

Appendix A. Characteristics of included studies, including identified competency-related statements

Author, year, country	Health profession	Aim and main constructs addressed (EBP or RM)	Participant characteristics	EBP/research-related statements†	Recommendations
Surveys					
Adeniyi <i>et al.</i> , 2018 ^[23] Nigeria	PT	An appraisal of research projects produced by physiotherapy students in Nigerian universities (RM).	<i>n</i> =864 PT projects completed between 2000-2010	B15, B23, B26, D42	Weaknesses observed in research projects of past students can guide more informed instruction in RM. Identifying types and areas of research that are heavily subscribed can lead to possible re-orientation of students' research into priority types and areas.
Brooks & Bigelow, 2015 ^[25] USA	PT	To describe and evaluate an information literacy programme involving collaboration of librarians and faculty members (EBP, IL).	<i>n</i> = 23 upper-level undergraduate PT students at Springfield, Massachusetts	A4, A11, A14, B19, C35, D39	Close collaboration between faculty members and librarians is beneficial to students in establishing information seeking skills, critical thinking and scientific reading skills.

<p>Gorgon <i>et al</i>, 2013^[14] The Philippines</p>	<p>PT</p>	<p>To describe EBP education in Philippine physical therapy schools, including the challenges encountered by educators in teaching EBP (EBP).</p>	<p><i>n</i>=34 PT schools RR=55.7%</p>	<p>A4, A6, A10, B15, B16, B19, B28, D38</p>	<p>Need to define minimum EBP competencies and provide realistic framework for developing EBP competencies in the prescribed curriculum. Identified some EBP content considered appropriate for undergraduate level education and that which is appropriate for postgraduate level education. Faculties must be adequately upskilled in applying and teaching EBP to potentiate their ability to supervise students.</p>
<p>Junge <i>et al</i>, 2010^[41] USA</p>	<p>Varied BSc students</p>	<p>To report on an outcomes evaluation of the Summer Undergraduate Research Experience Program at Emory University in Atlanta (RM)</p>	<p><i>n</i>=822 students 15 cohorts from 1990-2004 Transcript analysis</p>	<p>A4, A14, B18, B24, B25, B26, B27, B28, B31, B32, B33, C36, D38</p>	<p>Consider quality of mentoring undergraduates in research by faculty.</p>

Olsen <i>et al.</i> , 2014 ^[28] Norway	PT	To compare self-reported EBP behaviour, abilities and barriers during clinical placements reported by five cohorts of final year physiotherapy students with different EBP exposure across the programme (EBP).	<i>n</i> =180 3 rd year PT students at a University College in Norway (2006- 2010) RR=73%	A3, A4, A6, A8, A10, B18, B19	Ensure optimal strategies for EBP exposure throughout the curriculum, regarding content, timing and type of training. Integrate EBP teaching into clinical courses.
Snibsoer <i>et al.</i> , 2018 ^[38] Norway	PT and OT among others	To assess EBP profiles among bachelor students in health disciplines, and explore differences between health disciplines, educational institutions, students' assessment of EBP teaching and expectations of EBP performance (EBP).	<i>n</i> = 707 students: OT <i>n</i> =129 PT <i>n</i> = 92 Radiography <i>n</i> =56 Nursing <i>n</i> =430 RR= 92%	A4, A6, B19	Educational institutions should develop comprehensive curricula where EBP teaching and learning is integrated throughout entire study programs, allowing repetition, consolidation and application of EBP knowledge and skills.
Spek <i>et al.</i> , 2013 ^[32] The Netherlands	SLT	To investigate the relation between EBP knowledge and skills, and EBP self-efficacy and task value in different year groups of Dutch SLT students (EBP).	1 st , 2 nd and 3 rd year SLT students of Hanze University 2009-2010 academic year <i>n</i> =149 RR=82%	A4, A6, A12, B15, B19, D41	Developers of EBP curricula should pay attention to how to increase self-efficacy in students.
Stronge & Cahill, 2012 ^[30] Republic of Ireland	OT	To investigate the knowledge and attitudes toward EBP of OT students in the Republic of Ireland (EBP).	Final year OT students from 4 universities in Ireland in 2008 <i>n</i> = 86 RR =77%	A4, A6, B19, F44	Fieldwork educators and therapists play a vital role in encouraging and reinforcing EBP.

Pretest-posttest studies

Aronoff <i>et al.</i> ,2017 ^[33] New York, USA	OT, PT and SLP among others	To assess online learning modules designed to teach EBP principles to prepare health professions students for an interprofessional context across two institutions (EBP).	Health profession students (<i>n</i> =39): medical (<i>n</i> =5), dental (<i>n</i> =5), pharmacy (<i>n</i> =4), OT (<i>n</i> =6), PT (<i>n</i> =6), SLP(<i>n</i> =3) and dietetics (<i>n</i> =6)	A4, A6, B15, B19	Online modules can be used to teach EBP knowledge and skills in an interprofessional context. Librarians can collaborate with faculty from various health professions programs and departments.
Long <i>et al.</i> , 2011 ^[26] Australia	PT	To explore changes in self-reported EBP knowledge, attitudes and behaviours, and actual knowledge of entry-level physiotherapy students after exposure to formal EBP training (EBP).	Comparison of Master and Bachelor students <i>n</i> =77 students	A3, A4, A8, A10, A11, B15, B17, B19, B28	Formal assessment or examination of EBP knowledge may act as a stimulus to learning.
Peachey <i>et al.</i> , 2018 ^[1] USA	AH	To explore the effect of a health research methods course on undergraduate pre-professional health student preparation and their perceptions of research utilization and EBP (EPB, RM)	Undergraduate health science students at a mid-Atlantic university <i>n</i> =241	A4, A6, A14, B15, B19, B20, B31, D39, E43	Improvements in research orientation and reductions in perceived barriers due to learning activities may eventually facilitate evidence-based practice.
Qualitative studies					

Callaghan <i>et al.</i> , 2011 ^[35] UK	PT and OT	To present the development and evaluation of a set of innovative video resources aimed at enhancing health students' understanding and learning of research methods concepts (RM).	FGD <i>n</i> =16 teaching staff (PT and OT among others) <i>n</i> =27 students (PT among others)	A6, A7, A14, B15, B19, B20, B23, B28, E43	Providing audio-visual presentation of RM aids student learning especially dyslexic students. Break down information into manageable, but related, sections. The three-element process of definition, analogy and researcher account provides a useful framework for teaching research methods
Cobus-Kuo & Waller, 2016 ^[31] USA	SLP	To assess teaching information literacy and EBP skills using a library workshop in an undergraduate speech language pathology capstone course (EBP , IL)	One-minute paper <i>n</i> = 51 SLP students at Ithaca College RR= 94%	A6, A8, A9, A11, B19	Strengthen faculty-librarian partnership: use of librarian-created course guides to support research-based assignments; librarian participation in faculty meetings.
Mixed methods studies					

Bozzolan <i>et al.</i> , 2014 ^[24] Italy	PT	To explore PT undergraduate students' perceptions/attitudes and knowledge/skills after exposure to composite EBP curriculum (EBP).	1 st , 2 nd and 3 rd year PT students in 2010/2011 academic year at University of Ferrara (<i>n</i> =62)	A1, A4, A8, A9, A10, B18, B19, B20, F44, F45	Regular Journal Clubs may be a means for supporting social negotiation and collaborative clinical decision making and can be bolstered by the invitation of students from other disciplines and involve both students and professionals. EBP experts or supervisors should give timely formative feedback to students and encourage reflection.
Hess & Frantz, 2016 ^[13] South Africa	PT	To determine the self-assessment literature-searching behaviour, self-perceived knowledge of critical appraisal skills and EBP beliefs of final-year undergraduate physiotherapy students at a university in South Africa (EBP, RM).	Final year PT students in 2012 academic year at University of Western Cape (<i>n</i> =27) RR=75%	B15, B19, B21, B23	Teach EBP in clinical practice modules in addition to RM module to enable students to apply EBP in practice. Students were not very confident in appraising literature therefore more training required.

<p>McEvoy <i>et al.</i>, 2018^[27] Australia</p>	<p>PT</p>	<p>To investigate EBP outcomes in entry-level physiotherapy students from baseline to completion of all EBP training (EBP).</p>	<p><i>n</i>=56 students <i>n</i>=21 students</p>	<p>A4, A6, A8, A10, A12, B15, B17, B19, B25, B29, F44, F45</p>	<p>Students begin to appreciate the relevance of EBP over time and become more confident when they learn by doing research. In first year on-line learning not as effective because learners not yet able to do their own learning. Group assignments also not favored as members may miss out on practicing important skills. Repetition of content may be viewed by some as opportunity to consolidate their learning.</p>
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<p>Schoonees <i>et al.</i>, 2017^[37] South Africa</p>	<p>OT, PT, SLT among others</p>	<p>To evaluating evidence-based health care teaching and learning in the undergraduate human nutrition, OT, PT, and SLT programs at a sub-Saharan African academic institution (EBP).</p>	<p>89 module guides Lecturers ($n=6$) Final year undergraduate students (2013) and graduate students (2012) ($n=53$) RR=30%</p>	<p>A3, A4, A6, A10, B15, B18, B19, B28, D38, D39, D42</p>	<p>Assessment drives learning. Lectures should be able to give and receive constructive feedback and guide students according to individual needs. Certain EBP competencies such as critical appraisal of articles should be taught at postgraduate level or even continued education level (lecturers concerned about time allocated for EBP not enough to teach all competencies). Students proposed EBP teaching should begin in first year, leaving time for repetition, consolidation and application of knowledge and skills. Include explicit learning outcomes related to EPB in module guides and evaluate EBP curricula on regular basis.</p>
<p>Studies describing curriculum development</p>					

Asokan, 2012 ^[39] Bahrain	AH	To define the role of AHP, concepts of EBP in allied health professions, ways to adopting EBP in routine AH practice, perceived barriers and facilitators in EBP, and the need for well-structured EBP curriculum which would strengthen concerted teaching, research, and practice in AH (EBP).	N/A	A3, A4, A6, A10, B16, B18, B19	Develop and validate effective methods for teaching and evaluating all components for each of the EBP steps.
Boruff & Thomas, 2011 ^[29] Canada	PT and OT	To describe the collaborative process and outcome of integrating EBP and information literacy early in a professional PT and OT programme (EBP , IL).	N/A	A2, A3, A4, A5, A6, A9, A10, A11, B15, B17, B19	Early exposure to EBP and IL concepts promotes the development of baseline knowledge and skills upon which students can build during their remaining years in the programme. Collaboration between faculty with discipline-specific knowledge and librarians with IL expertise allows for a more comprehensive and targeted design of course content and assignments.

Burger & Louw, 2014 ^[12] South Africa	PT	To describe the process of changing the undergraduate research methodology module from a primary research to a secondary research approach (EBP, RM).	N/A	A1, A4, A6, B19, B20, B25, B29, D38, D41, E43	Utilising a secondary research approach in the form of a systematic review or meta-analysis in our undergraduate research methodology module provides the opportunity for students, as novice researchers, to be trained in the principles of EBP.
Franzen & Bannon, 2016 ^[36] USA	PT and OT	To create a curriculum map that integrates information literacy into an existing subject-based curriculum (EBP, IL).	N/A	A4, A6, B19, C35, E43	By creating a curriculum map, collaborative efforts become more meaningful and information literacy may be integrated throughout the program.
Reviews					
Boruff & Harrison, 2018 ^[34] Canada	PT, OT and SLP	To investigate how knowledge and skills are assessed in the IL instruction for students in PT, OT or SLP (EBP, IL).	Scoping review including studies from 1990-2017	A4, A6, A8, B19	Measuring long-term knowledge retention and skill development to assess instruction given by health sciences librarians.
Hitch & Nicola-Richmond, 2016 ^[40] Australia	AH	Updated review of the effectiveness of teaching and assessment interventions for EBP in allied health professions (EBP).	Systematic review of peer-reviewed journals 2011-2015	A11, B15, B20, D38, D39, D41	Assess the prior knowledge of students as a basis for scaffolding. Prepare students for communication of EBP to varying audiences.

Swanberg <i>et al.</i> , 2016 ^[42] Canada	Health sciences	To determine the methods employed by librarians for teaching EBP within health sciences curricula and which instructional method is most effective in promoting successful learning (EBP , IL).	Systematic review of $n=27$ articles dated up to December 2014	A4, A8, A10, A13, B15, B17, B22	Delivering EBP instruction over multiple sessions utilizing several teaching methods rather than one short single session might be more effective in teaching IL skills.
Thomas <i>et al.</i> , 2011 ^[43] Canada	OT	Critical review of the evidence that supports EBP and the effectiveness of EBP teaching and assessment interventions in professional health sciences programs (EBP).	N/A (narrative review)	A4, A6, A10, B19, D40	Support collaborative learning that exposes students to alternative viewpoints and affords them the opportunity of apprenticeship learning. Scaffold learners from knowledge that is presently known to that which is to be known, thereby facilitating the learner's ability to perform just beyond the limits of current ability.

Wallmann and Hoover, 2012 ^[22] USA	Exercise science students transitioning to PT	To encourage undergraduate students to engage in research to promote higher-order critical thinking skills (RM).	N/A (opinion paper)	A4, B19, B24, B25, C36, D39, D40	Encouraging students to complete the manuscript submission process to publish research teaches students to be consumers of information while constantly evaluating the credibility of sources as they make sense of their own work.
<p>Abbreviations: AH - Allied Health, AHP - Allied Health Professionals, EBP - Evidence-based practice, FGD - Focus Group Discussion, N/A - Not applicable, OT - Occupational therapy, PT - Physiotherapy/Physical Therapy, RM- Research Methodology, RR – Response Rate, SLP - Speech and Language Pathology, SLT - Speech and Language Therapy.</p> <p>† corresponds to item number from the list of competency-related statements (Table 3).</p>					