

Writing Across the Curriculum: Strategies to Improve the Writing Skills of Nursing Students

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BACKGROUND. Writing across the curriculum (WAC) is a strategy in which writing instruction occurs in classes outside of composition, literature, and other English courses. This literature review was conducted to identify and synthesize the peer-reviewed literature about WAC in nursing education.

METHODS. The team performed searches of MEDLINE (PubMed), CINAHL Plus With Full Text, and ERIC for articles published between January 2003 and April 2014. A combination of Medical Subject Heading terms (or equivalent) and keywords were used to create the database search strategies.

RESULTS. There were 48 articles that discussed WAC. Most of the papers described writing courses in nursing programs, strategies to teach writing to nursing students, and writing activities or assignments within nursing courses. High-level evidence examining the impact of writing strategies and exercises in courses and occurring across the curriculum was lacking. Only 18 (37.5%) of these papers were evaluative; most of the databased articles were either author observations or perceptions of changes in students' writing ability, or low-level research studies.

CONCLUSIONS. Strategies, assignments, and courses intended to promote writing skills of nursing students were documented in this literature review; however, further evaluation is needed to determine which are most effective.



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Academic writing is an essential competency to be developed by nursing students. They are expected to write at a high degree of precision even before starting their educational programs. Students, however, enter nursing programs with varying degrees of scholarly writing abilities (Gazza & Hunker, 2012). Structured approaches that integrate writing instruction across the curriculum are needed to promote development of students' scholarly writing abilities.

Writing across the curriculum (WAC) is a strategy in which writing instruction occurs in classes outside of composition, literature, and other English courses. This strategy is based on the philosophy that learning to write proficiently is the responsibility of all faculty, not just the English department. An important outcome of WAC is that students learn the conventions of writing in their particular field of study (Colorado State University, 2014). WAC concepts have been integrated into nursing curricula to help students develop competence in clinically relevant writing assignments; gain critical thinking and communication skills, both oral and written; execute useful literature searches; read and understand research reports; and incorporate evidence into clinical practice (Luthy, Peterson, Lassetter, & Callister, 2009).

This paper reviews the current evidence on WAC in nursing education and identifies frameworks and strategies for improving writing in nursing courses and programs. These strategies include writing-to-learn activities, short and informal writing exercises in nursing courses, and more formal strategies intended to prepare nursing students for writing in the discipline. Writing in the discipline involves learning the writing style and conventions of nursing as a field (Carter & Rukholm, 2008; Oermann, 2013). Typically, writing in the discipline includes formal papers that students write over a period of time, such as a nursing research proposal or term paper, that adhere to a particular style and format.

Research Questions

This literature review was conducted to identify and synthesize the peer-reviewed literature about WAC. Specifically, the authors sought to answer the following questions: (a) How is WAC used in nursing education? (b) What strategies are used to facilitate WAC in nursing education? (c) Which of the WAC strategies are effective in improving the writing skills of nursing students?

Methods

A comprehensive literature search was conducted to identify articles about strategies for teaching writing to nurses and nursing students. The authors completed a systematic review on this broader topic, and several themes emerged, including WAC. This review was undertaken to provide a more detailed analysis of the identified WAC articles.

The medical librarian on the team performed searches of MEDLINE (PubMed), CINAHL Plus With Full Text (EBSCO), and ERIC (EBSCO) for articles published between January 2003 and April 2014. A combination of Medical Subject Heading (MeSH) terms (or equivalent) and keywords was used to create the database search strategies. Table 1 provides a list of the MeSH terms used to search MEDLINE (PubMed) and the complete search strategy. More information about the searches is reported in the authors' systematic review (Oermann et al., 2015). Additional articles were identified by reviewing the table of contents of nursing education journals and reference lists of relevant articles on teaching writing to nursing students.

Eligibility Criteria

The review included any journal article, regardless of study type, about WAC in nursing education at any level: diploma, associate, baccalaureate, master's, and doctoral programs. We included only English-language articles for which full-text was available. Editorials and commentaries about WAC and nursing students' writing skills, and papers on nursing student and faculty attitudes about WAC, were not included in the review.

Results

Article Selection

There were 48 articles that discussed WAC; these described frameworks for WAC and strategies for helping students learn how to write in nursing and improve their writing skills. Most of the papers described writing courses in nursing programs, strategies developed to teach writing to nursing students, and writing activities or assignments within nursing courses.

High-level evidence examining the impact of writing strategies and exercises in courses and occurring across the curriculum was lacking. Only 18

Table 1. MeSH Terms Used in MEDLINE (PubMed) Search and Search Strategy

Medical Subject Headings (MeSH)	
"Writing"[Mesh]	"Teaching"[Mesh]
"Education, Nursing"[Mesh]	"Nurses"[Mesh]
"Nursing/education"[Mesh]	"Students, Nursing"[Mesh]
"Curriculum"[Mesh]	"nursing"[MeSH Subheading]
Search strategy	
("Writing"[Mesh] OR writing[Title/Abstract] OR write[Title/Abstract] OR writes[Title/Abstract] OR writer[Title/Abstract] OR writers[Title/Abstract]) AND (("Curriculum"[Mesh] OR curriculum[Title/Abstract] OR "Teaching"[Mesh] OR teaching[Title/Abstract] OR teach[Title/Abstract] OR teaches[Title/Abstract] OR taught[Title/Abstract]) AND ("nursing"[MeSH Subheading] OR nursing[Title/Abstract] OR "Students, Nursing"[Mesh] OR nursing student[Title/Abstract] OR nursing students[Title/Abstract] OR "Nurses"[Mesh] OR nurses[Title/Abstract] OR nurse[Title/Abstract]) OR ("Education, Nursing"[Mesh] OR nursing education[Title/Abstract] OR nurse education[Title/Abstract] OR nurse educator[Title/Abstract] OR nurse educators[Title/Abstract] OR nursing educator[Title/Abstract] OR nursing educators[Title/Abstract] OR "Nursing/education"[Mesh])) NOT (Editorial[Publication Type] OR Comment[Publication Type] OR Letter[Publication Type]) AND (English[Language] AND "2003/01/01"[Publication Date]: "3000/12/31"[Publication Date])	

(37.5%) of these papers were evaluative. Most of the databased articles were either author observations or perceptions of changes in students' writing ability, or low-level research studies. The design of those studies was frequently a pre-implementation student survey, followed by a writing intervention and post-implementation survey. In most studies, the primary outcome was a measurement of students' perceptions of their writing ability rather than actual measurement of their writing skills.

WAC in Nursing Education

WAC includes a variety of programs and strategies meant to increase nursing students' writing proficiency. The key feature of WAC is the inclusion of writing activities in courses not typically considered "writing courses," such as foundation, research, or clinical nursing courses. The literature cited in this review suggests that nursing students who attain a strong and established writing foundation will be more successful in written and oral communication during their nursing programs and career. Acquisition of writing skills improves nursing students' critical thinking skills, personal reflection, ability to understand research publications, and skills in integrating research evidence into practice (Luthy et al., 2009).

Frameworks for WAC. The identification and use of new models and pedagogical approaches to teach

writing skills and literacy are considered essential to academic writing success (Borglin & Fagerstrom, 2012; Zygmunt & Schaefer, 2006). Several frameworks and models were identified for teaching writing in nursing. Regan and Pietrobbon (2010) suggested that the majority of nursing programs use a regimented, mechanical approach without a conceptual or theoretical foundation (p. 437). For this reason, they proposed a framework for teaching scientific writing to beginning nurse researchers that consisted of four principles, which guide the selection and sequence of writing activities: rhetoric (relationship between structure and content), ethnographic (best way to construct an argument), recognition (optimal versus suboptimal writing styles), and practice (using principles in own writing).

Luthy et al. (2009) confirmed the importance of sequential introduction of writing-to-learn and writing in the discipline assignments in pre-licensure nursing programs. Strategies to develop writing skills should be introduced early and at different points in the curriculum before the student is required to write more formal papers (Luthy et al., 2009). Writing-to-learn assignments, such as reflective journals and short papers, can be integrated easily in all nursing courses to promote writing skill development. In contrast, writing in the discipline activities consists of more formal papers that familiarize students with formats for different types of writing in nursing. With formal papers, students receive feedback on the content of the paper and also the quality of their

writing, enabling them to improve their writing skills (Oermann, 2013).

Zygmunt and Schaefer (2006) described a critical thinking model adopted for use as a writing framework in undergraduate and graduate nursing programs. Five steps representing a student's evolving cognitive complexity were used as criteria for evaluating a student's progress as a writer: Step 0: the lowest level of cognitive complexity; Step 1: the ability to identify the problem; Step 2: the ability to explore connections and interpretations; Step 3: the ability to prioritize alternatives; and Step 4: the ability to integrate, monitor, and modify strategies (Zygmunt & Schaefer, 2006). Writing activities for nursing courses can be developed for each step in this model. Zygmunt and Schaefer (2006) found that ineffective writing was addressed by improving students' lower level writing skills prior to the introduction of complex writing assignments. Implementing the model in their school of nursing was a collaborative effort among faculty, who participated in reoccurring retreats that helped reinforce and confirm the framework concepts. Adhering to an accepted writing model provided the faculty with a framework for monitoring student development and improvements in the writing process. The authors concluded that, like cognitive complexity, writing is a developmental process that evolves over time.

In response to varying scholarly writing abilities of students enrolled in online RN to BSN and hybrid MSN and DNP programs, Gazza and Hunker (2012) developed a scaffolding framework for use in promoting scholarly writing at all program levels. The scaffolding process consisted of linking together multiple writing strategies to form an overall support system for becoming a better scholarly writer. Foundational activities included writing clear goals and objectives for writing courses and assignments; creating evaluation rubrics; identifying resources to support student writing and mastery of writing mechanics, style, and format; and having writing specialists available for individual students (Gazza & Hunker, 2012, p. 282). In sequence, the steps in the scaffolding framework are discussion forums, summaries, and journals; abstract writing; article critique; literature reviews; reports and proposal writing; and capstone and dissertation manuscript completion. A major advantage of scaffolding is that as students develop their writing ability, the scaffold, or support, can be decreased and ultimately removed. The authors recommended that nursing faculty use a writing scaffold to facilitate the develop-

ment of scholarly writing within and across all nursing program levels, as well as across disciplines. The effectiveness of using this approach for developing students' writing abilities has not been examined, but the scaffolding framework was based on best practices of teaching writing (Gazza & Hunker, 2012).

Similarly, Shirey (2013) examined building scholarly writing capacity in first- and second-semester Doctor of Nursing Practice students. A systematic teaching and learning approach called SMART (Strategies, Methods, and Assessment Outcomes Related to Teaching/Learning) was used to promote students' scholarly writing. Shirey's model includes six strategies to build writing expertise, such as reducing fears about writing and providing resources and support; six teaching methods, including conducting a scholarly writing assessment and emphasizing the need for revision and rewriting; and six outcomes, such as beginning an individual scholarly writing journey and improving the quality of the student's writing. The strategies and methods are linked to each outcome, creating a framework for both students and faculty. Student evaluations of faculty who used the SMART framework in their teaching were high, and faculty reported that students' writing skills improved. In order to promote both writing ability and critical thinking, any framework used for writing skill development in nursing also needs to enhance students' academic socialization, study skills, and academic literacy (Borglin & Fagerstrom, 2012).

Strategies for improving students' writing.

Authors described the use of different writing genres, such as reports, reflective writing, writing assignments for problem-based learning, and scientific writing, among others, in undergraduate nursing and midwifery programs (Gimenez, 2008; Richardson & Trudeau, 2003). Others described writing-intensive courses for nursing students (Chu, Perkins, & Marks-Maran, 2012; Mandelco, Lassetter, Callister, & Carlton, 2008; Tesh, Hyde, & Kautz, 2014; Weaver & Jackson, 2011). These courses are taught by nursing faculty alone or collaboratively with faculty from English and technical communication departments (Stevens et al., 2014).

Chu et al. (2012) reported on the effectiveness of their academic literacy program that included an academic writing course for nursing students with English as a second language (ESL) in the United Kingdom. During year one of the program, students completed a writing course taught by two faculty members, which

consisted of five 1.5-hr class sessions. A post-course survey indicated that students were more confident in their academic writing ability and had a better understanding of essay criteria. However, only eight students completed the survey, limiting the strength of the evidence. In year two, both faculty and students agreed that students' writing ability had improved.

Structured and prescriptive educational modules have also been used successfully to assist nursing students in developing their writing skills. Tarrant, Dodgson, and Law (2008) created a module to help students gain information literacy skills, including searching the literature using electronic databases, locating and retrieving evidence, critically appraising nursing and health studies, and scholarly writing. To further support students in understanding the literature and improving writing skills, critical skills presented in the module were woven throughout all of the courses in the 2-year nursing program. Students ($n = 159$) had a significant improvement in their writing skills from pre- to post-test, and they reported higher levels of perceived competency in key information and academic writing skills. In contrast to many of the evaluations of writing strategies, this study had a large sample and assessed students' perceptions of their information literacy and writing competencies on entering the nursing program, immediately after the instruction, and again at the end of their 2-year program. They also evaluated three cohorts of students. This WAC program led to substantial improvements in students' competencies. The use of a dedicated writing module early in the curriculum combined with reinforcement of those concepts in later courses was an effective approach based on students' perceptions. The study, however, did not assess if students' actual writing improved.

In another project, Roberts and Goss (2009) created an online writing tutorial for nursing students. This was combined with two online presentations, to guide students' development of writing skills and use of American Psychological Association style, and a written paper on which students received feedback from faculty and then revised. After completing the tutorial and other strategies, students improved their writing in terms of style, grammar, and flow of ideas as evaluated by faculty using a rubric. A strength of this study was the evaluation of students' writing abilities as a result of the instruction versus using only students' perceptions of their writing improvement.

This finding is consistent with the work of Hanson Diehl (2007), who emphasized the importance of early

interventions aimed at improving new graduate nursing students' academic writing abilities. The author developed teaching strategies for in-class writing activities. These strategies included storytelling groups to test thought processing and active listening; librarian-led tutorials on the process of web searching; discussions on scientific writing, types of papers, organization of a paper, and building and conveying ideas through writing; and formative assessment with faculty feedback and mentoring.

Other articles described an array of writing-to-learn activities, writing assignments, and other activities to develop students' writing skills. For example, Richardson and Trudeau (2003) used written case studies in undergraduate nursing education to improve students' critical thinking and ability to translate research into clinical practice. The described strategy to improve writing a "hypothesis justification paper" was a brief, formal writing assignment to engage students' use of the literature to justify their nursing interventions. Other authors described using term papers, sequencing smaller components of a larger paper as individual writing assignments, reflective writing, journals, portfolios, and blogs for promoting students' writing proficiency.

Discussion

Academic writing in higher education should be discipline-specific—learning the writing conventions and styles of the field of study. There is no accepted framework or model for teaching writing in nursing. Any framework used should consider study skills, socialization, and academic literacy while simultaneously creating a learning environment conducive to critical thinking and scholarly writing. Although no one framework was found, successful principles for teaching WAC were identified in this literature review.

While early intervention aimed at increasing academic writing skills should improve the quality of students' writing, there are limited studies that have documented this outcome. Most WAC strategies in nursing education have not been evaluated, or their effectiveness is based on students' perceptions not on whether the quality of writing has actually improved. Roberts and Goss (2009), however, included an evaluation of a paper by faculty following the writing intervention to assess improvement in skills. More of this type of study is needed in nursing education.

Nursing students who attain a strong and established foundation should be more successful in written and oral communication during their nursing program and nursing career. WAC initiatives have encouraged nursing faculty to plan writing activities at the program level, sequencing them across courses to improve writing ability (Andre & Graves, 2013). This is consistent with the concept that writing is a developmental process that improves over time with practice. Student evaluation data support the use of developmental approaches to attain writing skills, increase students' writing proficiency, and achieve higher course grades (Hanson Diehl, 2007; Shirey, 2013). For this reason, the development of writing skills should be viewed as a process that takes time and occurs across all semesters rather than as an isolated event (Zygmunt & Schaefer, 2006). Learning to write well is no different than acquiring other skills—students need to write papers in their nursing program, receive feedback and guidance on content and writing style and structure, and revise their papers to become more skilled (Oermann, 2013; Oermann & Hays, 2016).

WAC strategies should be designed to teach the writing genres most appropriate for various learner populations, including undergraduate, graduate, advanced practice, and ESL students. Successful WAC strategies include writing-intensive courses, online writing tutorials, structured and prescriptive educational modules, in-class writing activities, librarian-led tutorials, and formative assessment with faculty feedback and mentoring on writing.

Few reliable and validated educational outcome tools exist for evaluating writing competence. Schmidt (2004a, 2004b) described the need for tools to measure the outcomes of writing-to-learn activities and the psychometric evaluation of Writing-To-Learn Attitude Survey. Tools and other measures need to be developed.

The success of WAC to improve writing skills requires a cohesive and coordinated effort among nursing faculty within schools of nursing and individual nursing programs. Assignments need to be coordinated and structured in a scaffolding process as described by Gazza and Hunker (2012) to link multiple writing strategies together to support scholarly writing throughout the curriculum. Effective written communication is a vital skill for professional nurses to possess and needs to be promoted early in the career of nursing students through various assignments and strategies to enhance students' academic socialization, study skills, and academic literacy.

Summary

Successful strategies, assignments, and courses that promote the writing skills of nursing students were documented in this literature review; however, further evaluation is needed to determine which are most effective. It is clear that any framework or strategy used in nursing education programs for writing skill development also needs to enhance students' academic socialization, study skills, and academic literacy. Writing strategies, assignments, and courses need to be planned across the nursing program to promote writing ability.

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