



Impacting learning outcomes:

# Scientific evidence for *Elsevier 360 for Nursing*

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The ultimate goal of any successful nursing program is to equip students with the knowledge, skills, and self-efficacy that will enable them to graduate and become successful nurses. The National Council Licensure Examination (NCLEX®) is a crucial step in the trajectory for students to become licensed to practice as nurses.



The NCLEX measures the minimum required knowledge and skills for safe and effective entry-level nursing care (NCSBN, 2019). NCLEX pass rates are critical for student success and provide a useful indicator for program improvement and accreditation. Nursing programs face many challenges to educate practice-ready nursing graduates that can successfully pass the NCLEX on their first attempt (Roa et al., 2011), particularly with the impending transition to the Next Generation NCLEX (NCSBN, 2022). These challenges are further compounded by the shortage of preceptors and nursing faculty which also contribute to the lack of availability of clinical sites for students (AACN, 2020).

Nursing educators strive to adopt effective educational curricula, tools, and policies to support students' preparation (Opsahl et al., 2018). To meet this goal, many nursing programs have implemented a variety of educational approaches, including standardized testing, remediation plans, and progression policies (Quinn et al., 2018; Shah et al., 2022). The utility of these varied approaches is promising. However, if applied in an inconsistent and fragmented manner, the use of multiple

strategies may hinder success. Furthermore, the COVID-19 pandemic has accelerated pedagogical shifts from traditional methods to the adoption of novel technological and instructional approaches.

At Elsevier, we are committed to empowering nursing programs with programmatic solutions to support students' NCLEX-RN readiness and clinical practice in health care settings. [Elsevier 360 for Nursing](#) is a comprehensive, personalized program solution that supports faculty in meeting their teaching, learning, and assessment needs using innovative pedagogical approaches and interconnected digital technologies. Our curriculum solution focuses on three primary areas to support these needs:



**Building knowledge**



**Applying clinical judgment**



**Assessing & reviewing**

The Elsevier Applied Learning Sciences (ALS) team focuses on translating academic research into evidence-based practices to provide a foundation for product design. We also iteratively test the effectiveness, validity, and impact of Elsevier’s digital solutions through academic-industry partnerships (see Shah et al., 2020 for additional information). This collaborative research plays an important part in bridging educational theories, program design and policies, and teaching practices to improve student learning in nursing education.

This paper reports evidence for the effectiveness of Elsevier 360 for Nursing. Findings are drawn from a selection of research conducted by the ALS team from 2020-2023, including studies conducted by the Shadow Health Education, Research, and Design team.

The three areas are presented as distinct categories for ease of communication to provide a simple way of communicating the primary focus of each solution. However, in practice, they overlap and complement each other to help nursing programs meet their learning, teaching, and assessment goals. We will discuss the synergistic effect of these areas in this paper.



### Building knowledge

The development of nursing students’ conceptual knowledge is an important goal throughout the nursing curriculum, and a priority for preparing students to successfully pass the NCLEX-RN (Opsahl et al., 2018). Elsevier provides nursing students with a range of content and tools (e.g., eBooks, EAQ, Sherpath) that enables them to build knowledge that they can practice, apply, and transfer to new contexts throughout their programs and in clinical practice.

Empirical evidence is growing regarding the effectiveness of **Sherpath** (DeBellis, 2021) and **Elsevier Adaptive Quizzing (EAQ)** in nursing education (Presti & Sanko, 2018).

Shah and colleagues (2022) demonstrated that there was a statistically significant relationship between preparation for the HESI Exit Exam (E2) and students’ first-time pass rates on the NCLEX-RN. Nursing programs that reported **using EAQ as E2 test preparation had statistically higher E2 scores and first-time success on the NCLEX-RN.** Programs that reported using EAQ yielded positive outcomes for students scoring between 850-899 and 900 and above. Students also benefited from reviewing

remediation content from HESI Specialty Exams taken in previous courses. These exams which mirror the

This paper focuses on evidence for products within Elsevier 360 for Nursing to demonstrate how its three primary areas align with seven student learning outcomes:



### Self-efficacy



### Engagement



### NCLEX-RN readiness



### Academic performance



### Clinical judgment



### Efficiency



### Learning experience

NCLEX-RN, provide students with a deeper understanding of their areas of weakness and can guide an appropriate preparation plan.

Preliminary evidence is also burgeoning for Sherpath. Gouveia (2022) recently surveyed 38 faculty and 1937 students to gain a better understanding of their experiences with Sherpath and their perceptions of its effectiveness. The visuals in this section summarize faculty and student ratings and demonstrate that Sherpath successfully supports teaching and learning needs across multiple nursing content areas.



## Building knowledge

Responses from faculty indicated that Sherpath was moderately effective, effective, or very effective for:

**89%** Supporting students' overall success in the course

**87%** Bridging students' knowledge gaps

**87%** Improving students' exam preparation

**82%** Improving students' class preparation

Students' responses mirrored faculty ratings on the effectiveness of Sherpath. On average, students' ratings ranged from 81% to 91%, further confirming faculty perceptions. The visual below provides additional evidence for Sherpath and its impact on facilitating engaging experiences and promoting students' self-efficacy across multiple courses.

In addition, students reported that Sherpath:

**91%** Improved their understanding of course material

**89%** Increased their engagement with the course material

**86%** Boosted confidence in their ability to complete the course

**81%** Promoted their active class participation

Overall, the findings described in this section illustrate how resources in Elsevier 360 for Nursing build students' knowledge. Faculty and students perceived Sherpath as effective in several areas, including improving students' understanding of course material, reducing gaps in knowledge, and ultimately promoting course success.



## Learning outcomes

Academic performance

Learning experience

NCLEX readiness



## Learning outcomes

Self-efficacy

Engagement

Learning experience

## Applying clinical judgment

Elsevier offers a range of digital solutions that nursing faculty can integrate in their curricula to facilitate clinical readiness. SimChart, Shadow Health, and Simulation Learning System (hands-on and virtual reality) provide a rich ecosystem of content and pedagogical tools that enable students to bridge theory and practice by engaging them in authentic and interactive experiences.

A recent white paper by Wilson and colleagues (2021) explored whether pre-licensure nursing students become more efficient in collecting subjective and objective patient data, applying therapeutic communication, and creating care plans.

From a sample of 2,246 pre-licensure nursing students who completed Shadow Health's Digital Clinical Experiences (DCE) throughout a Health Assessment course, analyses revealed that students demonstrated significant efficiency gains as measured by findings per minute from pretest to posttest assignments.

82%

of students showed an increase in overall efficiency in overall patient data collection.

62%

of students showed a decrease in patient interaction time while assignment scores increased.

67%

of students showed an increased education and empathy score.

68%

of students showed an increased care plan score indicating an improvement in the quality of student care plans.



### Learning outcomes

Efficiency

Clinical judgment

We have illustrated how students practice clinical judgment skills from Layer 3 of the NCJMM and select competencies characterizing Domains 1 (Knowledge for Nursing Practice), 2 (Person-Centered Care), and 9 (Professionalism) of The Essentials (American Association of Colleges of Nursing, 2021) in Shadow Health in health assessment, gerontology, mental health, and community health content areas (Shah et al., 2022; Wang et al., Under Review).

In addition to engaging students in screen-based simulations such as Shadow Health, Elsevier also enables students' clinical readiness through Simulation Learning System (SLS) with Virtual Reality (VR). SLS with VR is an add-on to Elsevier 360 for Nursing. The ALS team has conducted extensive research on this simulation solution and found that an immersive simulation environment enhances student learning and clinical competencies. The appendix describes findings on how SLS with VR is positively impacting faculty practices, student experiences, and outcomes for clinical readiness.



## Assessing & reviewing

Elsevier provides a variety of HESI RN exams, including the HESI Admission Exam (A2), HESI Specialty Exams, and HESI Exit Exams (E2), that provide formative and summative testing at course and program levels to track and measure student performance at key points throughout the program. These exams have been successful measures for benchmarking program outcomes, guiding remediation, and determining NCLEX-RN readiness (Riley & Gouveia, 2022a; 2022b).

A substantial body of literature has established the validity and reliability of the E2 (Riley & Gouveia, 2022a; 2022b). In studies conducted over 20 years with over 68,000 students, the E2 has consistently predicted NCLEX-RN success. A recent study by Shah and colleagues (2022) confirmed that performance on the E2 at 850 and above continues to predict first-attempt success on the NCLEX-RN. Specifically, students who achieved an average E2 score of 850 and above had a NCLEX-RN pass rate of 96.33%. The pass rate was 97.29% for students whose average E2 score was 900 and above. This study also extended research in new directions by examining the role of E2 policies in supporting students' NCLEX-RN success.

Another study examined the value of integrating HESI Specialty Exams throughout nursing curricula with the E2. Gouveia, Thielk, and Sportsman (2021) explored whether the number of HESI Specialty Exams given throughout students' course of study predicts their E2 score. Examining the correlation of HESI Specialty Exams taken and E2 scores is important, given the predictive validity of the E2 and HESI Specialty Exams for predicting NCLEX-RN success (Kim et al., 2019; Zweighaft, 2013; Zweighaft, 2018). The results showed that students who took more HESI Specialty Exams across the curriculum performed better on the E2 and were more likely to achieve E2 scores of 850 or 900. These findings were used to inform predictive models for the HESI Readiness for NCLEX Dashboard. Faculty can use the dashboard to identify at-risk students early, monitor cohort and student-level progress, determine NCLEX-RN readiness, and improve program outcomes.

HESI Compass is a virtual NCLEX-RN preparation course that uses content review, learning activities, and personalized coaching to support students' exam readiness. Quizzes and case studies enable students to practice, apply, and synthesize their knowledge. HESI exams are administered as critical checkpoints in the course to establish a baseline of performance, identify areas of improvement, and track progress. HESI Compass also enables students to gain familiarity with the NCLEX-RN test plan, master test-taking strategies, and reflect on their performance and self-efficacy. The visuals in this section outline the impact of HESI Compass for engagement, self-efficacy, learning experiences, academic performance, and NCLEX-RN readiness.



## Learning outcomes

NCLEX-RN readiness

Self-efficacy

Engagement

Learning experience

Academic performance



## Assessing & reviewing

Gouveia and colleagues (2022) investigated the effectiveness of HESI Compass for a for-profit nursing program.

+85

The average E2 pre-post increase was 85 points (791-876), a statistically significant improvement.

94%

Students also reported having a positive experience and relatively high and stable levels of self-efficacy. Overall, students became well-prepared for the NCLEX-RN with a passing rate of 94%.

In a larger study across four US institutions in Spring 2020, Gouveia and colleagues (2021) examined the impact of HESI Compass on 235 undergraduate nursing students' exam readiness. More specifically, they examined change in students' E2 pre-test to post-test scores as they used HESI Compass.

+112

Students' E2 scores increased an average of 112 points and the proportion of students scoring over 850 or 900 nearly doubled.

Gouveia and colleagues (2023) examined the impact of HESI Compass on 512 nursing students' NCLEX-RN outcomes. They also explored the relationship between HESI Compass usage data and NCLEX-RN outcomes to determine which learning activities contributed to students' success.

95%

of students who completed the HESI Compass course requirements passed the NCLEX-RN.

18%

Completion of a greater number of case studies by students demonstrated a statistically significant association with NCLEX-RN pass rates, with each additional assignment attempted increasing the odds of passing the exam by 18%.

35%

Students who completed more types of activities within HESI Compass were more likely to pass the NCLEX-RN. Each additional activity type tried by a student increased their odds of passing the NCLEX-RN by 35%.

Overall, findings in this section on assessing and reviewing outline major findings for the validity and impact of HESI Exams in predicting success on the NCLEX-RN.

In addition, the comprehensive multi-activity preparation in HESI Compass is particularly useful for achieving NCLEX-RN success. HESI Compass helps students achieve substantial performance gains, provide a positive experience, high and stable levels of self-efficacy, and ultimately become well-prepared for the NCLEX-RN.

## Conclusion

The purpose of this paper was to review selected study findings from the ALS team's ongoing research program that examined the impact of products within Elsevier 360 for Nursing for the following student outcomes:



**Self-efficacy**



**Engagement**



**NCLEX-RN readiness**



**Academic performance**



**Clinical judgment**



**Efficiency**

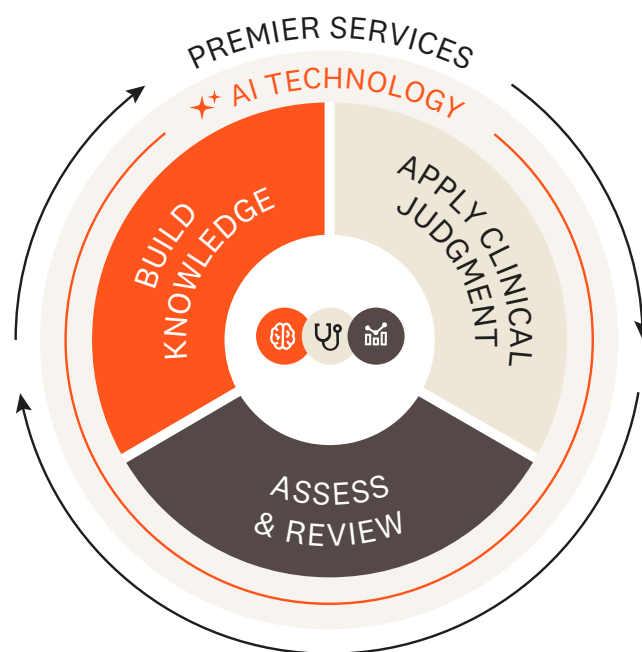


**Learning experience**

The paper provided continuing evidence for the validity and effectiveness of Elsevier 360 for Nursing to help nursing programs meet their learning, teaching, and assessment goals. These findings also provide nurse educators with evidence of effectiveness to inform their testing, NCLEX-RN preparation, and remediation processes. Nursing programs' unique qualities such as student and faculty characteristics, curricula, and testing policies should be considered when generalizing the impact of these results on their programs.

The ALS team is continually building a program of research that provides nursing programs and faculty with rich insights about the effectiveness of our products. The ALS team's commitment to evidence-based practices, collaborative research, and continuous improvement in product design ensures the continuous improvement of Elsevier 360 for Nursing to support nursing programs and educators. As nursing education evolves, the ongoing research program will explore how the integration of multiple products can further enhance teaching and learning outcomes.

Ultimately, Elsevier's commitment to empowering nursing programs through innovative, evidence-based digital solutions enables students to graduate as successful nurses, equipped with the knowledge, skills, and self-efficacy needed to pass the NCLEX-RN and excel in their nursing careers.



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