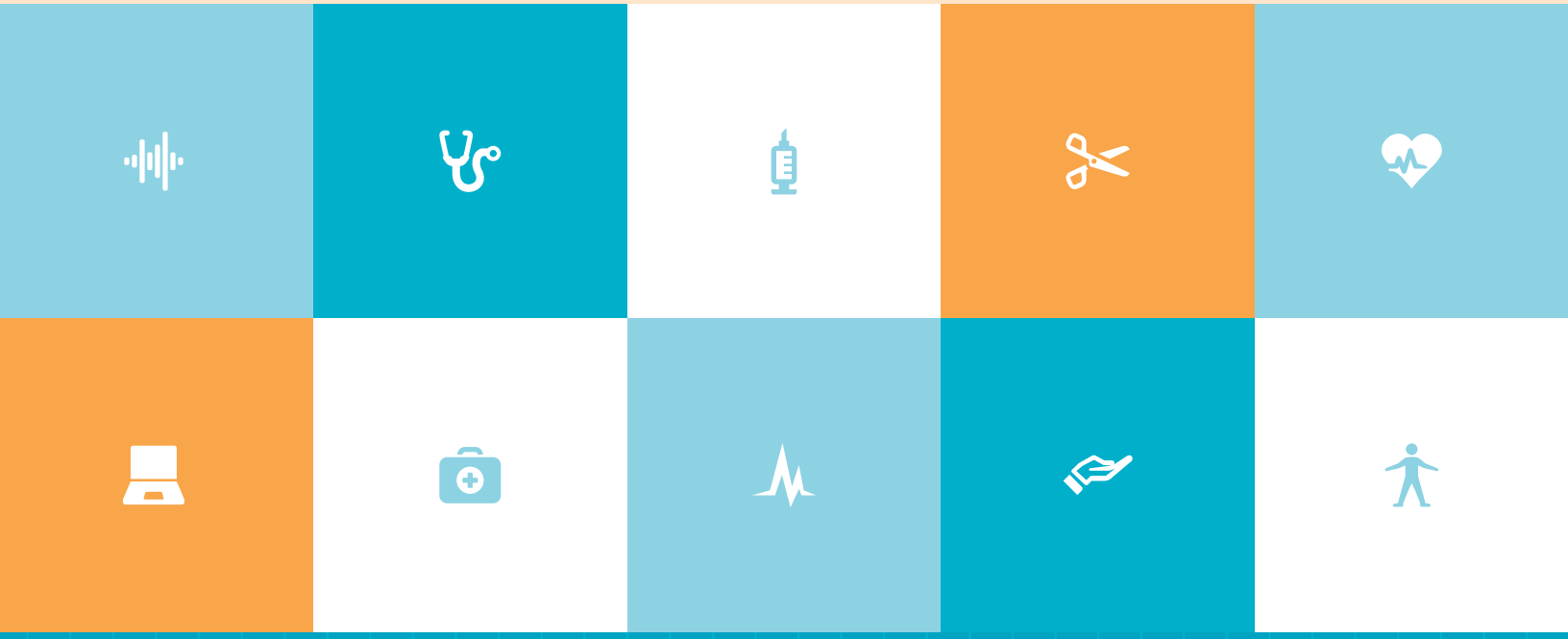
Healthcare Simulation Dictionary

Third Edition



Agency for Healthcare Research and Quality

Suggested Citation: Lioce L. (Ed.), Lopreiato J. (Founding Ed.), Anderson M., Deutsch, E.S., Downing D., Robertson J.M., Diaz D.A., and Spain A.E. (Assoc. Eds.), and the Terminology and Concepts Working Group (2024), Healthcare Simulation Dictionary–Third Edition. Rockville, MD: Agency for Healthcare Research and Quality; January 2025. AHRQ Publication No. 24-0077. DOI: https://www.ahrq.gov/patient-safety/resources/simulation/terms.html.

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Preamble

In January 2013, an international group of simulation experts gathered in Orlando, Florida, U.S.A., to form a working team whose mission was to create a dictionary of terms used in healthcare simulation. This group recognized a need to compile terms that had been completed by other groups in healthcare simulation and to add more terms. The document you see represents the work of many individuals and their societies to compile and refine the dictionary. The goal of this project is to enhance communication and clarity for healthcare simulationists in teaching, education, assessment, research, and systems integration activities. In recognition of simulation applications that can improve the safety of healthcare delivery, the Agency for Healthcare Research and Quality (AHRQ) has partnered with the Society for Simulation in Healthcare (SSH) and its many affiliates to produce and disseminate this comprehensive Healthcare Simulation Dictionary.

The editors would like to thank the Society for Simulation in Healthcare (SSH) and its many affiliates for its support in sustaining this effort. International affiliate representatives continue to meet annually at the International Meeting for Simulation in Healthcare to refine processes and to discuss terms used by simulationists in practice and those seeking simulation certification and accreditation.

This is a living document and represents the sum of the work at the time submitted for publication. Terms and definitions will continue to change and be clarified, added, or deleted over time. The intent is to be inclusive of the various definitions in use, not to exclude any definitions or areas of healthcare simulation. The definitions show how the terms are being used in healthcare simulation. It is not intended to prescribe or dictate one particular definition over another. This dictionary focuses on healthcare-simulation-specific terms and meanings. Many terms that are generally used in education (e.g., educational design) and healthcare (e.g., ventricular fibrillation, anxiety) are not defined. Please refer to standard dictionaries and resources for these definitions.

This list of terms is not a taxonomy, nor should it be used as such. It may, however, inform taxonomical work in the future. The terms and spellings are written in standard American English. This is to aid in reducing clutter and support translation to other languages. The etymologies are sourced from etymonline.com and are provided to give insight into word origins. These etymologies cannot be reproduced for other use without permission of etymonline.com.

History

The first Healthcare Simulation Dictionary was published in 2016 with 127 terms. By 2019, with the continued rapid expansion in healthcare simulation there was a clear need for updates and additions to the Dictionary. The second edition expanded on the first edition with 40 additional terms added, 12 existing terms expanded, 27 common abbreviations added, and a new section was added entitled "Terms No Longer Recommended for Use".

To date, the Dictionary has been translated into ten languages, including Bahasa Melayu (Malaysian), Brazilian Portuguese, Chinese, German, Hebrew, Italian, Japanese, Korean, Russian, Spanish, and Turkish by volunteer translators. These translations may be found at the bottom of the webpage at www.ssih.org/dictionary. If you are interested in translating the dictionary into another language, please contact the SSH at communications@ssih.org to request the Dictionary translation template.

In 2020, the worldwide pandemic required a clear need to add terms specific to remote simulation in ways other than in-person. An addendum was published online only (v2.1) to added ten terms defining distance, remote, and telesimulations to aid in anticipated research and publications resulting from increased remote simulation methods used during this time.

The Third Edition

This 3rd version of the Healthcare Simulation Dictionary included workgroups led by associate editors reviewing the current terms and definitions, adding primary citations where possible, incorporating new or revised definitions as reflected in the literature, seeking feedback from simulationists, and adding new terms in collaboration with AHRQ. This review resulted in 41 new terms, additional abbreviations and over 125 new and revised definitions. Further, it reflects the increasing appreciation of simulation's beneficial applications in patient safety and healthcare delivery. To support this progress, patient safety terminology from AHRQ has been added.

Acknowledgments

The Society for Simulation in Healthcare (SSH) acknowledges the participation and input of many individuals and the International Societies they represent. Without you, this comprehensive work would not be possible! Thank you for your time and efforts in the creation and revision of the dictionary. As a living document, we look forward to your continued contributions. As you utilize the dictionary, we encourage you to submit revisions, additions, additional healthcare simulation terms, definitions, and/or additional citations to reflect the literature. Please submit with references via the SSH Dictionary Feedback Form located at SSH Dictionary Feedback Form. Thank you in advance for your collaboration!

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January 2025

SSH
Society for Simulation in Healthcare

Common Abbreviations in Healthcare Simulation

AI: Artificial Intelligence

AR: Augmented Reality

CAVE: Cave Automatic Virtual Environment

CHSE®: Certified Healthcare Simulation Educator®

CHSE-A®: Certified Healthcare Simulation Educator-Advanced®

CHSOS®: Certified Healthcare Simulation Operations Specialist®

CHSOS-A®: Certified Healthcare Simulation Operations Specialist-Advanced™

CISD: Critical Incident Stress Debriefing

CONSORT: Consolidated Standards of Reporting Trials

CRM: Crew or Crisis Resource Management

FMEA: Failure Mode and Effect Analysis

GTA: Gynecological Teaching Assistant

GUTA: Genitourinary Teaching Associate

HMD: Head Mounted Display

HoDs: Hot debriefings

IPE: Interprofessional Education

ISS: In Situ Simulation

KSA: Knowledge, Skills, and Abilities (or Attributes)

LVC: Live, Virtual, and Constructed Simulation

M&S: Modeling & Simulation

MR: Mixed Reality

MUTA: Male Urogenital Teaching Associate

NTS: Non-Technical Skills

OS: Operations Specialist

OSCE: Objective Structured Clinical Examination

PETA (or PTA): Physical Exam Teaching Assistant (or Associate)

SBAR: Situation, Background, Assessment, and Recommendation

SBE: Simulation-based Education

SBLE: Simulation-based Learning Experience

SBME: Simulation-based Medical Education

Sim-IPE: Simulation-enhanced Interprofessional Education

SLE: Simulated/Synthetic Learning Environment

SME: Subject Matter Expert

SOS/SOTS: Simulation Operation/Technology Specialist

SP: Standardized Patient (or Simulated Patient)

SQUIRE-SIM: Standards for Quality Improvement Reporting Excellence: Simulation

STROBE: Strengthening the Reporting of Observational Studies in Epidemiology

TACSIM: Tactical Simulation

TTX: Tabletop Exercise Simulation

VR: Virtual Reality

VRE: Virtual Reality Environment

WAVE: Wide Area Virtual Environment

XR: Extended Reality

A

Actor \ˈak-tər \ *noun*

Etym. actor late 14c., "an overseer, guardian, steward," from Latin actor "an agent or doer," also "theatrical player," from past participle stem of agere. Sense of "one who performs in plays" is from 1580s, originally applied to both men and women.

Definition

- Typically an entity or agent within the simulated environment that performs actions, interacts with other entities, and influences the simulation's outcome (Escribano et al., 2021; Marshall & Honey, 2023).
- In healthcare simulation, professional and/or amateur people trained to reproduce the components of real clinical experience, especially involving communication between health professionals and patients or colleagues (Australian Society for Simulation in Healthcare, n.d.).
- A term that describes a simulated patient/participant or [standardized patient] SP (Meerdink & Khan, 2021, Data Source/Measurement section).
- "A person who has probably not lived through the situation they portray but brings skill in playing the role" (Bates, 2020, p. 2).
- Refers to someone ". . . playing the part of the patient" who "has been trained and briefed to the extent that a clinician cannot tell them apart from a patient with the condition unless they have access to test results" (Bates, 2020, p. 12).
- Can represent a person playing another role within a simulation-based experience (SBE) in addition to the patient, such as a family member, to add emotional aspects (Pascucci et al., 2014). They may offer insight into the scenario itself, such as the design (Pascucci et al., 2014).

See also: EMBEDDED PARTICIPANT, ROLE PLAYER, SIMULATED PATIENT, SIMULATED PERSON, STANDARDIZED PATIENT (SP); STANDARDIZED/SIMULATED PARTICIPANT

Adaptive Learning \ ə-ˈdap-tiv \ ˈlər-niŋ \ *noun*

Etym. adapt (v.) early 15c. (implied in adapted) "to fit (something, for some purpose)," from Old French adapter (14c.), from Latin adaptare "adjust, fit to," from ad "to" (see ad-) + aptare "to join," from aptus "fitted" (see apt). Intransitive meaning "to undergo modification so as to fit new circumstances" is from 1956.

Etym. learning (n.) Old English leornung "study, action of acquiring knowledge," verbal noun from leornian (see learn). Meaning "knowledge acquired by systematic study, extensive literary and scientific culture" is from mid-14c. Learning curve attested by 1907.

Definition

- Adaptive learning incorporates a wide range of technologies and techniques that observe participants and adjust the learning experience on demand to meet the unique needs of the participants and facilitate the individual/team members in meeting the identified objectives (Akbulut & Cardak, 2012; Brusilovsky & Peylo, 2003; Pope et al., 2012).
- Adaptive learning … adapts to the needs of the students (Cardiel et al., 2022; Sharma et al., 2017).
- Adjustment may go beyond specific content to items such as system interfaces (Sharma et al., 2017).

Adverse Event \ ˈad ˌvərs \ əˈvent \ *noun*

Etym. adverse (adj.) late 14c., "contrary, opposing," from Old French advers, earlier avers (13c., Modern French adverse).

Etym. event (n.) 1570s, "the consequence of anything" (as in, in-the-event that); 1580s, "that which happens;" from French event, from Latin eventus "occurrence, accident, event, fortune, fate, lot, issue."

Definition

- "Unintended physical injury resulting from or contributed to by medical care that requires additional monitoring, treatment, or hospitalization, or that results in death" (Griffin & Resar, 2009, p. 5).
- Simulation relevance includes the use of simulation activities to identify problems that would be an adverse event in real-life or recreate situations where an adverse event occurred to identify causes and improve human and systems performance (Dalrymple & Browning, 2022).

Advocacy - Inquiry \ ad-və-kə-sē \ in-ˈkwī(-ə)r-e \ *noun*

Etym. advocacy (n.) late 14c., "the act of pleading for, supporting, or recommending," from Old French avocacie "profession of an avocat" (14c.), from Medieval Latin advocatia, abstract noun from Latin advocat-, stem of advocare "to call, summon, invite".

Etym. inquiry (n.) mid-15c., enquery, from enquere (see 'inquire'). From Latin methodus "way of teaching or going," from Greek methodos "scientific inquiry," method of inquiry, investigation.

Definition

- A method of debriefing in which an observer states what was observed or performed in a simulation activity (advocacy) or shares critical or appreciative insights about it explicitly (advocacy) and then asks the learners for an explanation of their thoughts or actions (inquiry) (Rudolph et al., 2007b).

- "Advocacy includes statements that communicate what an individual thinks, knows, wants, or feels". "Inquiry seeks to learn what others think, know, want, or feel" (Bolman & Deal, 2013, p. 167).
- Advocacy-Inquiry is a two-phase process. During the Advocacy phase, the instructor presents their opinion, communicating their observations. In the second phase, Inquiry, the instructor uses behavioral questions, working to understand the connections between the actions, emotions, and reasoning behind the learner's actions (Berger-Estilita et al., 2021).
- In this technique, the facilitator demonstrates "rough authentic interest, support, and questioning" to help trainees identify and alter unhelpful cognitive frames and actions, thus achieving better patient outcomes" (Gasteratos et al., 2024, Introduction section, para. 2).

Alpha and Beta Testing \ ˈal-fə \ ˈbā-tə \ ˈte-stiŋ \ *noun*

Etym. alpha (adj.) c. 1300, from Latin alpha, from Greek alpha, from Hebrew or Phoenician aleph (see aleph). The Greeks added -a because Greek words cannot end in most consonants. Sense of "beginning of anything" is from late 14c., often paired with omega (the last letter in the Greek alphabet, representing "the end"); sense of "first in a sequence" is from 1620s.

Etym. beta (adj.) c. 1300, from Greek, from Hebrew/Phoenician beth (see alphabet); used to designate the second of many things.

Etym. test (v.) late 14c., the noun form "small vessel used in assaying precious metals," from Old French test, from Latin testum "earthen pot," related to testa "piece of burned clay, earthen pot, shell." Sense of "trial or examination to determine the correctness of something" is recorded from 1590s. The connecting notion is "ascertaining the quality of a metal by melting it in a pot." Testing as a verb came from 1748, "to examine the correctness of," from the noun form.

Definition

- Alpha: Early testing of a product, including simulation, by the developers or programmers, but not by potential users. The purpose of alpha-testing is to find and resolve problems during the design and development (Lee-Jayaram et al., 2019)
- Beta: Early testing of a software, program, simulation, or game, by potential users who may not be the exact target group. …The purpose of beta-testing is identical to alpha-testing and includes evaluation of the design (Lee-Jayaram et al., 2019).

See also: DRY RUN, PILOT TEST

Anchoring Error \ ang-ker ing \ ˈerər \ *noun*

Etym. anchor (v.) "fix or secure in a particular place," c. 1200, perhaps in Old English, from anchor (n.) or from Medieval Latin ancorare.

Etym. error (n.) also, through 18c., errour; c. 1300, "a deviation from truth made through ignorance or inadvertence, a mistake," also "offense against morality or justice; transgression, wrong-doing, sin;" from Old French error "mistake, flaw, defect, heresy," from Latin errorem.

Definition

- Simulation relevance includes the need to integrate the recognition and correction of anchoring errors and bias errors into simulation activity design (Elston, 2020; Weil et al., 2020).
- Anchoring errors include anchoring bias, confirmation bias and cognitive biases.
- Anchoring bias "refers to the excessive weighting of initial information and the inability to adjust the initial diagnostic hypothesis when further information becomes available" (Dargahi et al. 2022).
- An anchoring bias is "the common cognitive trap of allowing first impressions to exert undue influence on the diagnostic process" (PSNet Glossary, 2024a, paragraph 1).
- Confirmation bias is "the tendency to focus on evidence that supports a working hypothesis, such as a diagnosis in clinical medicine, rather than to look for evidence that refutes it or provides greater support to an alternative diagnosis" (PSNet Glossary, 2024g, paragraph 1).
- "Cognitive biases are ways in which a particular person understands events, facts, and other people based on their own set of beliefs and experiences, which may or may not be reasonable or accurate. People are often unaware of the influence of their cognitive biases" (PSNet Glossary, 2024e, paragraph 1).

Consider also: CONFIRMATION BIAS, COGNITIVE BIAS

Artificial Intelligence (AI) \ ˌär-tə-ˈfi-shᵊl \ in-ˈte-lə-jən(t)s \ *noun*

Etym. artificial (adj.) late 14c., "not natural or spontaneous," from Old French artificial, from Latin artificialis "of or belonging to art," from artificium "a work of art; skill; theory, system," from artifex (genitive artificis) "craftsman, artist, master of an art" (music, acting, sculpting, etc.), from stem of ars "art" + -fex "maker," from facere "to do, make".

Etym. intelligence (n.) late 14c., "the highest faculty of the mind, capacity for comprehending general truths;" c. 1400, "faculty of understanding, comprehension," from Old French intelligence (12c.) and directly from Latin intelligentia, intellegentia "understanding, knowledge, power of discerning; art, skill, taste," from intelligentem (nominative intelligens) "discerning, appreciative," present participle of intelligere "to understand, comprehend, come to know," from assimilated form of inter "between" (see inter-) + legere "choose, pick out, read." Artificial intelligence "the science and engineering of making intelligent machines" was coined in 1956.

Definition

- Artificial intelligence is defined as ". . . a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments" (National Artificial Intelligence Initiative Act, 2021, section 5002, para. 3).
- A system of computerized data-gathering and prediction that models human behavior and decision-making with minimal human intervention. In healthcare simulation, AI often refers to underlying programming that provides physiological or system-based algorithm changes based on inputs from users and learners. Often paired with machine learning, in which the software is programmed to alter algorithms and predictions based on observed data and results without human intervention (Bennett & Hauser, 2013). Virtual patients use artificial intelligence (AI) to react appropriately to the user or learner (Harder, 2023; Suárez et al., 2022).
- It "involves computational technologies that are inspired by – but typically operate differently from – the way people and other biological organisms sense, learn, reason, and take action" (Institute of Electrical and Electronics Engineers (IEEE) Board of Directors, 2019, para. 1).

See also: VIRTUAL PATIENT
Consider also: MACHINE LEARNING

Assessment \ ə-ˈses-mənt \ *noun*

Etym. assessment (n.) "1530s, "value of property for tax purposes," from assessment. Meaning "act of determining or adjusting of tax rate, charges, damages, etc., to be paid" is from 1540s (earlier in this sense was assession, mid-15c.). General sense of "estimation" is recorded from 1620s; in education jargon from 1956."

Definition

- "any systematic method of obtaining information from tests and other sources, used to draw inferences about characteristics of people, objects, or programs" (American Psychological Association, 1999, p. 72).
- 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" (INACSL Standards Committee, 2016b, p. S39-S40; INACSL Standards Committee, Molloy, et al., 2021, pp. 58).
- Involves measurement of the KSAs which can be recorded (Levine et al., 2013).
- "to sit beside and judge is appropriately used to describe the systematic gathering of information about what the learner should know, be able to do or work towards. It is usually associated with some measurement, marks, or percentages, but could be associated with specific descriptors, excellent, good, average or poor" (Gibbs et al., 2006, p.5).

Assessor \ ə-ˈse-sər \ *noun*

Etym. assessor Late 14c., from Old French assessor "assistant judge, assessor (in court)" (12c., Modern French assesseur) and directly from Latin assessor "an assistant, aid; an assistant judge."

Definition

- A person who performs assessment of individuals according to pre-established "criteria or materials, such as a checklist" (Liew et al., 2014, p.626). In healthcare simulation, this can refer to a variety of people, including a facilitator, instructor, clinician, simulated patient, or SP, etc. (Liew et al., 2014).
- Must have specific and substantial training, expertise, and competency in conducting assessments (Hardie & Lioce 2020.; Liew et al., 2014; Suda, 2002).

Augmented Reality (AR) \ ȯg-ˈmen-təd \ rē-ˈa-lə-tē \ *noun*

Etym. augment (v.) c. 1400, from Old French augmenter "increase, enhance" (14c.), from Late Latin augmentare "to increase," from Latin augmentum "an increase," from augere "to increase, make big, enlarge, enrich." Related: Augmented; augmenting.

Etym. reality (n.) 1540s, "quality of being real," from French réalité and directly Medieval Latin realitatem (nominative realitas); meaning "real existence, all that is real."

Definition

- "A type of virtual reality in which synthetic stimuli are registered with and superimposed on real-world objects, often used to make information that is otherwise imperceptible to human senses perceptible" (Department of Defense, 2011, p. 74).
- ". . . a technology that overlays digital information on objects or places in the real world for the purpose of enhancing the user experience" (Berryman, 2012, p. 212).
- The combination of reality and overlay of digital information designed to enhance the learning process.
- ". . . a set of technologies that seek to integrate the digital with the real" (Berryman, 2012, p. 214).
- A spectrum of mixed-reality simulation that is part way between the real world and the virtual world (Bajura et al., 1992; Berryman, 2012; Mladenovic et al., 2019).
- A form of virtual reality that includes head-mounted displays, overlays of computer screens, wearable computers, or displays projected onto humans and mannequins (Bajura et al., 1992; Berryman, 2012; Department of Defense, 2011; Fuchs et al., 1996).
- "An interactive simulator in which the real-world environment is enhanced by computer-generated content perceived by the user using different senses" (Viglialoro et al., 2021, p. 3).

Authority Gradient \ uh-thawr-i-tee \ grey-dee-uhn \ *noun*

Etym. authority (n.) c. 1200, autorite, auctorite "authoritative passage or statement, book or quotation that settles an argument, passage from Scripture," from Old French autorité, auctorité "authority, prestige, right, permission, dignity, gravity; the Scriptures"

Etym. gradient (n.) "steep slope of a road or railroad," 1835, principally in American English, probably from grade (n.)

Definition

- "The balance of decision-making power or the steepness of command hierarchy in a given situation. Members of a crew or organization with a domineering, overbearing, or dictatorial team leader experience, a steep authority gradient" (PSNet Glossary, 2024b, paragraph 1)
- "Hierarchy, the unavoidable authority gradients that exist within and between clinical disciplines, can lead to significant patient harm in high-risk situations if not mitigated" (Calhoun et al., 2014).

Avatar \ ˈa-və-ˌtär \ *noun*

Etym. avatar 1784, "descent of a Hindu deity," from Sanskrit. In computer use, it seems to trace to the novel "Snowcrash" (1992) by Neal Stephenson.

Definition

- "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" (INACSL Standards Committee, Molloy, et al., 2021, p. 58).
- It may be controlled ". . . using a mouse, keyboard, or a type of joystick" (INACSL Standards Committee, Molloy, et al., 2021, p. 58).
- A virtual object used to represent a physical object (e.g., a human) in a virtual world. Controlled avatars may be either first-person perspective or third-person perspective in virtual simulations (Schuurink & Toet, 2010).
- A third--person perspective places the view and camera so the user and learner can see the controlled avatar (e.g., the player). A first-person perspective places the camera such that the user and learner view the world through the eyes of the avatar (i.e., the controlled avatar is never visible on the screen) (Schuurik & Toet, 2010).
- May be digital in nature and associated with virtual reality (O'Connor, 2019).

B

Back Story or Backstory or Back-story

\ ˈbak \ ˈstȯr-ē \ *noun*

Etym. back (adj.) being behind, away from the front, in a backward direction," Middle English, from back (n.) and back (adv.); Formerly with comparative backer (c. 1400), also backermore. To or toward the rear or the original starting place; in the past; behind in position, literally or figuratively, late 14c., shortened from abak, from Old English on bæc backwards, behind, aback (see back (n.), and compare aback).

Etym. story (n.) connected account or narration of some happening, c. 1200, originally narrative of important events or celebrated persons of the past, from Old French estorie, estoire story, chronicle, history, from Late Latin storia, shortened from Latin historia history, account, tale, story (see history). A story is by derivation a short history, and by development a narrative designed to interest and please.

Definition

- "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" (INACSL Standards Committee, 2016b, p. S40; INACSL Standards Committee, Molloy, et al., 2021, p. 58).

(***Eds. Note:*** this can include the back story provided to participants, standardized, or simulated patients, and staff as required to support the simulation activity.)

- The "backstory or 'backstory elaboration' is described as a method for developing the needed elements of a game or with avatars or other roles, such as the interactions, to make it believable" (Zachary et al., 2016, p. 208).
- Something that is developed by an author in games for characters that gives them their characteristics and memories (Fairclough & Cunningham, 2004).
- May include a patient's history, script, and other pertinent information and context (Alinier, 2011). It may also be called storyboarding, a storyline, scenario, or even a case (Alinier, 2011; Harrington & Simon, 2022; INACSL Standards Committee, Watts et al., 2021).
- May provide a point in which the simulation starts (INACSL Standards Committee, Watts et al., 2021).

See also: BRIEF (BRIEFING), SCRIPT, SCENARIO

Behavioral or Behavioural Skills

\ bi-ˈhā-vyə-rəl \ ˈskils \ *noun*

Etym. behavior (n.) "manner of behaving (whether good or bad), conduct, manners," late 15c., essentially from behave, but with ending from Middle English havour "possession," a word altered (by influence of have) from aver, noun use of Old French verb aveir "to have."

Etym. skill (n.) late 12c., "power of discernment," from Old Norse skil "distinction, ability to make out, discernment, adjustment," related to skilja (v.) "to separate; discern, understand," from Proto-Germanic skaljo- "divide, separate" (source also of Swedish skäl "reason," Danish skjel "a separation, boundary, limit," Middle Low German schillen "to differ," Middle Low German, Middle Dutch schele "separation, discrimination;" from PIE root skel- (1) "to cut." Sense of "ability, cleverness" first recorded early 13c.

Definition

- The ". . . quality and range of activities encompassed within the category of interpersonal interaction," including ". . . bedside manner, interpersonal, teamwork, leadership and communications" among others (Murphy et al., 2019, Behavioural Skills section, para. 1).
- May also be called behavioral performance which is ". . . decision-making and team interaction processes used during the team's management of a situation" (Gaba et al., 1998, p. 9).
- Skills may be called non-technical (Flin et al., 2008; Murphy et al., 2019); however, behavioral may be a more appropriate term (Murphy et al., 2019).

See also: NON-TECHNICAL SKILLS

Benevolent Deception \ bəˈnevəl(ə)nt \ dəˈsepSH(ə)n \ *noun*

Etym. benevolent (adj.) "wishing to do good, well-disposed, kindly," from Old French benivolent and directly from Latin benevolentem (nominative benevolens) "wishing (someone) well, benevolent," related to benevolentia «good feeling,» from bene «well» (see bene-) + volentem (nominative volens) present participle of velle «to wish» (see will (v.)).

Etym. deception (n.) early 15c., decepcioun, "act of misleading, a lie, a falsehood," from Old French déception (13c., decepcion) or directly from Late Latin deceptionem (nominative deceptio) "a deceiving," noun of state or action from past-participle stem of Latin decipere "to ensnare, take in, beguile, cheat," from de "from" or pejorative (see de-) + capere "to take," from PIE root kap- "to grasp." From mid-15c. as "state of being deceived; error, mistake;" from 1794 as "artifice, cheat, that which deceives."

Definition

- The concealment or alteration of information or equipment is primarily used by educators to not reveal the precise scenario objectives (Calhoun et al., 2020).
- The use of deception for the benefit of the learners' development is part of the art of simulation" (Kyaw Tun et al., 2015).
- "form of deception due to information being concealed from learners by the educators during the simulation activity pre-briefing is generally intentional and justifiable, especially if it pushes learners to exercise critical thinking" (Alinier, 2011).
- "used by educators" to encourage "learners to exercise critical thinking" (Alinier & Oriot, 2022, Abstract section, Definition of Deception in Simulation section, para. 2).
- "…making learners believe something works or reacts as would be expected in real life, whereas it is achieved in a totally different manner" through "artistic or technological" shortcuts, thus promoting realism (Alinier & Oriot, 2022, Abstract section).
- The purpose of its use is actual or potential benefits of the participants, such as the achievement of the SBE objectives and outcomes as well as realism (Alinier & Oriot, 2022; Calhoun et al., 2020; Dieckmann et al., 2007b; Stephan et al., 2023; Tun et al., 2015).

Compare: FICTION CONTRACT

Brief (Briefing) \ brēf\ noun \ˈbrē-fiŋ \ *verb*

Etym. brief "fact or situation of giving preliminary instructions." 1910

Definition

- "a facilitated activity "prior to the simulation-based experience" … intended to "establish a psychologically safe learning environment by … conveying important ground rules" (p. 10) as well as "expectations, the agenda, and the logistics for the experience (p. 11). In addition, "briefing activities are designed to avoid misunderstandings" (Alinier & Oriot, 2022; Rutherford-Hemming et.al., 2019).
- An interaction that gives context and helps learners "... relate to the simulation activity as a real clinical encounter" (Alinier & Oriot, 2022, Introduction section, para. 3).
- "... clearly communicating the complete script of the scenario in advance" with the "simulation facilitation team" to prevent individuals from giving confusing information to participants (Alinier, 2011, p. 12).
- "The pre-briefing serves to set the tone for the upcoming learning experience…and serves to prepare and orient learners to the simulation experience. The briefing in advance of the simulation activity consists of several key components. These include reviewing the session's goals and objectives, establishing a fiction contract with learners, providing logistic details about the session, and pledging to respect the learners" (Hughes & Hughes, 2023, Introduction).
- The information and guidelines given to faculty or simulated patients/participants participating in a scenario to allow them to fully prepare for interactions with the participants (Alinier, 2011).
- Briefing materials may include a verbal, recorded or written handoff report or other referral, such as from an ambulance (Alinier, 2011; Husebø et al., 2012, Rutherford-Hemming et al., 2019). For example, at the start of the simulation scenario, participants receive a notification from ambulance personnel regarding a patient being transported to their facility with a gunshot wound.

See also: BACK STORY, ORIENTATION, PREBRIEF (PREBRIEFING), PREPARATION
(***Eds. Note:*** the terms Briefing, Orientation, Prebriefing, and Preparation are often used interchangeably).

C

Cave Automatic Virtual Environment™ (CAVE™)

\ ˈkāv \ ˈȯ-tə-ˌmā-tək \ ˈvər-chə-wəl \ in-ˈvī-rə(n)-mənt \ *noun*

Etym. cave (n.) "a hollow place in the earth, a natural cavity of considerable size and extending more or less horizontally," early 13c., from Old French cave "a cave, vault, cellar" (12c.), from Latin cavea "hollow" (place).

Etym. automate (v.) "to convert to automatic operation," 1954, back-formation from automated (q.v.). Ancient Greek verb automatizein meant "to act of oneself, to act unadvisedly."

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. environment (n.) sense of "the aggregate of the conditions in which a person or thing lives" is by 1827 (used by Carlyle to render German Umgebung); specialized ecology sense first recorded 1956.

Definition

- A virtual reality paradigm in which there is ". . . a cube with display-screen faces surrounding a viewer" (Cruz-Neira et al., 1992, p. 67). The walls have projected images to simulate an immersive, virtual environment (Cruz-Neira et al., 1992, 1993).
- CAVE participants use head-tracking goggles so when viewers move their head "within the bounds of the CAVE, the correct perspective and stereo projections of the environment appear on the display screen" (Cruz-Neira et al., 1992, p. 67).
- "CAVE is a registered trademark of the Regents of the University of Illinois" (Kenyon, 1995, p. 150).

Compare: WIDE AREA VIRTUAL ENVIRONMENT

Checklist \ ˈCHekˌlist \ *noun*

Etym. checklist, "systematic list intended for reference, verification, etc.," 1849, American English, from check (v.1) + list (n.1).

Definition

- "An algorithmic listing of actions to be performed in a given clinical setting, the goal being to ensure that no step will be forgotten. Although a seemingly simple intervention, checklists have a sound theoretical basis in principles of human factors engineering and have played a major role in some of the most significant successes achieved in the patient safety movement" (PSNet Glossary, 2024c, paragraph 1).
- Simulation relevance includes the use of checklists in a variety of ways to include logistics for simulation setup; or to engage in use of checklist tools in simulation activities or as used in clinical practice to support improved provider performance (Pearson et al., 2022).

Clinical Event Debriefing

\ kli-ni-kəl \ i-ˈvent \ dē ˈbrē-fiŋ \ *noun*
Related: Debriefed; debriefing.

Etym. clinical (adj.) 1780, "pertaining to hospital patients or hospital care," from clinic + -al.

Etym. event (n.) 1570s, "the consequence of anything" (as in the event that); 1580s, "that which happens;" from Middle French event, from Latin eventus "occurrence, accident, event, fortune, fate, lot, issue," from past participle stem of evenire "to come out, happen, result," from assimilated form of ex- "out" (see ex-) + venire "to come," from a suffixed form of PIE root gwa- "to go, come." "Meaning "a contest or single proceeding in a public sport" is from 1865. Events as "the course of events" is attested from 1842. Event horizon in astrophysics is from 1969."

Etym. debrief "obtain information (from someone) at the end of a mission," 1945, from de- + brief (v.).

Definition

- A "facilitated discussion" after an actual clinical event designed to promote reflection, and improve outcomes for the individual, team, and patient (Coggins, 2020; Fanning & Gaba, 2007; Flin et al., 2009; Galligan et al., 2022, p. 977; Mullan et al., 2013; Rose et al., 2022; Welch-Horan et al., 2022).
- "Defined as an individual or team formally reflecting on performance after a task, shift or critical event" (Rose et al., 2022, p. 695).

Compare: CRITICIAL INCIDENT STRESS DEBRIEFING, HOT DEBRIEFING, DEBRIEFING

Clinical Scenario \ kli-ni-kəl \ sə-ˈner-ē-ˌō \ *noun*

Etym. clinical (adj.) 1780, "pertaining to hospital patients or hospital care," from clinic + -al. Definition

Etym. scenario (n.) 1868, "sketch of the plot of a play," from Italian scenario, from Late Latin scenarius "of stage scenes," from Latin scena "scene."

Definition

- "A detailed outline of a clinical encounter that includes: the participants in the event, briefing notes, goals and learning objectives, participant instructions, patient information, details about the environment, preparation for the modality", and "related equipment, props, and tools or resources for assessing and managing the simulated experience," among other items (Meakim et al., 2013, p. S5).
- A progressive outline of a clinical encounter, including a beginning or starting point, an ending point, a debriefing, and a way to evaluate (Meakim et al., 2013).
- "The plan of an expected and potential course of events for a simulated clinical experience" (Meakim et al., 2013, p. S4).
- A scenario usually includes "the context for the simulation" (i.e., hospital ward, emergency room, operating room, clinic, out of hospital, etc.). Scenarios "can vary in length and complexity, depending on the objectives" (Meakim et al., 2013, p. S4).

See also: SCENARIO
Compare: SCRIPT, SIMULATED-BASED LEARNING EXPERIENCE, SIMULATION ACTIVITY

Closed Loop Communication
\ klohz\ loop \ kəˌmyo͞onəˈkāSH(ə)n \ *noun*

Etym. closed (adj.) "made shut, not open," c. 1200, past-participle adjective from close (v.). Closed circuit "complete, unbroken (electrical) circuit" is attested from 1827.

Etym. loop (n.) late 14c., "a fold or doubling of cloth, rope, leather, cord, etc.," of uncertain origin.

Etym. communication (n.) early 15c., communicacioun, "act of communicating, act of imparting, discussing, debating, or conferring," from Old French comunicacion (14c., Modern French communication) and directly from Latin communicationem.

Definition

- "Closed loop communication consists of exchanging clear, concise information, and acknowledging receipt of the information to confirm its understanding. The communication is addressed to a specific person on the clinical team by name and the recipient repeats the message back to the sender. Such communication enhances patient safety by preventing confusion, ensuring that teams operate under a shared mental model, and that a specific person is responsible for completing the task" (PSNet Glossary, 2024d, paragraph 1).
- Simulation relevance includes the inclusion of this form of communication as part of simulation activities, supporting the confidence of using this method in clinical practice (Diaz & Dawson, 2020).

Coaching \ kōch-iŋ \ *verb*
Related: Coached; coaching; coach.

Etym. coach (n. or v.) Meaning "to prepare (someone) for an exam."

Definition

- "A method of directing or instructing a person or group of people to achieve a goal or goals, develop a specific skill or skills, or develop a competency or competencies" (INACSL Standards Committee, Molloy, et al., 2021, p.58).
- Coaching may be done by a peer or a facilitator and be incorporated into simulation (Badowski et al., 2019; Cheng et al., 2017).

Compare: CUE/CUEING, PROMPT

Cognitive Load \ ˈkäg-nə-tiv \ ˈlōd \ *noun*

Etym. cognitive (adv.) 1580s, "pertaining to cognition," with -ive + Latin cognit-, past participle stem of cognoscere "to get to know, recognize," from assimilated form of com "together" (see co-) + gnoscere "to know," from PIE root gno- "to know." Taken over by psychologists and sociologists after c. 1940. Cognitive dissonance "psychological distress cause by holding contradictory beliefs or values" (1957).

Etym. load (n.) c. 1200, lode, lade "that which is laid upon a person or beast, burden." The older senses went with the spelling lode (q.v.). The spelling is modern. Meaning "amount customarily loaded at one time" is from c. 1300.

Definition

- When referring to the total cognitive load, it is "… the amount of information that working memory can process at any one time" (Say et al., 2019, Cognitive Load section, para. 2; The Society for Education and Training, n.d.).
- There are different types of cognitive load, including intrinsic, extraneous, and germane (Fraser et al., 2015; Say et al., 2019).
- In simulation, cognitive load may relate to the participant and/or facilitator and should be considered in simulation design (Fraser et al., 2015, 2018; Say et al., 2019; Sweller, 1988; Tremblay et al., 2023).
- It is generally best to plan the simulation complexity to foster learning but avoid cognitive overload (Tremblay et al., 2023).

Competency \ ˈkämpəd(ə)ns \ *noun*

Etym. competency (n.) 1590s, "sufficiency to satisfy the wants of life," from Latin competentia "meeting together, agreement, symmetry." Meaning "sufficiency of qualification" is recorded from 1797.

Definition

- "Having the necessary knowledge or technical skill to perform a given procedure within the bounds of success and failure rates deemed compatible with acceptable care. The medical education literature often refers to core competencies, which include not just technical skills with respect to procedures or medical knowledge, but also competencies with respect to communicating with patients, collaborating with other members of the healthcare team, and acting as a manager or agent for change in the health system" (PSNet Glossary, 2024f, paragraph 1).
- Simulation relevance includes using simulation activity to support development of competence; or to use simulation to identify competency statements at various levels of performance (Zafošnik et al., 2024).

Computer-Based Simulation
\ kəm-ˈpyü-tər \ bāst \ sim-yuh-ley-shuh n \ *noun*

Etym. computer (n.) 1640s, "one who calculates," agent noun from compute (v.). Meaning "calculating machine" (of any type) is from 1897; in modern use, "programmable digital electronic computer" (1945 under this name; theoretical from 1937, as Turing machine). ENIAC (1946) usually is considered the first.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- Simulations that ... "allow learners to interact with a simulated system and/or virtual patients usually via a screen-based interface" (Goodwin & Nestel, 2024, p. 3).
- Simulations completed via a computer that are usually interactive (Leighton, 2013).
- Computer-based simulation could refer to being online (Dubovi, 2018) and may be associated with web-based education (Choi et al., 2020).
- The modeling of real-life processes with inputs and outputs exclusively confined to a computer, usually associated with a monitor and a keyboard or other simple assistive device (Levine et al, 2013).
- Subsets of computer-based simulation may include games, virtual patients, virtual reality task trainers, virtual environments, virtual reality, and immersive virtual reality simulation (Goodwin & Nestel, 2024; Hannans et al., 2021; INACSL Standards Committee, 2016b; Keskitalo & Ruokamo, 2016; Levine et al., 2013; Rogers et al., 2013).
- High-fidelity human patient simulators, driven by computers, have been called computer-based simulation (Ravert, 2002) as well as ultrasound simulators (Blum et al., 2013) and other task-based simulators including a computer (Rogers et al., 2013).
- Another term is screen-based simulation (Ventre & Schwid, 2013), or computer-based simulation may be considered a subset of screen-based simulation (Leighton, 2013). An additional term is computer-assisted simulation (INACLS Standards Committee, 2016b).
- A different modality for simulation which allows for completion of tasks and decision-making (INACSL Standards Committee, 2016b).

See also: SCREEN-BASED SIMULATION, SIMULATOR; VIRTUAL ENVIRONMENT, VIRTUAL PATIENT; VIRTUAL REALITY

Conceptual Fidelity \ kən-ˈsep-chə-wəl \ fə-ˈde-lə-tē, fī- \ *noun*

Etym. conceptual (adj.) 1820, "pertaining to mental conception" (there is an isolated use from 1662), from Medieval Latin conceptualis, from Latin conceptus" a collecting, gathering, conceiving," past participle of concipere. Related: Conceptualism; conceptualist.

Etym. fidelity (n.) early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence."

Definition

- In healthcare simulation, ". . . ensures that all elements of the scenario or case realistically relate to each other so that the patient makes sense as a whole to the learner(s) (e.g., vital signs are consistent with the diagnosis)" (INACSL Standards Committee, Watts et al., 2021, p. 17).
- "Conceptual fidelity ensures all aspects of the simulated scenario accurately reflect the way the same situation would present in the clinical setting. The scenario should make sense to the learner and allow for the development of prediction and anticipation skills" (Carey & Rossler, 2023, Curriculum Development section).
- Ways to increase this type of fidelity include having experts review the scenario as well as completing a pilot test/dry run in advance of implementation (Carey & Rossler, 2023; Chiniara et al., 2019; INACSL Standards Committee, Watts et al., 2021).
- This type of fidelity is imperative for skill development, such as critical thinking (Rudolph et al., 2007).
- It may also be called semantical fidelity, realism, or mode (Alinier & Oriot, 2022; Dieckmann et al., 2007a; Rudolph et al., 2007) and includes how concepts relate to each other (Dieckmann et al., 2007a; Rudolph et al., 2007).

Compare: ENVIRONMENTAL FIDELITY, FUNCTIONAL FIDELITY, PHYSICAL FIDELITY
See also: FIDELITY

Consolidated Standards of Reporting Trials (CONSORT) \ ˈkän-ˌsȯrt \ *noun*

Etym. consolidated (adj.) "made firm, solid, hard, or compact," 1736, past-participle adjective from consolidate.

Etym. standards (adj.) 1620s, "serving as a standard," from standard (adj.). Earlier it meant "upright" (1530s). Standard-bred "bred up to some agreed-upon standard of excellence" is from 1888.

Etym. report (n.) late 14c., "to make known, tell, relate," from Old French reporter "to tell, relate; bring back, carry away, hand over," from Latin reportare "carry back, bear back, bring back," figuratively "report," in Medieval Latin "write (an account) for information or record," from re- "back" (see re-) + portare "to carry" (from PIE root per- (2) "to lead, pass over").

Etym. trial (n.) mid-15c., "act or process of testing, a putting to proof by examination, experiment, etc.," from Anglo-French trial, noun formed from triet "to try" (see try (v.)). Sense of "examining and deciding of the issues between parties in a court of law" is first recorded 1570s; extended to any ordeal by 1590s.

Definition

- Consolidated Standards of Reporting Trials (CONSORT) is a guideline that standardizes the reporting for randomized (randomised) controlled trials (Cheng et al., 2016; Moher et al., 2001, 2004, 2010; Plint et al., 2006).
- 11 simulation specific extensions were created for the CONSORT: "item 1 (title/abstract), item 2 (background), item 5 (interventions), item 6 (outcomes), item 11 (blinding), item 12 (statistical methods), item 15 (baseline data), item 17 (outcomes/estimation), item 20 (limitations), item 21 (generalizability), and item 25 (funding)" (Cheng et al., 2016, Results).
- First developed for clinical trials, the guideline has been adopted and expanded (i.e., extensions) by the simulation community for simulation-based research (Cheng et al., 2016).

Crew (Crisis) Resource Management \ krōō \ ree-sawrs \ ˈmanijmənt \ *noun*

Etym. crew (n.) mid-15c., "group of soldiers sent as reinforcements" (a sense now obsolete), from Old French crue, creue "an increase, recruit, military reinforcement."

Etym. resource (n.) 1610s, "any means of supplying a want or deficiency," from French resourse "a source, a spring."

Etym. management (n.) 1590s, "act of managing by direction or manipulation," from manage + -ment.

Definition

- Simulation relevance includes simulation activities to build or incorporate Crew/Crisis Resource Management techniques into provider performance and capabilities (Sundar et al., 2007).
- "Crew resource management (CRM), also called crisis resource management in some contexts (e.g., anesthesia), encompasses a range of approaches to training groups to function as teams, rather than as collections of individuals" (PSNet Glossary, 2024h, paragraph 1).
- Crisis resource management (CRM) refers to a set of principles dealing with cognitive and interpersonal behaviors that contribute to optimal team performance (Cheng, 2012).

Critical Incident Stress Debriefing (CISD) \ ˈkridək(ə)l \ ˈinsədnt \ stress \ dē ˈbrē-fiŋ \ *noun*

Etym. critical 1580s, "censorious, inclined to find fault," from critic + -al (1). Sense of "important or essential for determining" is from c. 1600, originally in medicine. Meaning of "involving judgment as to the truth or merit of something" is from 1640s; that of "having the knowledge, ability, or discernment to pass judgment" is from 1640s. Meaning "pertaining to criticism" is from 1741.

Etym incident early 15c., "something which occurs casually in connection with something else," from Old French incident (13c.). Broader sense of "an occurrence viewed as a separate circumstance" is from mid-15c. Euphemistic meaning "event that might trigger a crisis or political unrest" first attested 1913.

Etym. stress c. 1300, stresse, "hardship, adversity; constraining or compelling force or pressure, coercion;" the original senses are mostly archaic or obsolete. The word is in part a shortening of distress (n.) and in part from Old French estrece "narrowness, oppression," from Vulgar Latin *strictia, from Latin strictus "tight, compressed, drawn together," past participle of stringere "draw tight" (see strain (v.)).

Etym. debrief "obtain information (from someone) at the end of a mission," 1945, from de- + brief (v.).

Definition

- A type of debriefing used to "mitigate stress among emergency first responders" (Fanning & Gaba, 2007, p. 116).
- A "facilitator led approach which allows participants to review the facts, thoughts, impressions, and reactions after a critical incident" (Fanning & Gaba, 2007, p. 116).
- Sometimes "viewed as the framework for medical debriefing today" (Salik & Paige, 2023, Introduction section, p. 4).

See also: CLINICAL EVENT DEBRIEFING, HOT DEBRIEFING

Cue / Cueing \ˈkyü – iŋ \ *verb / noun*

Etym. cue (n.) "stage direction," 1550s, from Q, which was used 16c., 17c. in stage plays to indicate actors' entrances, probably as an abbreviation of Latin quando "when" or a similar Latin adverb.

Definition

- "Information provided that helps the participant(s) process and progress through the scenario to achieve stated objectives" (INACSL Standards Committee, 2016b, p. S41; INACSL Standards Committee, Molloy, et al., 2021, p. 59).
- There are several types of cues, including conceptual and reality (INACSL Standards Committee, 2016b; INACSL Standards Committee, Molloy, et al., 2021; Paige & Moran, 2013).
- "Conceptual cues provide the learner with information to achieve expected outcomes in an SBE. Reality cues help the learner interpret or clarify simulated reality through information delivered by the simulated patient or role characters" (INACSL Standards Committee, 2016b, p. S41; INACSL Standards Committee, Molloy et al., 2021, p. 59).
- Cues may be olfactory or visual and may increase the perceived level of reality and thus, promote learner engagement within the SBE (Nanji et al., 2013).

Compare: COACHING, PROMPT

D

Debrief (Debriefing) \ dēˈbrēf \ noun (\ dē ˈbrē-fiŋ \ *verb*)

Etym. debrief "obtain information (from someone) at the end of a mission," 1945, from de- + brief (v.). Related: Debriefed; debriefing.

Definition

- "A process in which people who have had an experience are led through a purposive discussion of that experience" (Lederman, 1992, p. 146).
- "A learning conversation between instructors and trainees that follows a simulation" (Szyld et al., 2022, p. 793).
- "Facilitated or guided reflection in the cycle of experiential learning." (Fanning & Gaba, 2007, p. 116).
- A formal, collaborative, reflective process within the simulation learning activity.

Compare: ADVOCACY AND INQUIRY, FEEDBACK, GUIDED REFLECTION

Debriefer \ dē-ˈbrēf - ur \ *noun*

Etym. debrief "obtain information (from someone) at the end of a mission," 1945, from de- + brief (v.). Related: Debriefed; debriefing.

Definition

- The individual who facilitates a debriefing session and is knowledgeable and skilled in performing appropriate, structured, and psychologically safe debriefing sessions (Fanning & Gaba, 2007).
- The person who leads participants through the debriefing. Debriefing by competent instructors and subject matter experts is considered important to maximize the opportunities arising from simulation (Raemer et al., 2011).

Compare: FACILITATOR, SIMULATIONIST

Deliberate Practice \ di-ˈli-bə-rāt \ ˈprak-təs \ *noun*

Etym. deliberate (adj.) 15th century Middle English, from Latin deliberatus, past participle of deliberare to consider carefully, perhaps alteration of *delibrare, from de- + libra scale, pound.

Etym. practice (n.) 14th century Middle English practisen, from Middle French practiser, from Medieval Latin practizare, alteration of practicare, from practica practice, noun, from Late Latin practice, from Greek praktikē, from feminine of praktikos.

Definition

- The "individualized training activities specially designed by a coach or teacher to improve specific aspects of an individual's performance through repetition and successive refinement" (Ericsson & Lehmann, 1996, pp. 278-270).
- "highly structured activity, the explicit goal of which is to improve performance" (Ericsson, Krampe, & Tesch-Römer, 1993, p. 368).

Compare: MASTERY LEARNING

Deterministic \ di-ˈtər-mə-ˌni- stik \ *adj*

Etym. determinism (n.) 1876 in general sense of "doctrine that everything happens by a necessary causation," from French déterminisme; deterministic (adj.) 1874, from determinist (see determinism) + -ic.

Definition

- "Pertaining to a process, model, simulation, or variable whose outcome, result, or value does not depend upon chance" (Department of Defense, 1998).

Compare: STOCHASTIC

Digital Twin \ˈdijədl \ twin \ *noun*

Etym. digital (adj.) mid-15c., "pertaining to numbers below ten;" 1650s, "pertaining to fingers," from Latin digitalis, from digitus "finger or toe" (see digit). The numerical sense is because numerals under 10 were counted on fingers. Meaning "using numerical digits" is from 1938, especially of computers which run on data in the form of digits (opposed to analogue) after c. 1945. In reference to recording or broadcasting, from 1960.

Etym. twin (n.) Old English twinn „consisting of two, twofold, double, two-by-two," from Proto-Germanic *twisnjaz „double" (source also of Old Norse tvinnr „double, twin," Old Danish tvinling, Dutch tweeling, German zwillung), from PIE *dwisno- (source also of Latin bini „two each," Lithuanian dvynu „twins"), from *dwi- „double," from root dwo- „two." Minneapolis and St. Paul in Minnesota have been the Twin Cities since 1883, but the phrase was used earlier of Rock Island and Davenport (1856).

Definition

- "A virtual model of a physical (or "real-world") asset, such as a process, product, service, or an individual" (X Reality Safety Intelligence [XRSI], 2024a, paragraph 1).
- "Consisting of a physical entity, a virtual counterpart, and the data connections in between" (Jones et al., 2020, p. 36).
- "A digital twin couples computational models with a physical counterpart to create a system that is dynamically updated through bidirectional data flows as conditions change. Going beyond traditional simulation and modeling, digital twins could enable improved medical decision-making at the individual patient level, predictions of future weather and climate conditions over longer timescales, and safer, more efficient engineering processes" (National Academies of Sciences, Engineering, and Medicine, 2023, Introduction)

Discrete Simulation (Discrete Event Simulation)

\ dis-ˈkrēt \ sim-yuh-ley-shuh n \ *noun*

Etym. discrete (adj.) mid-14c., "morally discerning, prudent, circumspect," from Old French discret "discreet, sensible, intelligent, wise," from Latin discretus "separated, distinct;" in Medieval Latin, "discerning, careful;" past participle of discernere "distinguish." Meaning "separate, distinct" in English is late 14c.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "The occurrence of specific events to advance a model from one state to another state over time" (Sokolowski & Banks, 2011, p. 47).
- "A method of simulating the behavior and performance of a real-life process, facility or simulation" (Allen et al., 2015, p. 9).

Compare: DURATIONAL SIMULATION, SEQUENTIAL SIMULATION

Distance Simulation \ dis-tuhns \ sim-yuh-ley-shuh n \ *noun*

Etym. distance (adj.) Meaning "remoteness of space, extent of space between two objects or places" is from late 14c. Also "an interval of time" (late 14c., originally distaunce of times). Meaning "remote part of a field of vision" is by 1813. The figurative sense of "aloofness, remoteness in personal intercourse" (1590s) is the same as in stand-offish.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like". Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A method of health care training in which the learners and facilitators are in different physical locations (Birido et al., 2024).
- "The administration of a clinical simulated scenario using high-fidelity manikins and their associated computers with the participants located somewhere distant to the operator, who controls the manikins remotely" (LeFlore et al., 2014, p. 420).
- "Distributed interactive virtual environments in which those simulations can be integrated, allowing team collaborative learning, training and assessment independent of distance" (Alverson et al., 2004, p. 8).

Compare: REMOTE SIMULATION, TELESIMULATION

Distance Simulation Educator

\ ˈdist(ə)ns \ sim-yuh-ley-shuh n \ ˈe-jə-ˌkā-tər \ *noun*

Etym. distance (adj) Meaning "remoteness of space, extent of space between two objects or places" is from late 14c. Also "an interval of time" (late 14c., originally distaunce of times). Meaning "remote part of a field of vision" is by 1813. The figurative sense of "aloofness, remoteness in personal intercourse" (1590s) is the same as in stand-offish.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like". Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. educator (n.) "one who trains or instructs," 1670s.

Definition

- "A person who uses simulation methods in real time for health care professionals in a virtual, online, or digital environment, using evidence-based practices and strategies to educate participants to the highest standards of care in the skill of patient management" (Bajwa et al., 2024, p. 2).

Distributed Simulation

\ di-ˈstri-byüt \ sim-yuh-ley-shuh n \ *noun*

Etym. distribute (v.) early 15c., "to deal out or apportion," from Latin distributus, past participle of distribuere "to divide, distribute." Related: Distributable; distributed; distributing.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- High-fidelity immersive simulation made widely available wherever and whenever it is required (Kneebone et al., 2010, p. 65).
- "Realistic, accessible and portable simulated environments in recognition of various limitations involved in traditional medical simulation techniques" (Kelay et al., 2017, p. 2).

Durational Simulation \ dū-rā’shŭn-ăl \ sim″u-la´shun \ *noun*

Etym. duration (n.) Late 14c. duracioun, from Old French duration, from Medieval Latin durationem (nominative duratio), noun of action from past-participle stem of Latin durare “to harden,” from durus “hard,” from PIE *dru-ro-, suffixed variant form of root.

Etym. simulation (n.) noun of action from past participle stem of simulare “imitate,” from stem of similis “like”. Meaning “a model or mock-up for purposes of experiment or training” is from 1954.

Definition

- Multiple simulations that build off one another. This can include a simulation that focuses on an initial assessment of a simulated patient and the subsequent simulations are the follow-up visit (i.e., initial visit, one-month visit, six-month visit, etc.).
- A Durational Simulation is the opposite of a Discrete Simulation in that the changes occur in the system between simulations.

Compare: DISCRETE SIMULATION, SEQUENTIAL SIMULATION

Dry Run \ ˈdrī \ ˈrən \ *noun*

Etym. dry run (n): “walk-through (n.) also walkthrough, 1944, “an easy part” (in a theatrical production), from walk (v.) + through. Meaning “dry run, full rehearsal” is from 1959, from the notion of “walking (someone) through” something.”

Definition

- A complete run through of a new simulation… scheduled with staff and facilitators prior to the simulation being implemented with learners. …“Helpful to refine the performance measures. … Raters have an opportunity to evaluate performance measures. …Should include all faculty [facilitators]. The dry run tests the scenario design using faculty participating in the learner role to experience it from the learner’s perspective and to provide solutions for any gap in design. …to prevent … design errors, provide clarity for differential [diagnoses], assist the learner by ensuring the [simulation] design provides all evidence-both objective and subjective-for learners to arrive at the correct patient care plan, diagnosis, patient education, and/or treatment. A dry run provides an opportunity to ensure all needed equipment is included…in the setup and determine the amount of time that needs to be allotted for completion of the simulation. …Includes a debriefing to revise the simulation design” (Lioce et al., 2024, p.76).
- A meeting with all involved in a simulation to review the scenario, goals, objectives, critical actions, expected outcomes, resources, and production needs (Harrington et al., 2022).
- “planning meeting…to review the scenario with the standardized learner, uncover inconsistencies in the simulation, clarify terminology or roles and adjust the standardized learner’s attitude, knowledge or skill level” (Boilat et al., 2012, p..272).
- “Conducted in advance of the planned simulation to identify gaps in the development process” (Cowperthwait, 2020, p. 13).

See also: ALPHA and BETA TEST, PILOT TEST
Consider also: DRESS REHEARSAL, RUN THROUGH, SIMULATION VALIDATION, WALK THROUGH

E

Educator (Simulation Educator) \ ˈe-jə-ˌkā-tər \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like". Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. educator (n.) "one who trains or instructs," 1670s.

Definition

- "A clinical simulation professional whose responsibility is to develop and implement clinical simulation-based education designed to enhance patient safety and quality during healthcare delivery. …Should be able to run scenarios and debrief students using their clinical experience. In other words, they should be content experts. …They should follow scenario objectives and the facility standards as well as conduct debriefing sessions with student learning in mind" (Healthy Simulation, n.d., paragraph 1 & 3).
- A person who "supports healthcare professionals who are learning to manage clinical situations and provide care that's safe, effective, efficient, timely, patient-centered, and equitable" (Lindell et al., 2016, para 3).

See also: FACILITATOR, SIMULATIONIST, DISTANCE SIMULATION EDUCATOR

Embedded Participant \ im-ˈbed \ id \ pär-ˈti-sə-pənt \ *noun*

Etym. embed (v.) 1778, "to lay in a bed (of surrounding matter)," from em- (1) + bed (n.). Originally a geological term, in reference to fossils in rock; figurative sense is by 1835; meaning "place (a journalist) within a military unit at war" is from 2003 and the Iraq war. Related: Embedded; embedding.

Etym. participant (n.) 1560s, from Middle French participant, from Latin participantem, present participle of participare "to share in, partake of" from particeps "sharing, partaking."

Definition

- "Actors who play a role assigned in a simulation to help guide a scenario" (Kose et al., 2020, p.10).
- "A role assigned in a simulation encounter to help guide the scenario. The guidance may be positive, negative, or neutral or as a distractor, depending on the objective(s), the level of the participants, and the scenario" (INACSL Standards Committee, Molloy et al., 2021, p.59; Meakim et al., 2013).

See also: ACTOR, ROLE PLAYER, SIMULATED PATIENT, SIMULATED PERSON, STANDARDIZED PATIENT

Environmental Fidelity

\ en - vī-rə(n)-ˈmen-tə- l \ fə-ˈde-lə-tē \ *noun*

Etym. environmental (adj.) 1887, "environing, surrounding," from environment + -al (1). Ecological sense by 1967. Related: Environmentally.

Etym. fidelity (n.) early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence, trustiness," from fidelis "faithful, true, trusty, sincere," from fides "faith." From 1530s as "faithful adherence to truth or reality;" specifically of sound reproduction from 1878.

Definition

- The degree to which the equipment and environmental cues distinguish information as real (objective fidelity) or as subjectively experienced (perceptual fidelity) (Paige & Morin, 2013, p. e482).
- The degree to which "cues provide a duplication of the environment and motion through the environment" (Rehmann et al., 1995, pp. viii).

See also: FIDELITY, HIGH FIDELITY SIMULATION, PHYSICAL FIDELITY, REALISM

Evaluation \ i-ˌval-yə-ˈwā-shən \ *noun*

Etym. evaluation (n.) 1755, "action of appraising or valuing," from French évaluation, noun of action from évaluer "to find the value of," from é- "out" (see ex-) + valuer, from Latin valere "be strong, be well; be of value, be worth" (from PIE root wal- "to be strong"). Meaning "job performance review" attested by 1947.

Definition

- "Making a judgement or determination concerning the quality of a performance, work product, or use of skills against a set of standards (Starr, 2014, p. 227).
- "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" (INACSL Standards Committee, 2016b, pp. S41).
- "Evaluation is a much broader concept, measuring the value of educational activities, programmes, curricula, etc." (Gibbs et al., 2006, p. 6).

Compare: ASSESSMENT

Event \ i-ˈvent \ *noun*

Etym. event 1570s, “the consequence of anything” (as in in the event that); 1580s, “that which happens;” from Middle French event, from Latin eventus “occurrence, accident, event, fortune, fate, lot, issue,” from past participle stem of evenire “to come out, happen, result,” from assimilated form of ex- “out” + venire “to come.” Meaning “a contest or single proceeding in a public sport” is from 1865. Events as “the course of events” is attested from 1842.

Definition

- “Instance in time when a state-change occurs” (Robinson, 2014, p. 15).
- “A change in the state of an object at a particular instant of time” (Department of Defense, 1998).

See also: STATE/STATES

Extended Reality (XR) \ ik-sten-did \ rē-ˈa-lə-tē \ *noun*

Etym. extended (adj.) mid-15c., “occupying time, made longer,” past-participle adjective from extend (v.). Meaning “stretched out” in space is from 1550s; extended-play (adj.), in reference to recordings (especially 7-inch, 45 rpm vinyl records) is from 1953; in reference to pinball games by 1943. Extended family (n.) in sociology recorded from 1942.

Etym. reality (n.) 1540s, “quality of being real,” from French réalité and directly Medieval Latin realitatem (nominative realitas), from Late Latin realis (see real (adj.)). Meaning “real existence, all that is real” is from 1640s; that of “the real state (of something)” is from 1680s.

Definition

- An umbrella term that is a “fusion of all the realities – including Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR) – which consists of technology-mediated experiences enabled via a wide spectrum of hardware and software, including sensory interfaces, applications, and infrastructures” (X Reality Safety Intelligence [XRSI], 2024b, paragraph 1).
- “Merging graphical virtual environments with the real world” (Gupta, 2024 p.1).

See also: AUGMENTED REALITY, MIXED REALITY, VIRTUAL REALITY, METAVERSE

F

Facilitator (Simulation Facilitator)

\ fə-ˈsi-lə-ˌtā-tər \ *noun*

Etym. facilitator (n.) 1806, agent noun in Latin form from facilitate.

Definition

- An individual who is involved in the implementation and/or delivery of simulation activities. For example, faculty, educators, clinicians etc.
- "Simulation facilitator development should be guided by a set of common facilitator competencies grounded in expert consensus and evidenced based practice. These elements include: 1) Able to create positive, comfortable, trusting atmosphere and learning climate (emotional safety), 2) Able to bring theory and practice together, 3) Able to pose as a real-world role model, 4) Passion for teaching and learning, 5) Flexibility or adaptability to what the content can offer, and 6) Human centered approach" (Hardie & Lioce, 2020, p. 11).
- "Facilitators provide feedback as it is part of the learning process. …During the analysis/discovery phase, the facilitator assists the learners' exploration into the experiences, facilitates understanding of material, and helps identify knowledge gaps. …Facilitator(s) are challenged to maintain a safe learning or evaluation environment during the debriefing process (INACSL Standards Committee, Decker et al., 2021, p. 28).
- An individual who helps to bring about an outcome (such as learning, productivity, or communication) by providing indirect or unobtrusive assistance, guidance, or supervision. (Lekalakala-Mokgele & Du Rand, 2005a, 2005b). For example: The debriefing facilitator kept the discussion flowing smoothly.

Compare: DEBRIEFER, SIMULATIONIST

Failure Mode and Effect Analysis (FMEA)

\ ˈfālyər \ mōd \ and \ əˈfek(t) \ əˈnaləsəs \ *noun*

Etym. failure (n.) 1640s, failer, "a failing, deficiency," also "act of failing," from Anglo-French failer, Old French falir "be lacking; not succeed".

Etym. mode (n.) "manner;" late 14c., Meaning "manner of acting or doing, was in which a thing is done" is by 1660s.

Etym. effect (n.) mid-14c., "execution or completion (of an act)," from Old French efet (13c., Modern French effet) "result, execution, completion, ending," from Latin effectus "accomplishment, performance."

Etym. analysis (n.) 1580s, "resolution of anything complex into simple elements" (opposite of synthesis), from Medieval Latin analysis (15c.).

Definition

- "A common process used to prospectively identify error risk within a particular process" (PSNet Glossary, 2024j, paragraph 1).
- "Health care failure modes and effects analysis (FMEA) is a widely used technique for assessing risk of patient injury by prospectively identifying and prioritizing potential system failures" (Davis et al., 2008, p.1).

Failure to Rescue \ˈfālyər \ to \ ˈreskyo͞o \ *noun*

Etym. failure (n.) 1640s, failer, "a failing, deficiency," also "act of failing," from Anglo-French failer, Old French falir "be lacking; not succeed."

Etym. rescue (n.) late 14c., rescoue, "act of saving from danger, confinement, enemies, etc., from rescue (v.).

Definition

- "Failure to rescue is shorthand for 'failure to rescue from a complication of an underlying illness' (e.g., cardiac arrest in a patient with acute myocardial infarction) or a complication of medical care (e.g., major hemorrhage after thrombolysis for acute myocardial infarction)" (PSNet Glossary, 2024k, paragraph 1).
- Simulation relevance includes the design of simulation activities to directly address preventing failure to rescue situations either through creating those situations or including capture of when it occurs as part of any simulation activity (Blackburn et al., 2014; Cooper et al., 2011).

Feedback \ fēd-ˌbak \ *noun*

Etym. feedback 1920, in the electronics sense, "the return of a fraction of an output signal to the input of an earlier stage," from verbal phrase, from feed (v.) + back (adv.). Transferred use, "information about the results of a process" is attested by 1955.

Definition

- An activity where information is relayed back to a learner; feedback should be constructive, address specific aspects of the learner's performance, and be focused on the learning objectives.
- Information transferred between participants, facilitator, simulator, or peer with the intention of improving the understanding of concepts or aspects of performance (Meakim et al., 2013).
- Feedback can be delivered by an instructor, a machine, a computer, a patient (or a simulated person), or by other learners as part of the learning (Van de Ridder, 2008).

Compare: ADVOCACY AND INQUIRY, DEBRIEF/DEBRIEFING, GUIDED REFLECTION

Fiction Contract \ ˈfik-shən \ ˈkän-ˌtrakt \ *noun*

Etym. fiction (n.) something that is not true; something invented by the imagination or feigned; an assumption of a possibility as a fact irrespective of the question of its truth; a useful illusion or pretense; the action of feigning or of creating with the imagination.

Etym. contract (n.) a binding agreement between two or more persons or parties.

Definition

- "an explicit agreement between the learners and the instructor(s)/facilitator(s), which encourages the learners to put aside their disbelief and accept the simulated scenario as being real for the duration of the scenario. Effective execution of this agreement depends on equal involvement of both the parties. Each party has certain responsibilities. Establishment of a fiction contract / suspension of disbelief will ultimately minimise the blame that a learner can place on the realism of the scenario affecting their performance" (Sharma et al., 2023, p. 767).
- A concept which implies that an engagement in simulation is an agreement between the instructor and the learner: each has to do his or her part to make the simulation worthwhile.
- The degree of engagement that healthcare trainees are willing to give the simulated event. Also known as the "suspension of disbelief," it is a literary and theatrical concept that encourages participants to put aside their disbelief and accept the simulated exercise as being real for the duration of the scenario.

Fidelity \ fə-ˈde-lə-tē \ *adj*

Etym. fidelity (n.) early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence, trustiness," from fidelis "faithful, true, trusty, sincere," from fides "faith." From 1530s as "faithful adherence to truth or reality;" specifically of sound reproduction from 1878.

Definition

- The degree to which the simulation replicates the real event and/or workplace; this includes physical, psychological, and environmental elements.
- The ability of the simulation to reproduce the reactions, interactions, and responses of the real-world counterpart. Fidelity is not constrained to a certain type of simulation modality, and higher levels of fidelity are not required for a simulation to be successful.
- "Fidelity in simulation is a multi-dimensional concept corresponding to the degree of realism created through the selection of simulation equipment, setting, and scenario. Fidelity also refers to the degree of exactness achieved; and corresponds to the believability of the experience and relates to several components of simulation activity. [Standards do not] dictate a level of fidelity; rather, the level of realism should be that which promotes the achievement of the expected learning outcomes. Levels (low-, mid-, and high-fidelity) and types (physical, psychological, and conceptual) are associated with fidelity. Participants and educators state a preference for higher levels of fidelity, judging it as superior to lower levels; the evidence does not support this global contention, finding all levels of fidelity beneficial when used appropriate" (Carey & Rossler, 2023, Introduction).
- "three primary types of fidelity are physical, conceptual, and psychological. Each type corresponds to an aspect of the authenticity of the SBLE and has the potential to facilitate or impede learning. The types of fidelity within a simulation activity can complement or detract from one another" (Carey & Rossler, 2023, Curricular Development).
- The level of realism associated with a particular simulation activity; fidelity can involve a variety of dimensions, including (a) physical factors such as environment, equipment, and related tools; (b) psychological factors such as emotions, beliefs, and self-awareness of participants; (c) social factors such as participant and instructor motivation and goals; (d) culture of the group; and (e) degree of openness and trust, as well as participants' modes of thinking (Meakim et al., 2013).

See also: ENVIRONMENTAL FIDELITY, FUNCTIONAL FIDELITY, HIGH FIDELITY, HIGH FIDELITY SIMULATION, IMMERSIVE SIMULATION, LOW FIDELITY, PHYSICAL FIDELITY, PSYCHOLOGICAL FIDELITY, REALISM, SIMULATION FIDELITY

Fixation Error \ fik-ˈsā-shən \ er-ər \ *noun*

Etym. fixation (n.) late 14c., fixacion, an alchemical word, "action of reducing a volatile substance to a permanent bodily form," from Medieval Latin fixationem (nominative fixatio), noun of action from past participle stem of Latin fixare, frequentative of figere "to fix." Meaning "condition of being fixed" is from 1630s. Used in the Freudian sense since 1910.

Etym. error (n.) also, through 18c., errour; c. 1300, "a deviation from truth made through ignorance or inadvertence, a mistake." From late 14c. as "deviation from what is normal; abnormality, aberration." From 1726 as "difference between observed value and true value."

Definition

- "A type of cognitive error in which individuals and teams focus on one aspect of a situation, while ignoring more relevant information" (Ortega & Nasrullah, 2019, p. 102).
- "Occur when the practitioner concentrates solely upon a single aspect of a case to the detriment of other more relevant aspects" (Fioratou et al., 2010, p. 61).

Compare: SITUATIONAL AWARENESS

Forcing Function \ fawrs ing \ fuhngk-shuhn \ *noun*

Etym. force (v.) c. 1300, forcen, also forsen, "exert force upon (an adversary)," from Old French forcer "conquer by violence," from force "strength, power, compulsion."

Etym. function (n.) 1530s, "one's proper work or purpose; power of acting in a specific proper way," from French fonction (16c.) and directly from Latin functionem (nominative functio) "a performance, an execution."

Definition

- "An aspect of a design that prevents a target action from being performed or allows its performance only if another specific action is performed first. For example, automobiles are now designed so that the driver cannot shift into reverse without first putting her foot on the brake pedal. Forcing functions need not involve device design. For instance, one of the first forcing functions identified in healthcare is the removal of concentrated potassium from general hospital wards" (PSNet Glossary, 2024l, paragraph 1).

Formative Assessment \ˈfôrmədiv \ ə-ˈses-mənt \ *noun*

Etym. formative (adj.) late 15c., from French formatif, from Latin format-, past-participle stem of formare "to form," from forma "form, shape" (see form (n.)). As a noun, in grammar, from 1816.

Etym. assessment (n.) "1530s, "value of property for tax purposes" from assessment. Meaning "act of determining or adjusting of tax rate, charges, damages, etc., to be paid" is from 1540s (earlier in this sense was assession, mid-15c.). General sense of "estimation" is recorded from 1620s; in education jargon from 1956."

Definition

- "Refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps. It includes effective tools for helping to shape learning, and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks. It can include students assessing themselves, peers, or even the instructor, through writing, quizzes, conversation, and more. In short, formative assessment occurs throughout a class or course, and seeks to improve student achievement of learning objectives through approaches that can support specific student needs" (Yale Poor Center for Teaching & Learning, n.d., paragraph 1).
- "A type of assessment 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 to provide constructive feedback for that individual or group to improve" (INACSL Standards Committee, Molloy, et al., p. 59).
- Often completed at the same time as the instruction (Hamdorf & Davies, 2016), where development of the individual is the focus for the simulation objectives/outcomes to be reached (INACSL Standards Committee, 2016b).

Compare: EVALUATION, SUMMATIVE ASSESSMENT

Frame \ frāmz \ *noun*

Etym. frame From 1660s in the meaning "particular state" (as in Frame of mind, 1711). Frame of reference is 1897.

Definition

- The perspectives through which individuals interpret new information and experiences for the purpose of decision-making.
- "A set of parameters defining either a particular mental schema or the wider cognitive structure by which an individual perceives and evaluates the world" (American Psychological Association Dictionary of Psychology, 2007, np).
- "Sensemaking by which [people] actively filter, create, and apply meaning to their environment" (Rudolph et al., 2007b, p. 363).

Full Scale Simulation
\ fo͝ol \ skāl \ sim-yuh-ley-shuh n \ noun

Etym. full (adj.) Old English full "containing all that can be received; having eaten or drunk to repletion; filled; perfect, entire, utter," from Proto-Germanic *fullaz "full" (source also of Old Saxon full, Old Frisian ful, Dutch vol, Old High German fol, German voll, Old Norse fullr, Gothic fulls), from PIE root *pele- (1) „to fill."

Etym. scale (n.) late 14c., "series of registering marks; marks laid down to determine distance along a line," (in Chaucer's description of the astrolabe), from Latin scala"ladder, flight of stairs," from *scansla, from stem of scandere "to climb". The noun in the classical Latin sense is rare, though Middle English had it as "ladder used in sieges" (c. 1400). The meaning "succession or series of steps ascending or descending" is from c. 1600; that of "standard for estimation" (large scale, small scale, etc.) is from 1620s.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like". Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "A simulation that attempts to recreate all elements of a situation that are perceptible to a participant" (Seropian, 2003, p. 1696).
- "Combines a life-size manikin with computer programs allowing the manikin to produce realistic physiological responses to pharmacologic and other interventions" (Hallikainen et al., 2009, p.101).

See also: HIGH-FIDELITY SIMULATION, SIMULATION

Functional Fidelity \ˈfəŋ(k)-shnəl, -shə-nəl \ fə-ˈde-lə-tē \ *noun*

Etym. functional (adj.) 1630s, “pertaining to function or office,” from function (n.) + -al (1), or from Medieval Latin functionalis. Meaning “utilitarian” is by 1864. Related: Functionally; functionality.

Etym. fidelity (n) early 15c., “faithfulness, devotion,” from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) “faithfulness, adherence, trustiness,” from fidelis “faithful, true, trusty, sincere,” from fides “faith” (see faith). From 1530s as “faithful adherence to truth or reality.”

Definition

- The degree to which the skill or skills in the real task are captured in the simulated task (Maran & Glavin,, 2003).
- “The dynamic interaction between the participant and the assigned task” (Carey & Rossler, 2023, p. 5).

See also: FIDELITY, HIGH-FIDELITY SIMULATOR, REALISM
Compare: PHYSICAL FIDELITY,

G

Gamification \ gā-mə-fə-ˈkā-shən \ *noun* [U]

Etym. game (n.) c. 1200, from Old English gamen "joy, fun; game, amusement," common Germanic (cognates: Old Frisian game "joy, glee," Old Norse gaman "game, sport; pleasure, amusement," Old Saxon gaman, Old High German gaman "sport, merriment," Danish gamen, Swedish gamman "merriment"), said to be identical with Gothic gaman "participation, communion," from Proto-Germanic *ga- collective prefix + *mann "person," giving a sense of "people together." The -en was lost perhaps through being mistaken for a suffix. Meaning "contest for success or superiority played according to rules" is first attested c. 1200 (of athletic contests, chess, backgammon).

Definition

- A strategy for increasing engagement by incorporating game elements into an educational environment to enhance certain abilities, introduce objectives that give learning a purpose, engage students, optimize learning, support behavior change, and socialize (Smiderle et al., 2020).
- "Approach for increasing learners' motivation and engagement by incorporating game design elements in educational environments" (Dichev & Dicheva, 2017).

Compare: SERIOUS GAMES
Consider also: GAME-BASED LEARNING

Genitourinary Teaching Assistant (GUTA)
\ ˌjenidōˈyoorəˌnerē \ ˈtēCHiNG \ /əˈsistnt \ *noun*

Etym. genitourinary (adj.) of or relating to the genital and urinary organs or functions. genitals (n.) "reproductive organs," especially the external sexual organs, late 14c.

Etym. teaching (n.) late Old English tecunge "act of providing guidance or training to another, imparting of instruction or knowledge," verbal noun from the source of teach (v.). Gradually passing into modern sense "business of instructing." As "that which is taught, knowledge or understanding imparted," it is attested from c. 1300. Middle English also had teachingless (adj.) "deprived of instruction, untaught" (mid-14c.).

Etym. assistant (n.) mid-15c., assistent "one who helps or aids another," from Latin assistentem (nominative assistens), noun use of present participle of assistere "stand by, attend" (see assist (v.)). The spelling changed in French then (16c.) in English.

Definition

- A Genitourinary Teaching Associate (GUTA) is an individual trained to teach the techniques and protocol for performing the gender-specific physical examination to learners, using himself or herself as a demonstration and practice model (ASPE, n.d.).
- "Individuals educated to teach medical learners invasive exams and procedures using their own body in a supportive environment while giving feedback to the learner to optimize skill acquisition teaching best practices for future provider-patient communication" (Zorn, 2023, p. 58).

Compare: GYNECOLOGICAL TEACHING ASSOCIATE; MALE UROGENITAL TEACHING ASSOCIATE

Guided Reflection \ gīd – id \ ri-ˈflek-shən \ *noun*

Etym. guide (v.) late 14c., "to lead, direct, conduct," from Old French guider "to guide, lead, conduct" (14c.), earlier guier, from Frankish *witan "show the way" or a similar Germanic source.

Etym. reflection (n.) Of the mind, from 1670s. Meaning "remark made after turning back one's thought on some subject," is from 1640s.

Definition

- A mentor-facilitated process that allows the learner to "integrate the understanding gained into one's experience in order to enable better choices or actions in the future, as well as enhance one's overall effectiveness" (Rogers, 2001, p. 41).
- "Guidance throughout a reflective process" (Decker & Dreifuerst, 2012, p. 96).

Compare: ADVOCACY AND INQUIRY, DEBRIEF/DEBRIEFING, FEEDBACK
See also: REFLECTIVE THINKING

Gynecological Teaching Associate (GTA)

\ ˌgīnəkəˈläjək(ə)l \ ˈtēch ng \ ə-ˈsō- shē-ˌāt, -sē- \ *noun*

Etym. gynecologial (adj.) from gynecology, "science of women's health and of the diseases peculiar to women," 1847, from French gynécologie, from Latinized form of Greek gynaiko-, combining form of gynē"woman, female," from PIE root gwen- "woman." Second element is from French -logie"study of," from Greek (see -logy). Another word for it was gyniatrics.

Definition

- A Gynecological Teaching Associate (GTA) is a female specifically trained to teach, assess, and provide feedback to learners about accurate pelvic, rectal and/or breast examination techniques. They also address the communication skills needed to provide a comfortable exam in a standardized manner, while using their bodies as teaching tools in a supportive, non-threatening environment (Association of Standardized Patient Educators [ASPE], n.d.).
- "Standardized patients trained and educated to teach breast, speculum, and bimanual vaginal examinations using themselves as a demonstration and practice model. GTAs allow the learner to examine her and provide immediate instruction and feedback regarding examination technique and communication skills" (Kelly et al., 2023, Introduction, Paragraph 1).

Compare: GENITOURINARY TEACHING ASSISTANT, MALE UROGENITAL TEACHING ASSOCIATE

H

Haptic \ ˈhap-tik \ *adj*

Etym. (adj.) "pertaining to the sense of touch," 1890, from Greek haptikos "able to come into contact with," from haptein "to fasten."

Definition

- In healthcare simulation, refers to devices that providing tactile feedback to the user. Haptics can be used to simulate touching, palpating an organ, or body part, and the cutting, tearing, or traction on a tissue.
- "Haptics are here defined as the combination of tactile perception (through sensory skin receptors) and kinesthetic perception (through muscle, tendons, and joint sensory receptors)" (Westebring-van der Putten et al., 2008, p. 3).
- "Haptic simulation combines both virtual reality and force feedback and represents a new reproducible tool to provide a safe learning environment" (Vincent et al., 2022, p. 1015).
- "A mechanism or technology used for tactile feedback to enhance the experience of interacting with onscreen interfaces via vibration, touch, or force feedback. … haptic controllers create a virtual sense of touch" (X Reality Safety Intelligence [XRSI], 2024c, paragraph 1).

Harm \ härm \ *noun*

Etym. harm (n.) Old English hearm "hurt, pain; evil, grief; insult."

Definition

- "Broadly, harm refers to the impairment of the anatomy or physiology of the body and physical, social, or psychological issues arising from the impairment such as disease, disability, or death. In the context of patient safety, the term "adverse event" is used to describe harm to patients that is caused by medical care, as opposed to harm caused by underlying disease or disability. Adverse events can be preventable, ameliorable, or the result of negligence" (PSNet Glossary, 2024m, paragraph 1).
- Simulation relevance includes the need to address potential harm for multiple parties to include (but not limited to) simulation participants, facilitators, and operators, current and future patients. (Edwards et al., 2023).
- To maximize learner experience and prevent harm, simulation pedagogy should be considered when developing and conducting simulation and facilitators should be trained in best-practice guidelines (Edwards et al., 2023).

Compare: PSYCHOLOGICAL SAFETY

Healthcare Simulation

\ helth \ ker \ sim-yuh-ley-shuh n \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A technique that uses a situation or environment created to allow persons to experience a representation of a real healthcare event for the purpose of practice, learning, evaluation, testing, or to gain understanding of systems or human actions: the applications of a simulator to training, assessment, research, or systems integration toward patient safety (SSH Accreditation, 2014).
- Healthcare simulation "is informed and enhanced by perspectives from a variety of sciences, technologies, engineering and the arts" (Park et al., 2020, p. 365).
- Healthcare simulation as a practice forms the foundation for the three tenets comprising: safety, advocacy, and leadership (Park et al., 2020, p. 365).

See also: HEALTHCARE SIMULATION OPERATIONS

Heuristic \ hyoo-ris-tik \ *adjective*

Etym. heuristic (adj.) "serving to discover or find out," 1821, irregular formation from Greek heuriskein "to find; find out, discover; devise, invent; get, gain, procure."

Definition

- "Loosely defined or informal rules often arrived at through experience or trial and error that make assessments and decisions (e.g., gastrointestinal complaints that wake patients up at night are unlikely to be benign in nature). Heuristics provide cognitive shortcuts in the face of complex situations, and thus serve an important purpose. Unfortunately, they can also turn out to be wrong, with frequently used heuristics often forming the basis for the many cognitive biases, such as anchoring bias, availability bias, confirmation bias, and others, that have received attention in the literature on diagnostic errors and medical decision making" (PSNet Glossary, 2024n, paragraph 1).
- Simulation relevance includes the need to identify where heuristic methods are being utilized by participants (rather than more explicit methods for decisions and processes) (Altabbaa et al., 2019).

High-Fidelity Simulation

\ hī \ fə-ˈde-lə-tē \ sim-yuh-ley-shuh n \ *noun*

Etym. fidelity (n.) early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence, trustiness," from fidelis "faithful, true, trusty, sincere," from fides "faith." From 1530s as "faithful adherence to truth or reality;" specifically of sound reproduction from 1878.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- In healthcare simulation, experiences that are extremely realistic and provide a high level of interactivity and realism for the learner (Meakim et al., 2013). It can apply to any mode or method of simulation; for example: human, manikin, task trainer, or virtual reality.
- "Serves as a realistic mock-up for any desired patient care location" (Small et al., 1999, p. 314).
- "Robust experiential training where they [learners] feel safe to think critically and respond urgently to rapidly changing situations" (Luna & Behan, 2024, p. 25).

See also: ENVIRONMENTAL FIDELITY, FIDELITY, REALISM

High-Fidelity Simulator

\ hī \ fə-ˈde-lə-tē \ ˈsim-yə-ˌlā-tər \ *noun*

Etym. fidelity (n.) early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence, trustiness," from fidelis "faithful, true, trusty, sincere," from fides "faith." From 1530s as "faithful adherence to truth or reality;" specifically of sound reproduction from 1878.

Etym. simulator (n.) 1835, of persons, from Latin simulator "a copier, feigner," agent noun from simulare "imitate," from stem of similis "like." In reference to training devices for complex systems, from 1947 (flight simulator). simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966 (agent noun simulator in the related sense dates from 1947. In commercial jargon, "artificial, imitation" by 1942.

Definition

- "High-fidelity human patient simulators with full body mannequin and advanced technology mimicking human anatomy and physiological signs" (Kim et al., 2023, p. 569).
- "Mannequin that provides physiological feedback via interactive software response to the trainees' actions" (Meurling et al., 2014, paragraph 221).

See also: FIDELITY, FUNCTIONAL FIDELITY, REALISM SIMULATION FIDELITY

High Stakes Assessment \ hī \ stāks \ əˈsesmənt \ *noun*

Etym. high (adj.) Old English heh (Anglian), heah (West Saxon) "of great height, tall, conspicuously elevated; lofty, exalted, high-class," from Proto-Germanic *hauha- (source also of Old Saxon hoh, Old Norse har, Danish høi, Swedish hög, Old Frisian hach, Dutch hoog, Old High German hoh, German hoch, Gothic hauhs "high;" also German Hügel "hill," Old Norse haugr "mound").

Etym. stakes (n.) "that which is placed at hazard as a wager, the sum of money or other valuable consideration which is deposited as a pledge or wager to be lost or won according to the issue of a contest or contingency," 1530s, a word of uncertain origin.

Etym. assessment (n.) "1530s, "value of property for tax purposes," from assessment. Meaning "act of determining or adjusting of tax rate, charges, damages, etc., to be paid" is from 1540s (earlier in this sense was assession, mid-15c.). General sense of "estimation" is recorded from 1620s; in education jargon from 1956."

Definition

- A "type of assessment 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" (INACSL Standards Committee, 2016b, p. S41; INACSL Standards Committee, Molloy, et al., 2021, p. 60).

See also: OBJECTIVE STRUCTURED CLINICAL EXAMINATION
Compare: EVALUATION

Hot Debriefings (HoDs) \ hät \ dē ˈbrē-fiŋ \ *verb*

Etym. hot (adj.) Old English hat "hot, flaming, opposite of cold," used of the sun or air, of fire, of objects made hot,; also "fervent, fierce, intense, excited," from Proto-Germanic *haita- (source also of Old Saxon and Old Frisian het, Old Norse heitr, Middle Dutch and Dutch heet, German heiß "hot," Gothic heito "heat of a fever"), of uncertain origin, perhaps related to Lithuanian kaisti "to grow hot;" both could be from a substratum word.

Etym. debrief (v.) "obtain information (from someone) at the end of a mission," 1945, from de- + brief.

Definition

- "Hot debriefing (HoD) describes a structured team-based discussion which may be initiated following a significant event. Benefits may include improved teamwork, staff well-being, and identification of learning opportunities" (Sugarman et al., 2021, p.579).
- "Trigger-based, immediate post-event, interprofessional, expertly facilitated conversations where clinicians recount, reflect on, and improve personally and as a team" (Szyld & Arriaga, 2021, p. 585).
- "Occur shortly after an event, usually within a few minutes to hours, while the team involved is still readily available for a face-to-face discussion" (Sweberg et al., 2018, p. 181).

See also: CRITICAL INCIDENT STRESS DEBRIEFING, CLINICAL EVENT DEBRIEFING

Human Factors \ hyü-mən \ fak-tərz \ *noun*

Etym. factor (n.) Sense of "circumstance producing a result" is attested by 1816, from the mathematical sense.

Definition

- "A science at the intersection of psychology and engineering—dedicated to designing all aspects of a work system to support human performance and safety" (Russ et al., 2013, p. 802).
- "Focuses on the systems in which the human interacts with the environment" (Dul et al., 2012, p. 379).
- The WHO identified ten human factor topics most relevant for patient safety: safety culture, manager's leadership, communication, teamwork –structure/processes and team leadership, situational awareness, decision making, stress, fatigue, and work environment (Flin et al., 2009; World Health Organization [WHO], 2010).
- "Ergonomics (or human factors) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and methods to design in order to optimize human well-being and overall system performance" (Human Factors and Ergonomics Society, 2024).

Human Simulation \ sim-yuh-ley-shuh n \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare""imitate," from stem of similis""like". Meaning""a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "A recognized methodology that involves human role players interacting with learners in a wide range of experiential learning and assessment contexts" (Lewis et al, 2017, p. 1).

Hybrid Simulation \ hī-brəd \ sim-yuh-ley-shuh n \ *noun*

Etym. hybrid (n.) "a product of two heterogeneous things" emerged c. 1850. (As related to healthcare).

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "The combination of simulation paradigms" (Viana, 2014, p. 1585).
- In healthcare simulation, hybrid simulation is most commonly applied to the situation where a part task trainer (e.g., a urinary catheter model) is realistically affixed to a standardized/simulated patient, allowing for the teaching and assessment of technical and communication skills in an integrated fashion (Kneebone et al., 2002).
- The use of two or more simulation modalities in the same simulation activity (Zulkepli et al., 2012).
- "The melding of simultaneous use of two or more methods of simulation" (Lopreiato & Sawyer, 2015, p. 137).
- "The combination of simulation paradigms" (Viana, 2014, p. 1585).

Compare: MIXED SIMULATION/MIXED METHODS SIMULATION, MULTIPLE MODALITY SIMULATION

I

Immersion \ i-ˈmər-zhən \ *noun*

Etym. immersion (n.) c. 1500, from Late Latin immersionem (nominative immersio), noun of action from past participle stem of immergere "to plunge in, dip into, sink, submerge," from assimilated form of in- "into, in, on, upon" (see in- (2)) + Latin mergere "plunge, dip" (see merge). Meaning "absorption in some interest or situation" is from 1640s.

Definition

- "The interaction between interrelated subparts, such as the simulation manikin, and the interaction and role-play in the team that created the sense of perceived realism" (Dieckmann et al., 2007a, p. 187).
- Describes the level to which the learner becomes involved in the simulation; a high degree of immersion indicates that the learner is treating the simulation as if it was a real-life (or very close to real-life) event.
- A state (or situation) in which trainees dedicate most of their time doing something related to or thinking about a simulation and become involved in it; the level of immersion might vary, where a high degree indicates that the trainee is fully involved. For example, realistic environments facilitate a participant´s full immersion in the simulation.
- "instruction based on extensive exposure to surroundings or conditions that are native or pertinent to the object of study; absorbing involvement" (Merriam-Webster, 2024).
- The placing of a human in a synthetic environment through physical and/or emotional means (Department of Defense, 1998).

See also: IMMERSIVE SIMULATION

Immersive Simulation

\ ɪˈmɜːsɪv \ sim-yuh-ley-shuh n \ *adj* (immersive); n (simulation)

Etym. immersion. (n.) c. 1500, from Late Latin immersionem, noun of action from past participle stem of immergere "to plunge in, dip into, sink, submerge," from assimilated form of in- "into, in, on, upon" (see in- (2)) + Latin mergere "plunge, dip" (see merge). Meaning "absorption in some interest or situation" is from 1640s.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "An experience where students are willing to take risks to test the limits of their capabilities and practice readiness" (Pollock & Biles, 2016, p. 318).
- "Sessions whereby a relatively high ratio of faculty to students may be required to run high-quality sessions" (Alinier et al., 2014, p. 206).
- "An experience that makes students think" (Bristol & Zerwekh, 2011, p. 206).
- A real-life situation that deeply involves the participant's senses, emotions, thinking, and behavior; creating an immersive simulation depends on the alignment with learning objectives, the fidelity of the simulation (physical, conceptual, and emotional), and participant´s perception of realism.
- A simulation session influenced by participant's characteristics, experiences, level of training, and preparation for the case or task. The perceived physical, conceptual, and emotional fidelity, the appropriate level of challenge, and the simulators and actors can all affect the simulation experience (Hamstra et al., 2014; Rudolph et al., 2007b).

See also: FIDELITY, IMMERSION, REALISM, AUGMENTED REALITY, MIXED REALITY, IMMERSIVE

In Silico \ in-ˈsi-li-ˌkō \ *adj or adv.*

Etym. in silico 1980s: Latin, literally 'in silicon' (with reference to the use of silicon chips in computer systems); on the pattern of in vitro and in vivo.

Definition

- Performed on computer or via computer simulation; the phrase was coined in 1989 as an analogy to the Latin phrases in vivo, in vitro, and in situ (Sieburg, 1990).
- An activity that is performed in a location absent from actual clinical care (e.g., computer, simulation center).
- "An important aspect of in silico simulation should be an ability to assess and predict outcomes in populations rather than in the non-existent 'average' patient" (Rostami-Hodjegan & Tucker, 2004, p. 445).
- "In silico clinical trials indicates the use of individualized computer simulation in the development or regulatory evaluation of a medicinal product, medical device, or medical intervention" (Viceconti, et al., 2016, p.1).
- "In silico clinical trials refers to the development of patient specific models to form virtual cohorts for testing the safety and/or efficacy of new drugs and of new medical devices" (Pappalardo et al., 2019, p.1699).

Compare: IN SITU

In Situ / In Situ Simulation (ISS)

\ in ˈsɪtju \ sim-yuh-ley-shuh n \ *adj*

Etym. in situ 1740, Latin, literally "in its (original) place or position," from ablative of situs "site."

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "In situ simulation (ISS) is defined as a simulation activity that takes place in a patient care unit and involves team members in their own work environment" (Lois & Jaffrelot, 2019, p. 555).
- Taking place in the actual patient care setting/environment in an effort to achieve a high level of fidelity and realism; this training is particularly suitable for difficult work environments, due to space constraints or noise. For example, an ambulance, a small aircraft, a dentist's chair, a catheterization lab. This training is valuable to assess, troubleshoot, or develop new system processes (Kyle & Murray, 2010, p. 578).
- "in it's original place; in position; at the scene of the event" (Oxford English Dictionary, 2021, p. 1).
- In situ simulation is the practice of using simulated scenarios in a clinical environment itself rather than in training facilities to promote learning and improved clinical care (Martin et al., 2020).
- Team-based activities occurring in patient care units with healthcare professionals in their own working environment. In situ simulation brings simulation to the real working environment and provides training where people work. In situ simulation can be either announced or unannounced, the latter also known as a drill (Sorensen et al., 2017).
- In situ simulation is physically integrated into the clinical environment, provides a method to improve reliability and safety in high-risk areas (Patterson et al., 2013).

Compare: IN SILICO

Incognito Standardized Patient

\ in-ˌkäg-ˈnē-\ stan-dər-ˌdīzd \ pā-shənt \ *noun*

Etym. incognito (adj./adv.) 1640s as both adjective ("disguised under an assumed name and character") and adverb ("unknown, with concealed identity"), from Italian incognito "unknown," especially in connection with traveling, from Latin incognitus "unknown, not investigated."

Etym. standard "authoritative or recognized exemplar of quality or correctness" (late 15c.). Meaning "rule, principal or means of judgment" is from 1560s. That of "definite level of attainment" is attested from 1711 (as in standard of living, 1903).

Etym. patient (n.) "suffering or sick person under medical treatment," late 14c.

Definition

- "Lay people who are trained to portray a patient with a specific condition in a realistic way, sometimes in a standardized way (where they give a consistent presentation, which does not vary from student to student)" (Cleland et al., 2009, p. 477).
- Trained individuals who pose incognito as people seeking treatment in healthcare settings (Daniels et al., 2023).
- A person who plays a role as a patient in real healthcare situations, while the healthcare workers in those situations are unaware of the fact that the person is not a real patient (Rethans et al., 2007).

Consider also: UNANNOUNCED STANDARDIZED PATIENTS, STEALTH PATIENTS, SECRET SHOPPER, EMBEDDED PATIENTS

Interactive Model or Simulation

\ in-ter-ˈak-tiv \ mä-dəl \ or \ sim-yuh-ley-shuh n \ *adj*

Etym. interactive (adj.) "acting upon or influencing each other," 1832, from interact (v.), probably on model of active. Related: Interactively; interactivity.

Etym. model (n.) Sense of "thing or person to be imitated" is 1630s.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- Simulating a situation in which the outcome varies depending on human participation. This allows humans to practice different sets of actions to learn the correct response to an event.
- Modeling that requires human participation.
- Interactive learning environments provide multiple means of representation and expression for the learner through text and graphic modes, animated simulations, and other combinations of the media (Dikshit et al., 2005).

Interdisciplinary \ in-ter-dis-uh-pluh-ner-ee \ *adj*

Etym. discipline (n.) directly from Latin disciplina "instruction given, teaching, learning, knowledge," also "object of instruction, knowledge, science, military discipline," from discipulus. Meaning "branch of instruction or education" is first recorded late 14c. Meaning "military training" is from late 15c.; that of "orderly conduct as a result of training" is from c. 1500.

Definition

- The academic disciplines, such as psychology, or subspecialties within professions. For example, within the profession of medicine, anesthesia or cardiology (Barr et al., 2005).
- "Involving two or more academic, scientific, or artistic disciplines" (Merriam-Webster Dictionary, 2024).
- The combining of two or more academic disciplines, fields of study, professions, technologies, or departments (Dictionary.com, 2024).

See also: MULTIDISCIPLINARY

Interdisciplinary / Interdisciplinary Learning

\ in-ter -ˈdi-sə-plə-ˌner-ē \ lərn-ing \ *noun / adj*

Etym. discipline (n.) directly from Latin disciplina "instruction given, teaching, learning, knowledge," also "object of instruction, knowledge, science, military discipline," from discipulus. Meaning "branch of instruction or education" is first recorded late 14c. Meaning "military training" is from late 15c.; that of "orderly conduct as a result of training" is from c. 1500.

Etym. learning (n.) Old English leornung "learning, study," from leornian.

Definition

- Multiple disciplines training together (Dadiz et al., 2013, p. 280)
- When their members transcend separate disciplinary perspectives and attempt to weave together tools, methods, procedures, etc., to overcome common problems or concerns (Gilbert, 2005).
- adj: Working jointly, but addressing issues from their individual discipline's perspective (Gray & Connolly, 2008).
- Integrating the perspective of professionals from two or more professions by organizing the education around a specific discipline, where each discipline examines the basis of their knowledge (Bray & Howkins, 2006).

See also: INTERPROFESSIONAL EDUCATION/TRAINING/LEARNING

Interprofessional \ in-ter - \ prə-ˈfesh-nəl \ *adj*

Etym. professional (n.) "one who does it for a living," 1798, from professional (adj.).professional (adj.) 1747 of careers (especially of the skilled or learned trades from c. 1793). Related: profession.

Definition

- Collaborating as a team with a shared purpose, goal, and mutual respect to deliver safe, quality healthcare (Freeth et al., 2005; WHO, 2010).
- Interprofessional is a more contemporary term describing a team effort in healthcare from two or more professions whose members learn about, from, and with each other to improve health outcomes (Nester, 2016).

Consider also: INTERPROFESSIONAL EDUCATION / TRAINING / LEARNING

Interprofessional Education / Training / Learning (IPE) \ in-ter - prə-ˈfesh-nəl \ e-jə-ˈkā-shən \ trā-niŋ \ lərn-ing \ *noun*

Etym. professional (n.) "one who does it for a living," 1798, from professional (adj.).professional (adj.) 1747 of careers (especially of the skilled or learned trades from c. 1793). Related: profession.

Etym. education (n.) 1530s, "childrearing," also "the training of animals," from Middle French education (14c.) and directly from Latin educationem (nominative educatio) "a rearing, training," noun of action from past participle stem of educare. Originally of instruction in social codes and manners; meaning "systematic schooling and training for work" is from 1610s.

Etym. training (n.) From 1540s as "discipline and instruction to develop powers or skills;" 1786 as "exercise to improve bodily vigor."

Definition

- An educational environment where students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes (Reeves et al., (2010); World Health Organization, (2010); Interprofessional Education and Collaborative Expert Panel, 2023).
- Occasions when two or more professions learn with, from, and about each other to improve collaboration and the quality of care…Collaborating as a team with a shared purpose, goal, and mutual respect to deliver safe, quality healthcare (Freeth et al., 2005; WHO, 2010).
- Instances where learning with, for, or about two or more disciplines "takes place to improve collaboration and quality of care" (Willhaus, 2012, p.134).
- An initiative to secure learning and promote gains through interprofessional collaboration in professional practice (Freeth et al, 2008; Thistlethwaite & Moran, 2010).
- Interprofessional education and Interprofessional practice are more "contemporary terms describing a team effort in healthcare from two or more professions whose members learn about, from, and with each other to improve health outcomes" (Nester, 2016, p.128).

See also: INTERDISCPLINARY LEARNING

Interprofessionalism \ in-ter - \ prə-ˈfesh-nəl \ ˈi-zəm \ *noun*

Etym. professional (n.) "one who does it for a living," 1798, from professional (adj.). professional (adj.) 1747 of careers (especially of the skilled or learned trades from c. 1793). Related: profession.

Definition

- The effective integration of professionals through mutual respect, trust, and support, from various professions, who share a common purpose to mold their separate skills and knowledge into collective responsibility and awareness that can be achieved through learned processes for communication, problem solving, conflict resolution, and conduct.

J

Just-in-Time Simulation

\ jəst \ ˈin \ tīm \ sim-yuh-ley-shuh n \ *noun*

Etym. just (adv.) c. 1400, "precisely, exactly;" late 15c., "fittingly, snugly;" c. 1500, "immediately;" from just (adj.) and paralleling the adverbial use of French juste (also compare Dutch juist, German just, from the adjectives).

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A method of simulation-based training that is conducted directly before the learners need to perform the intervention. "Appropriate clinical information is given at the right time and place" (Monachino & Yanez, 2023 p. 513).
- A learning approach that meets the learner's needs during or just before it is needed to maximize an educational outcome (Barnes, 1998; Chueh, 1997).

L

Latent Error / Condition / Safety Threat

\ ˈlātnt \ ˈerər \ *noun*

Etym. latent (adj.) mid-15c., "concealed, secret," from Latin latentem (nominative latens) "lying hid, concealed, secret, unknown." Meaning "dormant, undeveloped" is from 1680s, originally in medicine.

Etym. error (n.) also, through 18c., errour; c. 1300, "a deviation from truth made through ignorance or inadvertence, a mistake." From late 14c. as "deviation from what is normal; abnormality, aberration."

Definition

- Latent errors (or latent conditions) refer to "less apparent failures of organization or design that contributed to the occurrence of errors or allowed them to cause harm to patients. For instance, whereas the active failure in a particular adverse event may have been a mistake in programming an intravenous pump, a latent error might be that the institution uses multiple different types of infusion pumps, making programming errors more likely. Thus, latent errors are quite literally 'accidents waiting to happen.' Latent errors are sometimes referred to as errors at the blunt end, referring to the many layers of the healthcare system that affect the person 'holding' the scalpel. Active failures, in contrast, are sometimes referred to as errors at the sharp end, or the personnel and parts of the healthcare system in direct contact with patients" (PSNet Glossary, 2024o, paragraph 1).
- "Simulation…can be used to evaluate system competence and identify latent conditions that predispose to medical error" (Patterson et al., 2013, p.468).

See also: TRAINING SCARS

Learning Goal \ ˈlər-niŋ \ ˈgōl \ *noun*

Etym. learning (n.) Old English leornung "study, action of acquiring knowledge," verbal noun from leornian (see learn). Meaning "knowledge acquired by systematic study, extensive literary and scientific culture" is from mid-14c. Learning curve attested by 1907.

Etym. goal (n.) 1530s,""end point of a race," of uncertain origin. It appears once before this (as gol), in a poem from early 14c. and with an apparent sense of "boundary, limit." Perhaps from Old English "gal"obstacle, barrier," a word implied by gælan "to hinder" and also found in compounds (singal, widgal).

Definition

- Broad, general statements of what is desired for students to learn, and provide direction, focus, and cohesion (Georgarakou, 2023).
- "Higher order ambitions for the learners" (Harvard University, n.d.).
- Desired outcomes of educational and training systems that answers the question: what skills, knowledge or attitudes should students have at their stage of educational or training development? (Gagne et al., 2005).

Compare: LEARNING OBJECTIVES; LEARNING OUTCOMES

Learning Objective \ ˈlər-niŋ \ əb-ˈjek-tiv \ *noun*

Etym. learning (n.) Old English leornung "study, action of acquiring knowledge," verbal noun from leornian (see learn). Meaning "knowledge acquired by systematic study, extensive literary and scientific culture" is from mid-14c. Learning curve attested by 1907.

Etym. objective (n.) 1738, "something objective to the mind," from objective (adj.). Meaning "goal, aim" (1881) is from the military term objective point (1852), reflecting a sense evolution in French.

Definition

- Specific behavioral outcomes that a group of learners will be helped to seek in a learning activity such as a course, a meeting [or a simulation] (Knowles, 1988).
- "Specific measurable steps to help you achieve your mission and set benchmarks for achievement" (Nicholas et al., 2020, p.172).
- "Expected goal of a curriculum, course, lesson, or activity in terms of demonstrable skills or knowledge that will be acquired by a student as a result of instruction" (Mustafa et al., 2022, p. 433).
- Guides the debrief activity by supporting what content should be covered or avoided (Szyld & Rudolph, 2014; Rudolph et al., 2014; Rudolph, 2007b).

Compare: LEARNING GOALS; LEARNING OUTCOME

Learning Outcome \ ˈlər-niŋ \ ˈau̇ t-ˌkəm \ *noun*

Etym. learning (n.) Old English leornung "study, action of acquiring knowledge," verbal noun from leornian (see learn). Meaning "knowledge acquired by systematic study, extensive literary and scientific culture" is from mid-14c. Learning curve attested by 1907.

Etym. outcome (n.)1788, "that which results from something," originally Scottish, from the verbal phrase; see out (adv.) + come (v.). Popularized in English by Carlyle (c. 1830s). It was used in Middle English in sense of "an emergence, act or fact of coming out" (c. 1200), and the gerund, outcoming, was used as "an issue, a result." Old English had utancumen (n.) "stranger, foreigner."

Definition

- A measurable change in knowledge, skills, and attitudes (KSAs) following the simulation experience (INACSL Standards Committee, Miller et al., 2021).
- "Measurable results of the participants' progress toward meeting a set of objectives" (INACSL Standards Committee, Molloy, et al., 2021, p. 61).
- Learning outcomes "measure the effects on learning: psychomotor, affective and cognitive skills" (Cant & Cooper, 2017, p. 69).

Compare: LEARNING GOALS; LEARNING OBJECTIVES

Live, virtual, and constructed (LVC) simulation \ ˈliv \ ‘vər-chə-wəl, -chəl; ˈvərch-wəl \ kən-ˈstrək-tiv \ noun

Etym. live 1540s, "having life," later (1610s) "burning, glowing," a shortening of alive. Meaning "in-person" (of performance) is first attested 1934.

Etym. virtual "being something in essence or effect, though not actually or in fact" from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. constructed early 15c., "derived by interpretation," from Middle French constructif or from Medieval Latin constructivus, from Latin construct-, past participle stem of construere "to heap up."

Definition

- A broadly used taxonomy describing a mixture of simulation modalities; "a live simulation involves real people operating real systems; a virtual simulation involves a real person operating simulated systems; and a constructed simulation does not involve real people or real systems but consists of computer programs that create an environment" (Sokolowski & Banks, 2011, pp. 19-20).

See also: MODELING AND SIMULATION

Logistics \ lō-ˈji-stiks \ *noun*

Etym. logistics (n.) "art of moving, quartering, and supplying troops," 1846, from French (l'art) logistique "(art) of quartering troops," which apparently is from Middle French logis "lodging" (from Old French logeiz "shelter for an army, encampment," from loge; see lodge (n.))
+ Greek-derived suffix -istique (see -istic). The form in French was influenced by logistique, from the Latin source of English logistic. Related: Logistical.

Definition

- "The careful organization of a complicated activity so that it happens in a successful and effective way" (Cambridge Dictionary, n.d.).
- In healthcare simulation, the technical aspects of center design, traffic flow, adequate space and storage, room usage, lighting, air handling, scheduling, and information technology assets (Horley, 2008).
- Ensuring the details, in simulation-based education, such as scheduling of learners, facilitators, moulage, props, scenario preparation, and design are all complete.

Low-Fidelity \ ˈlō \ fə-ˈde-lə-tē \ *adj*

Etym. fidelity (n.) early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence, trustiness," from fidelis "faithful, true, trusty, sincere," from fides "faith." From 1530s as "faithful adherence to truth or reality;" specifically of sound reproduction from 1878.

Definition

- Not needing to be controlled or programmed externally for the learner to participate (Palaganas et al., 2014); examples include case studies, role playing, or task trainers used to support students or professionals in learning a clinical situation or practice (National League for Nursing Simulation Innovation Resource Center, 2013).
- Informed by learning objectives, designed for specific task(s) and training stage (Munshi et al., 2015).
- Seek to replicate an assessment format based on real life experiences and are simple to engage with (i.e., text-based media) (Weekley et.al., 2015).

See also: FIDELITY

M

Male Urogenital Teaching Associates (MUTA)

\ māl \ yůr-ō-ˈje-nə-tᵊl \ ˈtēch ng \ ə-ˈsō- shē-ˌāt, -sē- \ noun

Etym. urogenital (adj.) 1838, from uro- + genital. Form urinogenital is attested from 1836.

Definition

- A Male Urogenital Teaching Associates (MUTA) is a person specifically trained to teach, assess, and provide feedback to learners about accurate male urogenital and rectal examination techniques. They also address the communication skills needed to provide a comfortable exam in a standardized manner, while using their bodies as teaching tools in a supportive, non-threatening environment (ASPE, n.d.).
- MUTAs instruct healthcare professional learners to perform accurate and respectful rectal, urogenital, and prostate examinations using their own body to instruct while providing real-time feedback (Hopkins et al., 2021, Introduction, Paragraph 1).

Compare: GENITOURINARY TEACHING ASSISTANT, GYNECOLOGICAL TEACHING ASSOCIATE

Manikin \ ma-ni-kən \ (also Mannequin) *noun*

Etym. 1560s, "jointed figure used by artists," from Dutch manneken, literally "little man," diminutive of Middle Dutch man.

Definition

- A "life-sized human like simulator representing a patient for healthcare simulation and education" (Slone et al., 2023, p 116).
- Full or partial body representation of a patient for a specific practice or procedure (Marion-Martins & Pinho, 2020).
- Full or partial body simulators that can have varying levels of physiologic function and fidelity (Seropian et al., 2004).

See also: SIMULATOR
Eds. note: in Grimm's Fairy Tales, manikin [and other translated spellings such as mannequin] have a demeaning connotation.

Manikin-based Simulation

\ ma-ni-kən \ bāst \ sim-yuh-ley- shuh n \ *noun*

Etym. manikin. 1560s, "jointed figure used by artists," from Dutch manneken, literally "little man," diminutive of Middle Dutch man.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- The use of manikins to represent a patient including heart and lung sounds, palpable pulses, voice interaction, movement (e.g., seizures, eye blinking), bleeding, and other human capabilities that may be controlled by a simulationist using computers and software.
- The life-like aspects of people and situations generated by a manikin (Diaz et al., 2020).
- Are designed for either manual input, physiologic modeling, or state-based modeling; or a mixture of these elements (Slone & Lampotang, 2023).

Mannequin \ ma-ni-kən \ (also Manikin) *noun*

Etym. mannequin 1902, "model to display clothes," from French mannequin. A French form of the same word that yielded manikin, and sometimes mannequin was used in English in a sense "artificial man" (especially in translations of Hugo). Originally of persons, in a sense where we might use "model."

See: MANIKIN
See also: SIMULATOR
Eds. note: in Grimm's Fairy Tales, manikin [and other translated spellings such as mannequin] have a demeaning connotation.

Manual Input \ ˈman-yə-wəl \ ˈin-ˌpu̇ t \ *noun*

Etym. manual (adj.) c. 1400, from Latin manualis "of or belonging to the hand; that can be thrown by hand," from manus "hand, strength, power over; armed force; handwriting."

Etym. input Middle English verb (late 14c.) meaning "to put in, place, set."

Definition

- "The method of operation in which an operator inputs a value to a given parameter regardless of how it would affect any other parameter. The input of the parameter does not adjust the variables in any physiological manner" (Slone et al., 2023, p 116).

Compare: PHYSIOLOGIC MODELING, PREPACKAGED SCENARIO, "RUNNING ON THE FLY," MANUAL MANIPULATION

Mastery Learning \ ˈmas-t(ə-)rē \ \ ˈlərn- iŋ \ *noun*

Etym. mastery (adj.) early 13c., mesterie, "condition of being a master," also "superiority, victory;" from Old French maistrie, from maistre "master" (n.). Meaning "intellectual command" (of a topic, etc.) is from 1660s.

Etym. learning (n.) Old English leornung "learning, study," from leornian.

Definition

- Mastery learning is a form of competency-based education that expects all learners to achieve all curriculum learning objectives to high performance standards. Mastery learning, grounded in the science of expertise, features deliberate practice, rigorous assessment, feedback, multiple learning opportunities, and psychological safety. Educational outcomes are uniform among learners, while the time needed to reach the outcomes may vary (McGaghie et al., 2020).
- "An instructional strategy that encourages students to learn at their own pace and master skills progressively. The strategy includes six key elements: (1) pre-assessment with pre-teaching, (2) high-quality initial instruction, (3) progress monitoring through formative assessments, (4) corrective instruction, (5) parallel formative assessment, and (6) enrichment or extension activities. …A cycle of feedback and corrective procedures that is repeated until mastery is achieved, at which point the student will move on to the next level" (Guskey, 2010).
- Mastery learning has been used to promote clinical skill and knowledge acquisition and skill maintenance in many clinical domains. The domains span invasive procedures such as laparoscopic surgery and colonoscopy; clinical reasoning during cardiac arrest and status epilepticus responses; central venous catheter maintenance and ultrasound guided IV insertion; managing urgent ventilator patient care needs and managing clinical uncertainty; and communication skills such as breaking bad news to patients and their families. Mastery learning outcomes have been demonstrated in simulated settings and as translational results to improved patient care practices, patient clinical outcomes, and public health effects (McGaghie et al., 2024).
- A competency-based educational strategy that highlights the capacity of all students to acquire the knowledge, skills, and attributes of mastery with consistent feedback and without constraints to time (McGaghie, 2022).
- An instructional philosophy that highlights individualized feedback and adequate time, allowing the learner to progress through the subject in a customized manner, generally in smaller units, to master the subject matter. This concept states that nearly all learners can achieve subject or skill mastery utilizing this method (Palaganas et al., 2014).

Compare: DELIBERATE PRACTICE

Mental Simulation \ ˈmen-tᵊl \ n sim-yuh-ley-shuh n \ *noun*

Etym. mental (adj.) early 15c., "in, of, or pertaining to the mind; characteristic of the intellect," from Late Latin mentalis "of the mind," from Latin mens (genitive mentis) "mind," from PIE root men- "to think."

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like". Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- Mentally rehearsing an action to enhance performance (Van Meer & Theunissen, 2009).
- "Cognitive rehearsal of a task in the absence of overt physical movement" (Driskell, 1994, p. 481) that "can be used to learn cognitive, kinesthetic, psychomotor, or technical skills" (Rao et al., 2015, p. 545).
- Activities that take place in the brain such as mental imagery, imagination, thought flow, narrative transportation, fantasizing, and counterfactual thinking. These are specific processes that occur in the brain when an individual is mentally simulating an action, forming a mental image, or are focused on the consequences of mental simulation processes for affect, cognition, motivation, and behavior (Markman et al., 2009).

Metaverse \ met-uh-vurs \. *noun*

Etym. meta (prefix.) word-forming element of Greek origin meaning 1. "after, behind; among, between," 2. "changed, altered," 3. "higher, beyond;" from Greek meta (prep.) "in the midst of; in common with; by means of; between; in pursuit or quest of; after, next after, behind," in compounds most often meaning "change" of place, condition, etc. This is from PIE *me- "in the middle" (source also of German mit, Gothic miþ, Old English mið "with, together with, among").

Etym. "verse" as short for universe (n.) 1580s, "the whole world, cosmos, the totality of existing things," from Old French univers (12c.), from Latin universum "all things, everybody, all people, the whole world," noun use of neuter of adjective universus "all together, all in one, whole, entire, relating to all," literally "turned into one," from unus "one" (from PIE root *oi-no- "one, unique") + versus, past participle of vertere "to turn, turn back, be turned; convert, transform, translate; be changed" (from PIE root *wer- (2) "to turn, bend")

Definition

- "The Metaverse is a universe in which the digital/virtual world and the real world are blended. It puts together – as seamlessly as possible – your social media, your virtual world, your real world, and your digital communities all in one arena" (Chang & Dolby, 2022, para. 2).
- The extension of reality in which reality merges with the virtual space. This extension goes beyond simply combining the real and virtual spaces and includes an interaction between the two (Kye et al., 2021).
- An artificial world that integrates real-world information through digital devices as well as wholly virtual environments that coexist. The Metaverse roadmap categorizes the Metaverse into 4 types: augmented reality, lifelogging, mirror world, and virtual reality (Kye et al., 2021).
- "A network of interconnected virtual worlds with the following key characteristics: Presence, Persistence, Immersion and Interoperability. Metaverse is the next iteration of the internet enabled by several converging technologies such as Extended Reality (XR), Artificial Intelligence (AI), Decentralized Ledger Technologies (DLTs), neuro-technologies, optics, bio-sensing technologies, robotics, improved computer graphics, hardware, and network capabilities" (X Reality Safety Intelligence [XRSI], 2024d, paragraph 1).

See also: AUGMENTED REALITY, VIRTUAL REALITY, MIXED REALITY, EXTENDED REALITY

Mixed Reality (MR) \ ˈmikst \ rē-ˈa-lə-tē \ *noun*

Etym. mixed (adj.) mid-15c., also mixte, "consisting of different elements or parts," from Latin mixtus, past participle of miscēre "to mix, mingle, blend."

Etym. reality (n.) 1540s, "quality of being real," from French réalité and directly Medieval Latin realitatem (nominative realitas), from Late Latin realis (see real (adj.)). Meaning "real existence, all that is real" is from 1640s; that of "the real state (of something)" is from 1680s.

Definition

- A category that encompasses the hybrid combination of virtual environments and reality to create a new environment (Hsieh & Lee, 2017).
- "a particular subset of Virtual Reality (VR) [and/or extended reality (XR)] related technologies that involve the merging of real and virtual worlds somewhere along the "virtuality continuum" which connects completely real environments to completely virtual ones" (Milgram & Kishino, 1994, p. 2). "Blend of what is physically present to what is 100% computer-generated" (Milgram & Kishino, 1994, p. 3).
- A simulator that "combines virtual and physical components and visualization software" (Robinson, 2014, p. 56).
- "Seamlessly blends the user's real-world environment with digitally-created content, where both environments can coexist and interact with each other. As the user interacts with the real and virtual objects, the virtual objects will reflect the changes in the environment as would any real object in the same space" (X Reality Safety Intelligence [XRSI], 2024e, paragraph 1).

See also: AUGMENTED REALITY, VIRTUAL REALITY, EXTENDED REALITY

Mixed Reality Human \ mikst \ rē-ˈa-lə-tē \ hyü-mən \ *noun*

Etym. mixed (adj.) mid-15c., also mixte, "consisting of different elements or parts," from Latin mixtus, past participle of miscēre "to mix, mingle, blend."

Etym. reality (n.) 1540s, "quality of being real," from French réalité and directly Medieval Latin realitatem (nominative realitas), from Late Latin realis. Meaning "real existence, all that is real" is from 1640s; that of "the real state (of something)" is from 1680s.

Definition

- "A virtual human embodied by a tangible interface that shares the same registered space" (Kotranza & Lok, 2008, p. 99).
- The use of haptic technology to afford touch-driven communication during interpersonal scenarios (Kotranza et al., 2009).

Mixed Simulation (Mixed Methods Simulation) \ mikst \ sim-yuh-ley-shuh n \ *noun*

Etym. mixed (adj.) mid-15c., also mixte, "consisting of different elements or parts," from Latin mixtus, past participle of miscēre "to mix, mingle, blend."

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. method (n.) early 15c., "regular, systematic treatment of disease," from Latin methodus "way of teaching or going," from Greek methodos "scientific inquiry, method of inquiry, investigation," originally "pursuit, a following after." Meaning "way of doing anything" is from 1580s; that of "orderliness, regularity" is from 1610s.

Definition

- The use of a variety of different simulation modalities; this is differentiated from hybrid simulation in that it is not characterized by the combining of one type of simulation to enhance another, but rather the use of multiple types of simulation in the same scenario or place. For example, a standardized patient (SP) and a mannequin are used in a scenario, or a task trainer paired with an SP for venipuncture, etc.

Compare: MULTIPLE MODALITY SIMULATION, HYBRID SIMULATION

Mobile Simulation / Mobile Simulator

\ˈmō-bəl \ sim-yuh-ley-shuh n \ *noun*

Etym. mobile (adj.) late 15c., from Middle French mobile (14c.), from Latin mobilis "movable, easy to move; loose, not firm," "pliable, flexible," contraction of *movibilis, from movere "to move."

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A simulator and/or simulation activity that can be transported relatively easily to an off-site or in-situ location (Gilbird et al., 2022).
- A method designed to help meet the demand of simulation programs by providing an alternate space for experiences to take place; off-site or in-situ (Gilbird et al., 2022).

See also: PORTABLE SIMULATOR

Modality \ mō-ˈda-lə-tē \ *noun*

Etym. modality 1610s, from Old French modalité or directly from Medieval Latin modalitatem (nominative modalitas) "a being modal," from modalis. 1560s, term in logic, from Middle French modal and directly from Medieval Latin modalis "of or pertaining to a mode," from Latin modus "measure, manner, mode."

Definition

- "The modality is the platform for the experience and includes simulated clinical immersion, in situ simulation, computer-assisted simulation, virtual reality, procedural simulation, and/or hybrid simulation. These modalities may incorporate, but are not limited to the following: standardized patients, manikins, haptic devices, avatars, partial task trainers, and so forth. …Build the simulation-based experience to align the modality with the objectives." (INACSL Standards Committee, Watts et. al., 2021).
- The approach used in a simulation experience, which is determined by the complexity and learning objectives of the activity (Tait et al., 2018).
- A selected type or types of simulation equipment or methodology used in a simulation experience. "The selection of an appropriate modality when planning a simulation activity depends on several factors, including the availability of equipment, stated objectives and desired learning outcomes" (Carey & Rossler, 2023, Introduction).
- A broad description of the simulation experience, consisting of one or more of the following educational tools: computer- or digital-based simulation, simulated Patient (SP), simulated clinical immersion, and procedural simulation (Chiniara et al., 2013).

See also: SIMULATED/SYNTHETIC LEARNING METHODS, TYPOLOGY

Model (as in Modeling and Simulation) \ mä-dəl \ *noun*

Etym. model Sense of "thing or person to be imitated" is 1630s.

Definition

- A representation of an object, concept, event, or system; models can be physical models, computational models, or theories of function (Sokolowski & Banks, 2011).

Modeling and Simulation (M&S)

\ˈmä-dəl – iŋ \ and \ sim-yuh-ley-shuh n \ *noun*

Etym model sense of "thing or person to be imitated" is 1630s.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- In healthcare, the representation of an object, concept or system that has been implemented in a temporal manner, usually in one of three forms: live, virtual, or constructive (Sokolowski & Banks, 2011).
- "The use of models, including emulators, prototypes, simulators, and stimulators, to develop data as a basis for making managerial or technical decisions" (Jain & McLean, 2011, p. 10).
- A method to build technical skills, recognize patterns, and problem solve to identify diagnoses and treatments (Bergeron & Greenes, 1988).
- "The terms modeling and simulation are often used interchangeably" (Jain & McLean, 2011, p. 10).

Monte Carlo Simulation

\ män-tē-ˈkär-(ˌ)lō \ sim-yuh-ley-shuh n \ *noun*

Etym. Monte Carlo a town in Monaco famous for its gambling casinos.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "A simulation in which random statistical sampling techniques are employed such that the result determines estimates for unknown values" (Department of Defense, 1998, p. 138).
- A mathematical model using probability distributions to calculate the possible outcomes for a given choice of action. Such a simulation involves many calculations and re-calculations to yield a range of possible outcomes (Harrison, 2010).

Moral Distress \ mawr-uhl \ dih-STRES\ *noun*

Etym. moral (adj.) mid-14c., "associated with or characterized by right behavior," also "associated with or concerning conduct or moral principles" (good or bad), from Old French moral (14c.) and directly from Latin moralis "proper behavior of a person in society."

Etym. distress (n.) late 13c., "circumstance that causes anxiety or hardship," from Old French destresse (Modern French détresse), from Vulgar Latin *districtia "restraint, affliction, narrowness, distress."

Definition

- "In healthcare, moral distress or moral injury occurs when a person knows the ethically appropriate action to take but is constrained from taking that action. The constraints can come from multiple external factors, but they can also come from institutional or organizational regulations that do not align with the person's moral principles, or when the person feels powerless to act on their moral beliefs" (PSNet Glossary, 2024q, paragraph 1).
- An experience and/or dilemma that can be potentially recreated, either deliberately or inadvertently, in a simulation activity. Simulation activities can be used to "understand and mitigate the effects of moral distress on healthcare workers" (Sivanathan et al., 2022).

Eds. Note: If promoting moral distress is deliberate, the simulation activity should be carefully constructed to support psychologically safety for participants.

Moulage \ mü-ˈläzh \ *noun*

Etym. moulage (n.) From the French: casting/moulding.

Definition

- The makeup and molds applied to humans or manikins used to portray lesions, skin findings, bleeding, and traumatized areas (Levine et al., 2013).
- The application of makeup and molds to a human or simulator's limbs, chest, head, etc. to provide elements of realism (such as blood, vomitus, open fractures, etc.) to the training simulation (Smith-Stoner, 2011).
- Techniques used to simulate injury, disease, aging, and other physical characteristics specific to a scenario (Merica, 2011).
- 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 (INACSL Standards Committee, Molloy et al., 2021, p. 61)
- The practice of special effects makeup in simulation to illustrate and corroborate a patient's history and physical exam by providing visual and tactile cues (Felix & Simon, 2022).

Multidisciplinary \ mʌltɪ \ di-sə-plə-ˌner-ē \ *noun*

Etym. discipline (n.) directly from Latin disciplina "instruction given, teaching, learning, knowledge," also "object of instruction, knowledge, science, military discipline," from discipulus. The Latin word is glossed in Old English by þeodscipe. Meaning "branch of instruction or education" is first recorded late 14c. Meaning "military training" is from late 15c.; that of "orderly conduct as a result of training" is from c. 1500.

Definition

- Including professionals from different professions into the same interactive, educational experience (Barr & Coyle, 2013).
- "When two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (WHO, 2010, p. 13).
- A team of professionals with a wide variety of healthcare backgrounds who train, practice, and work collaboratively together (Mohammed et al., 2021).

Compare: MULTIPROFESSIONAL, INTERPROFESSIONAL
See also: INTERDISCIPLINARY

Multiple Modality (Multi-modal) Simulation \ mʌltɪpl \ moʊˈdæləti \ sim-yuh-ley-shuh n \ *noun*

Etym. modality. 1610s, from Old French modalité or directly from Medieval Latin modalitatem (nominative modalitas) "a being modal," from modalis. 1560s, term in logic, from Middle French modal and directly from Medieval Latin modalis "of or pertaining to a mode," from Latin modus "measure, manner, mode."

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- The use of multiple modalities of simulation in the same simulation activity; the use of multiple types of simulation in the same scenario or place, e.g., standardized patient and manikin used in a scenario. or a task trainer paired with an SP for venipuncture, etc. Differentiated from hybrid simulation that combines of one type of simulation to enhance another (Errichetti, 2018).

Compare: HYBRID

N

Negative Learning \ ˈne-gə-tiv \ ˈlər-niŋ \ *noun*

Etym. negative (adj.) c. 1400, negatif, "expressing denial" (a sense now rare or obsolete), from Anglo-French negatif(early 14c.), Old French negatif (13c.) and directly from Latin negativus "that which denies," from negat-, past-participle stem of negare "deny, say no" (see deny).

Etym. learning (adj.) Old English leornung "study, action of acquiring knowledge," verbal noun from leornian (see learn). Meaning "knowledge acquired by systematic study, extensive literary and scientific culture" is from mid-14c. Learning curve attested by 1907.

Definition

- "Occurs in higher education when students, for instance, use academically unwarranted, unvalidated information or draw false conclusions while developing domain-specific knowledge" (Zlatkin-Troitschanskaia & Brückner, 2017, p.288).
- When "undesirable learning outcomes occur" (Dormann et al., 2018, p. 316).

Compare: TRAINING SCARS

Never Event \ ˈne-vər \ i-ˈvent \ *noun*

Etym. never (adv.) "Middle English never, from Old English næfre "not ever, at no time," a compound of ne "not, no" (from PIE root ne- "not") + æfre "ever". Early used as an emphatic form of not (as still in never mind). Old English, unlike its modern descendant, had the useful custom of attaching ne to words to create their negatives, as in nabban for na habban "not to have." "Italian giammai, French jamais, Spanish jamas are from Latin iam "already" + magis "more;" thus literally "at any time, ever," originally with a negative, but this has been so thoroughly absorbed in sense as to be formally omitted."

Etym. event (n.) "1570s, "the consequence of anything" (as in in the event that); 1580s, "that which happens;" from Middle French event, from Latin eventus "occurrence, accident, event, fortune, fate, lot, issue," from past participle stem of evenire "to come out, happen, result," from assimilated form of ex- "out" (see ex-) + venire "to come," from a suffixed form of PIE root gwa- "to go, come." "Meaning "a contest or single proceeding in a public sport" is from 1865. Events as "the course of events" is attested from 1842.

Definition

- "A serious and costly" error "in the provision of healthcare services that should never happen" (Centers for Medicare & Medicaid Services [CMS], 2006); for example, wrong site surgery (Agency for Healthcare Research and Quality [AHRQ], 2019; CMS, 2006).
- Adverse events that are unambiguous (clearly identifiable and measurable), serious (resulting in death or significant disability), and usually preventable (AHRQ, 2019).
- In relation to simulation-based education, avoidance of such errors is the basis for training and/or assessment.

See also: ADVERSE EVENT, ERROR, NEAR MISS

Non-technical Skills (NTS) \ non \ ˈtek-ni-kəl \ skilz \ *noun*

Etym. techno word-forming element meaning "art, craft, skill," later "technical, technology," from Latinized form of Greek tekhno-, combining form of tekhne "art, skill, craft in work; method, system, an art, a system or method of making or doing."

Etym. skill (n.) late 12c., "power of discernment," from Old Norse skil "distinction, ability to make out, discernment, adjustment," related to skilja (v.) "to separate; discern, understand," from Proto-Germanic *skaljo. Sense of "ability, cleverness" first recorded early 13c.

Definition

- "a set of generic cognitive and social skills, exhibited by individuals and teams, that support technical skills when performing complex tasks. Typical NTS training topics include performance shaping factors, planning and preparation for complex tasks, situation awareness, perception of risk, decision-making, communication, teamwork and leadership. NTS can be defined as a constellation of cognitive and social skills, exhibited by individuals and teams, needed to reduce error and improve human performance in complex systems. NTS have been described as generic 'life-skills' that can be applied across all technical domains" (Prineas et. al., 2020, Chapter 30).
- In the healthcare field, the skills of communication (e.g., between patient, provider, and team) leadership, teamwork, situational awareness, decision-making, resource management, safe practice, adverse event minimization/mitigation, and professionalism; also known as behavioral skills or teamwork skills.

- Non-technical skills are the cognitive (decision-making, situation awareness) and interpersonal (communication, teamwork, leadership) skills that underpin technical proficiency, and are considered particularly important for preventing errors. They include communication, leadership and followership, decision-making, situation awareness, and task- management (Pires et al., 2017).
- "Non-technical skills are the cognitive, social and personal resource skills that complement technical skills, and contribute to safe and efficient task performance" (Flin et al., 2008, p. 1).
- "Behavioural aspects of performance… which are not related directly to medical expertise, use of equipment or drugs. These include the cognitive and social skills which underpin clinical and technical skills…" (Yule & Paterson-Brown., 2006, p. 1098). Example: a nurse's NTSs in actively listening to a patient's concerns, recognizing signs of deterioration, and coordinating with the medical team can be just as important as their technical nursing skills in administering medications or performing clinical procedures.
- Interpersonal skills that include communication skills, leadership skills, teamwork skills, decision-making skills, and situation-awareness skills (Australian Radiation Protection and Nuclear Safety Agency, 2017).
- Social, cognitive, and personal skills that can enhance the way you or your staff carry out technical skills, tasks, and procedures. By developing these skills, people in safety-critical roles can learn how to deal with a range of different situations (Rail Safety and Standards Board, 2019).

See also: BEHAVIORAL SKILLS

O

Objective Structured Clinical Examination (OSCE)

\ əb-ˈjek-tiv \ strək-chərd \ kli-ni-kəl \ ig-ˌza-mə-ˈnā-shən \ *noun*

Etym. objective (n.) 1738, "something objective to the mind," from objective (adj.). Meaning "goal, aim" (1881) is from military term objective point (1852), reflecting a sense evolution in French.

Etym. structured (adj.) 1810, past-participle adjective from structure (v.). Meaning "organized so as to produce results" is from 1959.

Etym. clinical (adj.) 1780, "pertaining to hospital patients or hospital care," from clinic + -al.

Etym. examination (n.) late 14c., "action of testing or judging; judicial inquiry," from Old French examinacion, from Latin examinationem (nominative examinatio), noun of action from past-participle stem of examinare "to weigh; to ponder, consider" (see examine). Sense of "test of knowledge" is attested from the 1610s.

Definition

- A station or series of stations designed to assess performance competency in individual clinical or other professional skills. Learners are evaluated via direct observation, checklists, learner presentation, or written follow-up exercises. The examinations may be formative and offer feedback or summative and be used for making high-stakes educational decisions (Lewis et al., 2017).
- "An approach to the assessment of clinical or professional competence in which the components of competence are assessed in a planned or structured way with attention being paid to the objectivity of the examination" (Harden, 1988, p. 19).
- OSCEs incorporate objective, structured examinations of student actions in simulated clinical situations (Raurell-Torredà et al., 2018).

Online Simulation \ on-lahyn \ sim-yuh-ley-shuh n \ *noun*

Etym. online (adj.) also on-line, in reference to computers, "directly connected to a peripheral device," 1950; see on+ line (n.).

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- Interactive simulation experience offered through an online platform that connects participants with other learners in a virtual world to complete assessment, diagnosis, and treatment tasks for virtual patients (Dikshit et al., 2005; Duff et al., 2016).
- Online, often multiplayer, simulation exercises involving care for a single patient or multiple patients. Often utilizes gamification concepts to engage and incentivize learners (Evans et al., 2015; Kusumoto et al., 2007).

See also: VIRTUAL SIMULATION

Operation Specialist

\ op-uh-rey-shuh nz \ spesh-uh-list \ *noun*

Etym. operation (n.) late 14c.,"action, performance, work," also "the performance of some science or art," from Old French operacion "operation, working, proceedings," from Latin operationem (nominative operatio) "a working, operation," from past participle stem of operari "to work, labor." Military sense of "series of movements and acts" is from 1749.

Etym. specialty (n.) From early 15c. as unusual, or extraordinary thing; specialized branch of learning; peculiar quality, distinctive characteristic.

Definition

- An individual whose primary role is the implementation and delivery of a simulation activity through the application of simulation technologies such as computers, audio-visual (AV), or networking technologies.
- Simulation team member who "provides expertise in the logistics and operational planning, delivery, and evaluation of simulation-based education" (Cavanaugh et al., 2022, p. 810). For examplem, the operations specialist for the healthcare simulation center could be responsible for overseeing the day-to-day logistics and technical support required to run high-fidelity simulation training sessions for medical students and residents.
- An inclusive "umbrella" term that embodies many different roles within healthcare simulation operations, including simulation technician, simulation technology specialist, simulation specialist, simulation coordinator, and simulation AV specialist. While many of these individuals also design simulation activities, this term refers to the functional role related to the implementation of the simulation activities (Society for Simulation in Healthcare Certification, 2014).

See also: SIMULATIONIST, SIMULATION TECHNOLOGY SPECIALIST

Orientation \ ȯr-ē-ən-ˈtā-shən,-ˌen- \ *noun*

Etym. orientation (n.) 1839, originally "arrangement of a building, etc., to face east or any other specified direction," noun of action from orient (v.). Sense of "action of determining one's bearings" is from 1868. Meaning "introduction to a situation" is from 1942.

Definition

- A "crucial step in preparing learners for a successful healthcare simulation experience, which involves the following: 1) Providing information about the use of recording equipment and observations by peers, faculty, facilitators, staff, health professionals, and administrators. 2) Reviewing the evaluation methods 3) Explaining all factors of the simulation, including objectives, scenario, equipment, manikins or other technology, embedded personnel, setting, and other environmental factors. Simulationists may choose not to disclose specific performance measures or critical actions". (INACSL Standards Committee, McDermott et al., 2021, p.12).
- The process of giving participants information prior to a simulation event to familiarize them with a simulation activity or environment, such as center rules, timing, and how the simulation modalities work, with the intent of preparing the participants.
- An activity that occurs prior to a simulation activity to prepare the faculty/instructors or learners; for example, a slide presentation that all participants must review to understand how the center operates, or how the activity is being conducted.

See also: BRIEF/BRIEFING, PREBRIEF/PREBRIEFING, PREPARATION
Eds. Note: the terms Briefing, Orientation, Prebriefing, and Preparation are often used interchangeably.

P

Participant \ pahr-tis-uh-puh nt \ *noun*

Etym. participant 1560s, from Middle French participant, from Latin participantem (nominative participans), present participle of participare "to share in, partake of" from particeps "sharing, partaking."

Definition

- "One who engages in a simulation-based activity for the purpose of gaining or demonstrating mastery of KSA [knowledge, skills, attitudes] of professional practice" (INACSL Standards Committee, 2016a, p. S43).
- A person engaged in a simulation activity or event and for those involved in simulation research.

Patient Simulator \ pey-shuh nt \ sim-yuh-ley-ter \ *noun*

Etym. patient (n.) "suffering or sick person under medical treatment," late 14c.

Etym. simulator (n.) 1835, of persons, from Latin simulator "a copier, feigner," agent noun from simulare "imitate," from stem of similis "like". In reference to training devices for complex systems, from 1947 (flight simulator). simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966 (agent noun simulator in the related sense dates from 1947. In commercial jargon, "artificial, imitation" by 1942.

Definition

- A "life-like, anatomically correct, computer driven mannequin with physiologic responses that mimic real patients" (Ober, 2009, p.vi).
- A "device that enables the operator to reproduce or represent under test conditions phenomena likely to occur in actual performance" (Al-Elq, 2010, p. 36).
- High- or low-fidelity full-body manikins controlled by instructors to create a structured learning environment in a clinically realistic setting where learning can take precedence over patient care (Good, 2003).

See also: MANIKIN, SIMULATOR
Eds. note: while these definitions are manikin/mannequin-oriented, the reader should consider other simulators as meeting the concepts of these definitions.

Physical Examination Teaching Associate (PETA or PTA)

\ ˈfi-zi-kəl \ ig-ˌza-mə-ˈnā-shən \ ˈtē-chiŋ \ ə-ˈsō-shē-ˌāt-sē- \ *noun*

Etym. physical (n.) (adj.) n. " 'physical examination,' by 1934, from physical (adj.)." adj. early 15c., "of or pertaining to material nature" (in medicine, opposed to surgical), from Medieval Latin physicalis "of nature, natural," from Latin physica "study of nature" (see physic). Meaning "pertaining to matter" is from 1590s; meaning "having to do with the body, corporeal" is attested from 1780. Meaning "characterized by bodily attributes or activities" is attested from 1970. Related: Physically.

Etym. examination (n.) late 14c., "action of testing or judging; judicial inquiry," from Old French examinacion, from Latin examinationem (nominative examinatio), noun of action from past-participle stem of examinare "to weigh; to ponder, consider" (see examine).

Etym. teaching (n.) "Old English tecunge "act of teaching," verbal noun from teach (v.). As "that which is taught" from c. 1300."

Etym. associate (n.) associate "1530s, "a partner in interest or business," from associate (adj.). Meaning "one admitted to a subordinate degree of membership" is from 1812."

Definition

- Standardized patients who are specifically trained to teach, assess, and provide feedback to learners about physical examination techniques. They can also address the communication skills needed.
- PETAs provide a comfortable exam in a standardized manner, while using their bodies to instruct in a supportive, non-threatening environment (Lewis et al., 2017).
- An individual who is trained to teach and provide feedback on basic physical exam techniques and process; serves as a coach and model (as the instructor and patient) (Johns Hopkins University, 2019).
- "Faculty extenders" used to teach students physical exam maneuvers according to accepted physical exam guidelines and often act as primary evaluators for the physical exam component in summative clinical exams (Konzelmann et al., 2022).
- The person may also serve in the role as evaluator and is considered under the larger category of simulated participants (Lewis et al., 2017).
- Also referred to at some institutions as PTA (Physical Training Assistants) or PI (Patient Instructors) (East Carolina University, 2019).

Physical Fidelity \ ˈfi-zi-kəl \ fə-ˈde-lə-tē, fī- \ *noun*

Etym. physical early 15c., "of or pertaining to material nature" (in medicine, opposed to surgical), from Medieval Latin physicalis "of nature, natural," from Latin physica "study of nature" (see physic). Meaning "pertaining to matter" is from 1590s; meaning "having to do with the body, corporeal" is attested from 1780. Meaning "characterized by bodily attributes or activities" is attested from 1970. Physical education first recorded 1838; abbreviated form phys ed is from 1955. Physical therapy is from 1922. Related: Physically.

Etym. fidelity early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence, trustiness," from fidelis "faithful, true, trusty, sincere," from fides "faith" (see faith). From 1530s as "faithful adherence to truth or reality;" specifically of sound reproduction from 1878.

Definition

- "…that which can be perceived by the senses." A concept "concerned with what the participant sees, hears, feels, and smells in the setting. …For example, adding appropriate background noises to a setting increases the physical fidelity and provides stimuli that raise stress levels in the participant, enhancing the psychological fidelity" (Carey & Rossler, 2023, Curricular Development).
- The "degree to which the simulator duplicates the appearance and feel of the real system" and "encompasses a number of dimensions such as visual, auditory, vestibular, olfactory, proprioceptic, etc." (Alexander et al., 2005, p. 5).

See also: ENVIRONMENTAL FIDELITY, FIDELITY, REALISM
Compare: PSYCHOLOGICAL FIDELITY, FUNCTIONAL FIDELITY, CONCEPTUAL FIDELITY

Physiologic Modeling \ fiz-ee-uh-loj-i-k \ mod-l-ing \ *noun*

Etym. physiology (n.) 1560s, "study and description of natural objects," from Middle French physiologie or directly from Latin physiologia "natural science, study of nature," from Greek physiologia "natural science, inquiry into nature," from physio- "nature" + logia "study." Meaning "science of the normal function of living things" is attested from 1610s. Related: Physiologic; physiologist.

Etym. model. Sense of "thing or person to be imitated" is 1630s.

Definition

- The mathematical computer models governing complex human physiology in a simulated patient case so that reasonable responses occur automatically to events inputted into the program. For example: a pharmacodynamic model could predict effects of drugs on heart rate, cardiac output, or blood pressure and display them on a simulated clinical monitor.
- A "mathematical model based on physiological principles that automatically adjusts other variables in a physiologic manner when one parameter is changed. A computer model that allows for a method of operation in which an operator inputs a value to a given parameter, and it automatically adjusts the other variables in a physiologically realistic manner" (Slone et al., 2023, p .117).

Compare: MANUAL INPUT, PREPACKAGED SCENARIO, "RUNNING ON THE FLY"

Pilot Test \ ˈpī-lət \ ‘test \ *verb*

Etym. pilot (v.) 1640s, "to guide, lead;" 1690s, "to conduct as a pilot," from pilot (n.) or from French piloter.

Etym. test (v.) 1748, "to examine the correctness of," from test (n.), on the notion of "put to the proof." Earlier "assay gold or silver" in a test (c. 1600). Meaning "to administer a test" is from 1939; sense of "undergo a test" is from 1934.

Definition

- A small-scale, short-term effort designed to provide data about the feasibility of a simulation prior to large-scale implementation.
- Trial of simulation operations, scenarios, procedures, and teaching methods on a smaller scale to determine acceptability, identify feasibility concerns, and refine processes prior to full implementation.
- A phase that includes review of the scenario to gain clarification from experts and participants.
- Explores the feasibility of the proposed application pertaining to such things as: recruitment, methods, and procedures (Leon et al., 2011).
- An assessment of the feasibility and acceptability of the proposed design and procedure (Feeley et al., 2009).

See also: ALPHA and BETA TESTING, DRY RUN, DRESS REHEARSAL, RUN THROUGH, SIMULATION VALIDATION, WALK THROUGH

Portable Simulator \ pawr-tuh-buh l \ sim-yuh-ley-ter \ *noun*

Etym. portable (adj.) Early 15c., from French portable "that can be carried," from Late Latin portabilis "that can be carried," from Latin portare "to carry." Related: Portability.

Etym. simulator (n.) 1835, of persons, from Latin simulator "a copier, feigner," agent noun from simulare "imitate," from stem of similis "like." In reference to training devices for complex systems, from 1947 (flight simulator); simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966 (agent noun simulator in the related sense dates from 1947). In commercial jargon, "artificial, imitation" by 1942.

Definition

- A simulator that has the capabilities of being moved and may also be able to operate independently of tethers such as power cords or communication cables.

See also: MOBILE SIMULATOR

Prebrief (Prebriefing) \ priˈbrēf \ *noun* (\priˈbrē-fiŋ \ *verb*)

Etym. brief "fact or situation of giving preliminary instructions," 1910 (but popularized by World War II pre-flight conferences).

Definition

- "Prepares learners for a successful simulation and an optimal learning experience…creating a safe environment at the start of the simulation (a) sets the tone for the entire simulation experience, (b) reduces insecurity and assists learners to feel comfortable with risk-taking and making mistakes, and (c) averts defensive behaviors. …facilitates the rapport between the facilitator and learner and contributes to a conductive learning environment during debriefing. …Should establish simulation ground rules that inform all learners of the mutual expectations of the learning experience." (Rutherford-Hemming et al., 2019, p. 409).
- "Essential overarching elements of prebriefing should include: 1) setting the scene, 2) expectations, 3) debriefing, 4) simulation scenario, 5) simulation room orientation and 6) preparation time" (Rutherford-Hemming et al., 2019, p. 411).
- Role of prebriefing, or presimulation briefing, is to attend to the psychological safety of learners (Rudolph et al., 2006, 2014).
- "An information or orientation session immediately prior to the start of a SBE in which instructions or preparatory in- formation is given to the participants" (INACSL Standards Committee, Molloy et al., p. 61).
- The purpose of the prebriefing is to set the stage for a scenario and assist participants in achieving scenario objectives.
- The collaboration and planning of co-facilitators/co-debriefers prior to the simulation activity.

See also: BACK STORY, BRIEF/BRIEFING, ORIENTATION, PREPARATION
Eds. Note: The terms Briefing, Orientation, Prebriefing, and Preparation are often used interchangeably.

Prepackaged / Preprogrammed Scenario
\ pree - pak- ijd \ si-nair-ee-oh \ *noun*

Etym. scenario (n.) 1868, "sketch of the plot of a play," from Italian scenario, from Late Latin scenarius "of stage scenes," from Latin scena "scene." Meaning "imagined situation" is first recorded 1960, in reference to hypothetical nuclear wars.

Definition

- A method of operation in which the simulator is programmed to be in one state and to respond to an input and transition to another state based on a script or algorithm.
- "State-based modeling used to create a uniform response of the simulator to the student's actions…with the ability to realistically mimic an actual patient" (Slone et al., 2023, p. 121).
- A scenario where a script will assign initial values (such as heart rate, blood pressure, emotional state, or concern) at the start of the scenario that will require specific actions by the participant or certain time frames, for the scenario to transition to the next state (Palaganas et al., 2014).

Compare: MANUAL INPUT, PHYSIOLOGIC MODELING, "RUNNING ON THE FLY"

Preparation \ ˌprepəˈrāSH(ə)n \ *noun*

Etym. preparation late 14c., preparacioun, "act of preparing or making ready, preliminary act or operation, a previous setting in order," from Old French preparacion (13c.) and directly from Latin praeparationem (nominative praeparatio) "a making ready," noun of action from past participle stem of praeparare "prepare," from prae "before" (see pre-) + parare "make ready" (from PIE root pere- (1) "to produce, procure"). Meaning "a substance especially prepared or manufactured" is from 1640s.

Definition

- An activity immediately preceding the start of a simulation activity where the participants receive essential information. Preparation materials "support understanding of the concepts and content related to the simulation-based experience" and may incorporate "assigned readings or audiovisual materials, concept mapping," among other instructions, or guidelines. For example, before beginning a session, faculty conduct a briefing about the scenario to review the information being provided to the participants. (INACSL Standards Committee, McDermott, et al., 2021, p. 11)

See also: BACK STORY, BRIEF/BRIEFING, ORIENTATION, PREBRIEFING
Eds. Note: the terms Briefing, Orientation, Prebriefing, and Preparation are often used interchangeably.

Procedural Simulation
\ pruh-see-jer-uh l \ sim-yuh-ley-shuh n \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "Training method that incorporates cognitive knowledge and technical skill into a precise sequence of actions that are both safe and efficient. Example: The pharmacists are using augmented reality technology to create a procedural simulation of cleaning a sterile flow hood" (Jogerst & Phitayakorn, 2022, p. 269).
- The use of a simulation modality (for example, 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 (Meakim et al., 2013).
- A simulation that incorporates cognitive knowledge and technical skill into a precise sequence of actions that are safe and efficient, targeting any level of learner (Palaganas et al., 2014).

Compare: PROCESS-ORIENTED SIMULATION

Process-Oriented Simulation

\ pros-es \ awr-ee-uh nt-id \ sim-yuh-ley-shuh n \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "A tool in the evaluation of the safety of new healthcare teams and new facilities, proactively identifying latent threats before delivering patient care" (Lie et al., 2020, p. 232).
- "A simulation in which the process is considered more important than the outcome" (Department of Defense, 1998, p.147).
- In healthcare, the use of simulation to examine the process of care rather than the outcome of care. For example: using simulation to re-create an emergency in a patient area to see what latent safety threats exist, such as poor availability of patient equipment, inadequate emergency call buttons, or unsafe obstacles.

Compare: PROCEDURAL SIMULATION

Prompt \ präm(p)t \ *noun*

Etym. prompt (n.) mid-14c., prompten, from Latin promptus, past participle of promere "to bring forth," from pro "forward" (from PIE root per- (1) "forward") + emere "to take" (from PIE root em- "to take, distribute"). Theatrical sense of "to assist a speaker with lines" is first recorded early 15c. Related: Prompted; prompting.

Definition

- (noun) A cue given to a participant in a scenario (Meakim et al., 2013).
- (noun) Something serving to suggest or remind (Dictionary.com, 2024).
- (verb) To supply (an actor, singer, etc.) from offstage with a missed cue or forgotten line (Dictionary.com, 2024).
- (verb) To assist (a person speaking) by suggesting something to be said (Dictionary.com, 2024).

Compare: COACHING, CUE/CUEING

Prop \ prop \ *noun*

Etym. prop (n.) "object used in a play," 1898, from props (1841), shortened form of properties (which was in theatrical use from early 15c.).

Definition

- In simulation, an element or accessory used in a scenario to enhance realism, or to provide a cue to learners.
- A physical object used as an interface to a virtual world; a prop may be embodied by a virtual object and might have physical controllers mounted on it (Australian Department of Defense, 2017).

Psychological Fidelity

\ sahy-kuh-loj-i-kuh l \ fə-ˈde-lə-tē \ *noun*

Etym. psychology (n.) 1650s, "study of the soul," from Modern Latin psychologia, probably coined mid-16c. in Germany by Melanchthon from Latinized form of Greek psykhe- "breath, spirit, soul" + logia "study of." Meaning "study of the mind" first recorded 1748, from Christian Wolff's "Psychologia empirica" (1732); main modern behavioral sense is from early 1890s.

Etym. fidelity (n.) early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence, trustiness," from fidelis "faithful, true, trusty, sincere," from fides "faith." From 1530s as "faithful adherence to truth or reality;" specifically of sound reproduction from 1878.

Definition

- The extent to which the simulated environment evokes the underlying psychological processes necessary in the real-world setting (Dieckmann & Rall, 2008).
- The degree of perceived realism, including psychological factors such as emotions, beliefs, and self-awareness of participants in simulation scenarios (Dieckmann & Rall, 2008).
- A level of realism associated with a particular simulation activity.

See also: FIDELITY, REALISM

Psychological Risk \ sahy-kuh-loj-i-kuh l \ ‘risk \ *noun*

Etym. psychological (adj.) "1680s; see psychology + -ical. Related: Psychologically, Psychological warfare recorded from 1940. Psychological moment was in vogue from 1871, from French moment psychologique "moment of immediate expectation of something about to happen." "The original German phrase, misinterpreted by the French & imported together with its false sense into English, meant the psychic factor, the mental effect, the influence exerted by a state of mind, & not a point of time at all, das Moment in German corresponding to our momentum, not our moment. [Fowler]."

Etym. risk (n.) "1660s, risque, from French risque (16c.), from Italian risco, riscio (modern rischio), from riscare "run into danger," of uncertain origin. The Englished spelling first recorded 1728. Spanish riesgo and German Risiko are Italian loan-words. With run (v.) from 1660s. Risk aversion is recorded from 1942; risk factor from 1906; risk management from 1963; risk taker from 1892."

Definition

- "A perceived or actual feeling of mental threat as a result of participation in a simulation which can mean feeling unsafe. Examples include feelings of shame or humiliation" (Picketts et al., 2021, p. 591).

Compare: PSYCHOLOGICAL SAFETY

Psychological Safety \ sahy-kuh-loj-i-kuh l \ seyf-tee \ *noun*

Etym. psychology (n.) 1650s, "study of the soul," from Modern Latin psychologia, probably coined mid-16c. in Germany by Melanchthon from Latinized form of Greek psykhe- "breath, spirit, soul" + logia "study of." Meaning "study of the mind" first recorded 1748, from Christian Wolff's "Psychologia empirica" (1732); main modern behavioral sense is from early 1890s.

Etym. safety (n.) early 14c., from Old French sauvete "safety, safeguard; salvation; security, surety," earlier salvetet (11c., Modern French sauveté), from Medieval Latin salvitatem (nominative salvitas) "safety," from Latin salvus.

Definition

- A feeling (explicit or implicit) within a simulation-based activity that participants are comfortable participating, speaking up, sharing thoughts, and asking for help as needed without concern for retribution or embarrassment.
- "Psychologically safe environments allow individuals to be their authentic selves, improve individuals' well-being, and reduce work-related stress, leading to increased engagement and learning. Psychological safety required that deliberate efforts are made to reduce the professional hierarchy often observed in healthcare teams and clinical education" (Hardie et al., 2022, p. 2).
- There are "four stages of psychological safety; 1) feel included; inclusion safety, (2) feel safe to learn; learner safety, (3) feel safe to contribute; contributor safety and (4) feel safe to challenge the status quo; challenger safety. Facilitators should provide learner safety in asking questions, giving, and receiving feedback, experimenting, and making mistakes when learning (Clark, 2020).
- The perception of members of the team that the team is safe for risk taking, and mistakes will be considered learning opportunities rather than there being embarrassment or punitive consequences (Higgins et al., 2012).
- When leadership and interpersonal climate support candor, humility, learning from error, and an appreciation of input from everyone on the team, psychological safety can occur. …"shared belief that the team is safe for interpersonal risk-taking" (Edmondson, 1999. p. 352)

See also: SAFE LEARNING ENVIRONMENT, SIMULATION ENVIRONMENT
Compare: PSYCHOLOGICAL RISK

R

Realism \ rēəˌlizəm \ *noun*

Etym. realism (n.) 1794, from real (adj.) + -ism; after French réalisme or German Realismus; from Late Latin realis "real." Meaning "close resemblance to the scene" (in art, literature, etc., often with reference to unpleasant details) is attested from 1856.

Definition

- The ability to impart the suspension of disbelief to the learner by creating an environment that mimics that of the learner's work environment; realism includes the environment, simulated patient, and activities of the educators, assessors, and/or facilitators.
- A statement about the similarity of something (a 'copy') to something else (the 'original') (Dieckman et al., 2007a).
- The quality or fact of representing a person, thing, or situation accurately in a way true to life; this enables participants to act "as if" the situation or problem was real.
- Refers to the physical characteristics of the activity, semantical aspects of the activity (theories and conceptual relations – if A happens then B occurs), and/or the phenomenal aspects of the activity (emotions, beliefs, and thoughts experienced).

See also: FIDELITY, FUNCTIONAL FIDELITY, HIGH FIDELITY, SIMULATION, HIGH FIDELITY SIMULATOR, IMMERSIVE SIMULATION, PHYSICAL FIDELITY, PSYCHOLOGICAL FIDELITY, SIMULATION FIDELITY

Eds. note: this term often used synonymously with fidelity but not all agree that these are the same.

Reflective Pause \ rəˈflektiv \ pôz \ *noun*

Etym. reflective (adj.) 1620s, "throwing back rays or images, giving reflections of objects, reflecting," from reflect + -ive. From 1670s as "of or pertaining to (mental) reflection, taking cognizance of the operations of the mind." By 1820 as "having a tendency to or characterized by (mental) reflection, meditative, thoughtful." Related: Reflectively; reflectiveness.

Etym. pause (n.) early 15c., "a delay, a temporary rest in singing or speaking," from Old French pausee "a pause, interruption" (14c.) and directly from Latin pausa "a halt, stop, cessation," from Greek pausis "stopping, ceasing," from pauein "to stop (trans.), hold back, arrest, to cause to cease," a word of uncertain etymology with no certain cognates outside Greek [Beekes]. Later also "a hesitation proceeding from doubt or uncertainty;" hence to give (one) pause "cause to stop or hesitate" (c. 1600).

Definition

- A purposeful technique used by facilitators; related to reflective thinking.
- A deliberate pause during any portion of the learning experience used to facilitate immediate reflection.
- It is a component of learning and adaptive management, the act of taking time to think critically about ongoing activities and processes and plan for the best way forward (Learning Lab, 2024).
- The facilitator plans the pause ahead of time or enacts it after observing (or not observing) a number of critical behaviors.
- A technique that may be useful when waiting until the end of the simulation can create dilemmas, including the possibility of not addressing shortcomings in performance that can lead to 'confident incompetence' leaving the learning environment and practicing in patient areas. (Clapper & Ching, 2020).
- The reflective pause facilitates the reflection-in-action process that is a natural part of learning.
- During a reflective pause, feedback is provided, and self-correction is supported. Deficiencies and misunderstandings are addressed immediately.
- Equally important, high performance is reinforced. Example: We talked about the importance of starting chest compressions early.
- There is some evidence that suggests that learners can indeed re-engage and that has been my experience with thousands of simulations where a reflective pause was applied (Clapper & Leighton, 2020).

Reflective Thinking \ ri-flek-tiv \ thing-king \ *noun*

Etym. reflection (n.) Of the mind, from 1670s. Meaning "remark made after turning back one's thought on some subject" is from 1640s.

Definition

- The engagement of self-monitoring that occurs during or after a simulation experience; this self-monitoring is performed by participants during or after a simulation experience.
- A process to assist learners in identifying their knowledge gaps and demonstrating the areas in which they may need further improvement; it requires active involvement in the simulation and facilitator guidance to aid in this process (Decker et al., 2008; Kuiper & Pesut, 2004; Rodgers, 2002).
- The conscious consideration of the meanings and implications of the events of the simulation; this process allows participants to make meaning out of the experience, to identify questions generated by the experience, and ultimately, to assimilate the knowledge, skills, and attitudes uncovered through the experience with pre-existing knowledge.
- A process to assist learners in identifying their knowledge gaps and demonstrating the areas in which they may need further improvement; this reflection requires conscious self-evaluation to deal with unique patient situations (Meakim et al., 2013).

See also: GUIDED REFLECTION

Reliability \ ri-lahy-uh-bil-i-tee \ *noun*

See: SIMULATION RELIABILITY

Remote Simulation \ ri-moht \ sim-yuh-ley-shuh n \ *noun*

Etym. remote (adj.) mid-15c., from Middle French remot or directly from Latin remotus "afar off, remote, distant in place," past participle of removere "move back or away, take away, put out of view, subtract," from re- "back, away" (see re-) + movere "to move" (from PIE root *meue- "to push away")

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like". Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- Simulation performed with either the facilitator, learners or both in an offsite location separate from other members to complete educational or assessment activities (Laurent et al., 2014; Shao et al., 2018). Facilitation and assessment can be performed either synchronously or asynchronously using video or web conferencing tools.

Compare: DISTANCE SIMULATION, TELESIMULATION

Remote-controlled Simulation / Remote-Facilitated Simulation)

\ ri-moht \ kuh n-trohld \ sim-yuh-ley-shuh n \ *noun*

Etym. remote (adj.) mid-15c., from Middle French remot or directly from Latin remotus "afar off, remote, distant in place," past participle of removere "move back or away, take away, put out of view, subtract," from re- "back, away" (see re-) + movere "to move" (from PIE root *meue- "to push away")

Etym. controlled (adj.) "held in check, restrained," 1580s, past-participle adjective from control (v.). Of rent, from 1930.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- Simulation facilitated and run from a remote computer in another location separate from the participants (Ikeyama et al., 2012).
- "Simulation that uses an online curriculum and simulation-based training facilitated through remote video conferencing" (Shao et al., 2018, p.231).
- A simulation-based session where mannequins are operated by remote control and instructors facilitate in real time via web or videoconferencing, as an alternative method to face-to-face simulation-based training (Christensen et al., 2015).
- "Introduces simulation-based learning and simulation environment, (2) runs scenarios, and (3) performs debriefing with an on-site facilitator, while offsite" (Ohta et al., 2017, p. 564).

Resilience Engineering /\əˈzilēəns\ en-juh-neer-ing \ *noun*

Etym. resilience (n.) Origin and meaning of resilience 1620s, "act of rebounding or springing back," often of immaterial things, from Latin resiliens.

Etym. engineering (n.) 1720, "work done by an engineer," from engineer (n.). As a field of study, attested from 1792.

Definition

- A system is resilient if it can adjust its functioning before, during, or following events (changes, disturbances, or opportunities) and thereby sustain required operations under both expected and unexpected conditions (Fairbanks et al., 2014).
- "Resilience is a characteristic that enables organizations to adapt to uncertain conditions in their work environment. Resilient organizations are able to anticipate risk and continuously adapt to the complexity of their work environments to prevent failure. While important, personal resilience is not the focus of this definition, but resilience as an organizational trait helps to minimize the overreliance on individual resilience through strengthening the organizational capacity to minimize disruption" (PSNet Glossary, 2024r, paragraph 1).
- "Resilience engineering is the organizational capability to design processes and actions to systemically track data, information, evidence, and knowledge to anticipate and respond to challenges, as well as to correct disrupted processes back to standardized, improved states based on the application of lessons learned during the disruption" (PSNet Glossary, 2024r, paragraph 2).

- Simulation has clear potential to improve team and system resilience…simulation approaches should no longer sit remote from everyday clinical work. Simulation approaches should also be interwoven into the way every day work is done in order to build a culture of reflection, learning, and improvement (Horsley & Wiig, 2021).
- Simulation can be an essential tool in creating resilience, up to and including the concept of stress inoculation (Grossman, 2008; Christensen et al., 2015).

Risk Management \ ‘risk \ ˈma-nij-mənt \ *noun*

Etym. risk (n.) 1660s, risque, from French risque (16c.), from Italian risco, riscio (modern rischio), from riscare “run into danger,” of uncertain origin. The Englished spelling first recorded 1728. Spanish riesgo and German Risiko are Italian loan-words. With run (v.) from 1660s. Risk aversion is recorded from 1942; risk factor from 1906; risk management from 1963; risk taker from 1892.

Etym. management (n.) 1590s, “act of managing by direction or manipulation,” from manage + -ment. Sense of “act of man aging by physical manipulation” is from 1670s. Meaning “governing body, directors of an undertaking collectively” (originally of a theater) is from 1739.

Definition

- “All of the steps to prevent incidents and patient harm.” Example: One step in the hospital’s risk management plan was to incorporate Crisis Resource Management simulations. (Speer et al., 2019, p. 161).
- “Proactive management of risk” that increases the rate of successful implementation (Zakari et al., 2017).
- Managing factors that can result in success or loss within a project (Sonchan & Ramingwong, 2015).
- “Risk management in healthcare is a complex set of clinical and administrative systems, processes, procedures, and reporting structures designed to detect, monitor, assess, mitigate, and prevent risks to patients” (PSNet Glossary, 2024s, paragraph 1).

Roleplay / Role-play \ rohl-pley \ *noun*

Etym. Roleplay also role-play, “act or condition of behaving as another would behave in a certain situation,” 1958, from the verbal phrase, “to act out the role of” (by 1949); see role (n.) + play (v.). Related: Role-playing.

Definition

- A “technique in which learners are actively involved in the construction of their learning which has also been shown to enhance student’s critical thinking skills …., learners are encouraged and even required to move and interact as part of the skit. This interaction may also allow for processing of the information at multiple levels” (Clapper, 2010, p. 40).
- “encourages thinking and creativity, lets students develop and practice new language and behavioral skills in a relatively nonthreatening setting, and can create the motivation and involvement necessary for learning to occur” (Tompkins, 1998, paragraph 1).
- “a learning structure that allows students to immediately apply content as they are put in the role of a decision maker who must make a decision regarding a policy, resource allocation, or some other outcome. This technique is an excellent tool for engaging students and allowing them to interact with their peers as they try to complete the task assigned to them in their specific role” (Science Education Resource Center, 2011, paragraph 1).

Role Player \ rohl-pley- r \ *noun*

Etym. role (n.) “part or character one takes,” c. 1600, from French rôle “part played by a person in life,” literally “roll (of paper) on which an actor’s part is written,” from Old French rolle.

Etym. player (n.) Old English plegere, agent noun from play (v.). Stage sense is from mid-15c.

Definition

- “One who participates in a simulation-based training method in which medical students alternately play the patient’s and clinician’s role” (Gelis et al., 2020, p. 106).
- One who assumes the attitudes, actions, and discourse of (another), especially in a make-believe situation, to understand a differing point of view or social interaction. For example: Nursing students were given a chance to role play a patient or a surgeon. This term is sometimes used interchangeably with the terms ‘simulated’ and ‘standardized patient’ and may include medical, nursing, or other health professionals (Simulated Patient Network, n.d.).

See also: ACTOR, EMBEDDED PARTICIPANT, SIMULATED PATIENT, SIMULATED PERSON, STANDARDIZED PATIENT

Running on the Fly \ ruhn-ing \ on \ th uh \ flahy \ *noun*

Etym. running (adj.) “that runs, capable of moving quickly,” late 14c., rennynge, present-participle adjective from run (v.), replacing earlier erninde, from Old English eornende. The meaning “rapid, hasty, done on the run” is from c. 1300. The sense of “continuous, carried on continually” is from late 15c.

Definition

- A method of operation for running a simulation whereby the operator changes “the parameters of the manikin by manual input as the scenario unfolds, on the basis of the operator’s perception of what the new parameters should be depending on the action of the learners” (Slone et al., 2023, p. 117).
- Running a simulation with minimal planning and preparation; a more impromptu type of simulation experience.

Compare: MANUAL INPUT, PHYSIOLOGIC MODELING, PREPACKAGED SCENARIO

S

Safe Learning Environment

\ ˈsāf\ \ ˈlərn\ng \ en·vi·ron·ment \ in-ˈvī-rə(n)-mənt \ *noun*

Etym. safe (adj.) not able or likely to be hurt or harmed in any way; not in danger.

Etym. environment (n.) the conditions that surround someone or something; the conditions and influences that affect the growth, health, progress, etc., of someone or something.

Definition

- "A student's belief as to whether or not it is safe for them to take interpersonal risks, such as asking questions, sharing an idea for improvement or speaking up to maintain patient safety" (Hardie et al., 2022, p. 2).
- "A learning environment where it is clarified that learners feel physically and psychologically safe to make decisions, take actions, and interact in the simulation" (The University of Tennessee System, 2024, Safe Learning Environment).
- A learning environment of mutual respect, support, and respectful communication among leaders and learners; open communication and mutual respect for thought and action encouraged and practiced (Coristine et al., 2022).

See also: PSYCHOLOGICAL SAFETY

Saturation in Training \ saCHəˈrāSH(ə)n \ in \ˈtrāniNG \ *noun*

Etym. saturation (n.) 1550s, "act of supplying to fullness, complete satisfaction of an appetite" (Coverdale, a sense now obsolete), formed in English from saturate (q.v.), or else from Late Latin saturationem (nominative saturatio) "a filling, saturating," noun of action from past-participle stem of saturare "to fill full."

Etym. training (adj.) mid-15c., "protraction, delay," verbal noun from train (v.). From 1540s as "discipline and instruction to develop powers or skills;" 1786 as "exercise to improve bodily vigor." Training wheels as an attachment to a bicycle is from 1953.

Definition

- A model, theory, or approach in which it is proposed to train as many people as possible in the shortest timeframe to achieve the greatest desired effect and change in behaviors; it is often discussed in relation to TeamSTEPPSTM (Clapper & Ng, 2013; Clapper, 2018; King et al., 2008).

Scenario \ si-nair-ee-oh \ *noun*

Etym. scenario (n.) 1868, "sketch of the plot of a play," from Italian scenario, from Late Latin scenarius "of stage scenes," from Latin scena "scene." Meaning "imagined situation" is first recorded 1960, in reference to hypothetical nuclear wars.

Definition

- The scripts, stories, or algorithms created for instructing the participants, including the simulators (human or robotic), on how to interact with the students.
- The description of an exercise (including initial conditions) of events for a simulation that includes details for everyone taking part.
- A patient case with a main storyline and having the aim of bringing out specific learning outcomes for the participants and observers (Alinier, 2011, p. 10).
- An "artificial representation of a real-world event to achieve educational goals through experiential learning" (Harrington & Simon, 2022, Introduction).
- Real life situations that often include a sequence of learning activities that involve complex decision-making, problem-solving strategies, intelligent reasoning, and other complex cognitive skills. Students deal with complex problems according to professional or scientific standards. Real life situations display ambiguity and conflicting information and offer a large degree of freedom. Often complex real-life problems (also referred to as "cases") are likely to involve several participants (Nadolski, 2008, p. 340).
- An "initial set of conditions and timeline of significant events imposed on trainees or systems to achieve exercise objectives" (Department of Defense, 1998, Scenario).

See also: CLINICAL SCENARIO, SCRIPT SIMULATED-BASED LEARNING EXPERIENCE, SIMULATION ACTIVITY

Screen - based Simulation / Simulator

\ skreen \ bāst \ sim-yuh-ley-shuh n \ *noun*

Etym. screen (n.) Meaning "flat vertical surface for reception of projected images" is from 1810, originally in reference to magic lantern shows; later of movies. Related screenshot (n.) by 1991, from (computer) screen (n.) + shot (n.) in the photograph sense.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. simulator (n.) 1835, of persons, from Latin simulator "a copier, feigner," agent noun from simulare "imitate," from stem of similis "like." In reference to training devices for complex systems, from 1947 (flight simulator); simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitativefor purposes of experiment or training" is from 1966 (agent noun simulator in the related sense dates from 1947). In commercial jargon, "artificial, imitation" by 1942.

Definition

- A form of simulation in which a clinical scenario with one or more patients is presented through a digital screen surface (Khanal et al., 2014).
- Screen-based is defined as "a computer-based system in which interaction takes place by keyboard or mouse on a nonspecialized computer" (Torsher & Craigo, 2013, p. 267).
- A simulation presented on a computer screen using graphical images and text, similar to popular gaming format, where the operator interacts with the interface using keyboard, mouse, joystick, or other input device.
- The programs can provide feedback to, and track actions of learners for assessment, eliminating the need for an instructor (Ventre & Schwid, 2013).
- A computer-generated video game simulator that can create scenarios that require real-time decision-making (Bonnetain et al., 2010).

See also: COMPUTER-BASED SIMULATION, SIMULATOR

Scribe / Scribing \'skrīb\ *verb* / *noun* \'skribiNG\

Etym. scribe (n) from Church Latin scriba "teacher of Jewish law," special use of Latin scriba "keeper of accounts, secretary, writer," from past participle stem of scribere "to write." Sense "one who writes, official or public writer" in English is from late 14c.

Definition

The act of making notes about a scenario and documenting the actions taken or not taken.

Script \ skript \ *noun*

Etym. (n.) late 14c., "something written." Meaning "handwriting" is recorded from 1860. Theatrical use, short for manuscript, is attested from 1884.

Definition

- A preordained written series of actions based on the time and sequence of specific events.
- The written plan for a simulation event that includes various sets of topics, subtopics, skills, and triggers that will create the situation to induce the desired observable behaviors by the participant(s).
- A written set of instructions providing a detailed plan of action for a simulation case; similar to a theatrical play script.
- The lines to be spoken by operators, embedded actors, or simulated patients during a simulation event.
- A computer script is a list of commands that are executed by a certain program or scripting engine. Scripts may be used to automate processes on a local computer or to generate web pages on the web (Tech Terms, 2023).

See also: CLINICAL SCENARIO, SCENARIO SIMULATED-BASED LEARNING EXPERIENCE, SIMULATION ACTIVITY

Sequential Simulation

\ si-ˈkwen(t)-shəl \ sim-yuh-ley-shuh n \ *noun*

Etym. sequential (adj.) "1816, from Late Latin sequentia (see sequence) + -al (1). Related: Sequentially."

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A concept defined as "physically simulated trajectories of care" (Weldon et al., 2016, p. 78); where, elements of a patient's care pathway are incorporated into a scenario-based simulation using real clinicians and simulated patients to create a simulated experience from a patient's perspective (Weldon et al., 2016, p. 79).
- Where the different components of care are re-created; may include transitions of time and different scenes. The focus is on the patient's journey and the effect of the care on the patient Sequential Simulation (SqS Simulation™) is "a type of simulation that recreates a patient's journey, considering the longitudinal element of care and how this might impact on the patient's experiences, wishes and needs" (Weil et al., 2018, p. 29).

Compare: DISCRETE SIMULATION, DURATIONAL SIMULATION

Serious Game \ seer-ee-uh s \ geymz \ *noun*

Etym. serious (adj.) mid-15c., "expressing earnest purpose or thought" (of persons), from Middle French sérieux "grave, earnest" (14c.), from Late Latin seriosus, from Latin serius "weighty, important, grave." Gothic "honored, esteemed," literally "weighty." Meaning "attended with danger" is from 1800.

Etym. games (n.) 1200, from Old English gamen "joy, fun; game, amusement," "participation, communion." "Contest for success or superiority played according to rules" is first attested c. 1200 (of athletic contests, chess, backgammon).

Definition

- A mental contest played with a computer in accordance with specific rules, which uses entertainment to further training, education, health, public policy, and strategic communication objectives (Zyda, 2005).
- A game designed for a primary purpose other than pure entertainment. Serious games have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement (Michael & Chen, 2005). Serious games are simulations of real-world events, or processes designed for the purpose of solving a problem.
- Video games aimed toward problem-solving rather than entertainment that can help learners gain a good understanding of a specific topic and sustain the acquisition of complex competencies and "not a simulation modality per se …a way to conceive a simulation activity by emphasizing the educational value of play. Serious games can apply as much to immersive simulation (especially VR simulation) as to procedural simulation" (Pilote & Chiniara, 2019, p.18).
- A mental contest played with a computer in accordance with specific rules, which uses entertainment to further training, education, health, public policy, and strategic communication objectives (Zyda, 2005).
- In the defense context, serious games are used to rehearse, train, or explore military options in a simulation of real-world events or processes. "Can be considered as alternative pedagogical approaches to traditional avenues focused on lectures and seminars when games are incorporated lesson plans to achieve learning objectives. …Provide a chance to consider alternate conceptualizations" of a problem. …Can contribute to the education and training by introducing and developing different ways of thinking about problems, developing judgement and decision-making in an environment of resource scarcity, enhancing an empathetic approach to conflict by providing an alternative view of war, and by providing a safe environment to test plans and concepts" (The Forge, n.d.).

See also: GAMIFICATION, SIMULATOR

Shared Mental Model \ shaird \ men-tl] \ mod-l] \ *noun*

Etym. share (n.) (v.) 1580s, "to apportion to someone as his share; to apportion out to others; to enjoy or suffer (something) with others," from share. Meaning "to divide one's own and give part to others" is recorded from 1590s. Related: Shared, sharer, sharing

Etym. mental (adj.) early 15c., "pertaining to the mind," from Middle French mental, from Late Latin mentalis "of the mind," from Latin mens (genitive mentis) "mind;" cognates: Sanskrit matih "thought, mind;" Old English gemynd "memory, remembrance."

Etym. model Sense of "thing or person to be imitated" is 1630s.

Definition

- A means of describing that each participant in a simulation has a shared understanding of the purpose and process of the simulation activity and participants' roles.
- "Shared understandings or representations of the goal of the team, individual team member tasks, and how team members will coordinate to achieve their common goals; individual team members can have varying degree of overlap or 'sharedness' among their mental model of the team" (Van de Vijver, 2004, p. 603).
- The knowledge framework of the "relationships between the task the team is engaged in and how the team members will interact" (Hensel & Visser, 2019, p.3). For example, a shared mental model facilitates a team's ability to predict what team members will do when faced with a task, and what they will need to do it.
- A framework whereby when an individual team member develops a perception of the situation, it is shared, allowing the team to reflect on the information and revise their situational awareness and their own mental model based on new information. For example: Sharing can be done by vocalizing observations, calling out information, using a structured time-out to communicate new information and thinking out loud to allow others to relate and appreciate the associations, assessments, and plans.
- Shared mental models facilitate collaboration and are crucial when team communication in a situation is difficult (e.g., due to time pressure).
- "Mental models are psychological representations of real, hypothetical, or imaginary situations. Though easiest to conceptualize in terms of mental pictures of objects (e.g., a DNA double helix or the inside of an internal combustion engine), mental models can also include "scripts" or processes and other properties beyond images" (PSNet Glossary, Mental Models, 2024p, paragraph 1).

Compare: SITUATIONAL AWARENESS

Simulation-Based Education (SBE)

Simulation-Based Learning Experience (SBLE)

Simulation-Based Medical Education (SBME)

Etym. simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966; commercial jargon, "artificial, imitation" by 1942.

Etym. education (n.) 1530s, "childrearing," also "the training of animals," from Middle French education (14c.) and directly from Latin educationem (nominative educatio) "a rearing, training," noun of action from past participle stem of educare. Originally of instruction in social codes and manners; meaning "systematic schooling and training for work" is from 1610s.

Etym. learning (n.) Old English leornung "learning, study," from leornian. Learning curve attested by 1907.

Etym. experience (v.) 1530s, "to test, try, learn by practical trial or proof;" (n.). Sense of "feel, undergo" first recorded 1580s. Related: Experienced; experiences; experiencing.

Etym. experience (n.) late 14c., "observation as the source of knowledge; actual observation; an event which has affected one," from Old French esperience "experiment, proof, experience" (13c.), from Latin experientia "a trial, proof, experiment; knowledge gained by repeated trials;" Meaning "state of having done something and gotten handy at it" is from late 15c.

Definition

- An array of structured activities that represent actual or potential situations in education and practice. These activities allow participants to develop or enhance their knowledge, skills, and attitudes, or to analyze and respond to realistic situations in a simulated environment (Pilcher et al., 2012).
- "Commonly reported to increase confidence, improve communication skills, develop reasoning and critical thinking, and facilitate readiness for professional placement…the "versatility of SBLEs allows them to meet the educational needs of a range of allied health professions. Encompassing various technologies and modalities. …Common theories identified within SBLE literature include behaviorism, social learning theory, and constructivism" (Squires et al., 2022, p.408).

See also: CLINICAL SCENARIO, SCENARIO, SIMULATION ACTIVITY

Simulated Patient (SP) \ sim-yuh-leyt -id \ pey-shuh nt \ *noun*

Etym. simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966; commercial jargon, "artificial, imitation" by 1942.

Etym. patient (n.) "suffering or sick person under medical treatment," late 14c., from Old French pacient (n.), from the adjective, from Latin patientem.

Definition

- A person who has been carefully coached to simulate an actual patient so accurately that the simulation cannot be detected by a skilled clinician. In performing the simulation, the standardized patient (SP) presents the gestalt of the patient being simulated; not just the history, but the body language, the physical findings, and the emotional and personality characteristics as well (Barrows, 1993).
- Ordinary people who have received training to portray an amalgam of different clinical scenarios including history taking, physical examination, and communication skills. A simulated patient cannot be recognized and discerned by an expert if appropriately trained (Collins & Harden, 2004).
- A "person who simulates a real patient based on varying levels of training or a "lay person who must be trained and coached carefully to play the role of patients" and "a person who is directed by a facilitator to take a role within the simulation" and "portrays various scenarios for the teaching and assessment of history taking, communication skills, or physical examination where no abnormality is really present" (Beigzadeh et al., 2016, p. 26).
- Often used interchangeably with standardized patients in the USA and Canada, but in other countries simulated patient is considered a broader term than standardized patient, because the simulated patient scenario can be designed to vary the SP role to meet the needs of the learner.
- An individual who is trained to portray a real patient to simulate a set of symptoms or problems used for healthcare education, evaluation, and research.
- SPs can be used for teaching and assessment of learners, including but not limited to history/consultation, physical examination, and other clinical skills in simulated clinical environments. SPs can also give feedback and evaluate learner performance (Lewis et al., 2017).

See also: ACTOR, EMBEDDED PARTICIPANT, ROLE PLAYER, SIMULATED PARTICIPANT, SIMULATED PERSON, STANDARDIZED PATIENT

Eds. note: this term is often synonymous with Standardized Patient.

Simulated Person \ sim-yuh-leyt -id \ pur-suh n \ *noun*

Etym. simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966; commercial jargon, "artificial, imitation" by 1942.

Definition

- A person who portrays a patient (simulated patient), family member, or healthcare provider to meet the objectives of the simulation; a simulated person may also be referred to as a standardized patient/family/healthcare provider if they have been formally trained to act as real patients in order to simulate a set of symptoms or problems used for healthcare education, evaluation, and research. Simulated persons often engage in assessment by providing feedback to the learner (Palaganas et al., 2014).

See also: ACTOR, EMBEDDED PARTICIPANT, ROLE PLAYER, SIMULATED PARTICIPANT, SIMULATED PATIENT, STANDARDIZED PATIENT, STANDARDIZED/SIMULATED PARTICIPANT

Simulated / Synthetic Learning Methods
\ sim-yuh-leyt –id \ sin-thet-ik \ lur-ning \ meth-uh dz \ *noun*

Etym. simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966; commercial jargon, "artificial, imitation" by 1942.

Etym. synthetic (adj.) 1690s, as a term in logic, "deductive," from French synthétique (17c.) and directly from Modern Latin syntheticus, from Greek synthetikos "skilled in putting together, constructive," from synthetos "put together, constructed, compounded," past participle of syntithenai "to put together" (see synthesis). Related: Synthetical (1620s in logic).

Etym. learning (n.) Old English leornung "learning, study," from leornian.

Etym. method (n.) from Latin methodus "way of teaching or going," from Greek methodos "scientific inquiry, method of inquiry, investigation," originally "pursuit, a following after," from meta- "after" + hodos "a traveling way." Meaning "way of doing anything" is from 1580s; that of "orderliness, regularity" is from 1610s.

Definition

- "Synthetic learning environments are characterized in terms of a particular technology (e.g., a simulation or game), subject matter, learner characteristics, and some guiding pedagogical principles. In many cases, synthetic learning environments involve a computer simulation as a central component and thus serve as simulation-based training. …Engineering a synthetic learning environment places great demands on the instructional design. Focus on several instructional features and strategies, such as authenticity and fidelity of learning experiences, model-based reasoning, the design of cases or scenarios that provide the context for instruction, and collaborative and social learning as well as various motivational factors (e.g., goal setting, engagement, etc.) (Blumschein, 2012, paragraph 2)
- The principles, pedagogies, and educational strategies used in healthcare simulation. They include:
  - *Case-based learning* - Written and oral presentations used to present and review clinical scenarios that do not involve hands-on learning, e.g., Table-top simulation.
  - *Computer simulation* - See Computer Simulation.
  - *Procedural or Partial Task Training* - See Part-task Trainer or Task Trainer.
  - *Hybrid Simulation* - See Hybrid Simulation.
  - *Integrated procedural training (psychomotor focus)* - Combines a series of discrete tasks that are conducted simultaneously or in sequence to form a complex clinical task (e.g., endotracheal intubation and cervical spine immobilization in a trauma patient).
  - *Integrated procedural training (whole procedure)* - Integrates task training with role play (actors) to enable procedural and communication tasks to be practiced simultaneously.
  - *Mixed simulation* - See Mixed Simulation.
  - Simulation / Scenario-based learning - Learners interact with people, simulators, computers, or task trainers to accomplish learning goals that are representative of the learner's real-world responsibilities. The environment may resemble the workplace. Depending on the learning objectives, realism can be built into the equipment or the environment.
  - *Standardized/Simulated Patient* - See Standardized and Simulated Patient.
  - *Role play* - See Role Play.
  - *Debriefing* - See Debriefing.
  - *Multimodal formats* - See Multiple Modality.

See also: MODALITY, TYPOLOGY

Simulation \ sim-yuh-ley-shuh n \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A technique that creates a situation or environment to allow persons to experience a representation of a real event for the purpose of practice, learning, evaluation, testing, or to gain understanding of systems or human actions.
- An educational technique that replaces or amplifies real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner (Gaba, 2004).
- A pedagogy using one or more typologies to promote, improve, or validate a participant's progression from novice to expert (Meakim et al., 2013).
- The application of a simulator to training and/or assessment.
- A method for implementing a model over time.

See also: HEALTHCARE SIMULATION

Simulation Activity \ sim-yuh-ley-shuh n \ ak-tiv-i-tee \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. activity (n.) c. 1400, "active or secular life," from Old French activité, from Medieval Latin activitatem (nominative activitas), a word in Scholastic philosophy, from Latin activus "active" (see active). The meaning "state of being active, briskness, liveliness" is recorded from 1520s; that of "capacity for acting on matter" is from 1540s. As "an educational exercise," by 1923.

Definition

- The entire set of actions and events from initiation to termination of an individual simulation event; in the learning setting, this is often considered to begin with the briefing (prebriefing) and end with the debriefing.
- All the elements in a simulation session, including the design and setup required.

See also: CLINICAL SCENARIO, SCENARIO SIMULATED-BASED LEARNING EXPERIENCE

Simulation-Enhanced Interprofessional Education (Sim-IPE) \ sim-yuh-ley-shuh n \ in-ˈhan(t)st \ in-ˈtər\ prə-ˈfesh-nəl \ e-jə-ˈkā-shən\ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. education (n.) the action or process of teaching someone especially in a school, college, or university; the knowledge, skill, and understanding that you get from attending a school, college, or university; a field of study that deals with the methods and problems of teaching.

Definition

- The education of healthcare professionals with different but complementary knowledge and skills in a simulation environment that promotes a collaborative team approach. Simulation-enhanced interprofessional education (Sim-IPE) occurs when participants and facilitators from two or more professions are engaged in a simulated healthcare experience to achieve shared or linked objectives and outcomes (Decker et al., 2015).
- Simulations designed for the individuals involved to "learn about, from, and with each other to enable effective collaboration and improve health outcomes" (WHO, 2010, p.13).
- A collaborative educational approach that brings together healthcare professionals of varying specialties in a simulation.
- Environment engaging learners in an interprofessional teamwork model (Decker et al., 2008).
- A simulation environment promoting equal and mutual respect and recognition of each team member's knowledge and skills.

Simulation Environment \ sim-yuh-ley-shuh n \ en-vahy-ruh n-muh nt \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. environment (n.) 1887, "environing, surrounding," Ecological sense by 1967.

Definition

- The physical setting where simulation activities may take place, inclusive of the people and equipment that form part of the simulation experience.
- A location where a simulation-based learning experience takes place, and where a safe atmosphere is created by the facilitator to foster sharing and discussion of participant experiences without negative consequences.

Simulated / Synthetic Learning Environment (SLE) \ sim-yuh-ley-shuh n \ lur-ning \ en-vahy-ruh n-muh nt \ sin-ˈthe-tik \ ˈlərn-ing \ in-ˈvī-rə(n)-mənt \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. synthetic (adj.) 1690s, as a term in logic, "deductive," from French synthétique (17c.) and directly from Modern Latin syntheticus, from Greek synthetikos "skilled in putting together, constructive," from synthetos "put together, constructed, compounded," past participle of syntithenai "to put together" (see synthesis). Related: Synthetical (1620s in logic).

Etym. learning (n.) Old English leornung "learning, study," from leornian.

Etym. environment (n.) 1887, "environing, surrounding," Ecological sense by 1967.

Definition

- A context for learning that consists of a controlled and shielded representation of real-world situations, and a set of educational methods and procedures in which trainees feel simultaneously challenged and psychologically safe to practice and reflect on their performance (Rudolph et al., 2007a, 2014).
- An atmosphere that is created by the facilitator to allow for sharing and discussion of participant experiences without fear of humiliation or punitive action.
- A setting, surrounding, or conditions that reproduce components or aspects of the real-world environment, for the purpose of learning and related activities, and/or research (ASSH, 2020).

See also: PSYCHOLOGICAL SAFETY

Simulation Ethics \ sim-yuh-ley-shuh n \ ˈe-thiks \ *noun*

Etym. simulation (n.). noun of action from past participle stem of simulare "imitate," from stem of similis "like". Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. ethic (n.) character or pertaining to the character, from Latin (ethica), and is from the Ancient Greek (êthicos). late 14c., ethik "study of morals," from Old French etique "ethics, moral philosophy" (13c.), from Late Latin ethica, from Greek ēthike philosophia "moral philosophy," fem. of ēthikos "ethical, pertaining to character," from ēthos "moral character," related to ēthos "custom" (see ethos). Meaning "moral principles of a person or group" is attested from 1650s." ethics (n.) "the science of morals," c. 1600, plural of Middle English ethik "study of morals" (see ethic). The word also traces to Ta Ethika, title of Aristotle's work. Related: Ethicist.

Definition

- A self-imposed formalized code for all simulationists that includes the following values: integrity, transparency, mutual respect, professionalism, accountability, and results orientation (Park, Murphy & Code of Ethics Working Group, 2018, p. 1).
- Applicable for both simulation facilitators and the participants (learners); based on frameworks and values; includes simulation design and one's behaviors and conduct during a simulation-based experience (Lioce et al., 2018).
- "With the growing trend to increase the use of simulation activities, a deeper focus is required by the educator to deliberately integrate ethical principles into simulation design. … Educators and learners have a regulatory obligation to adhere to ethical principles in clinical practice and should mirror the same in simulation activities as well" (Lioce & Graham, 2017, p. 1).
- A basis for simulations to promote patient safety and engage learners/participants (Oren, 2000, 2002; Pinar & Peksoy, 2016).

Simulation Fidelity \ sim-yuh-ley-shuh n \ fə-ˈde-lə-tē \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. fidelity (n.) early 15c., "faithfulness, devotion," from Middle French fidélité (15c.), from Latin fidelitatem (nominative fidelitas) "faithfulness, adherence, trustiness," from fidelis "faithful, true, trusty, sincere," from fides "faith". From 1530s as "faithful adherence to truth or reality;" specifically of sound reproduction from 1878.

Definition

- The level of realism associated with a particular simulation activity.
- The physical, semantic, emotional, and experiential accuracy that allows persons to experience a simulation as if they were operating in an actual activity.
- The believability, or the degree to which a simulated experience approaches reality. Fidelity can involve a variety of dimensions, including (a) physical factors such as environment, equipment, and related tools; (b) psychological factors such as emotions, beliefs, and self-awareness of participants; (c) social factors such as participant and instructor motivation and goals; (d) culture of the group; and (e) degree of openness and trust, as well as participants' modes of thinking (Rudolph et al., 2007a).

See also: FIDELITY
Eds. Note: The term fidelity is often used synonymously with realism but not all agree that these are the same.

Simulation Guideline
\ sim-yuh-ley-shuh n \ gahyd-lahyn \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. guideline (n.)1785, "line marked on a surface before cutting," from guide + line (n.). Meaning "rope for steering a hot-air balloon" is from 1846. In figurative use by 1948.

Definition

- A recommendation of the qualities for simulation fidelity, simulation validity, simulation program, or for formative or summative evaluation.
- A set of procedures or principles that are recommended to assist in meeting standards. Guidelines are not necessarily comprehensive. They provide a framework for developing policies and procedures based on best practice.
- A set of recommendations, incorporating currently known best practice, based on research and/or expert opinion.
- "Guidelines are recommendations to users when specific standards do not apply. Guidelines are designed to streamline certain processes according to what the best practices are. Guidelines, by nature, should open to interpretation and do not need to be followed to the letter." Guidelines are more general than specific rules, provide flexibility for unforeseen circumstances, and should NOT be confused with formal policy statements. (Spoden, 2017, Guideline).

Compare: SIMULATION STANDARD

Simulation Operations

\ sim-yuh-ley-shuh n \ op-uh-rey-shuh nz \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like". Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. operations (n.) only singular form (operation) - "late 14c., "action, performance, work," also "the performance of some science or art," from Old French operacion "operation, working, proceedings," from Latin operationem (nominative operatio) "a working, operation," noun of action from past-participle stem of operari "to work, labor" (in Late Latin "to have effect, be active,cause"), from opera "work, effort," related to opus (genitive operis) "a work" (from PIE root *op- "to work, produce in abundance")."

Definition

- "The infrastructure, people, and processes necessary for implementation of an effective and efficient simulation-based education (SBE) program" (INACSL Standards Committee, 2017, p. 681).
- A term that encompasses "the job duties related to the overall management, delivery, and function of simulation-based education" (Crawford et al., 2019, p. 148).

Simulation Operations / Technology Specialist (SOS or SOTS)

\ sim-yuh-ley-shuh n \ tek-ˈnä-lə-jē \ spesh-uh-list \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. technology (n.) "1610s, "a discourse or treatise on an art or the arts," from Greek tekhnologia "systematic treatment of an art, craft, or technique," originally referring to grammar, from tekhno-, combining form of tekhnē "art, skill, craft in work; method, system, an art, a system or method of making or doing," from PIE *teks-na- "craft" (of weaving or fabricating), from suffixed form of root *teks- "to weave," also "to fabricate." For ending, see -logy. "The meaning "study of mechanical and industrial arts" (Century Dictionary, 1895, gives as example "spinning, metal-working, or brewing") is recorded by 1859. High technology attested from 1964; short form high-tech is from 1972."

Etym. specialist (n.) 1852 (originally in the medical sense and much scorned by the GPs); see special (adj.) + -ist. Perhaps immediately from French spécialiste (1842). In general use in English by 1862.

Related: Specialism.

Definition

- A person, defined as someone "with a diverse set of skills and expertise both technical and administrative related to the operation, support, and delivery of healthcare simulation" (Crawford et al., 2019, p. 148).
- An "individual who specializes in both the technologies and methods used in the planning, preparation, and execution of simulation-based healthcare training and education events. These individuals are essential members of every simulation team" (Lowther & Armstrong, 2023, p. 1).
- A person, also known as a "Sim Tech" or Simulation Technician who functions as a technician for healthcare simulation technology (Baily, 2014; Crawford et al., 2019). In addition to technical support, job duties may vary and include such duties as preparing for simulations (mannequin programming, set-up), running of equipment during simulations (simulator, audiovisual), equipment maintenance/repair, and education of others concerning simulation technologies (University of Wisconsin Health, 2017).
- An individual who provides technological expertise, instructional support, and advocacy in healthcare simulation.

See also: OPERATIONS SPECIALIST, SIMULATIONIST

Simulation Reliability

\ sim-yuh-ley-shuh n \ ri-lahy-uh-bil-i-tee \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. reliable (adj.) 1560s, raliabill, Scottish; see rely + -able.

Definition

- The consistency of a simulation activity, or the degree to which a simulation activity is measured in the same way each time it is used under the same conditions with the same participants.
- "Consistency of performance" under the same conditions with similar participants (Scalese & Hatala, 2014, p. 135).
- [reliability] "refers to whether an assessment instrument gives the same results each time it is used in the same setting with the same type of subjects…essentially means consistent or dependable results and …is a part of the assessment of validity" (Sullivan, 2011, p. 1)
- Consistency "tested by interrater, test-retest, and intra-instrument" (Adamson, 2014, p. 155).
- [reliability] "refers to the consistency of quality measures across a range of psychometric tests used to assess a participant's medical aptitude" and "refers to the consistency of a simulated participant (SP) performing a task that is tailored to mitigate errors introduced by simulation design attributes. …Seeks to assess the consistency of a construct being measured. In [healthcare professions education] HPE, reliability refers to the consistency of quality measures across a range of psychometric tests used to assess a participant's medical aptitude. In healthcare simulation setting, reliability refers to the consistency of a simulated participant (SP) performing a task that is tailored to mitigate errors introduced by simulation design attributes." (Yauger et al., 2020, Introduction and Background).

Compare: SIMULATION VALIDITY

Simulation Standard \ sim-yuh-ley-shuh n \ stan-derd \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. standard (n.) "serving as a standard," by 1620s, perhaps mid-15c., from standard (n.2). Earlier it meant "stationary" (early 15c.), "upright" (1530s). standard -bred (adj.), "bred up to some agreed-upon standard of excellence" is from 1878, generally of horses but originally of fowls. Standard time (1870) is that based on the local meridian in reference to Greenwich.

Definition

- A statement of the minimum requirements for simulation fidelity, validity, formative or summative evaluation, or any other element related to a simulation activity or program.

Compare: SIMULATION GUIDELINE

Simulation Testing Environment
\ sim-yuh-ley-shuh n \ tee-ching \ en-vahy-ruh n-muh nt \ noun

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A context for formative or summative evaluation of an individual's or team's performance. The goals of the simulation testing environment are to create an equivalent activity for all participants to test their knowledge, skills, and abilities in a simulated setting (Meakim et. al., 2013).

Simulation Time \ sim-yuh-ley-shuh n \ tahym \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A simulation's internal representation of time; simulation time may accumulate faster, slower, or at the same pace as real time.
- A time established by the simulation educator before the start of the simulation exercise, irrespective of the actual real time (Hancock et al., 2008).

Simulation Tool \ sim-yuh-ley-shuh n \ ˈtül \ *noun*

Etym. simulation (n.) mid-14c., a false show, false profession, from Old French simulation "pretence" and directly from Latin simulationem (nominative simulatio) "an imitating, feigning, false show, hypocrisy," noun of action from past participle stem ofsimulare "imitate," from stem of similis "like, resembling, of the same kind" (see similar). Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Etym. tool (n.) Old English tool "instrument, implement used by a craftsman or laborer, weapon," from Proto-Germanic *tōwalan "implement" (source also of Old Norse tol), from a verb stemrepresented by Old English tawian "prepare" (see taw). The ending is the instrumental suffix -el (1). Figurative sense of "person used by another for his own ends" is recorded from 1660s.

Definition

- A model or mock-up for purposes of experiment or training.
- A device, including lower and higher simulation technologies, that can be used to promote participant learning (Yale University, n.d.). Examples include task trainers, mannequins (manikins) and immersive environments (e.g., virtual reality). The specific simulation tool should be chosen based on the predetermined objectives and outcomes (INACSL Standards Committee, 2016a; Yale University, n.d.).
- The modality or "the platform for the experience" (INACSL Standards Committee, 2016a, S7).
- A description of what healthcare simulation is; known as "an effective tool, technique, or method" (Barjis, 2011, p. 2).
- An instrument used to assess/evaluate in a simulation.

See also: MODALITY

Simulation Validity \ sim-yuh-ley-shuh n \ vuh-lid-i-tee\ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "Validity is the extent to which a test, model, measurement, simulation, or other reproduction provides an accurate representation of its real equivalent. A valid simulation is one that is an accurate representation of the target task, within the context of the learning objectives and the target population" (Harris et al., 2020, p. 605).
- The degree to which a model or simulation accurately represents or measures what it intends to measure (Scalese & Hatala, 2014).
- In healthcare simulation, the quality of a simulation or simulation program that demonstrates that the relationship between the process and its intended purpose is specific, sensitive, reliable, and reproducible (Dieckmann et al., 2009).
- "Validity in research refers to how accurately a study answers the study question or the strength of the study conclusions. For outcome measures such as surveys or tests, validity refers to the accuracy of measurement. Validity refers to how well the assessment tool actually measures the underlying outcome of interest. Validity is not a property of the tool itself, but rather of the interpretation or specific purpose of the assessment tool with particular settings and learners" (Sullivan, 2011, p. 1).
- "How well the data measures the construct it is intended to measure" (Adamson, 2014, p.155).

Compare: SIMULATION RELIABILITY

Simulationist \ sim-yuh-ley-shuh n - ist \ *noun*

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A modeling and simulation professional (Tucker, 2010; Tucker, 2000).
- A person "who is involved, full-time or part-time, in modeling or simulation activities." For example, collects data, develops models to be used for simulation purposes; performs simulation studies; develops simulation software; manages simulation projects; advertises and/or markets simulation products and/or services; maintains simulation products and/or services; promotes simulation-based solutions to important problems; advances simulation technology; and advances simulation methodology and/or theory (Ören, 2000, p.168).
- A term used to describe "professionals involved in providing simulation activities, products, and services" (Kardong-Edgren, 2013, p. e561). This can include simulated patient educators, trainers, and standardized or simulated patients (SPs).
- A term for "professionals involved in modeling and simulation activities and/or with providing modeling and simulation products and/or services" (Ören et al., 2002, p. 434).

See also: DEBRIEFER, FACILITATOR. OPERATIONS SPECIALIST, SIMULATION TECHNOLOGY SPECIALIST

Simulator \ sim-yuh-ley-ter \ *noun*

Etym. simulator (n.) 1835, of persons, from Latin simulator "a copier, feigner," agent noun from simulare "imitate," from stem of similis "like". In reference to training devices for complex systems, from 1947 (flight simulator). simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966, agent noun simulator in the related sense dates from 1947. In commercial jargon, "artificial, imitation" by 1942.

Definition

- A setting, device, computer program or system that performs simulation (Hancock et al., 2008).
- Any object or representation used during training or assessment that behaves or operates like a given system and responds to the user's actions.
- A device that duplicates the essential features of a task situation. A simulator generally has three elements – a modeled process which represents, emulates, or otherwise simulates a real-world system; a control system; and a human-machine interface which is representative of the inputs found in the real-world system (Australian Department of Defence, 2011). Examples include manikins and part-task trainers.
- Simulators can be classified according to their resemblance to reality into low-fidelity, medium- fidelity and high-fidelity simulators (Seropian et al., 2004).

See also: COMPUTER-BASED SIMULATION, MANIKIN, SERIOUS GAMES, SCREEN-BASED SIMULATION, SIMULATED PATIENT, STANDARDIZED PATIENT, TASK TRAINER, VIRTUAL REALITY

Situated Learning \ sich-oo-ey-tid \ lur-ning \ *noun*

Etym. situate (v.) early 15c., "to place in a particular state or condition," from Medieval Latin situatus, past participle of situare "to place, locate," from Latin situs "a place, position" (see site). Related: Situated; situating, situation (n.).

Etym. learning (n.) Old English leornung "learning, study," from leornian (see learn). Learning curve attested by 1907.

Definition

- "Central to the concept of situated learning is the learner's authentic participation in a 'real world' environment with other learners, ideally peers, more advanced learners, and experts, who together form a community of practice" (O'Brien & Battista, 2020, p.1).
- A theory that posits that learning occurs within authentic activity, context, and culture. Social interaction and collaboration are considered essential components (Lave, 1991; Lave & Wenger, 1991). This is in contrast to a classroom learning activity that is abstract and out of context.
- "Situated learning theory states that every idea and human action is a generalization, adapted to the ongoing environment; it is founded on the belief that what people learn, see, and do is situated in their role as a member of a community" (Lave & Wenger, 1991).

Situational Awareness

\ sich-oo-ey-shuh n-ul \ ə-ˈwer-nis \ *noun*

Etym. situate (v.) early 15c., "to place in a particular state or condition," from Medieval Latin situatus, past participle of situare "to place, locate," from Latin situs "a place, position" (see site). Related: Situated; situating, situation (n.).

Etym. awareness (n.) 1828, from aware + -ness. Late Old English gewær, "wary, cautious."

Definition

- The "perception of environmental elements within time and space, and a perception of their meaning; it involves being aware of what is happening around you to understand how information, events, and your own actions impact the outcomes and objectives" (Endsley, 1995, p. 32).
- A field of study concerned with understanding of the environment critical to decision makers in complex, dynamic areas; situational awareness refers to the degree to which one's perception of a situation matches reality.
- The awareness of fatigue and stress among team members (including oneself), environmental threats to safety, immediate goals, information sharing, and the deteriorating status of the crisis or patient. Most commonly used in the context of crisis resource management training (Hancock et al., 2008).
- There are three conceptually distinct levels of Situation Awareness: (1) perception of the elements in the environment, (2) comprehension of the current situation, and (3) projection of the future status of the situation (Endsley, 2015).

Compare: SHARED MENTAL MODEL
Contrast with: FIXATION ERROR

Standards for Quality Improvement Reporting Excellence (SQUIRE)

Standards for Quality Improvement Reporting Excellence in EDUcation (SQUIRE-EDU)

Standards for Quality Improvement Reporting Excellence for SIMulation (SQUIRE-SIM)

\ stan-dər-ˌd \ fawr \ kwol-i-tee \ imˈproōvmənt\ rəˈpôrt ing \ ˈeksələns \

Definition

- "Guidelines which provide a framework for reporting new knowledge about how to improve healthcare (SQUIRE, 2020). The SQUIRE guidelines consist of a checklist of 19 items that authors need to consider when writing articles that describe formal studies of quality improvement. Most of the items in the checklist are common to all scientific reporting, but virtually all of them have been modified to reflect the unique nature of medical improvement work" (Ogrinc, 2008, p. i13).
- "SQUIRE 2.0 is intended for reporting the range of methods used to improve healthcare, recognising that they can be complex and multidimensional. It provides common ground to share these discoveries in the scholarly literature … The SQUIRE 2.0 guidelines were published in 2015 to increase the completeness, precision, and transparency of published reports about efforts to improve the safety, value, and quality of health care" (Ogrinc, 2019, Abstract).
- SQUIRE-EDU was developed using an international, interprofessional advisory group and face-to-face meeting to draft initial guidelines; pilot testing of a draft version with nine authors; and further revisions from the advisory panel with a public comment period. SQUIRE-EDU emphasizes three key components that define what is necessary in systematic efforts to improve the quality and value of health professions education. These are a description of the local educational gap; consideration of the impacts of educational improvement to patients, families, communities, and the health care system; and the fidelity of the iterations of the intervention" (Ogrinc, 2019, Abstract).
- SQUIRE-SIM, developed following established consensus process methodology, provides simulation-based extensions to SQUIRE 2.0 reporting guidelines to improve the quality and standardization of reporting on simulation-specific elements of healthcare improvement research (Stone et al, 2024, Abstract).

Standardized Patient (SP) \ stan-dər-ˌdīz-d \ pā-shənt \ *noun*

Etym. standard - "authoritative or recognized exemplar of quality or correctness" (late 15c.). Meaning "rule, principal or means of judgment" is from 1560s. That of "definite level of attainment" is attested from 1711 (as in standard of living, 1903).

Etym. patient – (n.) "suffering or sick person under medical treatment," late 14c.

Definition

- "A real patient who has been directed to use his/her own history and physical exam findings to participate in the education of medical students….a person who is not an actor…presents his/her real feelings e.g. emotional and personality characteristics….a patient who has been briefed to play a patient role…can be people with or without actual diseases who have been trained to portray a medical case" (Beigzadeh et al., 2016, p. 25).
- "A well-prepared simulated patient (SP) has the ability to draw learners into a scenario quickly, achieving deep engagement. Their mere presence usually prompts interactivity" (Nestel & Bearman, 2015, Abstract).
- "SPs can be used for teaching and assessment of learners, including but not limited to history/consultation, physical examination, and other clinical skills in simulated clinical environments… can also be used to give feedback and evaluate learner performance" (Lewis et. a., 2017, p.2).
- An individual trained to portray a patient with a specific condition in a realistic, standardized, and repeatable way and where portrayal/presentation varies based only on learner performance; this strict standardization of performance in a simulated session is what can distinguish standardized patients from simulated patients.
- An individual who is trained to portray a real patient to simulate a set of symptoms or problems used for healthcare education, evaluation, and research.
- More commonly used in the USA and Canada in large part because SPs participate in high-stakes assessments in which SP responses to the learner were standardized. In recent years as SPs have been included in more formative teaching scenarios, its meaning has become interchangeable with the term simulated patient.

- "A person who has been carefully coached to simulate an actual patient so accurately that the simulation cannot be detected by a skilled clinician".
- In performing the simulation, the SP presents the gestalt of the patient being simulated; not just the history, but the body language, the physical findings, and the emotional and personality characteristics as well" (Barrows, 1993).

See also: ACTOR, EMBEDDED PARTICIPANT, ROLE PLAYER, SIMULATED PATIENT OR PARTICIPANT, SIMULATED PERSON
Eds. Note: This term is often synonymous with Simulated Patient.

Standardized Patient Educator

\ stan-dər-ˌdīz-d \ pā-shənt \ ˈedʒ·əˌkeɪţ·ər \ *noun*

Etym. standard - "authoritative or recognized exemplar of quality or correctness" (late 15c.). Meaning "rule, principal or means of judgment" is from 1560s. That of "definite level of attainment" is attested from 1711 (as in standard of living, 1903).

Etym. patient (n.) "suffering or sick person under medical treatment," late 14c.

Etym. educator (n.) 1560s, "one who nourishes or rears;" 1670s, "one who trains or instructs," from Latin educator (in classical Latin, "a foster father," then also "a tutor"), agent noun from past participle stem of educare (see educate). Latin educatrix meant "a nurse."

Definition

- Those who work to develop expertise in the Standardized Patient methodology and are responsible for training and/or administering Standardized Patient-based simulation (Gliva-McConvey et. Al, 2020).

Standardized Patient Simulation

\ stan-dər-ˌdīz-d \ pā- shənt \ sim-yuh-ley-shuh n \ *noun*

Etym. standard (n.) "authoritative or recognized exemplar of quality or correctness" (late 15c.). Meaning "rule, principal or means of judgment" is from 1560s. That of "definite level of attainment" is attested from 1711 (as in standard of living, 1903).

Etym. patient (n.) "suffering or sick person under medical treatment," late 14c.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A simulation using a person, or persons trained to portray a patient scenario or actual patient(s) for healthcare education.
- A modality used for the purpose of practice, learning, assessment, or to gain an understanding of systems or human actions in which standardized (or simulated) patients play a central role.

Standardized / Simulated Participant

\ stan-dər-ˌdīz-d \ sim-yə-ˌlāt-id \ pär-ˈti-sə-pənt \ *noun*

Definition

- "Human role players are variously described by such terms as standardized/simulated patients or simulated participants (SP or SPs)". SPs interact with learners in experiential education and assessment contexts" and "also provide feedback on learner performance from the perspective of the person they portray, which is unique to working with SPs" (Lewis et al., 2017, p. 1).

See: SIMULATED PATIENT, STANDARDIZED PATIENT

State / States \ stāt\ *noun*

Etym.state Meaning "physical condition as regards form or structure" is attested from late 13c. Meaning "mental or emotional condition" is attested from 1530s (phrase state of mind first attested 1749).

Definition

- A term used when programming manikins/mannequins; state variables may include vital signs, monitor readings, body sounds, and verbalizations made by the simulator.
- [plural] A sequence of events that change over time. (Sokolowski & Banks, 2011). This may include psychosocial behaviors in the simulation activities.

Compare: EVENT
See also: TRIGGER

Stochastic \ stə-ˈkas-tik \ *adj*

Etym. stochastic (adj.) 1660s, "pertaining to conjecture," from Greek stokhastikos "able to guess, conjecturing," from stokhos "a guess, aim, target, mark," literally "pointed stick set up for archers to shoot at;" the sense of "randomly determined" is from 1934, from German stochastik (1917).

Definition

- Pertaining to a process, model, or variable whose outcome, result, or value depends on chance (Department of Defense, 1998).

Compare: DETERMINISTIC

Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)

\ strengk-thuhn ing\ the \rəˈpôrt ing \ of \ ob-zur-vey-shuh-nl \ ˈstədēs \ in \ ep-i-dee-mee-ol-uh-jee \

Definition

- The (STROBE) Initiative developed recommendations on what should be included in an accurate and complete report of an observational study (von Elm, 2007).
- The STROBE Statement consists of a checklist of 22 items, which relate to the title, abstract, introduction, methods, results, and discussion sections of articles (Bolignano, 2013).
- [STROBE] "provides guidance to authors about how to improve the reporting of observational studies and facilitates critical appraisal and interpretation of studies by reviewers, journal editors, and readers" (Vandenbroucke, 2007, p. 1).
- 10 Simulation specific extensions were created and are recommended for reporting: "item 1 (title/abstract), item 2 (background/rationale), item 7 (variables), item 8 (data sources/ measurement), item 12 (statistical methods), item 14 (descriptive data), item 16 (main results), item 19 (limitations), item 21 (generalizability), and item 22 (funding)" (Cheng et al., 2016, Results).

Subject Matter Expert (SME)

\ ˈsəbjək(t) \ ˈmadər \ ˈekˌspərt \ *noun*

Etym. subject (adj.) The meaning "subject matter of an art or science" is attested from 1540s, probably short for subject matter (late 14c.), which is from Medieval Latin subjecta materia, a loan translation of Greek hypokeimene hylē (Aristotle), literally "that which lies beneath."

Etym. expert (n.) late 14c., "having had experience; skillful," from Old French expert, espert "experienced, practiced, skilled" and directly from Latin expertus (contracted from *experitus), "tried, proved, known by experience," past participle of experiri "to try, test," from ex "out of" (see ex-) + peritus "experienced, tested," from PIE *per-yo-, suffixed form of root per- (3) "to try, risk." The adjective tends to be accented on the second syllable, the noun on the first. Related: Expertly; expertness.

Definition

- "Persons who possess a deep understanding of a particular content area, responsible for providing knowledge and expertise to a project or team; ensures content is accurate, relevant and up-to-date. SMEs work closely with instructional designers, e-learning developers, and other SMEs to create high-quality e-learning content" (TeachFloor, n.d., n.p).
- An individual with specialized expertise in a specific area or field.
- "An individual with qualifications and experience in a particular field or work process; an individual who by education, training, and/or experience is a recognized expert on a particular subject, topic, or system" (U.S. Department of Energy, 2011).

Summative Assessment \ suhm-uh-tiv \ ə-ˈses-mənt \ *noun*

Etym. summative (adj.) "operating or acting by means of addition," 1836, from Modern Latin summat-, stem of summare "to sum" (see summation) + -ive.

Etym. assessment (n.) "1530s, "value of property for tax purposes," from assessment. Meaning "act of determining or adjusting of tax rate, charges, damages, etc., to be paid" is from 1540s (earlier in this sense was assession, mid-15c.). General sense of "estimation" is recorded from 1620s; in education jargon from 1956."

Definition

- "Evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period, like a unit, course, or program. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to great effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches" (Yale Poor Center for Teaching & Learning, n.d., paragraph 2).
- A "type of assessment 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" (INACSL Standards Committee, 2016b, p. S41; INACSL Standards, Molloy, et al., 2021, p. 59-60). This may be associated with a grade (INACSL Standards Committee, 2016b; INACSL Standards Committee, Molloy, et al., 2021).
- An assessment in which the performance of the individual is compared to a specific standard (Hamdorf & Davies, 2016).
- "requires rigorous and evidence-based development because any summative assessment is high stakes for participants, trainers, and programs" (Buléon et al., 2022).

Compare: FORMATIVE ASSESSMENT

Synthetic Learning Technologies

\ sin-ˈthe-tik\ ˈlərn-ing \ tek-ˈnä-lə-jē-z \ *noun*

Etym. synthetic (adj.) 1690s, as a term in logic, "deductive," from French synthétique (17c.) and directly from Modern Latin syntheticus, from Greek synthetikos "skilled in putting together, constructive," from synthetos "put together, constructed, compounded," past participle of syntithenai "to put together" (see synthesis). Related: Synthetical (1620s in logic).

Etym. learning (n.) Old English leornung "learning, study," from leornian.

Etym. techno - word-forming element meaning "art, craft, skill," later "technical, technology," from Latinized form of Greek tekhno-, combining form of tekhne "art, skill, craft in work; method, system, an art, a system or method of making or doing."

Definition

- The methodologies used in synthetic or simulated learning environments. Examples include manikins/mannequins; computer-based virtual reality; haptics; actors; simulated patients; part-task / task trainers; hybrid; and video (ASSH, 2020).

Systems Approach \ ˈsistəms \ əˈprōCH \ *noun*

Etym system (n.) 1610s, "the whole creation, the universe," from Late Latin systema "an arrangement, system," from Greek systema "organized whole, a whole compounded of parts," from stem of synistanai "to place together, organize, form in order," from syn- "together." Meaning "set of correlated principles, facts, ideas, etc." first recorded 1630s.

Etym. approach n. mid-15c., "act of drawing near, arrival," from approach (v.). Meaning "way or means by which something is approached" is from 1630s. Figurative sense of "means of handling a problem, etc." is attested by 1905. Sense of "final stage of an aircraft flight before landing" is by 1930.

Definition

- An analysis that "…takes the view that most errors reflect predictable human failings in the context of poorly designed systems (e.g., expected lapses in human vigilance in the face of long work hours or predictable mistakes on the part of relatively inexperienced personnel faced with cognitively complex situations). Rather than focusing corrective efforts on reprimanding individuals or pursuing remedial education, the systems approach seeks to identify situations or factors likely to give rise to human error and implement systems changes that will reduce their occurrence or minimize their impact on patients. This view holds that efforts to catch human errors before they occur or block them from causing harm will ultimately be more fruitful than ones that seek to somehow create flawless providers" (PSNet Glossary, 2024t, paragraph 1).

Systems Integration \ ˈsis-təmz \ ˌin-tə-ˈgrā-shən \ *noun*

Etym. system - (n.) 1610s, "the whole creation, the universe," from Late Latin systema "an arrangement, system," from Greek systema "organized whole, a whole compounded of parts," from stem of synistanai "to place together, organize, form in order," from syn- "together." Meaning "set of correlated principles, facts, ideas, etc." first recorded 1630s.

Etym integration (n.) 1610s, from French intégration and directly from Latin integrationem (nominative integratio) "renewal, restoration." Integrate - Meaning "to put together parts or elements and combine them into a whole" is from 1802. Related: Integrated; integrating.

Definition

- An engineering term meaning to bring together the component subsystems into one system that functions together. In healthcare, the ability to improve the quality of care and patient outcomes through re-engineering of care delivery processes.
- A category of simulation program accreditation that recognizes programs that demonstrate consistent, planned, collaborative, integrated, and iterative application of simulation-based assessment, research, and teaching activities with systems engineering and risk management principles to achieve excellent bedside clinical care, enhanced patient safety, and improved outcome metrics across the health care system(s) (The SSH Accreditation, 2021).

T

Tabletop Exercise (TTX) Simulation

\ ˈtā-bəl-ˌtäp \ sim-yuh-ley-shuh n \ *noun*

Etym. tabletop (adj.) table- late 12c., "board, slab, plate," from Old French table "board, square panel, plank; writing table; picture; food, fare" (11c.), and late Old English tabele "writing tablet, gaming table," from Germanic *tabal

Etym. top (adj.) "being at the top, 1590s. or (n.) highest point," Old English top "summit, crest, tuft,"

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A tabletop simulation is an educational tool intended to provide learners an opportunity to apply knowledge through formal discussion of a described scenario (Lehtola, 2007).
- "A tabletop exercise involves key personnel discussing simulated scenarios in an informal setting…can be used to assess plans, policies, and procedures" (California Hospital Association, 2017, p. 1).

Take-home Simulation

\ teyk \ hohm \ sim-yuh-ley-shuh n \ *noun*

Etym. take (v.) late Old English tacan "to take, seize," from a Scandinavian source (such as Old Norse taka "take, grasp, lay hold," past tense tok, past participle tekinn; Swedish ta, past participle tagit), from Proto-Germanic *takan- (source also of Middle Low German tacken, Middle Dutch taken, Gothic tekan "to touch"), from Germanic root *tak- "to take," of uncertain origin, perhaps originally meaning "to touch".

Etym. home (n.) Old English ham "dwelling place, house, abode, fixed residence; estate; village; region, country," from Proto-Germanic *haimaz "home" (source also of Old Frisian hem "home, village," Old Norse heimr "residence, world," heima "home," Danish hjem, Middle Dutch heem, German heim "home," Gothic haims "village")

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Defnition

- A combination of devices (e.g., laparoscopic box trainer), software, tasks, instructional videos, target performance levels, log sheets, and program overview materials that are provided to participants for use at in-home or other similar locations for completing simulation activities (Wilson et al., 2019).

Take-home Simulators

\ teyk \ hohm \ sim-yuh-ley-ters \ noun

Etym. take (v.) late Old English tacan "to take, seize," from a Scandinavian source (such as Old Norse taka "take, grasp, lay hold," past tense tok, past participle tekinn; Swedish ta, past participle tagit), from Proto-Germanic *takan- (source also of Middle Low German tacken, Middle Dutch taken, Gothic tekan "to touch"), from Germanic root *tak- "to take," of uncertain origin, perhaps originally meaning "to touch."

Etym. home (n.) Old English ham "dwelling place, house, abode, fixed residence; estate; village; region, country," from Proto-Germanic *haimaz "home" (source also of Old Frisian hem "home, village," Old Norse heimr "residence, world," heima "home," Danish hjem, Middle Dutch heem, German heim "home," Gothic haims "village")

Etym. simulator (n.) 1835, of persons, from Latin simulator "a copier, feigner," agent noun from simulare "imitate," from stem of similis "like." In reference to training devices for complex systems, from 1947 (flight simulator). simulated (adj.) 1620s, "feigned," past participle adjective from simulate (v.). Meaning "imitative for purposes of experiment or training" is from 1966 (agent noun simulator in the related sense dates from 1947. In commercial jargon, "artificial, imitation" by 1942.

Definition

- Simulators that can be taken home or used in other locations (e.g., call rooms) (Bokhari et al., 2010).

Task Trainer / Part-Task Trainer

\ Partial Task Trainer \ tahsk \ trey-ner \ *noun*

Etym. task (n.) early 14c., "a quantity of labor imposed as a duty," from Old North French tasque (12c., Old French tasche, Modern French tâche). General sense of "any piece of work that has to be done" is first recorded 1590s.

Etym. trainer (n.) c. 1600, "one who educates or instructs," agent noun from train (v.). Meaning "one who prepares another for feats requiring physical fitness" is from 1823, originally of horse trainers.

Definition

- A device designed to train the key elements of the procedure or skill being learned, such as lumbar puncture, chest tube insertion, central line insertion or part of a total system (Center for Immersive and Simulation Based Learning [CISL], 2014; Levine et al., 2013).

- A model that represents a part or region of the human body such as an arm, or an abdomen. Such devices may use mechanical or electronic interfaces to teach and give feedback on manual skills such as IV insertion, ultrasound scanning, suturing, etc. Generally used to support procedural skills training; however, they can be used in conjunction with other learning technologies to create integrated clinical situations.

See also: PROCEDURAL SIMULATION, SIMULATOR

Team-based Learning \ ˈtēm \ ˈbāst \ ˈlərn-ing \ *noun*

Etym. team (n.) applied in Old English to groups of persons working together for some purpose, especially "group of people acting together to bring suit;" modern sense of "persons associated in some joint action" is from 1520s. Team spirit is recorded from 1928. Team player attested from 1886, originally in baseball.

Etym. learning (n.) Old English leornung "learning, study," from leornian.

Definition

- A learning method that makes use of small group discussion and collaborative, self-directed study to foster new learning as opposed to imparting information. After a period of preliminary individual accountability, teams of learners compete with each other to learn information and solve problems. This is in distinction to traditional learning in which information is imparted from teacher to learner.
- A learning method with many similarities to Problem Based Learning (PBL). Unlike PBL, where a complex, open-ended, case is given without the information to solve it, team-based learning capitalizes on the use of carefully chosen learning activities based on reading assignments (Michaelson et al., 2008).

Technical skills \ˈtek-ni-kəl\ˈskil \ *noun*

Etym. technical (adj.) 1610s, "skilled in a particular art or subject," formed in English from technic + al (1), or in part from Greek tekhnikos "of art; systematic," in reference to persons "skillful, artistic," from tekhne "art, skill, craft." The sense narrowed to "having to do with the mechanical arts" (1727).

Etym. skills (n.) late 12c., "power of discernment," from Old Norse skil "distinction, ability to make out, discernment, adjustment," related to skilja (v.) "to separate; discern, understand," from Proto-Germanic *skaljo- "divide, separate" (cognates: Swedish skäl "reason," Danish skjel "a separation, boundary, limit," Middle Low German schillen "to differ," Middle Low German, Middle Dutch schele "separation, discrimination;." Sense of "ability, cleverness" first recorded early 13c.

Definition

- A procedural skill that is required for the accomplishment of a specific task.
- In healthcare, the knowledge, skill, and ability to accomplish a specific medical task; for example, inserting a chest tube or performing a physical examination.

Technology Enhanced Healthcare Simulation
\ tek-ˈnä-lə-jē \ in-ˈhan(t)s \ ˈhelth \ ˈker \ sim- yuh-ley-shuh n \ *noun*

Etym. techno - word-forming element meaning "art, craft, skill," later "technical, technology," from Latinized form of Greek tekhno-, combining form of tekhne "art, skill, craft in work; method, system, an art, a system or method of making or doing."

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- A group of materials and devices created or adapted to train healthcare professionals in a simulated environment. Examples include such diverse products as computer-based virtual reality simulators, high-fidelity and static mannequins, plastic models, live animals, inert animal products, and human cadavers (Cook et al., 2011).
- An educational tool or device with which the learner physically interacts to mimic an aspect of clinical care for the purpose of teaching or assessment.

Telepresence \ ˈtelɪˌprɛzəns \ *noun*

Etym. tele (adj.) before vowels tel-, word-forming element meaning "far, far off, operating over distance" (also, since c. 1940, "television"), from Greek tele "far off, afar, at or to a distance," related to teleos (genitive telos) "end, goal, completion, result," from PIE root *kwel- (2) "far" in space or time.

Etym presence (n.): mid-14c., "fact of being present," from Old French presence (12c., Modern French présence), from Latin praesentia "a being present," from praesentem (see present (n.)). Present c. 1300, "existing at the time," from Old French present "evident, at hand, within reach;" as a noun, "the present time" (11c., Modern French présent) and directly from Latin praesentem (nominative praesens) "present, at hand, in sight; immediate; prompt, instant; contemporary," from present participle of præesse "be before (someone or something), Meaning "being there" is from mid-14c. in English.

Definition

- Telepresence is the bridging of geographical separation using technology that enables interaction and communication approximate to being actually present. Work-from-home meeting software that supports videoconferencing uses telepresence. The environment of a colleague seen through the webcam is a real, non-computer-generated environment (e.g., their office or home).
- Manikin-based simulations with a debriefer who is geographically separated but uses a telepresence robot would be using telepresence, but not virtual presence (Shaw et al., 2018).

Compare: VIRTUAL PRESENCE

Telesimulation (Tele-OSCE) \ ˈtɛlɪˌ \ sim-yuh-ley-shuh n \ *noun*

Etym. tele (adj.) before vowels tel-, word-forming element meaning "far, far off, operating over distance" (also, since c. 1940, "television"), from Greek tele "far off, afar, at or to a distance," related to teleos (genitive telos) "end, goal, completion, result," from PIE root *kwel- (2) "far" in space or time."

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- "A methodology that utilizes communications technology to provide simulation education between learners and instructors located remotely from one another. The "instructor controls the mannequin and moderates the debriefing remotely… observes the learners in real time and provides immediate feedback during the debriefing' (Hayden et al., 2018, p. 144).
- "Provides simulation education in situations where the simulator and learners are geographically remote from the instructor. Technologies such as Web-conferencing, screen-sharing software, microphones, and webcams make telesimulation possible and allow simulation-based educational sessions to occur with greater frequency for institutions not located proximate to formal simulation centers" (Hayden et al., 2018, p. 144).
- "The use of the Internet to link simulators between an instructor and trainee in different locations" (Okrainec et al., 2010, p. 417).
- "Telesimulation differs from telementoring or teleconferencing because it actually connects two simulators in different physical locations, allowing teacher and student to see, but not control, what the other is doing in real time" (Okrainec et al., 2010, p. 418).
- "Telesimulation is a novel, practical, inexpensive, effective, and well-received method for teaching appropriate procedural skills" (Mikrogianakis et al., 2011, p. 427).

Compare: DISTANCE SIMULATION, REMOTE SIMULATION, TELEPRESENCE

Training Scar \ ˈtrā-niŋ \ ˈskär \ *noun*

Etym. training (adj.) mid-15c., "protraction, delay," verbal noun from train (v.). From 1540s as "discipline and instruction to develop powers or skills;" 1786 as "exercise to improve bodily vigor." Training wheels as an attachment to a bicycle is from 1953.

Etym. scar (n.) late 14c., from Old French escare "scab" (Modern French escarre), from Late Latin eschara, from Greek eskhara "scab formed after a burn," literally "hearth, fireplace," of unknown origin. English sense probably influenced by Middle English skar (late 14c.) "crack, cut, incision," from Old Norse skarð, related to score (n.).Figurative sense attested from 1580s.

Definition

- A bad habit, practice, or procedure that is taught inadvertently, resulting from errors of commission or errors of omission in teaching.
- The unintended bad habits acquired during training.
- The creation of obvious or latent errors in behaviors that typically appear under certain conditions, especially when under stress or in stressful situations.
- Methods in which learners have been trained that do not directly apply to practice or operations and are not based in reality (Ellifritz, 2019; Grossman, 2008).

Compare: NEGATIVE LEARNING

Consider also: STRESS INOCULATION

Trigger \ ˈtri-gər \ *noun*

Etym. trigger (n.) "device by means of which a catch or spring is released and a mechanism set in action."

Definition

- An event or events that move the simulation from one state to another.
- Anything, as an act or event, that serves as a stimulus and initiates or precipitates a reaction (Dictionary.com, 2024).

See also: STATE/STATES

Typology \ tī-ˈpä-lə-jē \ *noun*

Etym. typology (n.) "doctrine of symbols," 1845, from Greek typos.

Related: Typological; typologically.

Definition

- The classification of different educational methods or equipment; for example, 3-dimensional models, computer software, standardized patients, partial-task trainers, or high-fidelity patient simulators (Meakim et al., 2013).

See also: MODALITY, SIMULATED/SYNTHETIC LEARNING METHOD

V

Validity \ vuh-lid-i-tee \ *noun*

See: SIMULATION VALIDITY

Virtual Environment
\ ˈvər-chə-wəl \ in-ˈvī-rə(n)-mənt \ *noun* [C]

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. environment (n.) sense of "the aggregate of the conditions in which a person or thing lives" is by 1827 (used by Carlyle to render German Umgebung); specialized ecology sense first recorded 1956.

Definition

- A simulated environment rendered by a computer, mobile device, or virtual reality/augmented reality/mixed reality device (Schwebel et al., 2017).

Compare: VIRTUAL WORLD, METAVERSE
See also: VIRTUAL REALITY

Virtual Patient \ ˈvər-chə-wəl \ pā-shənt \ *noun*

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. patient (n.) "suffering or sick person under medical treatment," late 14c.

Definition

- A representation of an actual patient. Virtual patients can take many forms such as software-based physiological simulators, simulated patients, physical manikins, and simulators (Ellaway, et al., 2008).
- A computer program that simulates real-life clinical scenarios in which the learner acts as a healthcare provider obtaining a history and physical exam and making diagnostic and therapeutic decisions (ASSH, 2020).

See also: ARTIFICIAL INTELLIGENCE

Compare: STANDARDIZED PATIENT, SIMULATED PATIENT

Virtual Presence \ vur-choo-uh l \ prɛzəns \ *noun*

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym Presence (n.): mid-14c., "fact of being present," from Old French presence (12c., Modern French présence), from Latin praesentia "a being present," from praesentem (see present (n.)). Present c. 1300, "existing at the time," from Old French present "evident, at hand, within reach;" as a noun, "the present time" (11c., Modern French présent) and directly from Latin praesentem (nominative praesens) "present, at hand, in sight; immediate; prompt, instant; contemporary," from present participle of præesse "be before (someone or something), Meaning "being there" is from mid-14c. in English.

Definition

- The sense of being physically present with visual, auditory, or force displays generated by a computer; similar but distinct from Telepresence, the "sense of being physically present with virtual object(s) at the remote teleoperator site" (Sheridan, 1992, p.120).
- Virtual presence refers to the degree to which individuals experience a computer-generated environment rather than the physical locale (Samosorn et al., 2019).

Compare: TELEPRESENCE

Virtual Reality (VR) \ ˈvər-chə-wəl \ mrē-ˈa-lə-tē \ *noun*

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. reality (n.) 1540s, "quality of being real," from French réalité and directly Medieval Latin realitatem (nominative realitas), from Late Latin realis. Meaning "real existence, all that is real" is from 1640s; that of "the real state (of something)" is from 1680s. Sometimes 17c.-18c. also meaning "sincerity." Reality-based attested from 1960.

Definition

- "Virtual reality (VR) refers to a computer-generated, three-dimensional virtual environment that users can interact with, typically accessed via a computer that is capable of projecting 3D information via a display, which can be isolated screens or a wearable display, e.g., a head-mounted display (HMD), along with user identification sensors. VR can mainly be divided into two categories: non-immersive, and immersive.
  - Non-immersive VR utilizes a combination of screens surrounding the user to present virtual information. A typical example of this is driving or flight simulations in which the user sits in a chair with multiple screens around them, giving them the feeling of being in the cockpit or driver's seat without being fully immersed.
  - Immersive VR refers to using a wearable display, … to track a user's movement and present the VR information based on the position of users, which allows them to experience 360 degrees of the virtual environment" (Hamad & Jia, 2022, p.1).
- The use of computer technology to create an interactive three-dimensional world in which the objects have a sense of spatial presence; virtual environment and virtual world are synonyms for virtual reality.
- A computer-generated three-dimensional environment that gives an immersion effect.
- Often refers to the three-dimensional (3D) head-mounted display VR (HMD VR) in which the virtual world is projected (Chang & Weiner, 2016).
- A "fully immersive software-generated artificial digital environment. VR is a simulation of three-dimensional images, experienced by users via special electronic equipment, such as a head mounted display (HMD). VR can create or enhance characteristics such as presence, embodiment, and agency" (X Reality Safety Intelligence [XRSI], 2024f, paragraph 1).

See also: SIMULATOR

Virtual Reality Environment (VRE)

\ ˈvər-chə-wəl \ rē-ˈa-lə-tē \ in- ˈvī-rə(n)-mənt \ *noun*

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. reality (n.) 1540s, "quality of being real," from French réalité and directly Medieval Latin realitatem (nominative realitas), from Late Latin realis. Meaning "real existence, all that is real" is from 1640s; that of "the real state (of something)" is from 1680s. Sometimes 17c.-18c. also meaning "sincerity." Reality-based attested from 1960.

Definition

- A wide variety of computer-based applications commonly associated with immersive, highly visual, 3D characteristics, that allow the participant to look about and navigate within a seemingly real or physical world. It is generally defined based on the type of technology being used, such as head-mounted displays, stereoscopic capability, input devices, and the number of sensory systems stimulated (ASSH, 2020).
- "Central to VR is the concept of immersion, which is defined as the perception and belief of being present in a simulated world. …A "flexible method of delivering simulation sessions that allows for educational standardization. …A computer-generated world that involves immersion and sensory feedback". An advantage of VRE is "the medical trainee can go through the VR environment remotely, at any location or time of day". A framework for implementing VRE is called "BUILD REALITY (begin, use, identify, leverage, define, recreate, educate, adapt, look, identify, test, amplify) [which is] a series of practical tips for designing and implementing a VR-based medical simulation environment in their curriculum. …VR is standardized, accessible, and can have assessment metrics and feedback built into the VR environment. VR allows learners to make mistakes safely and then learn through deliberate practice to improve their performance without harming any patients" (Gupta, 2023, Introduction).

Virtual Reality Simulation

\ ˈvər-chə-wəl \ mrē-ˈa-lə-tē \ sim- yuh-ley-shuh n \ *noun*

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. reality (n.) 1540s, "quality of being real," from French réalité and directly Medieval Latin realitatem (nominative realitas), from Late Latin realis. Meaning "real existence, all that is real" is from 1640s; that of "the real state (of something)" is from 1680s. Sometimes 17c.-18c. also meaning "sincerity." Reality-based attested from 1960.

Definition

- "Many have started to take advantage of VR [simulation] in performing tasks that are hard to practice due to limited resources or the inherent risks and dangers associated with said tasks that can sometimes lead to catastrophic consequences. The greatest strength of VR [simulation] is that it opens up opportunities for people to practice these tasks in a safe capacity while also being immersed enough for it to feel realistic and transferable to the real world and depict almost any situation accurately" (Hamad & Jia, 2022, p.3).
- "VR… simulation … can be uniquely created and customized to suit users' needs. There are two main types of simulations: immersive and non-immersive. Non- immersive VR simulations usually include multiple screens and some type of platform or apparatus that mimics the activities or tasks in reality. Immersive VR simulations differ in terms of using HMDs in place of screens and can either utilize a control platform or apparatus such as the ones used in non-immersive simulations or can instead be fully contained within a virtual setup and require no external setups or platforms. Whether users opt for immersive or non-immersive VR simulations, there is no significant difference in the performance, and the results appear to be very similar in fulfilling the simulation's purpose" (Hamad & Jia, 2022, p.4).
- Simulations that use a variety of immersive, highly visual, 3D characteristics to replicate real-life situations and/or healthcare procedures; virtual reality simulation is distinguished from computer-based simulation in that it generally incorporates physical or other interfaces such as a computer keyboard, a mouse, speech and voice recognition, motion sensors, or haptic devices (ASSH).

Virtual Simulation \ ˈvər-chə-wəl \ sim-yuh-ley-shuh n \ *noun*

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. simulation (n.) noun of action from past participle stem of simulare "imitate," from stem of similis "like." Meaning "a model or mock-up for purposes of experiment or training" is from 1954.

Definition

- The recreation of reality depicted on a computer screen (McGovern, 1994).
- A simulation involving real people operating simulated systems. Virtual simulations may include surgical simulators that are used for on-screen procedural training and are usually integrated with haptic device(s) (McGovern, 1994; Robles-De-La-Torre, 2006, 2008).
- A type of simulation that injects humans in a central role by exercising motor control skills (e.g., flying an airplane), decision skills (e.g., committing fire control resources to action), or communication skills (e.g., as members of an air traffic control team) (Hancock et al., 2008).

Virtual World \ ˈvər-chə-wəl \ wurld \ *noun*

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. world (n.) Originally "life on earth, this world (as opposed to the afterlife)," sense extended to "the known world," then to "the physical world in the broadest sense, the universe" (c. 1200). In Old English gospels, the commonest word for "the physical world," was Middangeard (Old Norse Midgard), literally "the middle enclosure"), which is rooted in Germanic cosmology. Greek kosmos in its ecclesiastical sense of "world of people" sometimes was rendered in Gothic as manaseþs, literally "seed of man." The usual Old Norse word was heimr, literally "abode" (see home). Words for "world" in some other Indo-European languages derive from the root for "bottom, foundation" (such as Irish domun, Old Church Slavonic duno, related to English deep); the Lithuanian word is pasaulis, from pa- "under" + saulė "sun."

Definition

- Similar to virtual environment, though implies multiple characters, learners, or participants and potentially, a larger scale than a virtual environment (Chang & Weiner, 2016).
- A virtual world or massively multiplayer online world (MMOW) in a computer-based simulated environment (Chang et al., 2016).

Compare: VIRTUAL ENVIRONMENT, METAVERSE
See also: VIRTUAL REALITY

W

Wide-Area Virtual Environment (WAVE)

\ ˈwīd \ ˈā-rē-ə \ ˈvər-chə-wəl \ in-ˈvī-rə(n)-mənt \ *noun*

Etym. wide (adj.) "Old English wid "vast, broad, long," also used of time, from Proto-Germanic *widaz (source also of Old Saxon, Old Frisian wid, Old Norse viðr, Dutch wijd, Old High German wit,German weit), perhaps from PIE *wi-ito-, from root *wi- "apart, away, in half."

Etym. area (n.) 1530s, "vacant piece of ground," from Latin area "level ground, open space," used of building sites, playgrounds, threshing floors, etc.; which is of uncertain origin. Perhaps an irregular derivation from arere "to become dry" (see arid), on notion of "bare space cleared by burning." The generic sense of "any particular amount of surface (whether open or not) contained within any set of limits" is from 1560s. Area code in the North American telephone systems is attested from 1959.

Etym. virtual (adj.) The meaning "being something in essence or effect, though not actually or in fact" is from mid-15c., probably via sense of "capable of producing a certain effect" (early 15c.). Computer sense of "not physically existing but made to appear by software" is attested from 1959.

Etym. environment (n.) "c. 1600, "state of being environed" (see environ (v.) + -ment); sense of "the aggregate of the conditions in which a person or thing lives" is by 1827 (used by Carlyle to render German Umgebung); specialized ecology sense first recorded 1956."

Definition

- A large-scale simulator designed to train medical teams in battlefield and natural-disaster scenarios. Three-dimensional images displayed on three vertical screens immerse viewers in a virtual setting; the 8,000-square-foot (745 square meter) WAVE contains multiple chambers, corridors, and sections. The walls act as large movie screens with continued projected images, and sound systems enable participants to echolocate ambient noises. A virtual space created by the WAVE allows team members to interact with each other and real equipment, and gives instructors the opportunity to teach and assess teamwork skills. Stereoscopic images are displayed on the screens with paired DLP projectors while users wear lightweight stereoscopic glasses to view the scene (Uniformed Service University, n.d. paragraph 1).
- A non-proprietary term similar to a computer automated virtual environment (CAVE), in which participant(s) undergo a simulation within an area enclosed by walls with projected images (Wier et al., 2017).

Compare: CAVE AUTOMATIC VIRTUAL ENVIRONMENT

Appendix

TERMS NO LONGER RECOMMENDED FOR USE BY SSH

Confederate \ kən-ˈfe-d(ə-)rət \ *noun*

Etym. late 14c., from Late Latin confoederatus «leagued together,» past participle of confoederare «to unite by a league,» from com- «with, together».

Definition

- An individual(s) who, during the course of the clinical scenario, provides assistance locating and/or troubleshooting equipment. This individual(s) may provide support for participants in the form of 'help available', e.g. 'nurse in charge', and/or to provide information about the manikin that is not available in other ways, e.g., temperature, color change, and/or to provide additional realism by playing the role of a relative or a staff member (ASSH).
- An individual other than the patient who is scripted in a simulation to provide realism, additional challenges or additional information for the learner e.g., paramedic, receptionist, family member, laboratory technician (Victorian Simulated Patient Network).

Instead, used one of the following as best fits: ACTOR, EMBEDDED PARTICIPANT, SIMULATED PATIENT, SIMULATED PERSON, STANDARDIZED PATIENT

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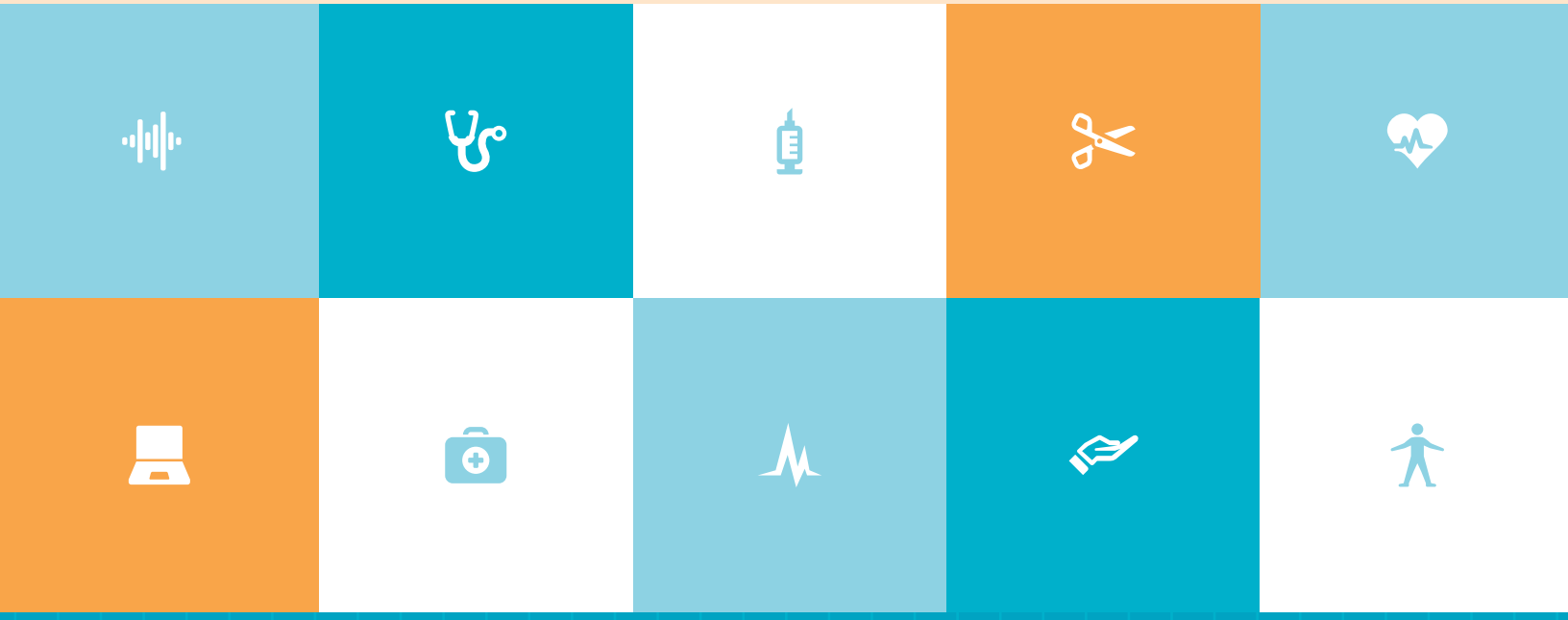

AHRQ Pub. No. 24-0077
November 2024

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