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Scoping Review Protocol

1.0 TITLE

Professional identity formation within longitudinal integrated clerkships: a scoping review.

2.0 PROTOCOL INFORMATION

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3.0 BACKGROUND

Professional identity formation

Professional identity is increasingly studied within medical education, particularly amongst medical students and physicians, where its creation is defined as ‘the foundational process one experiences during the transformation from lay person to physician’(1). Developing a healthcare professional’s identity requires internalisation of ‘core values... moral principles and self-awareness’(1) and allows professionals to ‘practice with confidence and professionalism’(2). It is no surprise, therefore, that institutions and educators are increasingly seeking ways to foster robust professional identity development within healthcare students.

There are many theoretical perspectives that aim to explain professional identity development within health professions education. No one theory has emerged as definitive, although several theories have gained traction and are well-used within the field. Of note include Cruess et al’s process model of socialisation(3), Erikson’s stages of identity development(4), Kegan’s five step model (5), Marcia’s identity statuses (6), communities of practice theory (7, 8), symbolic interactionism (9) and, more recently, figured worlds theory (10-12).

Longitudinal integrated clerkships

Longitudinal Integrated Clerkships (LICs) are placements in which students are sited within a clinical setting ‘or a variety of interlinked clinical settings’ for ‘an extended time’, where continuity in patient interaction, supervision and assessment aid not only cognitive knowledge acquisition, but also ‘cultural learning’ (13). LICs have grown in popularity since the first formal model was widely publicised at Harvard medical school (14, 15). Their use is multifactorial, though they are sometimes used as a tool to increase recruitment of

practitioners to rural areas (16). Despite significant recent progression in LIC development and adoption, LICs are still an emerging method within medical education, with little more than 1000 placements reported globally in 2014 (17).

As LICs emerge as an increasingly popular model of clinical education delivery, research regarding their use and impact is increasing. An increasingly detailed literature base necessitates periodic synthesis, in order to best direct future research and avoid duplication of effort. Yet, literature reviews specific to research regarding longitudinal integrated clerkship use are infrequent. More broadly, literature reviews exist that include LIC related literature, such as Crampton et al's systematic review of undergraduate placements in underserved areas (18) and Somporn et al's narrative review of stakeholder experiences of rural community-based medical education (19). Although these reviews are clearly of use in contributing to wider discourse within medical education, e.g. regarding education in underserved areas, they do not synthesise research pertinent only the use and impact of LICs. To the author's best knowledge, only two formal LIC-specific literature reviews have been published- Walters et al.'s narrative review synthesising the outcomes, including academic performance, of LICs for students (20); and Brown et al's narrative review on the development and implementation of LICs (21).

Why it is important to do this review

A relative dearth of literature reviews pertinent to LICs would not be reason enough to conduct this scoping review. Yet, as LIC research grows it becomes more difficult to ascertain the contemporary literature base- what is known, what has already been done, what would it be worthwhile asking or doing? Research regarding professional identity formation within LICs has not been synthesised or summarised. Identity is a broad concept that can be explored from a multitude of theoretical perspectives. As there is no consensus definition of professional identity or organising theoretical perspective, identity research can itself be broad and disparate. Within medical education, identity research has occupied a marginalised position within medical education journals, instead explored from a 'broader health and social sciences arena'(22). It remains unclear what the sum of knowledge regarding identity development within longitudinal integrated clerkships is and whether it too struggles with nebulosity and marginalisation. In particular, the theory that has been used to explore identity formation within LICs has not been summarised. As such, directions for future novel research regarding identity within LICs remains unclear. It is hoped this scoping review will map the current landscape of identity development research within LICs, highlighting avenues for future research questions, and theoretical gaps.

4.0 OBJECTIVES

This scoping review aims to identify and synthesise the literature on professional identity formation within longitudinal integrated clerkships

The PS (Population, Situation) tool (23) has been used to form a research question for this work:

- Population: health professions students
- Situation: identity formation within longitudinal integrated clerkships

The research question of this review is, therefore: what is known about professional identity formation within longitudinal integrated clerkships?

A scoping review has been selected as an exploratory form of knowledge synthesis. Identity is a broad concept, and as no previous literature reviews focus on identity formation within longitudinal integrated clerkships, it is unclear what is already known. Therefore, a scoping review synthesising current knowledge and mapping areas for future research is necessary.

5.0 METHODS

This scoping review will be registered with the Open Science Framework and is being reported in accordance with the reporting guidelines provided in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P).

Joanna Briggs Institute methodology (24) and Arksey and O'Malley's six scoping review steps (25) will be used to guide the methods of this work.

Search and information sources

The following relevant databases will be searched for studies: MEDLINE, EMBASE, PubMed, Web of Knowledge, ERIC, PsychInfo, Google Scholar, JSTOR, Scopus and Web of Science. The search strategy will include both Medical Subject Headings (MeSH) and free text terms, combined with Boolean operators. No restrictions of date or language will be placed upon the search.

In addition, the reference lists of included studies will be explored for relevant additional work, and the 'related articles' function in PubMed will also be used.

A full search strategy, designed to run in MEDLINE is listed in figure 1, below. This search strategy will be appropriately translated to run through the other electronic databases listed above.

Medic* OR Physician* OR Doctor* OR Osteopath* OR Allopath* OR Pharmacist* OR Nurs* OR Psych* OR Paramedic* OR Practitioner* OR MeSH: Allied Health Personnel OR MeSH: Physician Assistants OR MeSH: Physicians OR MeSH: Nurses OR MeSH: Nursing Assistants OR MeSH: Emergency Medical Technicians OR MeSH: Osteopathic Physicians
AND
MeSH: Students OR MeSH: Students, Nursing OR MeSH: Students, Medical OR MeSH: Clinical Clerkship OR MeSH: Education, Medical OR MeSH: Education, Medical, Graduate OR MeSH: Education, Medical, Undergraduate OR MeSH: Education, Nursing OR MeSH: Education, Nursing, Baccalaureate OR MeSH: Education, Nursing, Associate OR Clerkship* OR Train* OR Stud* OR Learn* OR Graduat*
AND
Longitudinal OR Integrated OR clerkship* OR (longitudinal adj3 integrated adj3 clerkship*) OR (longitudinal adj3 clerkship*) OR (integrated adj3 clerkship*) OR (longitudinal adj3 integrated) OR MeSH: models, educational
AND
Professional identit* OR occupational identit* OR identit* OR ((develop* or form* or construct* or change* or disrupt*) AND identit*) OR sociali* OR MeSH: Socialization OR MeSH: Self Concept OR MeSH: Identity Crisis OR MeSH: Social Identification

Figure 1: Example search strategy for MEDLINE.

Inclusion criteria

Studies of any design will be considered for inclusion, with both quantitative and qualitative output, so long as they study professional identity within longitudinal integrated clerkships involving health professions students. Reviews will also be considered for inclusion.

Ideally, all papers will self-define as having studied a longitudinal integrated clerkship. As a relatively new form of medical education, this is important context, and so usually detailed in the title, abstract or full-text of the work. When it is unclear from the title and abstract whether an educational programme represents a LIC or not, the full text will be reviewed for inclusion against study inclusion criteria. For the purpose of this review, longitudinal integrated clerkships will be defined in line with Worley et al's seminal paper: A typology of longitudinal integrated clerkships (17). Worley et al. define three clusters longitudinal clerkships may fall into: cluster A, cluster B, and cluster C. Cluster A represents amalgamative clerkships, occurring for less than 50% of the academic year, with a median range of 6-18 weeks. Cluster B represents blended clerkships, occurring for 50-90% of the academic year, with a median duration of 20-38 weeks. Cluster C represents comprehensive clerkships, occurring for 90-100% of the academic year, with a median range of 32-54 weeks. Worley's typology is outlined in full in table 1, below. All included studies will be evaluated against this typology, to ensure their fit as a true longitudinal integrated clerkship. Where it remains unclear how a programme meets this typology, corresponding authors will be contacted for further clarification.

Programme type	Programme characteristics	Setting subtype	Subtype characteristics
Amalgamative clerkship	1 < 20 weeks (< 50% of duration of academic year)	Community	1 Median: 11 sites, usually including small rural communities
	2 Two or more but < 50% of disciplines covered		2 Usually an FM focus
	3 Treated as one of many rotations in a rotation-based course	FM	1 Median: nine sites, usually including small rural communities
	4 Any of the last 3 years of the degree programme		2 Predominantly FM supervisors
Blended LIC	1 50–89% of duration of academic year	Other specialties	1 Median: two sites, usually including large urban communities
	2 All or majority of disciplines covered		2 Predominantly non-FM supervisors
	3 Linked complementary rotations external to LIC to complete the academic year	FM	1 Median: nine sites, usually including small rural communities
	4 Usually in penultimate year		2 Predominantly FM supervisors
Comprehensive LIC	1 Full duration of clinical academic year (90–100%)	Other specialties	1 Median: one site, usually including a large urban community
	2 All disciplines covered		2 Predominantly non-FM supervisors
	3 Limited brief in-patient discipline-specific immersive experiences within LIC	FM	1 Median: nine sites, usually including small rural communities
	4 Usually in penultimate year		2 Predominantly FM supervisors

Table 1: LIC programme typology, reproduced from Worley et. al, 2016 (17).
FM= Family Medicine.

Exclusion criteria

Research involving the study of longitudinal integrated clerkships, or their variants, in postgraduate training (e.g. the UK foundation programme, internships, residency) will be excluded. Although professional identity formation occurs along a trajectory, with individuals differing in their stage of development, working as a doctor carries a different set of influences on identity development than being a student. Currently, LICs for health professions students are more populous than postgraduate LICs. As such, only longitudinal integrated clerkships run for health professional students will be eligible for inclusion in this work.

Practically speaking, articles for which the full-text is unavailable following direct contact of the corresponding author will be excluded. Unfortunately, there is no budget in this study for translation, so articles not in English will also be excluded.

There will be no exclusions based on date published- all existing LIC literature will be searched.

6.0. DATA COLLECTION AND ANALYSIS

Selection of studies

An automated text-classification program will be developed using Python and used to process all retrieved search results (26). All search results will be extracted from the previously listed electronic databases as .csv files. All data will be merged and screened for duplicates using Python. Duplicates will be removed from the data set. Hand-screening results located throughout the study will also be fed into Python, listed as a .csv file.

Initially, deductive coding will be performed. A Python script will be written to generate a frequency count of the different terms used by authors in their titles. Terms found in more than 1% of publications will be reduced to their simplest root form e.g. 'education', 'educate'

and 'educational' would all become the root 'educat'(27), which will then be used as a wildcard. Words found in > or equal to 5% of all titles will be tabulated. The list of all tabulated root words obtained will then be fed into another Python programme. The second Python programme will code all titles to produce a binary matrix. In the binary matrix, 0 will signal 'no match', and 1 will signal 'match'.

Titles will be used to generate a frequency count in preference to abstracts, as has been done in previous machine learning literature searches(27). The rationale for this decision centres around the need to control the amount of work generated by this process, the fact that authors use titles to signpost work contents, and so as not to miss articles without abstracts and bias results (27).

The second Python programme will then be used again to inductively analyse publication titles and abstracts. This will act as another layer of screening, ensuring appropriate capture of relevant studies. An extensive list of keywords will be developed using a thesaurus, that relate to the focus of this study- professional identity, and longitudinal integrated clerkships. These keywords will be fed into the Python script to once again code titles with a frequency count, generating another binary matrix. Once title coding is complete, this process will be re-run using study abstracts, to ensure all relevant articles have been captured. Once completed, all studies identified as a 'match' by all generated binary matrices will be manually screened for inclusion against the study eligibility criteria by two authors (MB and PW). Disagreement will be resolved by initial discussion. If a consensus cannot be reached, a third reviewer (GF) will be consulted for their interpretation. All studies identified for inclusion will undergo data extraction, charting, mapping, and thematic content analysis.

Data extraction and charting

Two authors (MB and PW or GF) will read each article meeting the work's inclusion criteria in depth. All relevant data will be transferred to a data extraction sheet, which will be iteratively developed by the entire research team. Each author's data extraction will be independently checked by another member of the research team for accuracy. Version 1 of this data extraction form has been drafted, but changes to this form are anticipated, in line with inductive development. At this early stage, it is anticipated that relevant data will include demographic information (list of authors, year published, setting/context); methodological detail (study design and any given methodology); the study's research questions; detail on relevant identity theory used; study conclusions; and identified directions for future research.

Strategy for data synthesis

Quantitative textual meta-analysis

Results of the machine learning deductive coding will be presented as a quantitative textual meta-analysis. Word frequency counts will suggest what professional identity research within longitudinal integrated clerkships as a field is most concerned with.

Qualitative content analysis

Thematic content analysis will be undertaken on all studies identified that meet this work's inclusion criteria. Thematic analysis of all identified relevant studies will be presented in narrative format in the manuscript of this work.

7.0. ACKNOWLEDGEMENTS

None.

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9.0. APPENDICES

10. CONTRIBUTIONS OF AUTHORS

Dr Megan Brown:

1. Conception and design of the scoping review
2. Drafting the protocol for comment, revising in light of feedback of co-authors
3. Development of screening and data extraction/data charting forms
4. Performing searches
5. Screening papers against inclusion/exclusion criteria
6. Extracting and exporting data
7. Mapping results
8. Interpretation of data thematically
9. Presentation of data in narrative format
10. Drafting of scoping review for comment, revising in light of feedback of co-authors

Mr Gavin Kirwan:

1. Design of automated text-classification code, to be run in Python, for data screening
2. Extracting and exporting data from Python

3. Synthesis of automated coding findings as a result for final report
4. Revising the scoping review critically, particularly the methods surrounding the quantitative textual meta-analysis
5. Manuscript editing

Dr Paul Whybrow:

1. Input into the conception and design of the scoping review
2. Screening papers for inclusion/exclusion criteria
3. Extracting and exporting data
4. Providing support with development of data extraction forms, data interpretation
5. Revising the scoping review critically
6. Manuscript editing

Professor Gabrielle Finn:

1. Input into the conception and design of the scoping review
2. Screening papers for inclusion/exclusion criteria
3. Extracting and exporting data
4. Providing support with development of data extraction forms, data interpretation
5. Revising the scoping review critically
6. Manuscript editing

11. DECLARATIONS OF INTEREST

None.

12. SOURCES OF SUPPORT

None.

13. PUBLISHED NOTES

None.