

Update and Expansion of an Interprofessional Education Search Strategy Validation Study for NLM PubMed, Ovid MEDLINE, and Elsevier Embase


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Cite as: Barron L, Nachman S, and Carlson R. Update and Expansion of an Interprofessional Education Search Strategy Validation Study for NLM PubMed, Ovid MEDLINE, and Elsevier Embase. *Hypothesis*. 2025;37(2). doi:10.18060/28745

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Introduction

Interprofessional education (IPE) has grown exponentially since the seminal 2010 World Health Organization framework^{1,2}. To meet the ongoing needs of IPE scholars, an interprofessional research team created and validated PubMed IPE search hedges³ using relative recall methods⁴.

The authors developed a gold standard set from IPE systematic reviews, then created candidate search hedges for PubMed. These were tested for total result count and relative recall, or the percentage of relevant articles retrieved from the gold standard. Three hedges were ultimately retained as recommended search options: a narrow phrase search, a title search, and a broad keyword search; they achieved 75-95% relative recall. These offer search options for librarians and researchers, from a narrow, focused search for quick retrieval of useful publications to a broad, high-recall search for literature reviews³. However, they are limited to PubMed searching.

Methods

This study extended the previous study by translating these PubMed searches for use in Ovid MEDLINE and Elsevier Embase and repeating the validation process.

The PubMed gold standard set, composed of PubMed identification numbers (PMIDs), was usable without modification in Ovid MEDLINE, but required adaptation for Embase via conversion of PMIDs to Embase IDs followed by removal of duplicate entries. The previous search syntax was manually translated from NLM PubMed to Ovid and Embase formats.

The team measured the translated search strategies against the gold standard set to record their relative recall.

Results

The Ovid MEDLINE and Elsevier Embase translations of the search hedges were successfully validated and all search strategies are presented in Table 1.

Table 1. Validated search strategies for each database platform.

| | |
|-------------------------------------|--|
| Narrow phrase search (PubMed) | (IPE[tiab] OR "interprofessional education"[Mesh] OR "interprofessional education"[tw] OR "inter-professional education"[tw] OR "interdisciplinary education"[tw] OR "inter-disciplinary education"[tw] OR "multiprofessional education"[tw] OR "multidisciplinary education"[tw] OR "multi-professional education"[tw] OR "multi-disciplinary education"[tw]) |
| Narrow title search (PubMed) | (interprofessional*[ti] OR inter-professional*[ti] OR multiprofessional*[ti] OR multi-professional*[ti] OR interdisciplinary[ti] OR inter-disciplinary[ti] OR multidisciplinary[ti] OR multi-disciplinary[ti] OR multioccupational[ti] OR interoccupational[ti] OR inter-occupational[ti]) AND (student*[ti] OR educat*[ti] OR learn*[ti] OR train*[ti] OR teach*[ti] OR curricul*[ti] OR simulat*[ti] OR school*[ti] OR course*[ti]) |
| Broader keyword search (PubMed) | (IPE[tiab] OR "interprofessional education"[Mesh] OR ((interprofessional*[tiab] OR inter-professional*[tiab] OR interdisciplinary[tiab] OR inter-disciplinary[tiab] OR multidisciplinary[tiab] OR "Interprofessional Relations" [Mesh]) AND (student[tiab] OR students[tiab] OR educate[tiab] OR educating[tiab] OR educator[tiab] OR educators[tiab] OR education[tiab] OR instructor[tiab] OR instructors[tiab] OR instruction[tiab] OR teaching[tiab] OR training[tiab] OR trainee[tiab] OR trainees[tiab] OR curriculum[tiab] OR curricula[tiab] OR simulation[tiab] OR simulations[tiab] OR shadowing[tiab] OR "clinical practicum*" [tiab] OR "clinical placement*" [tiab] OR "experiential learning"[tiab] OR teamwork[tiab] OR "Education, Professional"[Mesh] OR "Clinical Competence" [Mesh])) |
| Narrow phrase search (Ovid MEDLINE) | "interprofessional education".mp. OR "inter-professional education".mp. OR "interdisciplinary education".mp. OR "inter-disciplinary education".mp. OR "multiprofessional education".mp. OR "multidisciplinary education".mp. OR "multi-professional education".mp. OR "multi-disciplinary education".mp.) |

| | |
|---|---|
| Narrow title search (Ovid MEDLINE) | (interprofessional*.ti. OR inter-professional*.ti. OR multiprofessional*.ti. OR multi-professional*.ti. OR interdisciplinary.ti. OR inter-disciplinary.ti. OR multidisciplinary.ti. OR multi-disciplinary.ti. OR multioccupational.ti. OR interoccupational.ti. OR inter-occupational.ti.) AND (student*.ti. OR educat*.ti. OR learn*.ti. OR train*.ti. OR teach*.ti. OR curricul*.ti. OR simulat*.ti. OR school*.ti. OR course*.ti.) |
| Broader keyword search (Ovid MEDLINE) | (IPE.tw. OR exp "interprofessional education"/) OR ((interprofessional*.tw. OR inter-professional*.tw. OR interdisciplinary.tw. OR inter-disciplinary.tw. OR multidisciplinary.tw. OR exp "Interprofessional Relations"/) AND (student.tw. OR students.tw. OR educate.tw. OR educating.tw. OR educator.tw. OR educators.tw. OR education.tw. OR instructor.tw. OR instructors.tw. OR instruction.tw. OR teaching.tw. OR training.tw. OR trainee.tw. OR trainees.tw. OR curriculum.tw. OR curricula.tw. OR simulation.tw. OR simulations.tw. OR shadowing.tw. OR "clinical practicum*".tw. OR "clinical placement*".tw. OR "experiential learning".tw. OR teamwork.tw. OR exp "Education, Professional"/ OR exp "Clinical Competence"/)) |
| Narrow phrase search (Elsevier Embase) | (IPE:ti,ab OR 'interprofessional education'/exp OR 'interprofessional education':ti,ab,kw OR 'inter-professional education':ti,ab,kw OR 'interdisciplinary education':ti,ab,kw OR 'inter-disciplinary education':ti,ab,kw OR 'multiprofessional education':ti,ab,kw OR 'multidisciplinary education':ti,ab,kw OR 'multi-professional education':ti,ab,kw OR 'multi-disciplinary education':ti,ab,kw) |
| Narrow title search (Elsevier Embase) | (interprofessional*:ti OR inter-professional*:ti OR multiprofessional*:ti OR multi-professional*:ti OR interdisciplinary:ti OR inter-disciplinary:ti OR multidisciplinary:ti OR multi-disciplinary:ti OR multioccupational:ti OR interoccupational:ti OR inter-occupational:ti) AND (student*:ti OR educat*:ti OR learn*:ti OR train*:ti OR teach*:ti OR curricul*:ti OR simulat*:ti OR school*:ti OR course*:ti) |

| | |
|---|---|
| Broader keyword search (Elsevier Embase) | (IPE:ti,ab OR 'interprofessional education'/exp) OR ((interprofessional*:ti,ab OR inter-professional*:ti,ab OR interdisciplinary:ti,ab OR inter-disciplinary:ti,ab OR multidisciplinary:ti,ab) AND (student:ti,ab OR students:ti,ab OR educate:ti,ab OR educating:ti,ab OR educator:ti,ab OR educators:ti,ab OR education:ti,ab OR instructor:ti,ab OR instructors:ti,ab OR instruction:ti,ab OR teaching:ti,ab OR training:ti,ab OR trainee:ti,ab OR trainees:ti,ab OR curriculum:ti,ab OR curricula:ti,ab OR simulation:ti,ab OR simulations:ti,ab OR shadowing:ti,ab OR 'clinical practicum*':ti,ab OR 'clinical placement*':ti,ab OR 'experiential learning':ti,ab OR teamwork:ti,ab OR 'vocational education'/exp OR 'clinical competence'/exp)) |
|---|---|

The searches' relative recall was almost identical across NLM PubMed, Ovid MEDLINE, and Elsevier Embase (Table 2). The narrow phrase search achieved 73-74% relative recall, the title search 85%, and the broad keyword search achieved 95-96% across all three databases. The number of search results was also similar across databases; however, Embase had slightly more results for each search. Since the results are so similar across platforms, the usage recommendations from the original paper for the PubMed search hedges³ extend to the Ovid and Embase searches also. Specifically, the narrow phrase search can be used for quick retrieval of relevant articles. The narrow title search may be used for slightly more rigorous searching and the broad keyword search achieves the recommended recall for comprehensive or systematic literature reviews.

Table 2. Relative recall for each of the search strategies by database platform.

| | PubMed | Ovid MEDLINE | Elsevier Embase |
|------------------------|--------|--------------|-----------------|
| Narrow phrase search | 73.43% | 73.43% | 73.86% |
| Narrow title search | 83.98% | 83.98% | 84.47% |
| Broader keyword search | 96.48% | 96.48% | 95.45% |

Implications

These search strategies provide IPE scholars with more data-driven options for finding literature. Using these searches can help librarians and researchers feel more confident in the comprehensiveness of their literature search strategies, with similar relative recall for each available platform. This work also provides useful information for future search validations; since translation across database platforms requires little extra investment, researchers can easily develop hedges for multiple databases. These validated search hedges will help scholars more easily and efficiently find IPE scholarship.

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