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White Paper

HESI Admissions Assessment Supports Student Readiness for Nursing Education: A Case Study

Mamta Shah, PhD; Michel Monal, PhD; Lina Lander, ScD

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This paper explores an innovative application of the HESI Admissions Assessment (A2) beyond its traditional role as an admissions tool at Miami Regional University. By embedding A2 within the General Education curriculum, the study reveals new possibilities for strengthening nursing student preparation and success.

Key Takeaways:

1. Early identification and remediation through A2 testing created multiple pathways to success, with significant improvements in core nursing prerequisites like Anatomy & Physiology ($p < 0.0001$).
2. The structured integration of assessment and support yielded stronger results over time, with the Summer 2024 cohort showing 70% greater improvement in science scores compared to Spring.
3. Results demonstrate how institutions can leverage standardized testing tools to support, rather than just screen, diverse nursing student populations.

The HESI Admission Assessment Exam (A2) is a customizable admissions tool used in healthcare programs to ensure students admitted to the program are prepared for the rigorous nursing curriculum. As a comprehensive solution, the A2 assesses prospective students' proficiency in English Language, Math, and Science, offering preparation, evaluation, reporting, and remediation options. Research over the past decade has highlighted the A2's predictive value in determining nursing student success and supporting program completion. This case study examines a novel application of the A2 within a general education program at Miami Regional University (MRU) to support students' readiness for nursing education. Here, we discuss the A2's integration, the outcomes achieved, and its role in preparing students for MRU's nursing curriculum.

1. Prior Research on A2

In previous studies, higher HESI A2 cumulative scores have been shown to correlate with timely graduation in BSN programs (Tartavoulle et al., 2018) and successful completion of Associate of Applied Science (AAS) programs (Marshall, 2020). Compared with other pre-admission exams such as the Pre-Admission Examination for RN (NLN) and TEAS (ATI), the A2 has demonstrated greater efficacy in predicting success in ADN programs (Manieri et al., 2015). Specific sub-scores, such as math, reading comprehension, and anatomy and physiology, have been effective predictors, especially for moderate-scoring candidates in RN transition programs (Lemons, 2021).

Moreover, incorporating A2 scores into a holistic admissions process has improved both student selection and success rates in BSN programs (Aul et al., 2022). The use of a minimum HESI A2 composite score has allowed early identification of at-risk students, thus increasing retention and completion rates (Reinhardt et al., 2021). Strong correlations between A2 scores, science course performance, program completion, and first-time NCLEX-RN success further emphasize the exam's role in academic and licensure success (Robert, 2018). A predictive selection model combining A2 sub-scores, pre-program GPA, and science GPA has accurately identified successful candidates, explaining 76% of the variance in student outcomes and improving selection efficiency in BSN programs (Bennett et al., 2016).

2. Study Context

MRU, located in Miami Springs, Florida, provides quality undergraduate and graduate education in a nurturing learning environment that fosters the development of knowledge, skills, and attitudes for diverse, multigenerational learners. The student population is primarily Hispanic/Latino (78.31%), Black or African American (18.86%), and White (3%). MRU is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) and the Accreditation Commission for Education in Nursing (ACEN) and offers nursing programs, including Associate of Science in Nursing (ASN), Bachelor of Science in Nursing (BSN) degrees.

MRU's General Education program plays a foundational role in preparing students for success in any field of study including nursing careers by covering courses in sciences, natural sciences, mathematics, communication, and humanities. A central element of this preparation is the use of A2, which measures and remediates students' readiness for nursing education. This paper describes the A2 framework and its integration in MRU's General Education courses, highlighting its impact on student readiness for advanced nursing courses.

2.1 General Education First Two Semesters Curriculum for ASN and BSN Students

The General Education curriculum at MRU is comprehensive, offering courses that prepare students in language proficiency, critical thinking skills, information literacy, and scientific and mathematical reasoning as a step toward achieving their career aspirations. These fundamental skills and abilities mastered at MRU prepare students for the scientific and ethical challenges they will face in nursing and other professions. See Table 1 for the courses ASN and BSN students are expected to take in their first two semesters

Table 1: General Education First Two Semesters Curriculum for ASN and BSN Students

Semester	Courses for ASN Students	Courses for BSN Students
First	Human Anatomy & Physiology I (Lecture and Lab) English Composition I College Algebra General Psychology	Human Anatomy & Physiology I (Lecture and Lab) English Composition I College Algebra General Psychology
Second	Microbiology (Lecture and Lab) Human Anatomy & Physiology II (Lecture and Lab) Humanities: Science, Technology, and Human Ethics	Microbiology (Lecture and Lab) Human Anatomy & Physiology II (Lecture and Lab) Human Growth and Development English Composition II

3. The A2 Assessment Process at MRU

The A2 is a standardized pre-admission exam that evaluates candidates' skills in science (biology), math, and english language (reading comprehension). At MRU, prospective students (also referred to as candidates before enrollment) are required to take this assessment as part of the admissions process. Based on their performance, candidates either proceed to their first-semester General Education courses or enter a seven-week, tuition-free remedial program. This program covers foundational concepts in human biology, math, and english to ensure preparedness for the General Education curriculum. Once enrolled in the General Education program, students begin a structured academic pathway that emphasizes building the skills necessary for nursing and health science careers.

3.1 Second Semester A2 Progress Check

During the second semester of General Education, students retake the A2 exam as a progress check within the Human Anatomy & Physiology II (AP2) lecture. This retest measures whether students have achieved the foundational competencies needed to advance into their concentration courses. The A2 Progress Check accounts for 15% of the course grade in AP2. To receive full credit, students must achieve an average score of 70% or higher across the three tested areas.

The grading breakdown for AP2 is as follows:

- First exam: 15%
- A2 Progress Check: 15%
- Midterm exam: 25%
- Final exam: 35%
- Quizzes: 5%
- Cengage assignments: 5%

Students must achieve a final numeric grade of at least 78% (letter grade C) to pass the course. A significant challenge for students arises from the weight of the A2 Progress Check in the overall grade, as 99% of those who fail the A2 retest also fail the course. Students who fail AP2 have the opportunity to retake the course in the following semester.

3.2 Weekly Tutoring and Academic Support

MRU provides weekly tutoring sessions during both the first and second semesters of General Education. These optional two-hour sessions are open to all students, offering support in English, Math, Anatomy, and Physiology. Additionally, students who fail the A2 Progress Check in their second semester have access to these tutorials while retaking AP2. Though not mandatory, more than 50% of students regularly attend, and the sessions have proven to be a valuable resource for reinforcing challenging topics and improving academic performance.

3.3 Academic Advisement and Personal Support Services

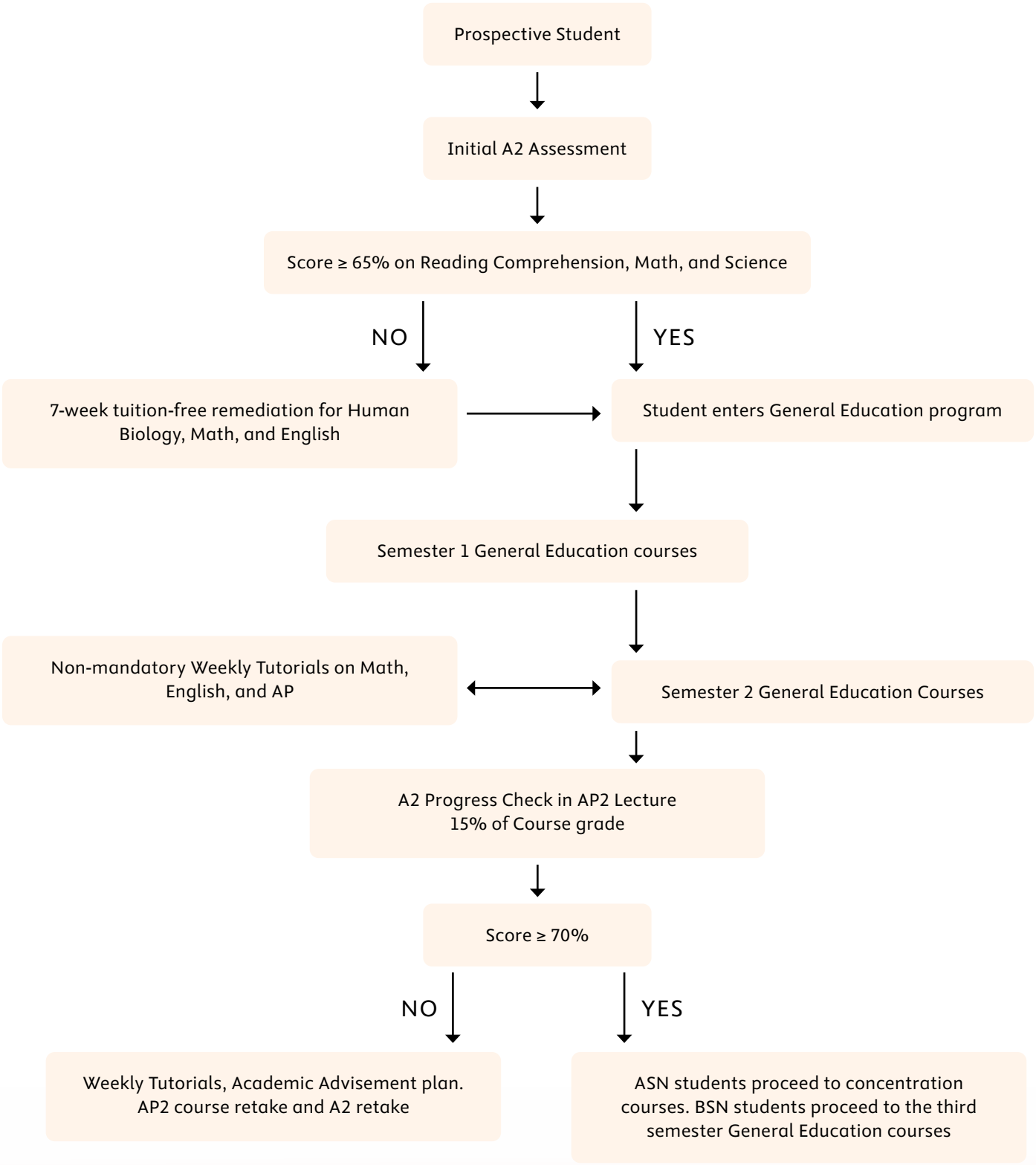
Students who fail AP2 or the A2 are referred to the General Education Faculty Adviser and the Office of Academic Advisement & Student Success for personalized support. These services include:

- Development of a tailored academic advisement plan that focuses on time management, test-taking strategies, study techniques, and tutorials.
- Access to WellConnect, a free, 24/7, confidential counseling and resource referral service for students and their household members.

The holistic support provided by MRU aims to address both academic and personal challenges, enabling students to build the foundation necessary for success in their nursing education.

Figure 1 illustrates the A2 assessment process, starting from pre-admission candidacy through progression in the General Education program and into concentration courses. MRU's structured approach, combining academic rigor with robust support systems, ensures that students are equipped with the critical competencies needed for their future careers in nursing and healthcare.

Figure 1. HESI A2 Integration Process at Miami Regional University



4. Analysis and Findings

To evaluate the General Education curriculum's effectiveness, we conducted paired samples t-tests comparing Pre-Test and Post-Test A2 scores in English Language (Reading Comprehension), Science (Anatomy and Physiology), and Math for ASN and BSN students. The analysis covered Spring and Summer 2024 semesters, examining scores from 22 ASN students (in their first nursing semester) and 15 BSN students (in their third General Education semester).

The Spring 2024 cohort demonstrated varied improvements across subject areas. Reading Comprehension showed minimal improvement with a mean difference of 1.36 ($p = 0.5285$), indicating no statistical significance. However, substantial gains were observed in both Anatomy and Physiology (mean difference = 19.64, $p < 0.0001$) and Math (mean difference = 18.18, $p = 0.0004$), with both areas showing statistical significance. The Summer 2024 cohort exhibited even more pronounced improvements. While Reading Comprehension showed larger gains compared to Spring (mean difference = 7.80), these improvements remained statistically non-significant ($p = 0.1684$). Notably, Anatomy and Physiology demonstrated the most dramatic improvement with a mean difference of 33.47 ($p < 0.0001$), representing a 70% larger improvement compared to the Spring semester. Math scores also showed considerable improvement (mean difference = 28.80, $p = 0.0006$).

These results reveal consistent patterns across both semesters. While the curriculum significantly enhanced students' performance in science and mathematical domains, improvements in English Language competencies were less pronounced. This finding is particularly noteworthy given that the sample largely consisted of ESL students, highlighting a potential area for targeted interventions in the curriculum. The stronger improvements observed in the Summer 2024 cohort across all subjects indicate continous improvement in instructional approaches and student support services between the two semesters.

Table 2: Spring 2024 HESI A2 Exam Results

Subject	Mean Difference	Standard Deviation	Standard Error	t-test Value	Degrees of Freedom	p-value
Reading Comprehension	1.36	9.98	2.13	0.64	21	0.5285
Anatomy and Physiology	19.64	11.67	2.49	7.89	21	<0.0001
Math	18.18	20.22	4.31	4.22	21	0.0004

Table 3: Summer 2024 HESI A2 Exam Results

Subject	Mean Difference	Standard Deviation	Standard Error	t-test Value	Degrees of Freedom	p-value
Reading Comprehension	7.80	20.80	5.37	1.45	14	0.1684
Anatomy and Physiology	33.47	18.92	4.88	6.85	14	<0.0001
Math	28.80	25.25	6.52	4.42	14	0.0006

5. Conclusion

A2 has established itself as a valuable pre-admission tool in healthcare education, helping programs identify candidates who are sufficiently prepared for program entry. This paper highlights a novel application of the A2 within the General Education program at MRU, showcasing how its structured integration—through initial assessment, remediation, and progress checks—can bolster students' readiness for nursing education. At MRU, the A2 framework not only prepares students to meet licensure requirements but also aligns with the institution's mission to support a diverse, student population. By strengthening competencies in english, math and science, the A2 provides a foundation for students' academic and clinical success in nursing coursework.

These findings suggest that using the A2 throughout foundational education could serve as a replicable model for other institutions aiming to enhance nursing program success rates. Further longitudinal research on the A2's role in nursing education is essential to evaluate its impact on long-term academic achievement and licensure outcomes. Such research would provide insight into the optimal curriculum designs that foster both readiness and persistence in nursing and healthcare careers.

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