do we stop?

Completeness (contributions start repeating... the notes interconnecting... the references start pointing to the same sources...)

...and the feeling of having a rich overview of the perspectives.

<i>Immersion perspective</i>	<i>No. papers^a</i>	<i>Main ref. on immersion^b</i>	<i>No. papers^a</i>
Technological fidelity	7	Slater (2003) or Slater & Wilbur (1997) or Azuma (1997)	3
Unspecific	4	None	6
Engagement	2	Csikszentmihalyi (1992) and/or Kolb (1984)	1
Interaction	1	Barab (2007)	1
Narrative	1	Whitton (2011)	1

Example from:
<http://hdl.handle.net/10400.2/9799>

^a Sum of immersion perspective is not n=12 because three papers employ two perspectives.

When do we stop?

Almost certainly, there's always something more!

We stop by reflecting upon our current and future efforts, weighing the **risks** and **benefits**.

Many hours will be spent later doing fieldwork. We want to do it knowledgeably, without wasting it:

- without 'reinventing the wheel';
- without just being able to say "seems good, trust me";
- without ending up improvising analyses.

Consult your supervisors for help with this decision.

What about information from other sources?

Code repositories, press releases and white papers, blogs, social media...



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Dave F @silicondergro.bsky.social · 16m
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CHARLES BABBAGE: FATHER OF COMPUTING
HE DIED BEFORE ANY OF HIS DESIGNS COULD BE COMPLETED, BUT CHARLES BABBAGE DESIGNED A TURING COMPLETE MECHANICAL COMPUTER IN 1837. IT WOULD HAVE WORKED THE SAME WAY A MODERN COMPUTER DOES.

Charles Babbage born 12/26/1791
He designed working mechanical computers but ran out of time and money
@dfarg.homeip.net

derekpetrucelli.bsky.social @derekpetrucelli.bsky.social · 43m
Does anyone on Bluesky enjoy Sinclair ZX Spectrum games?

alexmak @alexmak.net · 1h
Magnificent Duo

A small but important addition to my collection over the holidays break - PowerBook Duo with a DuoDock!

Magnificent Duo
A small but important addition to my collection over the holidays break - PowerBook Duo with a DuoDock!
@alexmak.net

Candie Cane Dyer @dyerandie.bsky.social · 1h
I got a knock off Game Boy and I loaded it with ZX Spectrum games, and now am right back to being 8 years old all over again!

IIoT - IIoT IN THE MANUFACTURING SECTOR BASED ON THE EXAMPLE OF COMARCH

White Paper

ET OF THINGS (IIoT) things, as the same advantage of IIoT technology (facturing hidden things) to our industry. Let's see some examples and accurately analyze the possibilities with each other. (manufactured goods, data, process automation).

Industry 4.0 THE ROLE OF IIoT IN DIGITAL TRANSFORMATION OF THE MANUFACTURING SECTOR
Ester Włodarczyk

Benefits for manufacturing processes	Business Benefits
Streamlining of manufacturing processes	High return on investment (ROI)
Manufacturing small, high-quality products	Consistent fulfillment of business goals
Comprehensive monitoring of manufacturing processes	Customer-centric approach to personalization of manufacturing
Reduced production and transport time	Application of new business models and introduction of new services
Selection and validation of IIoT components	New source of revenue
Integration with existing systems	Reduction in operating costs
Real-time analysis of production data	Flexibility to rely on data in existing business decisions

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What about information from other sources?

Code repositories, press releases and white papers, blogs, social

They are field contributions, not scientific knowledge!
They are analyzed AFTER we have an understanding of our “theoretical lenses.”
So that we have a basis for assessing their rigor, novelty...

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POPULAR POST 1002 LIKES 12 COMMENTS



INDUSTRY 4.0 THE ROLE OF IIoT IN DIGITAL TRANSFORMATION OF THE MANUFACTURING SECTOR

Estes Włodarczyk

Benefits for manufacturing processes	Business Benefits
Maximization of manufacturing processes	High return on investment (ROI)
Manufacturing smarter, high-quality products	Consistent fulfillment of business goals
Comprehensive monitoring of manufacturing processes	Customer-centric approaches to personalization of manufacturing
Reduced production and transport time	Application of new business models and introduction of new services
Selection and utilization of IIoT gateways and human factors	New sources of revenue
Integration with existing systems	Reduction in operating costs
Real-time analysis of production data	Flexibility to rely on data in meeting business objectives

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Safe voyages! Explore, seek out knowledge, and
boldly go into the research universe!

