Using the Digital Clinical Experience™ as Evidence for the Accreditation Process of Undergraduate Nursing Programs
Research Brief

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1. Introduction

In higher education, accreditation ensures that institutions and their academic programs meet acceptable levels of quality. Accreditation is defined as a “voluntary, peer-review, self-regulatory process by which non-governmental associations recognize educational institutions or programs that have been found to meet or exceed standards and criteria for educational quality. Accreditation also assists in the further improvement of the institutions or programs as related to resources invested, processes followed, and results achieved. The monitoring of certificate, diploma, and degree offerings is tied closely to state examination and licensing rules and to the oversight of preparation for work in the profession” (ACEN, 2017a, p. 2). For nursing programs, meeting accreditation standards and evaluation criteria not only means program resources and processes are being efficiently managed but also that high quality education outcomes and commitment to standards are being established.

Shadow Health can play a vital role in providing undergraduate nursing programs pursuing accreditation with the necessary evidence to meet criteria related to the achievement of student learning outcomes across the curriculum. The purpose of this research brief is to describe how undergraduate nursing faculty and administrators can understand the value of the Shadow Health Digital Clinical Experience™ (DCE) as evidence to meet the most recent ACEN and CCNE accreditation standards and criteria in baccalaureate nursing education.

2. Benefits of Accreditation in Undergraduate Nursing Education

In the United States, the Accreditation Commission for Education in Nursing (ACEN) and the Commission on Collegiate Nursing Education (CCNE) are the only two national accrediting agencies for nursing programs that are recognized by the U.S. Department of Education. Achieving accreditation through either agency is a means of demonstrating that the nursing
program is ensuring quality education and meeting specific benchmarks in program outcomes (Davis, Weed, & Forehand, 2015).

In addition, the process of accreditation also “assists in the further improvement of the institutions or programs as related to resources invested, processes followed, and results achieved” (ACEN, 2017a, p. 2). The CCNE states that “accreditation evaluations are useful to the program in that they serve as a basis for continuing or formative self-assessment as well as for periodic or summative self-assessment through which the program, personnel, procedures, and services are improved. The results of such assessments form the basis for planning and the setting of priorities at the institution” (CCNE, 2013, p. 2).

Accreditation is highly beneficial to nursing programs for numerous reasons. According to the ACEN (2017a, p. 3), accreditation:

- Heightens faculty members’ and administrators’ awareness and responsiveness to areas needing improvement.
- Aids in student recruitment.
- Provides useful information for career and education decision making.
- Enables student eligibility for funding support from federal and state agencies, as well as foundations.
- Is required by many nursing programs for admission to the graduate level.
- Is required by some state regulatory agencies.
- Assists employers seeking graduates who are competent practitioners.
- Offers professional development opportunity and validation for faculty.
- Facilitates the transfer of credit using the following considerations.
  - the educational quality of the institution from which the student transfers;
the comparability of the nature, content, and level of credit earned from the programs offered by the receiving college or program; and
the appropriateness and applicability of the credit earned from the programs offered by the receiving college in light of the student's educational goals

Initial and continuing accreditation indicates that a nursing program has clear, measurable, and attainable educational goals and is successful at achieving them. Accreditation implies program quality, demonstrates excellence to peers, and provides for institution and program recognition (Davis, Weed, & Forehand 2015). Therefore, faculty and administrators play an important role in gathering evidence for an effective preparation of their program’s accreditation process.

3. ACEN Standards and Criteria

ACEN has identified six accreditation standards that nursing institutions pursuing initial or continuing accreditation must meet using identifiable and measurable criteria. The ACEN Standards are shown in Figure 1.

For baccalaureate nursing education programs, the Curriculum Standard consists of the following criteria (ACEN, 2017):

1. Consistent with contemporary practice, the curriculum incorporates established professional nursing standards, guidelines, and competencies and has clearly articulated end-of-program student learning outcomes.
2. The end-of-program student learning outcomes are used to organize the curriculum, guide the delivery of instruction, and direct learning activities.
3. The curriculum is developed by the faculty and regularly reviewed to ensure integrity, rigor, and currency.
4. The curriculum includes general education courses that enhance professional nursing knowledge and practice.

5. The curriculum includes cultural, ethnic, and socially diverse concepts and may also include experiences from regional, national, or global perspectives.

6. The curriculum and instructional processes reflect educational theory, interprofessional collaboration, research, and current standards of practice.

7. Evaluation methodologies are varied, reflect established professional and practice competencies, and measure the achievement of the end-of-program student learning outcomes.

8. The total number of credit/quarter hours required to complete the defined nursing program of study is congruent with the attainment of the identified end-of-program student learning outcomes and program outcomes, and is consistent with the policies of the governing organization, the state, and the governing organization's accrediting agency.

9. Student clinical experiences and practice learning environments are evidence-based; reflect contemporary practice and nationally established patient health and safety goals; and support the achievement of the end-of-program student learning outcomes.

10. Written agreements for clinical practice agencies are current, specify expectations for all parties, and ensure the protection of students.

11. Learning activities, instructional materials, and evaluation methods are appropriate for all delivery formats and consistent with the end-of-program student learning outcomes.
Figure 1. ACEN Standards. Shadow Health can provide substantial evidence to meet the criteria for the Curriculum Standard (Standard 4)

The Digital Clinical Experience™ can provide substantial evidence to support the achievement of the end-of-program student learning and program outcomes through: a) **direct learning activities**, b) **evaluation methodologies**, c) **clinical learning experiences**, and d) **practice learning environments**. In the next section, we will describe different types of evidence that nursing faculty and administrators can incorporate in the Self-Study Report to meet the criteria for the Curriculum Standard.

3. **Role of the Digital Clinical Experience™ in the ACEN Self-Study Report**

Any undergraduate nursing program pursuing accreditation must go through a self-review evaluation process and prepare a report that will demonstrate the extent to which
their program meets the ACEN accreditation standards and criteria (ACEN, 2017b). As stated by ACEN, the process of self-study is a combined effort of “the governing organization administrators, nursing education unit administrators, faculty, staff, students, and other individuals concerned with the nursing program” (ACEN, 2017b, p. 3). The Self-Study Report is important because it is the primary document used by peer evaluators, the Evaluation Review Panel, and the Board of Commissioners to determine the program’s adherence to the accreditation standards.

To address the undergraduate ACEN accreditation standards and criteria, nursing programs must include the Essential Elements. Essential Elements are supporting materials that may be used as guides to facilitate the development of the Self-Study Report. Essential Elements can be part of the narrative in the Self-Study Report, and/or included in the Appendix as a supporting document to the narrative; and/or cited in the narrative and placed in the documents that may be used for review during the onsite visit (ACEN, 2017b).

As faculty and administrators demonstrate compliance with the Curriculum Standard, they will have to address different components of the undergraduate nursing curriculum, including its organization, presentation, and evaluation. As part of the narrative for this standard, faculty should be able to describe how end-of-program student learning outcomes are being used to guide the delivery of courses within the curriculum, as well as their rationale for selecting learning activities and student evaluation methods in different courses. In the narrative for this standard, faculty can identify the Undergraduate Digital Clinical Experience™ as one of the core learning activities embedded into courses like Health Assessment, Pharmacology, Mental Health, or Gerontology. The following are some examples of how the Essentials for the Curriculum Standard can be addressed using components of the Digital Clinical Experience™ (ACEN, 2017a):
a) Evaluation tools/methodologies for didactic content, laboratory content, and clinical learning experiences: The Shadow Health Digital Clinical Experience™ is a suite of web-based, asynchronous virtual patient simulations that provide a standardized clinical experience for students to practice their communication and assessment skills in a safe learning environment. The Digital Clinical Experience™ offers a wide variety of clinical scenarios and patient cases for core courses in the nursing curriculum like health assessment, pharmacology, mental health, and gerontology. In the Digital Clinical Experience™, students can interview and examine virtual patients, apply therapeutic communication skills, synthesize their findings on an electronic health record, and engage in debriefing activities following every virtual patient examination (Figures 2 and 3). Faculty can integrate the Digital Clinical Experience™ in their curriculum as formative assessments, as prerequisites for entry to laboratory sessions, as summative assessments, or as replacement for traditional clinical experiences.

![Digital Clinical Experience](image)

*Figure 2.* Danny Rivera is an 8-year-old boy who has had a cough for several days, especially at night. During the DCE™, students perform a focused respiratory exam, explore related systems and symptoms, and practice communicating with a pediatric patient about his health, home life, and cultural beliefs.
b) End-of-program student learning outcomes that have been identified: Each assignment of the Digital Clinical Experience™ contains a validated score that consolidates several dimensions of student performance on the simulation. The Student Performance Index™ can be presented as evidence of valid and reliable measurement of relevant student learning outcomes throughout the nursing curriculum. Shadow Health’s Student Performance Index™ evaluates each student’s clinical reasoning abilities against the level expected of a high-performing graduate at the conclusion of their program. Given that it combines the results of a set of valid and reliable assessment instruments, the Student Performance Index™ automatically assesses a student’s abilities in Subjective Data Collection, Objective Data Collection, and Therapeutic Communication across all Shadow Health Products.

c) Course materials including syllabi, evaluation methodologies, and learning activities: In using the Digital Clinical Experience™, faculty have not only replaced case studies or other activities with Shadow Health assignments, but they have also used Shadow Health features...
and assignments in other ways to supplement course content and practices in their courses. Examples of these extra learning activities are the Health History Taking Activity, the Discussion Questions for the Focused Exam Patients, and the Advanced Communication Skills Activity. Lastly, since faculty use the Digital Clinical Experience™ as one of main learning activities to achieve the learning objectives of their course, our Instructional Design team has created a wealth of information that faculty place directly in their course syllabus. Shadow Health Example Syllabi contain language describing our virtual patient simulation technology, useful links for faculty and students, and a list of assignments along with the expected time of completion that is specific to undergraduate students.

d) Evidence that diverse concepts, best practices, and nationally established patient health and safety goals are incorporated into the curriculum: The Quality and Safety Education for Nurses (QSEN) Institute has partnered with Shadow Health to map the QSEN competencies of patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics to the Undergraduate Mental Health and Gerontology Digital Clinical Experiences™. On their Results Page, students are provided with detailed feedback on how their performance on Subjective Data Collection, Objective Data Collection, and Therapeutic Communication demonstrate the knowledge, skills, and attitudes necessary to continuously improve the quality and safety of their work as a student nurse. By providing this feedback, students can understand and improve their skills to continuously improve the quality and safety of healthcare. Figure 4 shows how QSEN competencies are mapped to student performance on the Student Results Page of the Digital Clinical Experience™.
e) **Samples of student written work (e.g., papers, projects, assignments):** Shadow Health instructors have access to each of their student's Results Page, which provides feedback on several components of their completed virtual patient simulation assignment experience, for example:

- **Transcript:** A thorough record of every interaction between the student and the virtual patient during the patient exam: questions asked, empathetic and educational statements made, patient responses, and exam actions conducted.
- **Subjective Data Collection:** Feedback on the breadth and depth of the questions asked by the student, as well as questions they did not address during the patient interview.
- **Objective Data Collection:** Feedback on the reporting of assessments conducted by the student during the patient physical examination.
- **Documentation:** A comparison of their student's documentation with a model focus note written and validated by nursing subject matter experts.
- **SBAR:** Student’s responses to an SBAR (Situation, Background, Assessment, and Recommendation) hand-off after they leave the patient exam room.
- **Self-Reflection:** Student’s responses to three structured reflections regarding the tasks undertaken to complete the patient exam, the clinical reasoning behind such tasks, and how the lessons learned could be applied to their professional practice.
QSEN Competencies

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
<th>Attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established chief complaint</td>
<td></td>
<td></td>
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<tr>
<td>Patient Centered Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrate multiple dimensions of patient-centered care. Demonstrate comprehensive understanding of physiologic pain and suffering.</td>
<td>Elicit patient values, preferences and expressed needs as part of clinical interview. Assess presence and extent of pain and suffering. Assess levels of physical comfort.</td>
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</tr>
<tr>
<td>Evidence Based Practice</td>
<td></td>
<td>Value the concept of EBP as integral to determining best clinical practice.</td>
</tr>
<tr>
<td>Safety</td>
<td></td>
<td></td>
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<tr>
<td>Informatics</td>
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<tr>
<td>Apply technology and information management tools to support safe processes of care. Navigate the EHR. Document and plan patient care in an electronic health record.</td>
<td>Protect confidentiality of protected health information in electronic health records. Access patients records only when there is a need to know.</td>
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</tr>
</tbody>
</table>

Figure 4. With the QSEN mapping, students are provided with detailed feedback on how their performance on the Digital Clinical Experience™ demonstrate the knowledge, skills, and attitudes necessary improve the quality and safety of their work as student nurses.

f) Evidence that program length is consistent with the policies of the governing organization, the state, and the governing organization's accrediting agency (ACEN uses a 3:1 ratio of contact to credit hours for clinical as well as skills/simulation learning experiences and a 1:1 ratio for didactic learning experiences): Many undergraduate nursing programs have started to substitute students’ traditional hours with some form of simulation. In 2014, the National Council for State Boards of Nursing Simulation Study provided evidence that substituting high-quality simulation experiences for traditional clinical hours results in comparable educational outcomes in undergraduate nursing clinical courses (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Results showed that there were no significant differences in nursing knowledge, clinical competency, NCLEX pass rates, and overall
readiness for professional practice when simulation was substituted for up to 50% of traditional clinical experiences.

The Shadow Health Digital Clinical Experience™ addresses the challenges brought up by other forms of high-fidelity simulations, especially in the current environment when there is a deficiency in the clinical hours available to nursing students and quality clinical placements are difficult to secure for traditional and nontraditional students. Virtual patient simulation like the Digital Clinical Experience™ do not require the time and costs associated to training a standardized patient actor or the schedule and space restrictions posed by large sections of students having to work with a single standardized patient actor (Kleinheksel & Ritzhaupt, 2017). For distance education students who do not have access to a simulation lab or clinical sites, faculty can use the Shadow Health Digital Clinical Experience™ as a summative assessment in order to count for hours of clinical and evaluate the competency of their students (Kleinheksel & Ritzhaupt, 2017).

National surveys also show that the most common simulation to clinical time ratio among nursing programs using the simulation-based replacement approach is 1:1. Several research studies show that exposure to simulation up to 50% results in increases in clinical knowledge, critical thinking, debriefing skills, self-confidence, NCLEX pass rates, and overall readiness for professional practice (Breymier, Rutherford-Hemming, Horsley, Smith, and Connor, 2015). Therefore, faculty can use the Digital Clinical Experience™ in place of traditional clinical hours and justify the 3:1 ratio of contact to credit hours for clinical as well as skills/simulation learning experiences required by ACEN Standards.
Figure 5. The Digital Clinical Experience™ Student Results Page provides faculty with a detailed description of several components of their students’ virtual patient simulation experience, such as the Transcript, Subjective Data Collection Score, Objective Data Collection Score, Education and Empathy, Documentation, and Hallway.

4. CCNE Standards and Criteria

The CCNE has identified four standards and key elements (i.e., criteria) that nursing institutions pursuing accreditation must meet. These standards and key elements serve as a basis to evaluate the quality of the educational program offered by an institution, as well as hold
that program accountable to the educational community, the nursing profession, and the public (CCNE, 2013):

- Standard I: Program Quality: Mission and Governance
- Standard II: Program Quality: Institutional Commitment and Resources
- Standard III: Program Quality: Curriculum and Teaching
- Standard IV: Program Effectiveness: Assessment and Achievement of Program Outcomes

Similar to the ACEN Curriculum Standard, the CCNE Curriculum and Teaching Standard (Standard IV) reflects the extent to which the undergraduate curriculum reflects professional nursing standards and guidelines, as well as the needs and expectations of the population of interest. In addition, teaching-learning practices should be aligned and consistent with expected student outcomes (CCNE, 2013). The Curriculum and Teaching Standard consists of the following key elements (CCNE, 2013):

A. The curriculum is developed, implemented, and revised to reflect clear statements of expected student outcomes that are congruent with the program’s mission and goals, and with the roles for which the program is preparing its graduates.

B. Curricula are developed, implemented, and revised to reflect relevant professional nursing standards and guidelines, which are clearly evident within the curriculum and within the expected student outcomes (individual and aggregate).
   - Baccalaureate program curricula incorporate The Essentials of Baccalaureate Education for Professional Nursing Practice (AACN, 2008).

C. The curriculum is logically structured to achieve expected student outcomes.
   - Baccalaureate curricula build upon a foundation of the arts, sciences, and humanities.
D. Teaching-learning practices and environments support the achievement of expected
student outcomes.

E. The curriculum includes planned clinical practice experiences that:
   ○ Enable students to integrate new knowledge and demonstrate attainment of
     program outcomes; and
   ○ Are evaluated by faculty.

F. The curriculum and teaching-learning practices consider the needs and expectations of
   the identified community of interest.

G. Individual student performance is evaluated by the faculty and reflects achievement of
   expected student outcomes. Evaluation policies and procedures for individual student
   performance are defined and consistently applied.

H. Curriculum and teaching-learning practices are evaluated at regularly scheduled
   intervals to foster ongoing improvement.

The Digital Clinical Experience™ can provide supporting evidence to address some of
the key elements of the CCNE Standard III: Curriculum and Teaching through: a) examples of
student work, b) student performance evaluations, and c) examples of assignments
reflecting incorporation of professional nursing standards and guidelines. In the next
section, we will describe different types of evidence that nursing faculty and administrators can
incorporate in the CCNE Self-Study Document to meet the criteria for the Curriculum and
Teaching Standard. In the narrative for this standard, faculty can identify the Undergraduate
Digital Clinical Experience™ as one of the core teaching-learning practices and environments
that support the achievement of expected student outcomes, as well as one of the planned
clinical practice experiences for courses like Health Assessment, Pharmacology, Mental Health, or Gerontology.

5. Role of the Digital Clinical Experience™ in the CCNE Self-Study Document

As part of the process of pursuing initial or continued CCNE accreditation, any undergraduate nursing program is required to conduct a self-study in terms of program quality and effectiveness, as well as elaborate a document addressing all accreditation standards and key elements (CCNE, 2017). The CCNE Self-Study Document must include data and any other information about the program that would demonstrate that such data is being analyzed and used in for program improvement purposes (CCNE, 2017). According to CCNE (2017), “the self-study process affords the program the opportunity to identify its strengths, its performance with respect to student achievement, and areas for improvement, as well as its plans to address continuous improvement” (p. 8). Below are some examples of how components of the Digital Clinical Experience™ and other Shadow Health faculty resources can be used as evidence to address the key elements for the Curriculum and Teaching Standard (CCNE, 2013):

a) Teaching-learning practices and environments support the achievement of expected student outcomes: Foronda (2017) identified several research studies in nursing education where the use of virtual patients had a positive impact on the following student outcomes:

- Teamwork (Caylor, Aebersold, Lapham & Carlson, 2015; Kalisch, Aebersold, McLaughlin, Tschannen, & Lane, 2015)
- Leadership (Foronda, Budhathoki, & Salani, 2014)
- Communication (Foronda, Gattamorta, Snowden, & Bauman, 2014)
• Decision-making (Hudson, Taylor, Kozachik, Shaefer, & Wilson, 2015; McCallum, Ness & Price, 2011)
• Art of instruction (Foronda, Lippincott, & Gattamorta, 2014)

The Shadow Health Digital Clinical Experiences™ allow nursing students to demonstrate and improve their clinical reasoning skills through interactions with Digital Standardized Patients™. Utilizing the Shadow Health’s conversation engine, students engage in open-ended conversations to gather subjective data and practice patient-centered communication. Likewise, students can perform tests and utilize instruments to gather and then record objective patient data on the Electronic Health Record (EHR). Students can also synthesize their findings, compare their work to an exemplar’s model note, and engage in debriefing immediately following every assignment.

b) The curriculum includes planned clinical practice experiences that enable students to integrate new knowledge and demonstrate attainment of program outcomes: There are multiple reasons why the Digital Clinical Experiences™ can be used as evidence of planned clinical practice experiences in the undergraduate nursing curriculum. Foronda and Bauman (2014) suggested that virtual simulation may be used to count for a portion of clinical hours, replicate high-risk clinical experiences, and even act as clinical makeup. Clinical placements are increasingly scarce and difficult to arrange, and sometimes students are even required to pay extra fees to attend clinicals. In addition, using virtual simulations as evidence of in lieu of
traditional clinical hours may exempt faculty from the burden of driving out to multiple clinical sites to meet up with students and preceptors as evaluation of student performance and debriefing can occur asynchronously. On the other hand, situations involving high-risk training scenarios (a patient presenting with PTSD in mental health; Figure 6) may require students to practice in a low-risk, low-anxiety environment due to safety, liability, and ethical reasons (Foronda & Bauman, 2014). Virtual simulations may complement the existing undergraduate nursing curriculum by incorporating these difficult and high-risk clinical experiences as well as provide an important curriculum standardization in nursing education so that all students can have access to high-quality, comparable educational opportunities (Baillie & Curzio, 2009, Foronda & Bauman, 2014, Laure, Pepin, & Allard, 2015).

Figure 6. Nicole Diaz is a 48-year-old woman presenting with post-traumatic stress disorder, depression, and anxiety. In this Mental Health assignment, students have the opportunity to interview the patient, conduct a mental status exam, provide therapeutic communication, and assess relevant body systems to evaluate physiological symptoms.

c) **Individual student performance is evaluated by the faculty and reflects achievement of expected student outcomes:** Shadow Health’s Student Performance Index™ automatically
evaluates each student’s clinical reasoning abilities against the level expected of a high-performing nurse at the conclusion of their course of study. Across all Shadow Health products, the Student Performance Index™ provides both faculty and students with the immediate, detailed feedback necessary to accurately identify areas of strength and opportunities for remediation, and contextualizes student performance by comparing student current abilities to those of their peers nationwide with proficiency levels.

Shadow Health automatically also translates the Student Performance Index™ score into a grade for each student on each assignment. The Digital Clinical Experience™ Score reflects how student work compares to their peer learners across the country for a particular assignment. Because it is a fair assessment of effort, the Digital Clinical Experience™ Score is appropriate for use as an assignment grade. Therefore, both the Student Performance Index™ and the Digital Clinical Experience™ Score can be used as supporting evidence for the evaluation of individual student performance and achievement of expected student outcomes as part of the CCNE Curriculum and Teaching Standard.

6. Conclusions and Recommendations

The purpose of this research brief was to describe and exemplify how undergraduate nursing faculty and administrators can use components of the Shadow Health Digital Clinical Experience™ (DCE™) as evidence to meet the most recent ACEN and CCNE accreditation standards and criteria related to curriculum and teaching in baccalaureate nursing education.

The Digital Clinical Experience™ can provide substantial evidence to support the achievement of student learning and program outcomes through embedded learning activities that provide innumerable samples of student work, valid and reliable student performance evaluation methodologies, and safe clinical learning experiences and practice environments.
Nursing faculty and administrators can use these components in the ACEN Self-Study Report and/or the CCNE Self-Study Document to demonstrate that high quality education outcomes and commitment to standards are being established at their nursing program.
7. List of References


Commission on Collegiate Education in Nursing [CCNE] (2017). Procedures for Accreditation of


