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PREPARING GRADUATE ENTRY NURSING STUDENTS TO SUCCESSFULLY COMPLETE RESEARCH PROJECTS: A SCOPING REVIEW

Abstract

This scoping review investigates how graduate entry nursing (GEN) programs prepare students to successfully complete research projects. For many decades, GEN programs have been offered internationally as an accelerated pathway to nursing registration for graduates. Students who enrol have completed a baccalaureate/bachelor's degree in a prior discipline, but previous research experience is not a prerequisite. Our review spans GEN programs where English is the language of instruction. With a focus on teaching interventions, the databases included ERIC, Taylor & Francis, Scopus, Wiley Online Library, Sage, CINAHL, Medline and EMcare, with additional citation searching. We followed Arksey and O'Malley's (2005) framework for scoping reviews. Of the initial 537 studies, five were identified for inclusion. The findings show considerable variation in what aspects of literacy were taught and how literacy teaching was integrated into programs. The reported benefits include improvements to program progression and completion, academic performance, as well as a heightened sense of belonging and positive learning experiences. However, the absence of detail about literacy practices, and reporting on findings only within one course – rather than across a program – poses future difficulties for generating recommendations about program design or refinement. In this regard, specific areas of future research are suggested.

Key words

research writing, research projects, discipline-specific literacy, nurse education, graduate entry nursing, writing across the curriculum.

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1. INTRODUCTION

The increasingly diverse range of graduate students and the well-documented trend of widening access to universities are often noted as factors that contribute to 'problems' with research writing that need 'fixing' (Badenhorst et al., 2015). However, significant factors impacting student success involve the extent to which programs prepare students for the time pressures and assessment demands of their program (Macnaught et al., 2024). Graduate entry nursing (GEN) degrees were initially established in the United States in the 1970s as an accelerated pathway to nursing registration (Downey & Asselin, 2015). As Downey and Asselin report, they are for individuals with a baccalaureate/bachelor's degree or higher. There are two well-known pathways investigated in this review: an accelerated Bachelor of Science Nursing and a Master's. Both will be referred to as graduate entry nursing. These programs are open to domestic or international students, and international students must meet the English language requirements stipulated by the institution of study.

The pressures and demands on students undertaking GEN programs include juggling the completion of clinical placements and written assessments as part of prescribed coursework. Internationally, GEN programs need to meet both university regulation and registration body requirements as specified in each country, for example, Nursing and Midwifery Council UK, Nursing Council New Zealand, and Australian Nursing and Midwifery Council. One variation of requirements involves the research component – commonly either a research proposal or an independent project. Although all students start GEN programs as graduates, there are no prerequisite research courses.

In terms of developing research writing, scholars have long argued for systematic pedagogies to teach it (see reviews of literature in Macnaught, 2024; Hood & Macnaught, in press). As Aitchison and Lee (2006, p. 266–267) observe, when such teaching is absent, there is commonly an "over-reliance on clinical intervention by language or writing advisers at the point of crisis." Recently, the significant increase in research related to academic writing (see the bibliometric review by Hyland & Jiang, 2021), has further identified specific emotional and conceptual challenges that graduate students may experience. For example, Tornwall and McDaniel (2022) found that students in their study had negative self-perceptions about managing the emotional aspects of research writing, and other research notes the prevalence of impostor syndrome, briefly described as feeling intellectually overwhelmed (Cisco, 2020). In relation to such challenges, scholars report the benefits of initiatives, such as writing groups, for developing a researcher identity and developing knowledge about research writing in a safe space (Wilmot & McKenna, 2018).

One recurrent conceptual challenge involves understanding the functions of literature review sections and integrating literature into research writing (e.g., Bitchener & Banda, 2007; Chen et al., 2016). A recent study of 40 completed Master's

theses, for instance, found that "most students, even proficient ones, were not able to synthesise, critique, or explain the literature in their writing;" instead, they "focused more on summarizing" the literature that they had read (Shahsavar & Kourepaz, 2020, p. 1). These findings pertain to English as a Foreign Language students who undertook Master's degrees in a range of disciplines where English was the language of instruction but not the mother tongue. Similar difficulties have also been self-reported by undergraduate nursing students who felt unsure about how to evaluate and critique what they were reading (Gimenez, 2008). These findings pertain to native speakers of English as well as students for whom English is an additional language. Such findings are unsurprising because students must engage with "uncommon sense" ways of making meaning (Martin, 2013, p. 23), which have emerged "from the values and structure of the target field" (Boughey & McKenna, 2021, p. 67). In other words, the literacy demands of tertiary study are very unlikely to develop from experiences during everyday life – nor does previous study in one academic discipline automatically prepare students for study in another. From this perspective, graduate students need sustained and gradual teaching about academic literacy within their programs, where they can "negotiate academic literacies over time" (Badenhorst et al., 2015, p. 2).

For this review, the development of discipline-specific literacy, including research-related skills, encompasses ways of identifying and critiquing meanings within readings or other artefacts; it also encompasses presenting, debating and creating knowledge through various modes – that is, through speaking, writing, and visual or multimodal resources (Mills & Unsworth, 2017; Wingate, 2018). Additionally, literacy development involves searching for, accessing, reading, and evaluating information, commonly referred to as information literacy. Although beyond the scope of this review, the recent developments in AI technologies have also invigorated discussion about the digital literacies that nursing students need for their studies and future careers (e.g., Simms, 2025). In this review, these overlapping areas will be referred to collectively as literacy development and specified individually where necessary. While the theorisation of literacy varies and understandings of what it constitutes influence responses to it (Bassett & Macnaught, 2024), educators are concerned that "increasing numbers of students enrolling in higher health education and future health professions will be underprepared to meet demands of academic literacies" in their programs (Klarare et al., 2022, p. 1).

Responses to these concerns have been investigated in past literature reviews of health-related disciplines, however, these have spanned health education more broadly or focused on undergraduate nursing, rather than on GEN preregistration programs. For example, past reviews have examined the use of exemplars in undergraduate nursing education and other programs (Carter et al., 2018), literacy interventions in a range of undergraduate health programs (Klarare et al., 2022), information literacy and general academic skills in first-year undergraduate health science (Munn & Small, 2017), and assessing the importance of academic literacy in

undergraduate nursing programs and its relationship to professional clinical practice (Jefferies et al., 2018). While this review is focused on literacy development in GEN programs (where students already have a bachelor's degree and instruction is in English), relevant insights from these past reviews include: i) observations that many students, at various levels of study, come unprepared for the literacy demands of their programs; and ii) recommendations that an embedded approach to literacy development should be adopted – meaning that teaching about academic literacy occurs within units of study and is directly relevant to assessments; and iii) calls for far more research to evaluate teaching interventions.

More specifically, within nursing education, a wide range of strategies for literacy development have been implemented. Examples include providing study skills interventions prior to commencing a program (Owens, 2020), one-on-one feedback to individual students (Irwin et al., 2024) and referral or self-access to workshops (Glew et al., 2019). Other interventions that explore specific areas of literacy teaching within programs include using desktop simulations for guiding the development of critical thinking (O'Flaherty & Costabile, 2020), teaching students to locate and retrieve literature for specific assessment tasks (Wallace et al., 2000), discussing annotated exemplars and notifying students of where these can be downloaded (Carter et al., 2019), designing specific rubrics for different types of writing tasks to illuminate what is distinctive and important about them (Monbec et al., 2021), and explicitly teaching undergraduate nursing students about the specific types of assignments in their program (Malveira-Ofranò & Wingate, 2024). However, for designing or refining GEN programs, it is currently difficult to determine the extent to which such choices or combinations of choices for literacy development may be effective for graduate level nursing students and how such teaching may be organised across a whole program.

This difficulty in identifying literacy practices that are relevant to and effective for GEN students may be because much of the research focuses on factors other than literacy development, for example: student demographics (McKenna & Vanderheide, 2012), student motivation (Macdiarmid et al., 2021), the self-directed study skills of students (Stacey et al., 2016) and how these attributes bring a different perspective to student learning (Downey & Asselin, 2015). Research has also explored student learning experiences longitudinally with Winnington et al. (2023) highlighting that GEN students' personal growth and development of the self through learning experiences prepared them for subsequent study. Such research is important for acknowledging that a wide range of factors contribute to student success and retention (see also Gopee & Dean, 2013 for further discussion).

While acknowledging that many factors impact the experiences and success of students, we are interested in how GEN programs may already be responding to literacy challenges and, particularly, preparing students for completing research projects. By preparation, we mean explicit teaching about research writing prior to the final submission of a research project. This teaching may occur within one course where the research project is assessed. It may also include two courses in a

series, such as one where students generate their research design and another in which they conduct and write up their projects. Additionally, other courses within the graduate entry program may involve teaching about literacy which provides a stepping-stone towards research writing, such as writing a clinical case study where students learn how to integrate literature to support a claim. By investigating current responses to literacy challenges, this review aims to gain a better understanding of the breadth of what may be taught, how it is integrated into a program, and possible benefits of teaching interventions for GEN students. These questions arise from our own context of teaching within a GEN program and interviewing students as part of the program selection process. We have become increasingly aware of the diversity in the past educational experiences of students, and particularly how demanding the research components are for them. As Jefferies et al. (2018, p. 84) warn, "educators should not assume academic literacy skills upon commencement" of a nursing program. Given that research components are mandatory in our context, we also feel a moral obligation to prepare students for success and seek research that will inform our choices. More broadly, the high stakes for all involved and the well-documented global shortage of nurses (World Health Organisation, 2025) makes understanding more about the effective design and the integration of literacy development in GEN programs a matter of urgency.

For this scoping review we have one overarching question that can be answered through three sub-questions. These questions are broad to capture a range of existing practices. This breadth acknowledges that teaching and learning that is relevant to the development of research writing and successfully completing research projects may be enacted in varied ways and may be distributed across courses – not only within research components.

Overarching question:

How are literacy practices in graduate entry nursing programs (GEN) preparing students to successfully complete their research projects?

Sub-questions:

1) What aspects of literacy have been taught in GEN programs?
2) How has teaching and learning about literacy been integrated within GEN programs?
3) What benefits have been reported about literacy teaching in GEN programs?

2. METHOD

Scoping reviews are increasingly used and acknowledged as being a mechanism for mapping what is known about a subject area (Arksey & O'Malley, 2005), whether that be established or emerging fields of interest. Further, a scoping review offers the opportunity to gauge the current knowledge in fledgling research arenas and, as such, was deemed suitable for investigating how GEN students are prepared for

successfully completing research projects. As noted earlier, this may include one or more courses where students design, conduct and write up their projects. Preparation may also span other courses where aspects of literacy provide a stepping-stone towards the kind of research writing that students need to include within their own research projects. The focus of this review was to map current knowledge about teaching interventions in GEN programs related to research projects and to identify specific areas that future research could address. Arksey and O'Malley's (2005) scoping review framework was used to identify and synthesise existing research following their five prescribed steps: 1) identifying the research question, 2) identifying relevant studies, 3) study selection, 4) charting the data, and 5) collating, summarising and reporting the results.

For the process of documentation and visualization, we used the PRISMA Extension for Scoping Reviews Checklist (Tricco et al., 2018) and a template that was accessed through Covidence 2.0 systematic review software (Veritas Health Innovation, n.d.). Covidence is a web-based platform that supports researchers to manage all phases of the review process, such as tracking and resolving agreements and disagreements with screening. It also produces summary documents of all the steps undertaken in the review process, such as a PRISMA flowchart.

2.1. Identifying the research questions

The research questions detailed above seek to provide a comprehensive mapping of the focus, implementation and benefits related to literacy development within GEN programs. As specified below, although our aim is to chart a range of ways in which GEN students are prepared for successfully completing research projects, we acknowledge that teaching and learning may not only occur within designated research components of the program. As such, the tripartite organisation of the research questions attends to the breadth of what may be taught, how it is taught, and associated claims of benefits to students.

2.2. Identifying relevant studies

The search strategy was developed and refined by the research team (LM, RW and RM). There were four main concepts with alternate wording for the same concept indicated by "OR" in Table 1. The central concept involved nurse education at a graduate level and was included in every search. This concept was then paired with either concept two, or three, or four. In other words, there was a relationship of "AND" between the main concept and others which were added to each search. While concepts two and three involved terms about the focus of literacy teaching, concept four involved terms related to the impact of teaching. Overall, this combination of terms aligned with our goal of establishing how GEN programs may be gradually preparing students for the literacy demands of their research projects and reporting on possible benefits.

Central concept 1	Nurse OR Nursing AND "graduate entry" OR "graduate-entry" OR "direct entry" OR "second degree"
Concept 2	"academic literacy" OR "academic language" OR "academic skills" OR "study skills" OR "learning support" OR "research skills" OR "research writing" OR dissertation OR thesis OR "research project" OR "capstone project"
Concept 3	"English for Academic Purposes" OR "Writing across the curriculum" OR "writing in the disciplines" OR "disciplinary writing" OR "academic writing"
Concept 4	"academic success" OR "student achievement" OR "student performance" OR "student success" OR "student retention" OR "student grades" OR "student results" OR "grade point average" OR "GPA"

Table 1. Concepts and corresponding search terms

The search was conducted in August 2023 and involved eight electronic databases to which we had institutional access: ERIC, Taylor & Francis, Scopus, Wiley Online Library, Sage, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, and EMcare. Additionally, in January 2024, the reference lists of the included studies were reviewed for further relevant articles. To reduce irrelevant studies which involved nurse education at a bachelor level, concept 1 was searched for within titles. All other concepts involved searching within titles, abstracts, keywords, and full text, depending on the options available within specific databases. An example of search results for the combination of concepts in Table 1 is presented in Appendix A.

2.3. Study selection

Included data were empirical research studies published in peer-reviewed journals, master's and doctoral theses and dissertations that met the inclusion criteria. All included data were published in English, with no date limiters applied. Included studies specifically focused on the implementation and evaluation of teaching interventions which targeted the literacy development of graduate level nursing students. All inclusion and exclusion criteria are detailed in Table 2. Aligning with the goal of scoping reviews to generate "in-depth and broad results", there are no restrictions on the study design of the included empirical studies (Arksey & O'Malley, 2005, p. 22). Additionally, following Arksey and O'Malley's framework, this scoping study "does not seek to assess quality of evidence," but rather it uses an analytical framework (see Section 2.5.) to "present a narrative account of existing literature" (2005, p. 27).

Parameters	Inclusion	Exclusion
Publication type	Empirical studies published in peer-reviewed journals, theses and dissertations.	Grey literature, discussion pieces, opinion pieces, non-peer reviewed articles, books, abstracts-alone, conference proceedings or personal reflections.
Date	No limitation	None
Language	English	Non-English
Publication object of study	Teaching interventions that were implemented and evaluated for academic and information literacy development; interventions may involve teaching across one or multiple modes (face to face, online, or through learning management systems).	No actual teaching intervention, descriptions of teaching, theoretical reflections about teaching, discussion of theoretical orientations only, personal reflections on teaching experiences.
Publication focus	Identifying impact from the teaching intervention (possible benefits, lack of change, issues arising from the intervention).	Absence of reporting on outcomes and other means of evaluation, simulation labs, clinical placements.
Setting and participants	Graduate entry to nursing practice students as specified in GEN, Bachelor of Science Nursing (BSN), Master of Science in Nursing (MSN) or Doctor of Nursing Practice programs (DNP).	Non-graduate entry.

Table 2. Inclusion and exclusion criteria

The database search identified 536 studies which were of possible relevance (ERIC via OVID (n=37), Taylor & Francis (n=23), Scopus (n=182), Wiley Online Library (n=24), Sage (n=12), CINAHL (n=152), Medline (n=83), and EMcare (n= 23)). Additionally, one further study was identified through reference mining after the title and abstract screen detailed below, bringing the total identified studies to 537. All 537 articles were imported from the databases to Zotero reference management software and then imported as pdf files into Covidence. Utilizing Covidence, a total of 122 duplications were then identified and removed, leaving 415 studies for screening. The title and abstracts of each study were screened for eligibility by two researchers independently with the third researcher resolving conflicts. This resulted in 28 studies for full text review. Each of these studies was

assessed for inclusion by two researchers independently with the third researcher again resolving disagreements. After full-text review, a further 23 studies were excluded as they did not meet the inclusion criteria, leaving a total of five included studies. This process is reflected in the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) flow chart below (Page et al., 2021)(Figure 1).

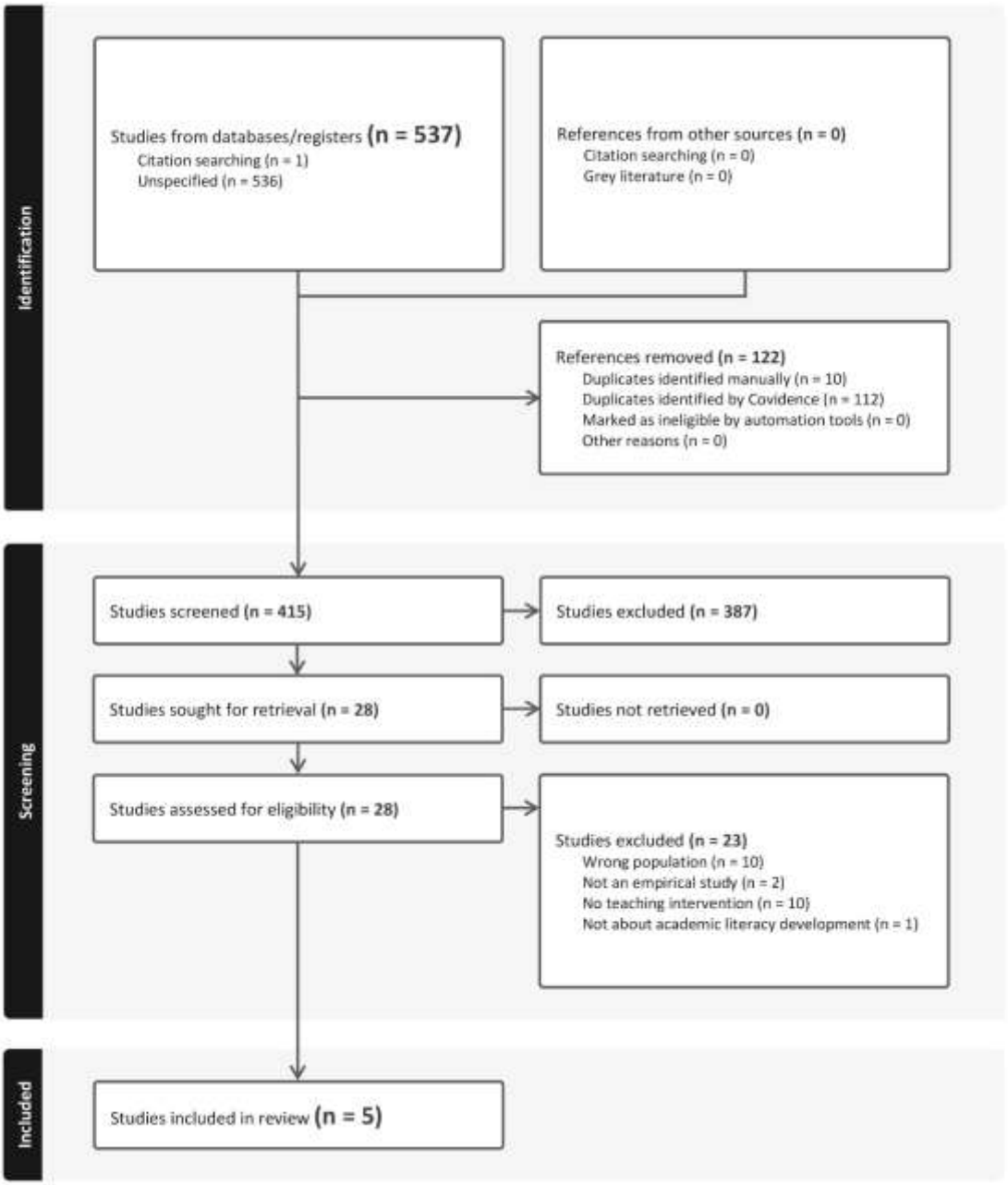

Figure 1. PRISMA flow chart (generated by Covidence; following Page et al., 2021)

2.4. Charting the data

In addition to data for study titles, authors, year of publication, and country of publication, and in alignment with the research questions, extracted data included: population descriptions, what was taught during teaching interventions, how the interventions were implemented, and precise details about what the reported benefits were. These data were extracted through Covidence where two researchers both extracted data independently for all included studies with the third researcher checking for data consistency, accuracy and conflict resolution. Once extraction was completed in Covidence, data were exported as an Excel file and then formatted as a table in Microsoft Word (see Appendix B).

2.5. Collating, summarising and reporting the results

Following Arksey and O'Malley's (2005) framework, the purpose of collating, summarising and reporting the results is to present a narrative account of existing literature with no attempt to aggregate findings. We used theory within the applied linguistic framework of Systemic Functional Linguistics to identify recurrent themes related to our research questions. In our case, this involved the analysis of field or 'subject matter', namely the descriptions of teaching interventions in the included studies. This approach generates a taxonomy of classification (Martin & Rose, 2007) where subject matter is hierarchically organised into types and subtypes. All three researchers independently examined the extracted details from the included studies (see Appendix B) to identify and refine this organisation. Given the small number of included studies and their wide-ranging data, no synthesis was attempted of the quantitative data reported therein. The full taxonomic classification of teaching intervention data is detailed in Table 3.

#	Research Focus	Type	Subtype	Further specification
1	What was taught & why	Desired outcomes	Improve literacy	Generalised skills
				Specific skills
			Meet program goals	
			Improve teaching practices	
2	How it was taught	Target audience	At-risk students	
			Culturally and linguistically diverse students	
			Whole student cohort	
		Teaching configuration	Individual consultations with a learning specialist and/or tutor	
			Individual mentoring from a researcher	
			Adjunct sessions	

			As core curriculum (within programs for all students)	
		Time allocation	Hours/weeks	
		Mode of delivery	Face-to-face	
			Online materials	Reading materials
				Videos
			Both face-to-face and online	
3	Reported benefits to students	Progression and completion	Pass rates	
			Attrition rates	
			Completion without delays	
		Academic performance	Error reduction in written work	
			Grade allocation	
			Study strategies	
		Sense of belonging	Feeling valued	
			Social connections	
		Positive learning experiences	Student perceptions of usefulness	
			Understanding task expectations	
			Understanding value and relevance	

Table 3. Data classification

3. MAPPING THE FINDINGS

This section starts by reporting on the characteristics of the included studies. We then map the findings in relation to the focus of literacy development, the process of implementation and the reported benefits to students.

3.1. Characteristics of the included studies

The included studies exhibited a range of characteristics with minimal overlap. Of the five studies, three were undertaken in the United States of America (Goeppinger et al., 2009; Kramlich et al., 2020; Moreton & Conklin, 2015), and two in Australia (Boughton et al., 2010; Ramjan et al., 2018). Methodologically, one study took a qualitative descriptive approach (Ramjan et al., 2018), one a retrospective descriptive correlation approach (Kramlich et al., 2020), and Boughton et al. (2010) used a non-specific qualitative methodology. It is unclear what overall methodological approach both Moreton and Conklin (2015) and Goeppinger et al. (2009) used. Both studies provide details of data collected, namely student texts (Moreton & Conklin, 2015) and surveys, interviews (Goeppinger et al., 2009). Overall, the intervention types varied. In a targeted approach for specific groups of students, Boughton et al. (2010) sought to evaluate the effectiveness of a recently introduced culturally and linguistically diverse (CALD) program. This program aimed to address the unique needs of CALD students and improve their satisfaction with a GEN program. Goeppinger et al. (2009) introduced a Research Enrichment

and Apprenticeship program (REAP) to facilitate research skills development, and Kramlich et al. (2020) conducted a retrospective correlation study which highlighted that those students with low entry scores in testing needed remediation throughout the program to ensure success. In contrast, the remaining two studies focused on all students within a course: Ramjan et al. (2018) examined embedded academic literacy within an introductory unit of the nursing program, while Moreton and Conklin (2015) analysed student assignments and revised assignment instructions to improve performance. No data were collected on students' experiences of these interventions.

3.2. What aspects of literacy have been taught in GEN programs?

A recurrent finding is that a detailed description of the teaching focus is absent in most of the articles reviewed. In other words, it was often difficult to identify precisely what aspects of literacy were taught. This difficulty is present because literacy was mostly described as a generalised skill or area of competence, such as *critical reading skills* (Boughton et al., 2010), *critical thinking and analysis skills* (Ramjan et al., 2018), and *advanced research competence* (Goeppinger et al., 2009). Additionally, Kramlich et al. (2020) refer to the broad notion of *remediation,* but do not describe what the focus of 'remediation' for at-risk students involves. An exception is the study by Moreton and Conklin (2015) where specific aspects of information literacy are identified in a sequence of teaching and learning. For students' literacy development, they sought improvement in specific information literacy skills, such as strategies for searching and retrieving literature. In our data set, this degree of specificity was an outlier, as the articles tended to only write about literacy in a broad way.

In terms of justifying what was taught, there was also little overlap. The 'why' of the teaching intervention was mostly related to broad program goals. For example, Goeppinger et al. (2009, p. 159) state broad goals, such as "enrich minority students' research experiences through participation in their mentor's research projects, completion of small collaborative research projects, participation in research seminars and relevant professional conferences." Similarly, Boughton et al. (2010, p. 356) state the goals of "overall improvement in student experience and satisfaction," "improve retention" and "prepare/equip CALD students for clinical nursing placements." Broad program goals of this nature were also found in Kramlich et al. (2020) and Ramjan et al. (2018). In contrast, the study by Moreton and Conklin (2015) used their analysis of the specific information literacy demands of one assessment task to improve their own teaching practices related to it. For justification, the study by Kramlich et al. (2020) was the only one to state that an algorithm was used to identify the need for remediation. Overall, the lack of specificity about the teaching focus or detailed justification for selections made across four articles (Boughton et al., 2010; Goeppinger et al., 2009; Kramlich et al.,

2020; Ramjan et al., 2018) highlights minimal elaboration about the areas of literacy that students are expected to develop through the teaching interventions.

3.3. How has teaching and learning about literacy been integrated within GEN programs?

The findings identify varied approaches to how literacy is integrated in GEN programs. This variation involved the target audience, scheduling of teaching, time allocated for teaching, and the mode of delivery. In terms of audience and the configuration of teaching, variation included identifying at-risk students and then designing interventions for specific individuals (Kramlich et al., 2020), voluntary adjunct sessions for culturally and linguistically diverse students (Boughton et al., 2010), adjunct sessions for all students which were taught before and after scheduled teaching sessions (Ramjan et al., 2018), and teaching within the core curriculum (Moreton & Conklin, 2015). A further variation (Goeppinger et al., 2009) involved students participating in their mentor's on-going research, including funding students to go to conferences and seminars.

The time allocated for teaching also varied considerably. It ranged from ten two-hour sessions (Moreton & Conklin, 2015), through to six weeks of teaching two hours a day, plus additional time allocated for individual appointments (Ramjan et al., 2018), to a five-hour introductory workshop followed by nine sessions that were an hour and half in length (Boughton et al., 2010). Further, the delivery of this teaching differed with four studies reporting on face-to-face teaching which was configured as workshops (Boughton et al., 2010; Moreton & Conklin, 2015), consultations with individual students (Kramlich et al., 2020), or a combination of the two (Ramjan et al., 2018). The study involving individual research mentoring (Goeppinger et al., 2009) did not specify where and how teaching occurred. It did specify the subgroup of students that were of most interest, namely, those who identify themselves as African American, Native American, and Hispanic/Latino, relating this focus to the underrepresentation of and need for greater diversity in the workforce. Only one study (Ramjan et al., 2018) reported on teaching through a range of modes, such as face-to-face workshops being complemented by online teaching and learning materials, including videos and preparatory reading materials.

3.4. What benefits have been reported about literacy teaching in GEN programs?

The range of benefits reported by the authors of the five studies can be organised into four main types. These are: improved program progression and completion; improved academic performance; a heightened sense of belonging; and positive learning experiences.

3.4.1. Improved program progression and completion

In terms of the impact of the teaching interventions, one study reported improved program progression and completion rates. Specifically, Kramlich et al. (2019) identify that first time pass rates increased by 10%. The authors state that a contributing factor for this increase was early detection of students who were identified as "at risk of interrupted progression" (p. 192). Drawing on initial research steps to establish variables that influenced program progression, students were identified as at risk through factors such as a low score on the admission test, and particularly for the writing section. These students were then offered individualised interventions through support services. This same study also reported a slight decrease in students leaving the program due to "persistent academic challenges" (p. 195). More significantly, program completion without delays (i.e., needing additional semesters), decreased from 21.6% to 6.3% for students who had been identified by the researchers as at risk of interrupted progression. In interpreting their findings, Kramlich et al. (2019) state that access to the support services was a contributing factor, with 83% of students without delays in progression accessing "resources on multiple occasions for more than 1 course" (p. 195).

3.4.2. Improved academic performance

Two studies reported specifically on academic performance. With the limitation of comparing cohorts with different students, Moreton and Conklin (2015) observed a reduction in specific kinds of student errors in students' assessments. These error types corresponded to areas of explicit teaching in their intervention. In the second study, Kramlich et al. (2019) report that when students classified as at risk went on to access tutoring or a learning specialist consultation, then they "tended to earn satisfactory grades" (p. 195). Additionally, in survey data, students self-reported "changes to study techniques, critical reading, and test-taking strategies, and two thirds of the students felt that these improvements were significant to their success" (p. 195).

3.4.3. A heightened sense of belonging

A further type of reported benefit is a heightened sense of belonging. In our review data, 'belonging' refers to the combination of social connection and feeling valued. For example, in the study by Boughton et al. (2010), students reported that the teaching intervention facilitated connection and friendship which, in turn, enabled them to feel "valued and important" (p. 258). In particular, students reported that being part of a group helped them to develop relationships with students in the group and better connect with peers; it also gave them opportunities to support other students and share resources and knowledge. Students also felt more

comfortable and prepared to attend clinical placement, as they had been provided opportunities to work through scenarios they might face (Boughton et al., 2010). Feelings of belonging are also evident in the study by Goeppinger et al. (2009) who report that mentors contributed to students feeling "important and special in environments that were not always readily supportive" (p. 165). Students also gained confidence to approach staff directly for help, speak out in larger group sessions and ask questions.

3.4.4. Positive learning experiences

The final type of reported benefit was positive learning experiences. Three studies directly reported a positive relationship between their teaching intervention and students' experiences of it. For example, Ramjan et al. (2018) report that students found teaching about literacy helpful and useful. They expressed gratitude for gaining a better understanding of what was expected in their assessments. In Moreton and Conklin's (2015) study, changes were made to the assignment instructions and specific areas of information literacy were explicitly taught. This resulted in 16% more question components in the assignment being completed compared to a previous cohort. This evidence was used to claim that confusion about task expectations was reduced in some areas and that students found the teaching interesting and useful. Positive learning experiences also extended to the context of research mentoring. Students in the study by Goeppinger et al. (2009) reported enjoyment with completing and presenting their research projects. They also related research mentoring to a better understanding of and value for research and seeing the relevance of nursing research to nursing practice. Notably, students reported that their positive experiences influenced their decision to apply for further postgraduate study.

4. DISCUSSION

In this scoping review we sought to identify existing responses to challenges that GEN students may face with completing research projects, and particularly with research writing. The findings show minimal evidence of systematic approaches to preparing students for the demands of doing their own research projects. For instance, there were no accounts of preparing students to be successful by distributing teaching about literacy across courses and gradually working towards the extended writing that is required in the research components of a program. In terms of what is taught and how it is implemented in a course, the findings show varied approaches. While in the introduction we noted similar variation in undergraduate nursing programs, a concern is the lack of explicit discussion about the selections made. In particular, the interventions did not seem to align with calls for more equitable literacy practices that i) target all students and ii) consistently

focus on discipline-specific assessment tasks across a program (Boughey & McKenna, 2021). These findings suggest that the interventions may have been driven more by individual teaching teams, rather than a program-wide approach to developing new literacy practices over time.

More specifically, through investigating *how* teaching about literacy is implemented in GEN programs, the findings have illuminated that current approaches either direct teaching to whole cohorts of students for limited periods of time or they only focus on subgroups within a cohort. For example, Ramjan et al. (2018) reported on teaching a whole cohort within the first six weeks of a program, while teaching to selective groups includes students with lower entry grades (Kramlich et al., 2020) or with cultural and linguistic diversity (Boughton et al., 2010). Additionally, some interventions also directed time and resources to one-on-one teaching (e.g., Goeppinger et al., 2009; Kramlich et al., 2020; Ramjan et al., 2018) or encouraged students to form learner groups to support each other (Boughton et al., 2010). In all studies, it is unclear how available funding and staffing resources may have influenced the configuration of teaching because this is not explicitly discussed.

In addition to varied approaches to implementation, a further choice within the data set is whether or not to devise a mechanism for identifying students who require assistance. For example, Kramlich et al. (2020) reported that the need for remediation was identified through an algorithm. Other studies outside of nurse education have also used data mining to predict final degree performance and initiate interventions for students deemed at risk of obtaining poor grades (e.g., Meghji et al., 2023) and others have used language screening tasks (e.g., Goldsmith et al., 2022). It could be argued that a focus on risk or remediation is driven by the desire to allocate resources to those who need it most. However, data mining is based on the assumption that there are early indicators of potential academic problems (Foster & Siddle, 2020). We do not necessarily dispute that these predictions may be helpful, and some means of early detection has been identified as important for positive impact (Kramlich et al., 2020; Morris et al., 2021). However, it has long been argued that academic English is "no-one's mother tongue" (Bourdieu et al., 1965, p. 8). This is why embedded approaches make no prior assumptions about the knowledge that students *should* already have or who *needs* to develop it. The goal is also not limited to lifting lower achievement but also teaching students who are currently doing well how to do even better. From this perspective, the interventions in the included studies are not clearly aligned with embedded approaches where teaching about literacy development is sustained and available to all.

In terms of how the teaching is delivered, the findings also drew attention to the varied configuration of teaching teams. Variation included teaching about literacy being done by the subject specialists leading courses within GEN programs (Boughton et al., 2010; Goeppinger et al., 2009), literacy specialists (Moreton & Conklin, 2015) or a combination of the two (Kramlich et al., 2020; Ramjan et al.,

2018). This variation in who does the literacy teaching is also found in a recent systematic review investigating embedded practices in tertiary contexts (Bassett & Macnaught, 2024) and it raises two broader issues. Firstly, although subject specialists can use teaching materials that have been co-developed with literacy specialists, those who do so may have different degrees of willingness and confidence (Macnaught et al., 2024), or clarity regarding expectations (Gopee & Dean, 2013). In this regard, the literature points to the value of on-going collaborations that involve teaching teams with a combination of expertise in disciplinary knowledge and academic language within those disciplines (e.g., McGrath et al., 2023). Secondly, the choice of intervention design is obviously underpinned by funding and resourcing with which to implement it. As Macnaught et al. (2024) critique, when intensive literacy teaching within a program is staffed by a central unit, such as the Library, then the staff involved have limited capacity to work in other programs. Options include a gradual process of handover from literacy specialists to subject specialists, or decentralised provision that is funded by faculties.

While how best to fund literacy interventions needs far more transparency, our findings highlight why literacy interventions may be of considerable benefit to students. Examples of benefits include improved program progression and completion, improved academic performance, a heightened sense of belonging, and positive learning experiences. This range of reported benefits corresponds to the breadth of reported benefits in other systematic reviews, however, there continues to be a relatively small body of existing evidence to connect literacy interventions at a tertiary level with claims of benefit (Bassett & Macnaught, 2024; Munn & Small, 2017). One specific overlap with existing literature seems to be a relationship between stronger social connections and confidence. In the present review, a heightened sense of belonging was related to speaking out in groups, connecting with peers, and approaching staff for help. Similarly, Goldsmith et al. (2022, p. 12) report "a significant growth in language confidence" in areas such as speaking with other students and making presentations; they argue that this growth "led to greater social connections." These findings highlight how claims of benefit can encompass social behaviour as well as academic achievement.

Lastly, this review highlights that greater clarity is needed in articulating *what* aspects of literacy are taught, that is, the specific literacy knowledge that teaching interventions aim to develop. The problem with not clearly specifying the target knowledge is that it is difficult to make connections between the choice of what to teach, how to teach it, and benefits that may be related to the combination of these specific choices. In other words, for future systematic reviews that may interrogate evidence, there is, at present, likely to be insufficient detail of the *what* and *how* to make specific recommendations or develop guidelines. Our observations about lack of detail, correspond to Maton's (2013, p. 9) wider critique of "knowledge-blindness" in educational research where knowledge is obscured as an object of study. With acknowledgment of this critique and given the word limits of journal

publications, Bassett and Macnaught (2024) suggest creating paired research outputs – one with empirical findings, and another with detailed accounts of the target knowledge and pedagogic practices selected to teach it. Such complementarity is likely to be very useful for the future design of literacy interventions in programs for GEN students and other graduate programs.

5. STRENGTHS AND LIMITATIONS

A limitation of this scoping review is that the protocol was not registered with an international systematic review registry, such as PROSPERO or the Joanna Briggs Institute (JBI) because it does not fit with their criteria. However, through the use of data management software (Covidence) together with three researchers independently engaging with the data at each stage, a transparent and replicable process has been followed. A further limitation lies within the findings of the included studies, namely, a lack of information about what aspects of academic literacy were taught and why, and there was minimal description of specific pedagogical approaches. In this regard, a strength of the review is that it shows the emerging nature of this topic and clear areas where future research is much needed. In particular, the review has illuminated the current difficulty with closely relating claims about change or benefit to the design choices and enactment of teaching interventions. As such, further empirical research is required to understand what works best for GEN students, including the analysis of embedded approaches, where interventions target whole cohorts of students across a program.

6. CONCLUSION

In conclusion, this review has highlighted that when literacy development is taught within GEN programs, it seems to be more of an isolated effort within a course, rather than a program-wide approach to development over time. Although a range of benefits to students have been documented, we note minimal detail about the *what* and *how* of literacy practices. The insufficiency of this detail, such as not elaborating on the pedagogic models or steps that were enacted, is likely to make it difficult for future reviews to generate specific guidance for integrating literacy development within GEN programs. Therefore, for future research reporting on literacy interventions in graduate programs, such as GEN, there is a need for:

- specifying and critiquing how past research about literacy development may inform the design of teaching interventions;
- identifying how the focus of literacy teaching in one course may relate to teaching in other courses within the same program;
- identifying how teaching interventions are staffed and funded;

- specifying how claims of benefit relate to detailed accounts of enacting specific literacy practices.

These inclusions would contribute to building a body of knowledge that can provide GEN program nurse educators and curriculum designers with practical and evidenced-based knowledge for integrating literacy development within programs.

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Appendix A

Sample search outcomes

Date of search	Database searched	Limiters	Total returns
9 August 2023	CINAHL	Title, full text, English language, academic journal	152
16 August 2023	Scopus	Title/Abstract/Keyword, Journal, English Language, Nursing	181

Appendix B

Data charting and extraction

Authors & Title	Country	Study Aim	Study Duration	Funding Source	Conflict of Interest	Participant Population	Inclusion Criteria	Exclusion Criteria	Teaching Focus	Implementation Intervention	Reported Benefits
Boughton, M. A., Halliday, L. E., & Brown, L. (2010). A tailored program of support for culturally and linguistically diverse (CALD) nursing students in a graduate entry Masters of Nursing course: A qualitative evaluation of outcomes. *Nurse Education in Practice*, *10*(6), 355–360.	Australia	To explain why a support program is necessary and describe briefly the support program for culturally and linguistically diverse (CALD) nursing students enrolled in a two year accelerated Master of Nursing program at the Faculty of Nursing and Midwifery, the University of Sydney. Secondly, it aims to address the underpinning pedagogical approach to delivery of the program.	2008-2008	University of Sydney Teaching Improvement and Equipment Scheme (TIES) grant.	Teachers in the intervention.	Gender: 3 males, 14 females. Korean = 3 Philippines = 2 Tanzania = 2 USA = 2 Singapore, China, India, Laos, Romania, Nigeria, Kenya & Zimbabwe = 1 each (n=8) Lived in Australia between 1 week - 29 years Total: n=17	Culturally and linguistically diverse (CALD) background.	Not stated.	Interactive delivery involving the use of: Library and student web pages, critical reading skills; Referencing conventions and avoiding plagiarism; Examination and revision preparation; Communication skills for clinical placement; Use of Australian colloquialisms.	Adjunct sessions. 5h introductory workshops, followed by 9 sessions. Teaching by subject specialists.	Increased student confidence, sense of belonging and connection to other CALD students and support options.
Moreton, E. O., & Conklin, J. L. (2015). Closing the loop on nursing library instruction: Using student performance to improve outcomes. *Medical Reference Services Quarterly*, *34*(1), 113–121.	USA	To analyse nursing students' performance on an information literacy assignment to determine how they could change their instruction to better assist the students in comprehending the material.	2012-2013	None declared.	Not stated.	Nursing program students enrolling in a 200-level course, n=111	Not stated.	Not stated.	Targeted teaching of information literacy based on diagnostic analysis of students' draft texts. Included guiding questions for topic development, search strategies, and literature retrieval.	10 sessions within the core curriculum. Teaching by information literacy specialists.	Student errors more evenly distributed across assessment questions; reduced errors in some areas that teaching targeted. Increase in completed assessment components. Improved clarity assignment questions, instructions and expectations.

Goeppinger, J., Miles, M. S., Weaver, W., Campbell, L., & Roland, E. J. (2009). Building nursing research capacity to address health disparities: Engaging minority baccalaureate and master's students. *Nursing Outlook*, *57*(3), 158–165.	USA	No clear aim.	2001 (Pilot) 2008-2008	National Institutes of Health Research Grants (P20 NR 8357 to NCCU, P20 NR 8369 to UNC-CH, and P20 NR 8366 to WSSU) funded by the National Institute of Nursing Research and the National Center on Minority Health and Health Disparities.	Not stated.	35 faculty members: 35 female, 1 male; 12 African American; 23 Caucasian 55 students: N = 36 enrolled in baccalaureate programs, N = 44 female. N = 41 Black; 4 Asian/Pacific Islanders; 2 Native American/American Indian; 2 Hispanic. Total: n=90	Not stated.	Not stated.	Matching REAP students with faculty mentors conducting health disparities research for mentorship.	One-on-one research mentoring. Students reimbursed for participation in their mentor's research. Collaboration on small group research projects. Participation in and funding for conferences and seminars. Teaching by faculty mentors (subject specialists)	Students gained increased appreciation of nursing research relevance. Faculty gained insight into student needs, enjoyed serving as role models; became involved in broader professional/personal mentoring. All partner schools introduced research skills into their nursing programs. REAP partnership stimulated HBCU to develop research infrastructures and strengthen research activities at their institutions.
Ramjan, L. M., Maneze, D., Everett, B., Glew, P., Trajkovski, S., Lynch J., & Salamonson, Y. (2018). Students' experiences of embedded academic literacy support in a graduate entry nursing program: A qualitative study. *Nurse Education in Practice*, *28*, 302–309.	Australia	To explore participants' experiences of an intensive introductory unit in the Bachelor of Nursing Graduate Entry program.	Jan 2016 – Jan 2016	None declared	All researchers (apart from one who did not take part in data collection) were not part of the GEN teaching team.	Graduate entry nursing students enrolled in the 2016 program foundational core learning activities Total: n=24	Graduate entry students enrolled in the 6-week foundational program.	All other students.	Teaching critical thinking, analysis skills, general improvement of academic literacy skills.	Adjunct sessions Intensive 6 weeks of teaching at the start of a program (2 hrs a day). Opportunity for 1:1 appointment for personalised learning support. Teaching by subject specialists and literacy specialists.	Students found essay concept mapping and writing ideas valuable. OSCE practice time improved student confidence. Embedded academic literacy benefited some students with EAL.

Kramlich, D., Holt, K., & Law-Ham, D. (2020). Strategies to promote the success of academically at-risk accelerated bachelor of science in nursing students. *Nurse Educator*, *45*(4), 193–197.	USA	To identify academic risk factors and develop strategies to promote academic success for timely progression to graduation and licensure.	Jan 2016 (pilot) Jan 2017	Not stated.	Not stated.	2 sequential ABSN cohorts 37 for pilot and 56 in 2017 Total: n=93	Entire cohort.	Not stated.	Remediation for students identified as at risk.	Individualised remediation plan. Teaching by subject specialists and literacy specialists	Students who received tutoring tended to earn satisfactory grades. Pass rates increased by 10%. Slight decrease in attrition related academic challenges. Significant decrease in program completion without delay.