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Standards of Best Practice: Simulation

INACSL Standards of Best Practice: SimulationSM Simulation Glossary

INACSL Standards Committee

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As the science of simulation continues to evolve, so does the need for additions and revisions to the INACSL Standards of Best Practice: SimulationSM. Therefore, the INACSL Standards of Best Practice: Simulation are [living documents](#).

Simulation Glossary Statement

Consistent terminology provides guidance and clear communication and reflects shared values in simulation experiences, research, and publications. Knowledge and ideas are clearly communicated with consistent terminology to advance the science of simulation.

Background

Standardized terminology enhances understanding and communication among planners, participants, and others involved in simulation-based experiences (SBEs), regardless of the simulation environment. Thus, standardization of simulation terminology promotes consistency in education, practice, research, and publication.

The definitions in the INACSL Simulation Glossary correspond to the INACSL Standards of Best Practice: SimulationSM and are designed to explain the meaning of terms in the Standards. Although there may be some definitions in the Simulation Glossary that are also in the Healthcare Simulation

Dictionary (e.g., Avatar), use of these definitions in the INACSL Standards of Best Practice: SimulationSM is important.¹

Potential consequences of not using the Simulation Glossary may be: confusion, miscommunication, misunderstanding, and/or inability to achieve intended objectives and expected outcomes of SBEs.

Terms

Affective

Refers to a domain of learning that involves attitudes, beliefs, values, feelings, and emotions. Classification of this domain of learning is hierarchal where learning occurs along a continuum of stages related to internal personal and professional growth.²⁻⁵

Assessment

Refers to processes that provide information about or feedback about individual participants, groups, or programs.

Specifically, assessment refers to observations of progress related to knowledge, skills, and attitudes (KSA). Findings of assessment are used to improve future outcomes.⁵

Avatar

A graphical representation, typically three dimensional, of a person capable of relatively complex actions including facial expression and physical responses while participating in a virtual SBE. The user controls the avatar through the use of a mouse, keyboard, or a type of joystick to move through the virtual SBE.^{1,6}

Backstory

A narrative, which provides a history and/or background and is created for a fictional character(s) and/or about a situation for a SBE.⁷

Clinical

Pertaining to an actual or SBE related to the care of individuals, families, or groups in health care settings, which permits opportunities for application of KSA.^{8,9}

Clinical Judgment

The art of making a series of decisions to determine whether to take action based on various types of knowledge. The individual recognizes changes and salient aspects in a clinical situation, interprets their meaning, responds appropriately, and reflects on the effectiveness of the intervention. Clinical judgment is influenced by the individual's previous experiences, problem-solving, critical-thinking, and clinical-reasoning abilities. See Figure.¹⁰⁻¹⁴

Clinical Reasoning

A process that involves both thinking (cognition) and reflective thinking (metacognition) to gather and comprehend data while recalling knowledge, skills (technical and nontechnical), and attitudes about a situation as it unfolds. After analysis, information is put together into meaningful conclusions to determine alternative actions. See Figure.¹⁵⁻²⁰

Coaching

A method of directing or instructing a person or group of people in order to achieve a goal or goals, develop a specific skill or skills, or develop a competency or competencies.^{8,9}

Cognitive

Refers to a domain of learning that includes knowledge, comprehension, application, analysis, synthesis, and evaluation. The goal of learning in this domain is to help

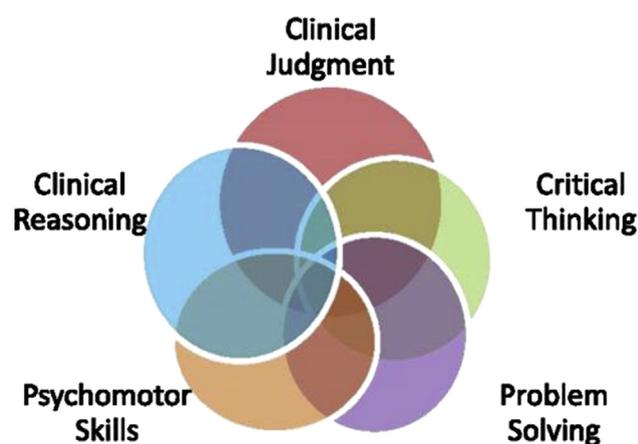


Figure Skill Development and Clinical Judgment[®]. This figure, developed by the International Nursing Association for Clinical Simulation and Learning, reflects the complexity of skill development necessary to progress from more basic skills to the higher-level clinical judgment and reasoning ability used in decision-making for safe, effective practice. All levels of development are interrelated; therefore, they interact and affect one another.

participants progress to higher levels of learning so they are able to make judgments about the subject at hand.^{2,5}

Competence

Demonstrates the ability to perform a specific role or skill based on standardized criteria. Individuals having the state or quality of being adequately or well qualified to do a job properly. The criteria may include a set of defined behaviors that guide the identification, development, and evaluation of one's ability to perform a specific role.²¹

Computer-Based Simulation (Also Known as Computer-Assisted Simulation, Virtual Reality)

A simulation-based learning activity designed to provide an experience through the use of an alternative medium. Learners can complete specific tasks in a variety of potential environments, use information to provide assessment and care, make clinical decisions, and observe the results in action. Feedback can be provided during and after the interaction.²²

Concept Mapping

A teaching strategy or method of visualizing relationships among various concepts. It includes a branching, hierarchical diagram of concepts showing how they are connected using arrows and labels to identify interrelationships.²³

Constructivism

Philosophical theory of learning that views knowledge as something that individuals create for themselves through

their interaction with their environment. In constructivism, learning is a process of discovery whereby the learner seeks to understand issues, which guide the discovery process that is personally relevant. Simulation is based on constructivist theories.²⁴

Critical Thinking

A disciplined process that requires validation of data, including any assumptions that may influence thoughts and actions and then careful reflection on the entire process while evaluating the effectiveness of what has been determined as the necessary action(s) to take. This process entails purposeful, goal-directed thinking and is based on scientific principles and methods (evidence) rather than assumptions or conjecture. See Figure.^{12,25,26}

Cue (Also Known as Prompts)

Information provided that helps the participant(s) process and progress through the scenario to achieve stated objectives. Cueing comprises two types, conceptual and reality cues, with mode of delivery enacted via equipment, environment, or patient and role characters. Conceptual cues provide the learner with information to achieve expected outcomes in a SBE. Reality cues help the learner interpret or clarify simulated reality through information delivered by the simulated patient or role characters.^{27,28}

Debriefing

A reflective process immediately following the SBE that is led by a trained facilitator using an evidence-based debriefing model. Participants' reflective thinking is encouraged, and feedback is provided regarding the participants' performance while various aspects of the completed simulation are discussed. Participants are encouraged to explore emotions and question, reflect, and provide feedback to one another. The purpose of debriefing is to move toward assimilation and accommodation to transfer learning to future situations.^{27,29}

Decision-Making

An outcome of mental processes (cognitive process) leading to the selection of a course of action from among several alternatives.^{8,9}

Diversity

A concept, which includes an understanding of the uniqueness of individuals as well as a recognition of the differences among people. Dimensions of diversity include race, ethnicity, gender, age, religion, socioeconomic status, physical ability or disability, sexual orientation as well as religious, political, or other beliefs.³⁰⁻³²

Domains of Learning

... three separate, yet interdependent components of learning outcomes achievable by human learners. These domains: cognitive, affective, and psychomotor, represent various categories and levels of learning complexity and are commonly referred to as educational taxonomies.

—See Table.^{3,4,33,34}

Embedded Participant (Also Known as Scenario Guide, Scenario Role Player, Actor, or Confederate)

A role assigned in a simulation encounter to help guide the scenario. The guidance may be positive, negative, or neutral or as a distracter, depending on the objective(s), the level of the participants, and the scenario. Although the embedded participant's role is part of the situation, the underlying purpose of the role may not be revealed to the participants in the scenario or simulation.¹

Evaluation

A broad term for appraising data or placing a value on data gathered through one or more measurements. It involves rendering a judgment including strengths and weaknesses. Evaluation measures quality and productivity against a standard of performance.³⁵ Evaluation may be formative, summative, high stakes, or related to the simulation program or process.

Formative Evaluation

Evaluation wherein the facilitator's focus is on the participant's progress toward goal attainment through preset criteria; a process for an individual or group engaged in a simulation activity for the purpose of providing constructive feedback for that individual or group to improve.^{5,27}

Summative Evaluation

Evaluation at the end of a learning period or at a discrete point in time in which participants are provided with feedback about their achievement of outcome through preset criteria; a process for determining the competence of a participant engaged in health care activity. The assessment of achievement of outcome criteria may be associated with an assigned grade.^{5,27}

High-Stakes Evaluation

An evaluation process associated with a simulation activity that has a major academic, educational, or employment consequence (such as a grading decision, including pass or fail implications; a decision regarding competency, merit pay, promotion, or certification) at a discrete point in time.³⁶ High stakes refer to the outcome or consequences of the process.

Table Comparison of Bloom's Original (1956) and Bloom's Revised (2001) Taxonomies with Quality and Safety Education for Nurses Competencies and Knowledge, Skills, and Attitudes (KSA)

Domains of Learning	Knowledge Dimension	Quality and Safety Education for Nurses (QSEN) Competencies
Original Bloom's Taxonomy (QSEN, 2014)	Revised Bloom's Taxonomy (Bloom, 1956)	The Quality and Safety Education for Nurses (QSEN) Project (Bloom, 1956; QSEN, 2014; Williamson & Harrison, 2010)
Cognitive	Factual knowledge Conceptual knowledge	Knowledge
Psychomotor	Procedural knowledge	Skills
Affective	Metacognitive knowledge	Attitudes

Program or Process Evaluation

A systematic collection of information about the activities, characteristics, and outcomes of SBEs to make judgments about the program, improve or further program effectiveness, increase understanding, and inform decisions about future programming.³⁷ Specifically, the process includes an appraisal of the participant(s), facilitator(s), the SBE, the facility, and the support team.

Facilitation

A method and strategy that occurs throughout (before, during, and after) SBEs in which a person helps to bring about an outcome(s) by providing guidance.³⁸

Facilitator

A trained individual who provides guidance, support, and structure at some or all stages of simulation-based learning including prebriefing, simulation, and/or debriefing.^{8,9}

Feedback

Information given or dialog between participants, facilitator, simulator, or peer with the intention of improving the understanding of concepts or aspects of performance.³⁸

Fiction Contract

The implicit or explicit agreement among participants and facilitator(s) about how the participant is expected to interact with the simulated situation and how the facilitators will treat that interaction.³⁹

Fidelity

The ability to view or represent things as they are to enhance believability.¹ The degree to which a simulated experience approaches reality; as fidelity increases, realism increases. The level of fidelity is determined by the environment, the tools and resources used, and many factors

associated with the participants. Fidelity can involve a variety of dimensions:

Conceptual Fidelity

Ensures all elements of the scenario or case relate to each other in a realistic way, so that the case makes sense to the learners (e.g., vital signs reflect the diagnosis).¹

Physical/Environmental Fidelity

Factors such as environment, manikins, room, moulage, equipment, noise, and/or props.⁴⁰

Psychological Fidelity

Factors such as emotions, beliefs, and self-awareness of participants; the extent to which the simulated environment evokes the underlying psychological processes that are necessary in the real-world setting for the participant. The degree of perceived realism, including psychological factors such as emotions, beliefs, and self-awareness of participants in simulation scenarios.⁴⁰

Frame(s)

The invisible "lens" through which individuals interpret new information and experiences for the purpose of making meaning from the new experience. Frames are formed through previous experiences and can be based on knowledge, attitudes, feelings, goals, rules, and/or perceptions; the internal participant or facilitator mindset; knowledge, thoughts, feelings, actions (speech/body language), attitudes (verbal/nonverbal), and perceptions.^{41,42}

Haptic Device

Computer technology, generally three dimensional in nature, that integrates proprioception (touch) to allow the participant(s) to interact with and control the virtual equipment based on feedback from the system. Haptics can be used to simulate touching; palpating an organ or body part; and/or cutting, tearing, or applying traction on tissue such as when using simulated virtual chest tube or virtual intravenous insertion systems. Participant decision-

making is greatly influenced by the feedback received from the system.^{1,43}

Hybrid Simulation

The use of two or more modalities of simulation modalities to enhance the fidelity of a scenario by integrating the environment, physiology, emotions, and dialog of a real patient encounter. For example, the use of a manikin to represent the patient, while the embedded participant assumes the role of the patient's voice or takes on the role of a distraught family member.^{1,44}

In Situ

A SBE conducted in the actual patient care area/setting in which the health care providers would normally function in order to achieve a high level of fidelity.^{1,45-47}

Interprofessional Education

When students [or healthcare professionals] from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.⁴⁸

Intervention Fidelity

Refers to the adherence and delivery of a research plan as designed. Any variation from the design must be addressed.⁴⁹⁻⁵³

Knowledge, Skills, Attitudes (KSA)

Acronym for knowledge, skills, and attitudes necessary to continuously improve the quality and safety of the health care systems within which individuals work.³⁴

Knowledge

The awareness, understanding, and expertise an individual acquires through experience or education.

Skills

Ability acquired through deliberate practice and sustained efforts to carry out activities.

Attitudes

A tendency to respond positively or negatively toward an idea, an individual, or situation.

Life Savers

A methodology to manage unexpected events that occur during SBEs. Plans may be determined before and/or interventions may occur spontaneously during scenarios that allow participants to complete the simulation.⁵⁴

Modality

A term used to refer to the type(s) of simulation being used as part of the simulation activity, for example, task trainers, manikin based, standardized/simulated patients, computer based, virtual reality, and hybrid.¹

Moulage

The technique of creating simulated wounds, injuries, diseases, the aging processes, and other physical characteristics specific to a scenario. Moulage supports the sensory perceptions of participants and supports the fidelity of the simulation scenario through the use of makeup, attachable artifacts (e.g., penetrating objects), and smells.^{55,56}

Needs Assessment

A systematic process of identifying gaps in knowledge, skills, or attitudes of the learner.⁵⁷

Objective

Statements of specific measurable results that participants are expected to achieve during a SBE. Statements may encompass cognitive (knowledge), affective (attitude), or psychomotor (skills) domains of learning that match the learners' level of knowledge and experience.⁵⁸⁻⁶⁰

Outcome

Measurable results of the participants' progress toward meeting a set of objectives. Expected outcomes are the change in knowledge, skills, or attitudes as a result of the simulation experience.^{8,9}

Participant

One who engages in a simulation-based activity for the purpose of gaining or demonstrating mastery of KSA of professional practice.⁸

Prebriefing

An information or orientation session immediately prior to the start of a SBE in which instructions or preparatory information is given to the participants. The purpose of prebriefing is to establish a psychologically safe environment for participants.⁶¹ Suggested activities include reviewing objectives; creating a "fiction contract"; and orienting participants to the equipment, environment, mannequin, roles, time allotment, and scenario.

Procedural Simulation

The use of a simulation modality (e.g., task trainer, manikin, computer) to assist in the process of learning to

complete a technical skill(s), or a procedure, which is a series of steps taken to accomplish an end.¹

Problem Solving

Refers to the process of selectively attending to information in the patient care setting, using existing knowledge and collecting pertinent data to formulate a solution. This complex process requires different cognitive processes, including methods of reasoning and strategizing, in order to manage a situation.⁶²

Professional Boundaries

Clear and defined limits which are established to maintain effective and appropriate interactions/behaviors among all participants involved with a SBE.⁶³

Professional Integrity

A trait exhibited by one's ability to consistently and willingly practice within the guidelines of the code of ethics of a chosen profession.⁶⁴⁻⁶⁶

Prompt (Also Known as Cue)

A hint or clue given to a participant in a scenario.

Psychomotor

Refers to a domain of learning involving skills required in an area of professional practice.⁶⁷

Psychomotor Skill

The ability to carry out kinesthetic or physical movement efficiently and effectively, with speed and accuracy. Psychomotor skill is more than the ability to perform; it includes the ability to perform proficiently, smoothly, and consistently under varying conditions and within appropriate time limits.⁶⁷ See [Figure](#).

Quality and Safety Education for Nurses

Quality and safety education for nurses are defined as quality and safety competencies for nursing. The overall goal of quality and safety education for nurses addresses the challenge of preparing nurses utilizing the attributes of KSA necessary to continuously improve the quality and safety of the health care systems in which they work.² See [Table](#).

Reflective Thinking

The engagement of self-monitoring that occurs during or after a simulation experience. Considered an essential component of experiential learning, it promotes the discovery

of new knowledge with the intent of applying this knowledge to future situations. Reflective thinking is necessary for metacognitive skill acquisition and clinical judgment and has the potential to decrease the gap between theory and practice. Reflection requires creativity and conscious self-evaluation to deal with unique patient situations.⁶⁸⁻⁷⁵

Reliability

The consistency of a measurement or the degree to which an instrument measures in the same way each time it is used under the same conditions with the same participants. It is the repeatability of a measurement. A measurement is considered reliable if a person's scores on the same test given twice are similar. Reliability can be determined by a test retest method or by testing for internal consistency.^{8,9}

Role

A responsibility or character assumed in a SBE.^{8,9}

Safe Learning Environment

The emotional climate that is created through the interaction among all participants (including facilitators). In this positive emotional climate, all participants feel at ease taking risks, making mistakes, or extending themselves beyond their comfort zone. Awareness of the psychological aspects of learning, the effects of unintentional bias, cultural differences, and attentiveness to one's own state of mind helps to effectively create a safe environment.⁸

Scenario

A deliberately designed simulation experience (also known as a case), that provides participants with an opportunity to meet identified objectives. The scenario provides a context for the simulation and can vary in length and complexity, depending on the objectives.^{59,61,76-78}

Self-Efficacy

An individual's perception or belief in his or her ability to achieve. This may be reflected in how an individual behaves and/or performs.⁷⁹

Simulation

An educational strategy in which a particular set of conditions are created or replicated to resemble authentic situations that are possible in real life. Simulation can incorporate one or more modalities to promote, improve, or validate a participant's performance.⁸⁰

Simulation-Based Experience(s)

A broad array of structured activities that represent actual or potential situations in education, practice, and research. These activities allow participants to develop or enhance knowledge, skills, and/or attitudes and provide an opportunity to analyze and respond to realistic situations in a simulated environment.⁸¹

Simulated Clinical Immersion

A planned SBE in which participants are engrossed in a situation or setting as they would be if they were in the real world. The goal is to evoke or replicate life-like aspects in a fully interactive fashion.⁸²

Simulation-Enhanced Interprofessional Experience

Simulation-based activities in which participants and facilitators from two or more professions are placed into a simulated health care experience in which "... shared or linked educational goals are pursued,⁸³ while the individuals involved "learn from, about, and with each other to enable effective collaboration and improve health outcomes".⁸⁴

Standardized Patient (Also Known as Simulated Patient)

A person trained to consistently portray a patient or other individual in a scripted scenario for the purposes of instruction, practice, or evaluation.^{1,85}

Validity

The degree to which a test or evaluation tool accurately measures the intended concept of interest.^{8,9}

Virtual Reality (Also Known as Computer-Assisted Simulation, Computer-Based Simulation)

A computer-generated reality, which allows a learner or group of learners to experience various auditory and visual stimuli. This reality can be experienced through the use of specialized ear and eyewear.^{1,86}

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Original INACSL Standard

The INACSL Board of Directors. (2011). Standard I: Terminology. *Clinical Simulation in Nursing*, 7(4S), s3-s7. <http://dx.doi.org/10.1016/j.ecns.2011.05.005>.

Subsequent INACSL Standard

Meakim, C., Boese, T., Decker, S., Franklin, A. E., Gloe, D., Lioce, L., ..., & Borum, J. C. (2013). Standards of best Practice: Simulation standard I: Terminology. *Clinical Simulation in Nursing*, 9(6S), S3-S11. <http://dx.doi.org/10.1016/j.ecns.2013.04.001>.

About the International Nursing Association for Clinical Simulation and Learning

The International Nursing Association for Clinical Simulation and Learning (INACSL) is the global leader in transforming practice to improve patient safety through excellence in health care simulation. INACSL is a community of practice for simulation where members can network with simulation leaders, educators, researchers, and industry partners. INACSL also provides the INACSL Standards of Best Practice: SimulationSM, an evidence-based framework to guide simulation design, implementation, debriefing, evaluation, and research.