

Chapter 6: Assessment and Evaluation Methods in APN Education

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Introduction

Assessing nursing skills, whether in the first term of a bachelor's programme or the final term of an APN programme, is, from our experience, a topic frequently discussed among colleagues. This collaborative discussion occurs irrespective of whether the assessment or evaluation targets more solitary theoretical course activities or theoretical knowledge manifested as clinical skills. In all courses – and in broader perspective educational programmes – it is pivotal that teachers and educators, together with students, ensure that learning activities allow students to achieve the expected learning outcomes. All components, from the curriculum to course content and activities, intended outcomes, and evaluation and assessment methods and tools, should be aligned.

Since these are fundamentally based on theoretical knowledge, it is seldom meaningful or purposeful to differentiate between theoretical and clinical nursing skills in clinical skill evaluation and assessments. Hence, assessing clinical skills will also always include theoretical knowledge and reasoning.

This chapter will comprehensively summarise formative and summative evaluation and assessment tools and guidelines relevant to APN education, highlighting best practices for evaluating educational outcomes and competencies which are essential in Advanced Practice Nursing. Numerous methods and tools in this chapter may apply to education at both bachelor's and master's level and to other healthcare professions. In this chapter, we emphasise that assessment and evaluation are closely related concepts, where formative methods are related to an evaluation approach, and summative methods are

related to an assessment approach. We hope that the reader by the end of this chapter, will feel well-informed and prepared to implement these tools and guidelines in their educational practices.

Key definitions

Formative assessment and evaluation. Formative assessment and evaluation aims to continuously track students' learning progress and offer consistent feedback to educators and learners. It aids learning, guiding students in recognising their strengths and areas needing improvement. When effectively designed, it empowers students to enhance their self-regulatory skills, promoting a more structured approach to their education. Additionally, it equips faculty members with valuable insights into the challenges students face, allowing them to provide targeted support where needed.

Summative assessment and evaluation. Summative assessment and evaluation aims to assess students' learning after an instructional unit by measuring it against a predetermined standard or benchmark. Summative assessments typically carry significant weight. Relying excessively on summative assessment at the culmination of a study element results in assigning students a grade without offering substantial feedback to aid their development and improvement before they complete the module/programme.

General Guidelines and Best Practices for Assessment and Evaluation Methods and Tools in APN Education

No consensus has yet been built regarding the ideal method for competence assessment because of concerns regarding objectivity and comprehensiveness with respect to evaluations of competence in clinical practice. Studies have demonstrated that competencies vary in different nursing environments, which emphasises the need for different assessments to enhance the accuracy of the measurement. The various methods recommended for assessing competence fall into three areas: self-assessment, peer assessment and supervisor assessment (Briggs et al., 2005; Bahrain et al., 2011).

'Best practices' encompass contemporary and pertinent nursing practices, methods, interventions, procedures and/or techniques grounded in robust evidence (Nelson, 2014; Ten Ham-Baloyi et al., 2020;

Gray & Sims, 2023). Adopting the concept can enhance the health outcomes of individual patients, elevate the overall quality of healthcare delivery and fortify the broader health system.

As such, best practices may be directive, evidence-based and quality-focused (Nelson, 2014; Clarke et al., 2021). Therefore, best practices are more than simply practices based on scientific evidence. They also represent quality care that is deemed optimal based on a prevailing standard or point of view, such as national guidelines or local recommendations. Thus, descriptions of best practices in nursing have significance as they direct nurses regarding solutions to identified problems/needs in person-centred nursing care. Furthermore, best practices and guidelines can serve as important elements in nursing practice education from novice to expert level (Nelson, 2014; Clarke et al., 2021; Gray & Sims, 2023). Best practices and guidelines play a crucial role in competency development in nursing by serving as clear goals for professional growth and development.

Best practices can serve as goals in nursing competency development through the following:

- *Setting Standards:* Best practices and guidelines establish standards for nursing care based on evidence-based research, expert consensus and industry standards. Incorporating these standards into competency development gives nurses clear benchmarks to strive towards in their practice.
- *Promoting Evidence-Based Practice:* Best practices and guidelines are often rooted in evidence-based practice, which emphasises the integration of the best available evidence with clinical expertise and patient preferences. By aligning competency development goals with evidence-based guidelines, nurses can ensure their practice is grounded in the latest research and knowledge.
- *Improving Patient Outcomes:* The ultimate goal of nursing practice is to improve patient outcomes and quality of experience. Best practices and guidelines can help outline effective strategies for delivering high-quality care that may lead to positive patient outcomes. By making guidelines explicit goals in competency development, nurses can focus on acquiring the skills, knowledge and competencies necessary to achieve quality in person-centred nursing care.
- *Ensuring Quality and Safety:* Best practices and guidelines are designed to promote patient safety and quality of care. By incorporating these standards into competency development, nurses can enhance their ability to deliver safe, effective, and high-quality care.
- *Supporting Professional Growth:* Competency development is an ongoing process that supports nurses' professional growth and

development throughout their careers. By setting goals which align with, best practices and guidelines, nurses may be able to identify areas for improvement, acquire new skills and stay up to date with the latest advancements in nursing practice.

Overall, best practices and guidelines serve as invaluable goals in competency development in nursing by providing a framework for excellence, promoting evidence-based practice, improving patient outcomes, ensuring quality and safety and supporting professional growth and development (Clarke et al., 2021; Gray & Sims, 2023). However, according to the CALOHEE Project Group (2023) report "Measuring and Comparing Achievements of Learning Outcomes in Higher Education in Europe" it is crucial for preceptors and all kinds of nurse educators to implement a strategic approach using best practice and guidelines for nursing education. As such, the report stresses the importance of focusing on the assessment of theoretical competencies and practice-based competencies, and interrelationships between the two. Furthermore, they stress that assessments should be aligned to competencies and programme or module learning outcomes, and not just select narrow aspects of professional practice. Therefore, assessment should align with learning objectives (CALOHEE Project Group, 2023).

The CALOHEE Project Group (2023) lists several questions for reflection when assessment in education is at stake:

- Is it possible to assess learning objectives with the chosen method?
- Are clear assessment criteria established, and do they correspond to the learning objectives you want to assess?
- Do the assessment criteria measure all the desired learning objectives?
- Is the method practical, equitable, reliable, feasible, professionally relevant and defensible?
- Can the assessment be reliable across nations and institutions?
- Is the assessment in simple and clear language that can easily be translated?
- Is the assessment evidence-based in method and content?
- Is the assessment based on fair, transparent, well-constructed, valid and reliable rubrics?
- Is it resource-efficient, effective and sustainable?

In addition, the CALOHEE project recommends a focus on the validity and reliability of assessment, feedback and debriefing, and fairness and equity in assessments. It includes the following guidelines:

Validity and reliability

- Use valid and reliable assessments, ensuring they consistently measure what they are intended to measure.

- The basis of assessment should be a theory-based model or taxonomy from which the grading rubrics are derived.
Feedback and Debriefing
- Provide timely and constructive feedback to enhance learning and promote continuous improvement.
- Make sure feedback is constructive and motivating, not demotivating. Encourage students to self-assess and reflect on their learning to encourage self-directed learning.
- Create conditions for peer assessment and integrate peer assessment into the learning process.

Fairness and Equity

- Ensure assessments are fair and free from bias, and consider the diverse backgrounds and experiences of students.
- Ensure that assessment criteria are clear and understandable to students to reduce potential disparities in understanding.
- Involve students in the process by asking for their feedback on possible unfairness in the evaluation and assessment system.
- Explain clearly to students how the assessment will take place, what the criteria will be and how the assessments will be made.
- Train the teachers so that they know how to use assessment methods in a uniform manner based on the principles of fair assessment.

Continuous Quality Improvement

- Regularly review and update assessment tools and practices based on feedback, research and changes in educational standards.
- Ensure that the updating of learning objectives takes place together with the updating of assessment methods and criteria. (CALOHEE Project Group, 2023.)

Formative and Summative Methods

Formative and summative assessments are essential in evaluating educational outcomes and competencies in Advanced Practice Nursing. These assessments help gauge students' progress, identify areas for improvement, and measure overall achievement. There are several scientifically proven tools and guidelines for evaluation and assessment in Advanced Practice Nursing education. Incorporating a combination of formative and summative assessments, using diverse and reliable tools, is recommended to maintain the focus on students' continuous improvement. Using formative and summative assessments will contribute to effectively evaluating educational outcomes and competencies in Advanced Practice Nursing education.

Formative methods

There is no one pedagogical method or formative assessment which is suitable on its own for assessing or evaluating all theoretical or clinical competencies simultaneously. This chapter focuses on clinical assessment and evaluation where theoretical knowledge is integrated into clinical competencies. Examples of pedagogical methods that can be used for formative clinical assessments are OSCE, student self-assessment and reflection, and peer assessment.

Objective Structured Clinical Examination (OSCE) has been used in medicine for decades to assess and evaluate clinical skills and competence in a controlled environment. The method is built on defined clinical scenario stations, with checklists associated with goal achievements connected to each station. In contrast to traditional methods of assessment of clinical skills, which are often problematic in their use of unfair scenarios and the influence of coincidence as they are based on only real patient case situations, OSCE represents an attempt to develop settings that allow standardised conditions for student skills assessment. OSCEs can be performed in different ways, such as with multiple stations where the student focuses on a specific skill or task, limited to one or two scenario stations, or as so-called head-to-toe examinations. OSCEs can be used at all levels of nursing education to assess several aspects of the profession, such as physical and mental health examinations, communication techniques and clinical and diagnostic decision-making. Best practices in OSCE include using various scenarios and standardised patients and providing immediate feedback to enhance learning. (Rushforth, 2007; Harden, 2016; Aronowitz et al., 2017; Goh et al., 2019; Taylor, 2019; Lavery, 2022; Taylor, 2023.)

Practical examples of OSCE

Educators must remember that the overarching objective is to cultivate an environment where students feel empowered within a positive and supportive atmosphere throughout, and follow the steps of the Objective Structured Clinical Examination (OSCE) irrespective of goal accomplishment. Experience shows that OSCEs can be perceived as challenging and emotionally tough for students, underscoring the importance of educators maintaining a supportive and collegial approach.

Example: Assessing Therapeutic Communication Techniques using OSCE

- ✓ *Educators design patient cases in advance where skills in therapeutic communication are pivotal, each with a predetermined "solution" (e.g., a patient who is suicidal but is, at the same time, reserved and hesitant to open up to the Advanced Practice Nursing (APN) student).*

- ✓ *Skilled actors, professional or semi-professional, play a pivotal role in these scenarios.*
- ✓ *The examination is structured to encompass 2-3 case stations, ensuring a diverse range of situations for the student to navigate.*
- ✓ *Each scenario station is allocated a set time, typically 15-20 minutes.*
- ✓ *Educators create checklists derived from literature, specifying criteria such as using a minimum of four out of eight predefined techniques and demonstrating general nursing skills, such as a person-centred approach, in professional conversations.*
- ✓ *Before the examination, students are briefed on its format, the overall structure of the cases, the literature to use and the checklists. The goal for each scenario/case should be clear to the student e.g., "the task is to build a professional relationship with this first-time visit patient, and to perform a first clinical assessment".*
- ✓ *During the examination, the teacher discreetly observes and takes notes from behind a folding wall, allowing students to engage with scenarios independently.*
- ✓ *When the allotted time is up, the teacher carries out a debriefing session with the student and actor. The student conducts a self-assessment, reflecting on what could have been done differently. The actor shares insights into the patient's experience, evaluating the therapeutic atmosphere and identifying strengths and areas for improvement.*
- ✓ *The teacher provides an overall assessment, highlighting commendable aspects and areas where the student could have acted differently or fell short of the requirements. The feedback is given in a constructive manner.*
- ✓ *If a student does not meet the passing criteria, specific feedback is provided, emphasising areas for improvement. A follow-up Objective Structured Clinical Examination (OSCE) is offered within a reasonable timeframe for re-evaluation.*

Self-reflection is defined as a conscious mental activity that requires students to think, reason and examine their feelings, thoughts and ideas (Young, 2018; Lim et al., 2022; Chen, 2023). The goal is for students to reflect on their experiences, which might lead to new or different ways of thinking. This method can help students increase their inner motivation, leading to better satisfaction with learning. Furthermore, self-reflection can increase students' awareness, allowing them to learn new competencies or improve those they already have. It is also worth noting that self-reflection can help students develop their self-efficacy by identifying their strengths and flaws. Self-reflection in education allows students to not only grasp the assumptions behind their thoughts and behaviours but also to challenge their meaning and discover alternative ways of acting. Chen (2023) emphasises that self-reflection throughout education may help students

make sense of not just what they have learned but also why they are studying it.

Methods for self-reflection include learning journals, debates, oral discussions, reflective writing, peer review exercises, peer coaching/mentoring, personal development planning and portfolios (Lim et al., 2022; Chen, 2023.) Furthermore, evidence has shown that simulation training contributes to postgraduate nursing students' reflection skills, particularly in end-of-life communication with patients and family members (Lindberg & Fridh, 2021).

Peer assessment or peer review is a method that involves students giving and receiving feedback on each other's assignments, tasks or other work, and usually involves explicit criteria. Peer assessment can enhance understanding of the work involved and thus improve the quality of the final product. Peer assessment helps APN students successfully give and receive feedback, as a clear and effective plan is needed. (Burgess et al., 2021; Serrano-Aguilera et al., 2021; Wu & Schunn, 2021).

Educators should thoroughly brief students on how to take responsibility for giving and receiving feedback. This helps everyone understand the goals. Proper training on the peer assessment tool and the feedback process can enhance the academic and professional benefits of peer assessment. It should be noted that the goal of the peer assessment process is to improve student learning as it happens so they understand the work better and can improve the (end) result. It promotes thinking about the work and is mainly used for feedback as the work progresses, as in the context of providing formative feedback. However, peer assessment also provides students with the opportunity to give final, summative feedback.

Summative methods

Summative evaluation assesses a learning journey's final performance or outcomes (Bin Mubayrik, 2020). This evaluation approach concentrates on summarising and evaluating a student's overall understanding and skills after a specific period, typically marking the end of a teaching unit or course (Bullock et al., 2018; Vinall & Kreys, 2020). The primary objective of summative evaluation is to ascertain the extent to which a student has achieved the desired learning objectives. This process often involves quantification using the taxonomy of learning levels, as indicated by grades or points. Summative evaluation primarily focuses on individual assessment (Bullock et al., 2018; Mohamadi, 2018; Vinall & Kreys, 2020).

In essence, summative evaluation possesses distinct characteristics aimed at measuring and assessing the final outcome of a learning process.

Summative evaluation in education involves employing various methods to assess and measure students' overall learning outcomes. Some of the most common methods used in summative evaluation include:

- **Standardised tests:** formal assessments with predetermined questions and scoring criteria, often used to measure a student's knowledge and skills against established benchmarks. Used to assess level 1 ("knows") and level 2 ("knows how") of Miller's pyramid (1990).
- **Objective Tests, Multiple-choice questions (MCQ):** Multiple-choice, true/false or matching questions designed to measure a student's factual knowledge and understanding of specific concepts. Used to assess levels 1 and 2 of Miller's pyramid (1990).
- **Final exams:** traditional written or practical exams administered at the end of a course or academic period to evaluate a student's comprehension of the entire curriculum.
- **Portfolios:** A collection of a student's work over a specific period, showcasing their achievements, skills and progress in various areas. Portfolios provide a comprehensive view of a student's learning journey. This is a creative and systematic "*collection of a student's work samples, projects, and evaluations over time to provide evidence of achievement of goals. It should be accompanied by student goal setting and frequent faculty feedback on progress*" (Miller, 1990). This method allows the highest level ("does"—performs tasks professionally in an authentic context) of Miller's pyramid (1990) to be assessed.
- **Performance Assessments (Clinical Competency Evaluation CCE):** These assessments measure a student's ability to apply knowledge and skills in real-world situations. They often involve practical tasks or simulations that mimic professional scenarios. Evaluation can be conducted through clinical exams and direct observation in clinical settings. Applied to assess levels 3 and 4 of Miller's pyramid (1990), that is, "*shows how*" (demonstrates how a procedure is performed in an artificial environment) and "*does*" (can perform tasks professionally in an authentic context).
- **Objective Structured Clinical Examination (OSCE):** Common in fields like medicine and nursing, OSCE assesses practical skills and competencies through a series of stations where students encounter simulated clinical scenarios. Applied to assess levels 3 and 4 of Miller's pyramid (1990).
- **Final Grades:** Cumulative grades assigned to students based on their performance throughout a course. These grades may include a combination of exams, assignments and other assessments.
- **End-of-Course Surveys:** While not directly assessing student performance, surveys can gather feedback on the course structure, materials and teaching methods, providing insights for improvement.
- **Self-assessment:** This involves self-reporting by students using the valid and psychometrically reliable Nursing Professional Competence (NPC) Scale

(Meretoja et al., 2004a) or the short version of the NPC Scale (Nilsson et al., 2018). There are a few other generic competence evaluation instruments, but the NPC is the most widely used. However, as a study conducted in Sweden illustrates, students' self-assessed competence might differ from their competence as assessed through examination (Forsman et al., 2020).

The outcomes of this type of evaluation are frequently utilised to inform decisions about a student's progress, grades and overall performance. Additionally, they can serve as an objective basis for comparing students and educational institutions, including universities. (Bullock et al., 2018; Vinall & Kreys, 2020.)

Consequently, summative assessments are almost always formally graded and often carry significant weight. Furthermore, they are frequently employed to fulfil accountability requirements, substantiate claims or make informed judgments regarding the overall quality of an adult evaluation programme. (Mohamadi, 2018; Bin Mubayrik, 2020.)

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