ACT ARC Recommendation 20-11
Terms and Definitions Related to eLearning

I. Submission

The recommendations below were submitted by the Effectiveness of Knowledge Training Workgroup (EKT WG) for consideration by the Air Carrier Training Aviation Rulemaking Committee (ACT ARC) Steering Committee at its November 18, 2020, meeting. The ACT ARC Steering Committee adopted the recommendations, and they are submitted to the Federal Aviation Administration (FAA) as ACT ARC Recommendation 20-11.

II. Statement of the Issue

Recent developments in the technology, application, and implementation of what is commonly known as "electronic learning" (eLearning) have affected the instructional delivery and effectiveness of courseware and instructional strategies used by certificate holders conducting training under Title 14 Code of Federal Regulations (14 CFR) parts 121, 135, and 142. The ACT ARC formed the EKT WG to address industry, academic, and FAA interest in examining how to best incorporate these changing technologies into current FAA guidance. The EKT WG's specific focus is non-instructor-led training[1] delivered through electronic means, which is one component of eLearning currently used in training under parts 121, 135, and 142. Technology and instructional methods used in eLearning are advancing rapidly, and there is interest from the aviation industry and the FAA in ensuring the effectiveness of training curricula that employ eLearning.

The FAA and the aviation industry stakeholders conducting air carrier training do not currently have a common vocabulary regarding eLearning. Specifically, many terms related to eLearning are not consistently defined, and where the FAA defines such terms, the definitions are contained in multiple locations in 14 CFR and guidance materials. This can lead to inconsistent or subjective application by FAA personnel responsible for oversight of part 121 and 135 operators and part 142 training centers.

ELearning methods and associated technologies continue to advance at a rapid pace. There is currently no "living" reference document, such as a glossary of terms, that contains key definitions and is regularly updated.

III. Recommendations

The ACT ARC recommends the FAA consider the following actions relative to the terms and definitions within their guidance on non-instructor-led training delivered through electronic means:

a. Develop a consistent glossary of terms and definitions related to EKT, including eLearning, as a common reference for part 121 and 135 operators, part 142 training

[1] This type of training is also frequently referred to as asynchronous training.

centers, and FAA inspectors. Appendix A to this Recommendation contains an exemplar glossary that the FAA may use in its development of such a glossary.

b. Host the glossary of terms proposed in a, above, in a publicly accessible online location, and should be reviewed and updated on a continuing basis, as technologies and learning methodologies continue to evolve.

c. Use the glossary of terms proposed in a, above, to align language and standardize definitions within current inspector handbook guidance applicable to 14 CFR parts 121, 135, and 142 (*e.g.*, FAA Order 8900.1) with regard to all definitions associated with regulatory guidance, orders, and other publications which concern EKT and eLearning.

d. During the above alignment effort, consider references from the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), and the broader training industry, including organizations conducting training in safety-critical, non-aviation areas.

IV. Rationale and Discussion

Between August 2018 and February 2020, the EKT WG engaged in a review of applicable FAA regulatory and guidance material, conducted a high-level review of the current and near-future state of eLearning, and held multiple discussions with subject matter experts from academia, government, and industry. During these activities, the EKT WG found evidence of inconsistent terms and definitions in FAA documentation and standards as to the design, development, deployment, approval, and effectiveness assessment of non-instructor-led training delivered through electronic means. The EKT WG also determined that there are relevant terms used in today's air carrier training environment that are undefined in FAA documentation, including, but not limited to, the examples listed below:

- FAA Order 8900.1, Volume 3, Chapter 19, Section 1, Scope, Concepts, and Definitions: Paragraph 3-1071, does not list any electronic training or distance learning terms. Under this same section, item Y, Instructional Delivery Methods, the text does not address many of the modalities employed in today's electronic training practices:

    - *"**Instructional Delivery Methods.** Methodology for conveying information to a student. This may include lectures, demonstrations, audiovisual presentations, programmed and directed self-study workshops, and drills. Ground training devices (GTD), flight simulation training devices (FSTD), aircraft, and computer workstations are also considered instructional delivery methods*."

- Volume 3, Chapter 19, Section 5, Definitions: *"Distance learning is a term currently not used in FAA regulations. It is a term used in the FAA and in the aviation industry with various meanings depending on context. For the purposes of this order, distance learning means learning that is accomplished by any training method not including an instructor and a gathering of trainees collocated in a traditional classroom. (Distance learning is known by other terms such as E learning, home study, self guided training, virtual classroom, distributed training, computer based training (CBT), web based training (WBT), and others.)*

- In the same Chapter, Paragraph 3-1210, descriptions of distance learning are provided that are somewhat limited and no longer describe the breadth and scope of modern

eLearning. For example, while desk-top computers are listed, this section makes no mention of other platforms such as tablets, mobile devices, virtual reality, or augmented reality platforms, all of which are potential instructional delivery methods for non-instructor-led training delivered through electronic/distance means:

- *In the so-called "information age," many new information-sharing systems have been developed. These systems have been centered largely on digital technology involving desktop computers and the Internet. These systems include modern training products, many of which are being used effectively today in aviation courses conducted by accredited universities and in air carrier training programs approved by the FAA. Collectively, those products fall under a relatively new heading that has been called "distance learning."*

The lack of consistent and comprehensive guidance in current FAA publications (***e.g.***, FAA Order 8900.1, Advisory Circulars, Flight Standardization Board Reports, *etc.*) with respect to the terms and definitions relevant to the design, development, deployment, approval, and effectiveness assessment of eLearning could lead to inconsistent application by FAA personnel responsible for oversight of 14 CFR part 121, 135, and 142 training centers.[2] Further, operator development, implementation, evaluation, and approval of eLearning can be enhanced through a more robust set of terms and definitions related to eLearning that are clearly explained across all FAA regulatory and guidance publications, similar to other glossaries promulgated by the FAA, such as the Pilot-Controller Glossary or the glossary in the Pilot's Handbook of Aeronautical Knowledge. Although the ACT ARC's recommendations are centered on asynchronous eLearning, when developing the recommended glossary of terms, the FAA should consider a repository that affects all guidance as it relates to training.[3]

The recommended glossary or repository of terms and definitions should be made available online, in a publicly accessible, permanent location. A chronic issue identified with respect to hyperlinks and URL references contained in existing FAA guidance is that the referenced resources lack permanence, and are often subsequently moved or removed, resulting in broken links or meaningless references.

Because eLearning methods and associated technologies continue to advance at a rapid pace, the FAA should also establish a change management process, incorporating specific triggers, for updating and maintaining the glossary. In this regard, the FAA's approach to updating the Airman Certification Standards (ACS) may be instructive. The ACS is a "living document" updated in accordance with a continuous improvement process, as opportunities for improved training are identified. It is also noted that some FAA documents leave open the possibility of future revisions; one example is the Pilot/Controller Glossary, which states it "will be revised, as necessary, to maintain a common understanding of the system."[4]

The current lack of standardized terms and definitions in FAA guidance on eLearning and, specifically, non-instructor-led training delivered through electronic means is not unique to the aviation industry. Instead, although eLearning has become a prevalent method of delivering training in work organizations (Martins, Zerbini, & Medina, 2019), the absence of one common

[2] The Air Carrier & Contract Training Workgroup of the ACT ARC raised this issue in Recommendation 17-3.
[3] It should be noted that this recommendation focuses solely on the definition of terms used in guidance materials, and not on the underlying concepts or their application.
[4] (FAA (2020). *Pilot/Controller Glossary*. Retrieved from https://www.faa.gov/air_traffic/publications/media/pcg_basic_chg_1_1-30-20.pdf.)

set of terms and definitions reflects the state of the training and learning industry at large. For example, Moore, Dickson-Deane, and Galven (2011) stated that, "*as learning technology and its associated fields continue to evolve, practitioners and researchers have yet to agree on common definitions and terminologies*" [p. 129].

Despite this, there are a number of reference sources and other documents, promulgated by professional and trade organizations and international and U.S. agencies, in addition to reference works that contain terms and definitions related to eLearning. These could be used as foundational material in the creation and maintenance of a consistent glossary of terms and definitions related to EKT and eLearning. Appendix B to this recommendation contains a list of organizations and references that may be useful in developing and maintaining a glossary.

Similarly, the FAA should, to the extent possible, strive to harmonize its definitions of terms with those in use by other organizations within the U.S. government, as well as entities such as ICAO, IATA, and organizations conducting training in high-consequence (safety critical) areas.

V. Background Information

EKT WG Scope of Work:

2. Develop recommendations to update and improve the consistent use of terms and definitions in current FAA guidance and standards relevant to the design, development, deployment, approval, and effectiveness assessment of electronic learning.

ACT ARC Initiatives:

- Initiative #44: Recommend guidance for the development and approval of knowledge training with a focus on maximizing training effectiveness.

VI. References

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Appendix A

Exemplar Glossary of eLearning Terms and Definitions

Editorial Note:

In developing this exemplar glossary, the EKT WG relied on a wide variety of sources, including documents published by the FAA and other U.S. Government agencies, foreign governments and governing bodies, international associations, commercial content providers, and academic researchers. The EKT WG has indicated the sourcing for all definitions in its glossary. The EKT WG recommends consultation with legal counsel prior to publication of this recommendation to assess any risk of liability for infringement on intellectual property rights that may result therefrom.

The EKT WG would like to acknowledge the efforts of researchers at the University of Central Florida (UCF), led by EKT WG subject matter expert Florian Jentsch, Ph.D., who compiled a comprehensive collection of over 3,000 terms relating to training and eLearning. The EKT WG relied upon and drew a significant amount of content from this work in developing its exemplar glossary.

Entry	Suggested Definition	Source (see listing below)
Accessibility	The availability of instruction and learning materials (*e.g.*, recordings of live instructor led virtual training, presentations, lectures, training videos, air carrier manuals, *etc.*) for future reference.	[1]
Adaptive learning	Adaptive learning is one technique for providing personalized learning, which aims to provide efficient, effective, dynamic, and customized learning paths to engage each student. Adaptive learning systems use a data-driven—and, in some cases, nonlinear—approach to instruction and remediation. Also known as: personalized learning, individual learning	[2]
Adaptive testing	Adaptive testing is a technology for learner assessment in which each subsequent question is selected automatically based on answers to previous questions and a certain predefined level of difficulty. The main difference between adaptive testing and classical tests is the dynamic, rather than static, determination of questions for the test taker. Each learner has an individual path when taking such tests. The next question is selected based on the personal characteristics of each individual learner rather than on general rules. It is similar to an oral exam, in which the instructor asks a series of questions to determine the knowledge level of the learner Also known as: dynamic testing	[3]
ADDIE model	A systematic process that involves Analyzing the problem, Designing a training solution, Developing the training material, Implementing the solution, and performing Evaluations throughout the process.	[4]
Alpha/beta/pilot testing	A series of evaluations or reviews during course construction that ensures the content follows the course outline and objectives, as well as any technical aspects from an instructional design perspective, prior to course release.	[1]

Entry	Suggested Definition	Source (see listing below)
Animation	A graphic that depicts movement such as video of a procedure or a computer-generated moving series of graphics. Also known as: motion graphics	[5]
application programming interface (API)	A software application that allows other software applications to exchange data, communicate, and work together. For example, an API can allow your learning management system (LMS) to be integrated with training data collection software and SMS system data to analyze the effectiveness of training tasks or programs for more effective continuous improvement capability.	Modified from: [6]
Artificial intelligence (AI)	The simulation of human intelligence by machines that are programmed to think and act like humans. The ability of a computer or a computer-controlled bot to perform tasks commonly associated with intelligent beings.	[7], [8]
Asynchronous	In the context of training, communication or interaction between instructors and students that is not contemporaneous. Examples of asynchronous training include viewing of recorded instructional videos, web-based training, and review of distributed hardcopy materials.	[1]
Authentication	Verifying the identity of a user, process, or device, often as a prerequisite to allowing access to resources in a system.	[9]
Badge	A digital credential evidencing a learner's completion of a course, curriculum, or program.	[1]
Blended learning	A learning approach that combines both eLearning and in person instructor-led training.	Modified from: [10]
Branching	A programming technique which allows users of interactive video, multimedia courseware, or online training to choose from several courses of action in moving from one sequence to another	[11]
Case study	A learning method in which a real or fictitious situation is presented for analysis and problem solving.	[12]
Completion record	Credit a learner gets for completing a training activity.	Modified from: [6]
Content	Any learning materials that are included in the course.	[1]
Content library	A central repository for resources and eLearning content. Content libraries can be used to store assets such as documents, presentations, video, audio, or images. A content library is a particularly useful feature in a learning management system (LMS) as it typically enables users to upload and manage eLearning assets in bulk, use the same asset across multiple courses and easily update existing assets.	Modified from: [13]
Content management system (CMS)	A system for managing the creation, modification, archiving and removal of information resources from a content library.	Modified from: [14]
Content owner (CO)	The person or organization responsible for the course material (training and testing), the accessibility of that material, and for continual updates and improvement to that material.	[1]
Core curriculum	A set of courses approved by the Administrator, for use by a training center and its satellite training centers. The core curriculum consists of training which is required for certification. It does not include training for tasks and circumstances unique to a particular user.	[15]
Corrective feedback	Information provided in response to correct and/or incorrect answers to a practice exercise or assessment that allows the learners more detailed information on the subject matter in question.	[1]

Entry	Suggested Definition	Source (see listing below)
Course manager	The Course Manager is responsible for overseeing the delivery and revision of course content. The Course Manager collects end-of-course and learning assessment evaluation data. The Course Manager may also be responsible for providing oversight of the project and schedule, and may be responsible for the regulatory acceptance/approval of training deliverables.	Modified from: [16]
Course map	A type of menu or concept map that graphically represents the content structure of an online course or lesson. Course maps have been shown to influence how learners organize learning content.	[5]
Course report	This report indicates whether the training fulfills the requirements stated in the course design, for example, teaches to and assesses the stated objectives, follows the topic sequence, and delivers instruction using the methods and media recommended, enabling the learners to achieve the outcome.	Modified from: [4]
Courseware	All instructional material a learner requires to complete a curriculum, in whatever media required, including manuals, visual aids, lesson plans, flight event descriptions, computer software programs, audiovisual programs, workbooks, handouts, etc.	[17]
Curriculum	An organized body of training events along with the appropriate sequence, recommended delivery and assessment methods, and the expected level of proficiency learners attain as a result of the training.	Modified from: [4]
Curriculum design	The activities involved in organizing, clustering, sequencing, and otherwise structuring the elements of instruction (objectives, lessons, evaluations, etc.) into an orderly flow of learning experiences to facilitate student performance.	[17]
Curriculum management	Curriculum Management refers to training-related activities occurring after validation: the administration, storage, organization, maintenance, and revision of training. Also known as: Change Management Process (CMP)	[18]
Delivery method	In terms of training, this means how the training was delivered–eLearning course, video, instructor-led training, written training materials, case studies, role-playing, etc. Also known as: delivery media, training media, training material	[6]

Entry	Suggested Definition	Source (see listing below)
Design	One of the stages in e-learning development in which the content is defined and summarized in the form of outlines, learning objectives, and storyboards. Design involves creating a blueprint for instruction. a) Using data gathered from the analysis phase, the instructional designer creates a design plan in collaboration with subject matter experts for the training that includes: 1. Outcomes. 2. Instructional objectives with clear traceability to the job task and proficiency as defined in the Curriculum Architecture Job Task Analysis. 3. Testing strategy. 4. Topics and other content needed to teach the objectives. 5. An outline of the topics associated content, assessment, and resources to be taught. 6. Instructional strategies and media choices for each objective.	[5] (first sentence) [4] (remainder)
Design model	A set of guidelines to organize appropriate methods and practices of teaching academic subjects and theoretical concepts to achieve instructional goals. Systematic design can be defined as the practice of creating instructional experiences to help facilitate learning most effectively. It represents a framework of thinking. Design models describe how to conduct the various steps. The models help trainers and educators to guide and plan the overall process. Examples of common instructional design models are ADDIE; Kemp; Attention, Relevance, Confidence, and Satisfaction (ARCS); and Backwards Design	Modified from: [19]
Design validation	A post hoc evaluation that ensures the training design has the functions and elements identified as necessary in the user analysis. Tests the correspondence of the design with the end users' actual needs.	Modified from: [20]
Developer	A person who is responsible for creating the graphic content of the training.	Modified from: [21]
Development	One of the stages in the systematic design process in which the course is created including graphics, text, programming, etc.	Modified from: [5]
Digital certificate	A digital representation of information which at least (a) identifies the certification authority issuing it, (b) names or identifies its subscriber, (c) contains the subscriber's public key, (d) identifies its operational period, and (e) is digitally signed by the certification authority issuing it.	[9]
Digital signature	A value computed with a cryptographic algorithm and associated with a data object in such a way that any recipient of the data can use the signature to verify the data's origin and integrity.	[9]
Distance learning	Learning that is accomplished by any training method not including an instructor and a gathering of trainees colocated in a traditional classroom. See also: eLearning	[22]

Entry	Suggested Definition	Source (see listing below)
eLearning	The use of computer, internet, web-based, and mobile technologies to deliver learning solutions. May be designed for self-study or instructor-led training. Examples of eLearning include, without limitation: online learning, distance learning, digital learning, computer based training, web based training, distance education, and distributed learning	[23] (First sentence) [5] (Second sentence)
Evaluation of training	A multilevel, systematic method for gathering information about the effectiveness of training. Results of the measurements can be used to improve the offering, determine whether the learning objectives have been achieved, and assess the value of the training to the organization.	Modified from: [12]
Experience API (xapi)	A new generation standard consisting of a specification of programs in the field of remote learning, enabling learning systems to communicate among themselves by tracking and recording learning sessions of all kinds. Also known as: tin can API	Modified from: [3]
Extended reality (XR)	Extended reality (XR) is an umbrella term for immersive technologies, including those currently in use, such as augmented reality (AR), virtual reality (VR), and mixed reality (MR), as well as those that are still to be created. All immersive technologies extend the reality we experience by either blending the virtual and "real" worlds or by creating a fully immersive experience.	Modified from: [24]
Formative evaluation	A process of evaluation in which the goal is to receive feedback during the development process to improve the final product such as technical accuracy, instructional soundness, and suitability for use by instructor, evaluator, and student. Also known as: training evaluation	[1]
Gamification/gaming	The application of approaches, that are typical for games, in nongame processes to motivate learners and improve their engagement in achieving learning objectives.	Modified from: [3]
Graphic	Visual elements on a screen that help the user understand the content.	[20]
Graphical user interface (GUI)	A program interface that takes advantage of the computer's graphics capabilities to make the program easier to use. Well-designed graphical user interfaces can free the user from learning complex command languages.	[25]
Host	To store and manage another company's technology and/or content on your own servers.	[26]
Hybrid classroom	Instructor led class that contains students that are located physically in the classroom along with students attending remotely.	[1]
Instructional designer	Individual with expertise in all phases of the instructional systems design process, including analysis, design, development, delivery, and evaluation of training. Also known as: instructional system designer	[27]

Entry	Suggested Definition	Source (see listing below)
Instructional systems design (ISD)	ISD is a systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation. Also known as: Instructional design (ID)	[22]
Interaction design	A term given to a set of design areas that focuses on the interaction value of content, as opposed to its presentation or information value. The interaction topics include user interface controls, error handling, and feedback systems. The term "interaction design" is intended to differentiate these topics from other topics for purposes of evaluation and development.	[20]
Interactive guided learning	A learning construct in which the student has to follow a predetermined path through the training material. There is extensive interaction between the student and the computer in the form of questions, feedback and participation.	Modified from: [28]
Interactive voice response (IVR)	An interface system that accepts human voice as input mechanism, translates it into recognizable commands, and reacts accordingly.	[20]
Job task analysis (JTA)	A procedure for identifying the component parts or tasks comprising a specific job. Tasks identified through job analysis are further analyzed, using a process called task analysis, to include the subtasks or steps comprising each task. A JTA helps define the content of required training by identifying the knowledge, skills, and abilities required to accomplish job task objectives and perform a particular job function. Also known as: Job Task Listing (JTL)	[22]
Knowledge	Specific information required to enable a student to develop the skills and attitudes to effectively recall facts, identify concepts, apply rules or principles, solve problems, and think creatively. Because knowledge is covert, students must be assigned overt activities to demonstrate their knowledge base.	[17]
Knowledge check	A quick, typically informal assessments imbedded in the course content to help the learner assess whether he or she is grasping the content.	[16]
Learning	A change in behavior as a result of experience.	[11]
Learning environment	The physical or virtual setting in which learning takes place.	[26]
Learning experience	Any course, program, interaction, environment, or activity in which learning takes place. In eLearning, the learning experience typically refers to the interface wherein learners engage with the course content. The average learning management system (LMS) offers a learning experience (the interface utilized by the end user) in addition to an admin dashboard (used to create and manage the learning program).	Modified from: [13]

Entry	Suggested Definition	Source (see listing below)
Learning management system (LMS)	Software application that automates the administration of training. The LMS hosts courses, registers users, tracks courses in a catalogue, records data from learners; and provides reports to management to support continuous improvement. An LMS typically manages courses created by a variety of authoring tools used by course developers.	Modified from: [23]
Learning/performance objective	A brief statement (typically one sentence) used to communicate what learners can expect to learn from a course. Learning objectives are meant to be actionable; they tell learners what actions they will be able to perform upon successful completion of a course.	[13]
Lesson	A meaningful, predetermined division of learning consistent with the method of study, learning, or testing of performance/proficiency objectives. Lessons usually contain objectives, training events, student materials, instructor materials, and an evaluation scheme or form.	Modified from: [17]
Media	The means through which the content of a learning experience is delivered to the student.	[27]
Microlearning	An approach to skill based learning and education which deals with relatively small learning units and short-term-focused activities.	[29]
Mobile device	A mobile electronic processing device that can hold and display information in various media such as, but not limited to, tablets, smart phones, etc.	[30]
Module	Subdivision or a block of instruction that is complete within itself (i.e., “stands alone”) and can be independently taught, measured, and evaluated.	[27]
Multimedia	A combination of more than one instructional medium. This format can include audio, text, graphics, animations, and video. Recently, multimedia implies a computer-based presentation.	[11]
Multimedia developer	Specialized experts in the production of multimedia objects such as audio or video, 2D or 3D animations, simulations and other media elements. They are responsible for the creation, editing, quality assurance and accessibility compliance of audio and video files. Producers or Multimedia Developers work closely with all members of the cast and crew to ensure that all aspects of the process are completed with high quality, on time, and within budget. AKA: multimedia producer, audio or video developer, audio or video producer	[16]
Objective	A statement of what the learners are expected to know or do when they have completed a lesson or entire learning event based on requirements for job performance.	[4]
Performance standard	A quantitative indicator, statistic, or metric used to gauge performance. AKA: qualification standard, standard of performance, performance measure	[31]
Prerequisite	Training, briefings, readings, and/or other informal workshops required in advance of attending another learning event.	[32]

Entry	Suggested Definition	Source (see listing below)
Progress test	A test given during the course to indicate individual student and class progress toward mastery of the course material. AKA: Knowledge check, progress evaluation	[27]
Prototype	A functional sample of the content designed and developed in accordance with the eLearning standards and instructional strategies identified in the Course Design Guide.	[16]
Remedial training	Training provided to correct specific identified operational deficiencies.	[33]
Remediation	Method or process provided to allow a learner to improve evaluation or performance results or outcomes.	[18]
Self-paced training	Training accomplished by the individual without an instructor. This type of training has a flexible schedule. Also known as: self-directed study	[10]
Simulation	Imitation of an operation of a real-world process or system over time. Simulations present instructional scenarios and are delivered by media that create a realistic model of an actual situation or environment. Examples of simulations include tabletop reenactments, role-playing, mock review panels, and mock software displays. In the context of eLearning, simulation does not refer to use of flight training devices.	Modified from: [4]
Site map	A map of a web site, displaying the navigation structure and the interrelationship between pages.	[20]
Social learning	eLearning created to support group interaction.	Modified from: [34]
Storyboard	A document or form providing a textual and visual description of content, graphics, animation, and other elements for an eLearning training course.	Modified from: [22]
Subject matter expert (SME)	An individual with technical expertise in a specialty area(s) covered by the specific subject for a particular course. The SME is responsible for creating, providing, reviewing, and validating course content. The SME also provides guidance and quality assurance throughout the training development process.	[16]
Syllabus	A detailed summary describing the main points of a course of study in a sufficient level of detail to ensure that all knowledge areas and required skills are covered adequately and includes those materials that are necessary to support the course (courseware). It includes details of course requirements, course content, and evaluation plans, including programmed hours, media, and all courseware. Each curriculum must, by regulation [142.39], include a syllabus. AKA: Lesson plan	[35]

Entry	Suggested Definition	Source (see listing below)
Synchronous	In the context of training, communication or interaction between and among students and/or instructors that exists or occurs at the same time. Examples include webinars, video conferences, video consultation and online feedback (p. 76), chat rooms, communication over Skype, virtual classrooms (p. 215), activities in virtual collaborative spaces, and any other formats where the participants are online and interact simultaneously.	Modified from: [36] Examples from: [3]
Systematic development methodology	An organized process for course development (e.g. Instructional Systems Design (ISD)) starting with the conceptual stage and all intermediary steps through implementation and including the collection of data used for continuous improvement. An example of a model that outlines course development steps is ADDIE (Analysis, Design, Development, Implement, Evaluate).	[1]
Test	An instrument that evaluates a learner's mastery of the learning objectives. A test is, generally, a set of questions, problems, or exercises used for determining whether a person has a particular knowledge or skill. Also known as: evaluation, examination, validation, testing, assessment	Modified from: [18] [11]
Test integrity	Test integrity is the degree to which a test and the testing environment and protocols are considered secure and have measures that prevent cheating.	Modified from: [4]
Training effectiveness	A systematic process for determining that the outcome of the course, workshop, or briefing objectives are met using criteria governed by a set of standards.	[1]
Training material	These materials contain the content of the training as specified in the course design guide, for example, a programmed distance learning course, lesson plans for instructor led training, learner guides, resource materials, and assessments. Also known as: delivery method, delivery media, training media	[4]
Training needs analysis (TNA)	The process of determining what information the audience needs to learn, the most effective way to present that information, and where it fits into an existing curriculum of training. Also known as: Training Need Assessment (TNA)	[1]
Training objective	A clear statement that is comprised of three parts, i.e. the desired performance or what the trainee is expected to be able to do at the end of training (or at the end of particular stages of training), the performance standard that must be attained to confirm the trainee's level of competence, and the conditions under which the trainee will demonstrate competence.	[37]
Training program	Training program consists of courses, courseware, facilities, flight training equipment, and personnel necessary to accomplish a specific training objective. It may include a core curriculum and a specialty curriculum.	[15]

Entry	Suggested Definition	Source (see listing below)
Validation	1) A process through which instructional designers and technical content personnel verify instructional materials and associated documentation are complete, accurate, ready for delivery, and are effective, adequate, and acceptable to the learners. 2) A process by which the trainer confirms that the desired learning has occurred. 3) Ensuring that the learner is who they claim to be through identification.	Modified from: [4]
Virtual classroom	A digital learning environment that allows instructors and students to connect online with real time interaction and communication.	[1]
White space	White space refers to blank space or any character such as graphics, symbols or tabs that are not visually displayed on a page. This blank space can increase readability of a page. Too little white space makes a page congested and hard to read. A page with too much white space makes it seem empty.	[16]

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Appendix B

Organizations and references that may be instructive in developing an FAA eLearning glossary:

Organizations
International Civil Aviation Organization
International Air Transport Association
Association of Talent Development
Training Industry
Defense Technical Information Center
U.S. Department of Education

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