Introduction to the Scoping Review process

What is a Scoping Review?

A scoping review is a form of knowledge synthesis that maps key concepts, types of evidence, and gaps in research related to a broad topic.

Unlike systematic reviews, it does not typically assess the quality of evidence but rather aims to give an overview of existing literature to clarify working definitions, scope, or research questions.

*Please visit the PRISMA for Scoping Reviews website to supplement your understanding of the Scoping Review process.

Common Reasons for Conducting a Scoping Review:

- To identify available evidence on a particular topic.
- To identify and analyse knowledge gaps.
- To clarify key concepts/definitions in the literature.
- To examine how research is conducted on a certain topic
- To identify key characteristics or factors related to a concept.
- A scoping review is commonly carried out as a precursor to a systematic review.

Required elements of a Scoping Review:

- A Scoping Review requires a team of researchers to ensure unbiased screening
- It is widely recommended that the review should be conducted according to JBI guidelines
- The Scoping Review should be reported using the PRISMA-ScR checklist.
- You should register your Scoping Review protocol during the early stages of the study. For further details visit the Open Science Framework website.
- Reproducible and transparent search strategies of multiple applicable databases and other sources such as grey literature should be carried out.
- Two phases of screening: Title/Abstract and Full Text by at least 2 screeners
- Documentation of included and excluded studies according to the PRISMA flow diagram
- Documentation of data extraction process per protocol
- Citation of included studies, guidelines and tools utilized

Step 1: Define Your Research Objectives and formulate a Question.

- The first and probably the most important step is to clearly define the purpose of your review.
- Because scoping reviews cover broad topics, your question should be broad but focused enough to guide your search. *"A broad review question is fine, but reviewers must be clear about the purpose and specific about the inclusion and exclusion criteria. Defining these clearly now will save a lot of time and prevent problems further down the line".* (Covidence .org).
- The JBI recommends the use the **PCC (Population, Concept, Context)** Framework to help structure your research question. This approach allows researchers to ask a relatively broad question, while applying sensible parameters.

Example question:

"What evidence exists regarding the impact of online learning on the mental health of university students?"

Then apply the PCC Framework

Element	Meaning	Example
Population (P)	Who or what is being studied?	*University students*
Concept (C)	What is being examined?	*Online learning*
Context (C)	In what setting or circumstances?	*Mental health or psychological well-being*

Step 2: Develop a Protocol

- Start off by developing a protocol plan. This should outline the objectives of your review as well as the methodology that will be used. This will help to ensure clarity and transparency throughout the process.

Include the following sections in your protocol.

1. Objectives of the review
2. Eligibility criteria (inclusion and exclusion)
3. Databases and other sources to be searched
4. Search strategy
5. Study selection process
6. Data extraction process
7. Method of summarizing and reporting results

Step 3. Register your Protocol.

Once you've completed your protocol, you should ideally register your protocol. It is recommended that you register your protocol before the scoping review begins.

There are many benefits for registering your Protocol such as:

- Protocol registration is considered best practice and is recommended by authoritative publications such as the JBI Manual. The Open Science Framework is widely used for registration of Scoping Review protocols.
- Registration of your protocol reduces bias by establishing your research criteria from the outset.
- Much of the information included in your protocol will assist later when writing and formatting your review.
- The protocol promotes transparent research methodology and open science
- Establishes provenance of your research topic
- Reduces duplication of efforts and promotes collaboration

Tip: You can register your protocol on platforms like the Open Science Framework (OSF). This resource provides a platform for both registration as well as access to relevant data.

Step 4: Search for Relevant Literature

- Identify appropriate databases for your topic (e.g., Science Direct, PubMed, Scopus, EBSCOhost etc.) Visit https://library.cit.ie/ejournals to see a full list of MTU Library databases.
- Consider searching additional sources like reference lists, grey literature, or reports.
- Further information on searching for source material can be found here.
- Construct a comprehensive search strategy with keywords, synonyms, and Boolean operators (AND, OR or NOT).
- Use controlled vocabulary (e.g., MeSH terms in PubMed) where possible.
- Document your search strings, databases, dates of search, and any filters applied (e.g., language, year).
- Further information on defining your search strategy and using Boolean operators & MeSH terms can be found here.

Example Search Strategy:

Below you will find an example of a search strategy that can be used for the topic ***online learning and the effects on university students' mental health:***

("online learning" OR "online education" OR "e-learning" OR "distance learning" OR "virtual learning")

AND

("university students" OR "college students" OR "higher education students" OR "undergraduates")

AND

("mental health" OR "psychological well-being" OR stress OR anxiety OR depression)

*Please remember to:

1. Adapt syntax to database requirements.
2. Keep the search broad to capture as many relevant articles as possible.

Tip: – *"Searches often uncover information that reviewers were previously unaware of, such as keywords or search terms. It is often necessary to refine the review question, the eligibility criteria, and the search strategy in light of this new information. In this way, the search stage becomes an iterative process that can be adjusted as necessary to achieve the objectives of the review. Clear and rigorous reporting of these iterations and the reasons for them is very important to ensure transparency"* (Covidence.org).

Step 5: Select Studies

- Import all search results into a reference manager (e.g., Zotero, EndNote Online or Mendeley). For more information on these referencing software packages, click here.
- Remove duplicates.
- Screen titles and abstracts against your inclusion/exclusion criteria e.g. inclusion/ exclusion criteria might include language (e.g., English), study design, population, publication date etc.
- For articles that seem relevant, retrieve and review the full text.
- Record reasons for excluding studies during full-text review.
- Ideally, you should have at least two subject expert reviewers independently screening material found. This will help you to avoid bias during your research.

Sample of Inclusion and Exclusion Criteria

Setting clear criteria before screening studies helps keep your review focused and transparent.

Criteria Type	Example Inclusion Criteria	Example Exclusion Criteria
Population	Studies involving university or college students	Studies involving only high school or primary students
Concept	Studies on online or distance learning methods	Studies about traditional face-to-face learning only
Context	Studies focused on mental health or psychological outcomes	Studies focused on physical health outcomes only

Study Design	Quantitative, qualitative, mixed-methods, reviews	Opinion pieces, editorials, conference abstracts without full data
Language	English-language publications	Non-English publications (unless translation available)
Publication Date	Studies published from 2010 to present	

Tip: Customize these based on your topic and scope. For example, if you want recent trends, restrict the publication date; if you want global coverage, include multiple languages.

Step 6: Extract Data

At this stage of your Scoping Review, you should set about the task of systematically extracting key information to enable comparison and mapping.

There are several free and subscription-based resources that can assist during the Scoping Review process. Many of these tools are designed to assist with the key stages of the process, including title and abstract screening, data synthesis, and critical appraisal. Some are designed to assist the review team throughout the entire process, including protocol development, reporting findings etc.

- **Rayyan:** Rayyan is a web-tool designed to help researchers working on scoping and systematic reviews, as well as other knowledge synthesis projects, by dramatically speeding up the process of screening and selecting studies.

Note: Rayyan offers a subscription-based service and a free version for early career researchers.

- **Covidence:** Covidence is an online software tool designed to streamline the process of conducting a Scoping Review or more detailed Systematic Review. You can use Covidence to collaborate with a team of reviewers to screen results (at both title/abstract and full text stages), complete data extraction and work on risk of bias.

- **DistillerSR:** DistillerSR automates the management of literature collection, screening, and assessment using AI and intelligent workflows. From a scoping review to a rapid review or Systematic review, DistillerSR simplifies the Review process and helps the review team produce transparent, audit-ready, and compliant results.

- **Excel** or **Google Sheets** can also be used during the article screening process and offer simple, customizable tables for data extraction.

Suggested data fields to use when extracting data.:

Field	Description/Example
Study ID	Author(s) and publication year
Study Design	Type of study (qualitative, quantitative, review, etc.)
Population	Characteristics such as age, student type
Concept/Intervention	What was studied or the focus of the study
Context	Setting/location or any relevant environmental factors
Outcomes/Key Findings	Main results related to your research question
Notes	Any additional remarks or relevant details

Extracted data using the suggested data fields above should like this:

Study ID (Author, Year)	Study Design	Population/Participants	Concept/ Intervention	Context (Setting)	Key Findings/ Outcomes	Notes/Comments
Smith et al., 2020	Cross-sectional	500 university students	Online learning	US University	Increased anxiety linked to online exams	Survey-based, self-reported
Lee & Kim, 2019	Qualitative	30 college undergraduates	Virtual learning experience	South Korean university	Mixed feelings: convenience vs isolation	Interviews conducted

Step 7: Analyse and Summarize the Data

- Unlike systematic reviews, scoping reviews do not usually assess study quality.
- Focus on mapping the literature:
    - Identify themes or patterns (e.g., types of interventions, outcomes studied).
    - Note research gaps (areas with little or no evidence).
    - Classify studies by design, population, or region if relevant.
- Use tables, charts, or concept maps to visualize your findings.
- Provide a narrative summary explaining the key concepts and what is known.

Step 8: Report Your Findings

- You should at this stage, set about structuring and writing your report around the following key headings:
    1. **Introduction** – Background, why the review was needed, and the research question.
    2. **Methods** – Describe the protocol, search strategy, study selection, and data extraction process.
    3. **Results** – Present the number of studies found, included/excluded, characteristics of studies, key themes, and gaps.
    4. **Discussion** – Interpret findings, discuss limitations, implications, and suggest areas for future research.
    5. **Conclusion** – Summarize main points.
- Follow reporting guidelines outlined in the the PRISMA-ScR checklist for ensure transparency and completeness within your report.

Additional Tips for Success

- Keep all your search records, decisions, and data extraction files organized.
- Put some time and effort into refining your search strategy.
- Be prepared for a lot of screening if your topic is broad.
- Set realistic timelines; scoping reviews can be time-consuming.
- Use collaborative tools if working in a team.
- If you are aware of limitations during the review process, and are aware that some information was not found, this should be mentioned at the end of the scoping review. Please see PRISMA-ScR – Limitations guidelines for further information.
- At the end of the document, you should also report all sources of funding received which allowed you to conduct the scoping review. Please see PRISMA-ScR – Funding guidelines for further information.

Appendix:

1. Scoping Review Protocol Outline

Title

Example: The Impact of Online Learning on University Students' Mental Health: A Scoping Review Protocol

Background

- Briefly explain the topic and why it is important.
- Outline what is currently known and where gaps exist.

Objectives

- State the aim(s) of the scoping review, e.g.:
  "To map and summarize existing research on the effects of online learning on the mental health of university students."

Eligibility Criteria

- **Population:** University students (all ages, disciplines)
- **Concept:** Online learning or e-learning and mental health outcomes
- **Context:** Any geographical location or setting
- **Types of Evidence:** Quantitative, qualitative, mixed methods, reviews
- **Language:** English
- **Publication Date:** 2010 to present

Information Sources

- List of databases to be used: PubMed, Scopus, PsycINFO, Science Direct, EBSCOhost and other sources including grey literature.

Search Strategy

- Briefly describe how searches will be conducted (keywords, Boolean operators).
- Attach full search strings used in the search process as an appendix.

Study Selection Process

- Describe initial title/abstract screening followed by full-text screening.
- Indicate that at least two reviewers will independently screen studies and resolve disagreements by discussion or involvement of a third reviewer.

Data Extraction

- Outline what data will be extracted i.e. author, year, design, population, intervention, outcomes, key findings.
- Mention the use of a pre-designed data extraction form.

Data Analysis and Presentation

- Explain plans to map the evidence thematically.
- Use tables and narrative summaries where applicable.

Timeline

- Provide estimated dates for each stage.

Ethics and Dissemination

- State that no ethical approval is needed (secondary research).
- Plan for publication or presentation.

2. Completed example of a Scoping Review Protocol

Title:

The Impact of Online Learning on University Students' Mental Health: A Scoping Review Protocol

Background:

Provide a brief overview of the topic. For example:

Online learning has become increasingly prevalent, especially following the COVID-19 pandemic. Understanding its impact on university students' mental health is critical, yet the literature is diverse and scattered. This scoping review aims to map current research and identify knowledge gaps.

Objectives:

- *To identify and map existing research on online learning and mental health outcomes among university students.*
- *To highlight gaps in the literature to guide future research.*

Eligibility Criteria

Criteria	Inclusion Criteria	Exclusion Criteria
Population	University or college students	Primary or secondary school students
Concept	Online learning, e-learning, distance or virtual learning	Traditional classroom learning only
Context	Any geographical or institutional setting	Studies not related to educational settings
Study Design	Quantitative, qualitative, mixed-methods, reviews	Editorials, opinion pieces, conference abstracts without full data
Language	English	Other languages without translation
Publication Date	Published from 2010 to present	Published before 2010

Information Sources:

Databases: *PubMed, Scopus, PsycINFO, Science Direct, EBSCOhost, Taylor & Francis*

Additional sources: Reference lists, grey literature.

Search Strategy:

A detailed search strategy will be developed using relevant keywords and synonyms combined with Boolean operators (AND, OR). See Appendix A for the full search string.

Study Selection Process:

Two reviewers will independently screen titles and abstracts, followed by full-text screening based on eligibility criteria. Discrepancies will be resolved through discussion or a third reviewer.

Data Extraction:

Data will be extracted using a pre-designed form capturing author, year, study design, population, concept/intervention, context, outcomes, key findings, and notes.

Data Analysis and Presentation:

Extracted data will be synthesized descriptively. Key themes and gaps will be mapped and presented in tables and narrative summaries.

Timeline:

- Protocol development: *[Provide Dates]*
- Literature search: *[Provide Dates]*
- Screening: *[Provide Dates]*
- Data extraction and analysis: *[Provide Dates]*
- Report writing: *[Provide Dates]*

Ethics and Dissemination:

No ethical approval is required as this is secondary research. Findings will be published in a peer-reviewed journal and presented at relevant conferences.

Appendix A: Example Search Strategy (PubMed)

("online learning"[Title/Abstract] OR "online education"[Title/Abstract] OR "e-learning"[Title/Abstract] OR "distance learning"[Title/Abstract] OR "virtual learning"[Title/Abstract])

AND

("university students"[Title/Abstract] OR "college students"[Title/Abstract] OR "higher education students"[Title/Abstract] OR undergraduates [Title/Abstract])

AND

("mental health"[Title/Abstract] OR "psychological well-being"[Title/Abstract] OR stress [Title/Abstract] OR anxiety[Title/Abstract] OR depression[Title/Abstract])

3. Example of Data Extraction Template for Excel or Google Sheets

Study ID (Author, Year)	Study Design	Population/Participants	Concept/ Intervention	Context (Setting)	Key Findings/ Outcomes	Notes/Comments
Smith et al., 2020	Cross-sectional	500 university students	Online learning	US University	Increased anxiety linked to online exams	Survey-based, self-reported
Lee & Kim, 2019	Qualitative	30 college undergraduates	Virtual learning experience	South Korean university	Mixed feelings: convenience vs isolation	Interviews conducted
Study ID (Author, Year)	Study Design	Population / Participants	Concept / Intervention	Context (Setting)	Outcomes / Key Findings	Notes / Comments

Tips:

- Use dropdown lists in “Study Design” (e.g., Qualitative, Quantitative, Mixed Methods, Review etc).
- In Excel or Google Sheets, you can freeze the header row for easy navigation.
- Using Excel or Google Sheets, you can add filters for each column.

Bibliography:

- Covidence
- DistillerSR
- Examples of scoping reviews" by James Cook University Library is licensed under CC BY-SA 4.0
- JBI Manual – Registering a Review
- JBI Scoping Review Guidelines
- MTU Guide to the Systematic Reviews
- Munn, Z., Peters, M.D.J., Stern, C. *et al.* Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Med Res Methodol*ogy 18, 143 (2018). https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/s12874-018-0611-x
- PRISMA flow diagram
- PRISMA-ScR – Funding guidelines
- PRISMA-ScR – Limitations guidelines
- PRISMA – ScR Checklist
- PRISMA for Scoping Reviews website
- Rayyan