

Pedagogies for the Digital Age

****Artificial Intelligence (AI)****

Concept: A simulated form of human intelligence, capable of learning, problem-solving, and decision-making, often used in education to automate tasks, personalize learning, and provide feedback.

Related Terms: Machine Learning, Deep Learning, Natural Language Processing

* Machine Learning (ML): A subset of AI that enables systems to learn and improve from data without explicit programming.

* Deep Learning (DL): A subset of ML that uses neural networks with many layers to analyze complex patterns and make predictions.

* Natural Language Processing (NLP): A subset of AI that deals with the interaction between computers and human language, used in education to analyze student writing and provide feedback.

****Augmented Reality (AR)****

Concept: An interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes used in education to create immersive learning experiences.

Related Terms: Virtual Reality, Mixed Reality, Extended Reality

* Virtual Reality (VR): A simulated experience that can be similar to or completely different from the real world, often used in education to create immersive learning environments.

* Mixed Reality (MR): A hybrid of AR and VR, where physical and digital objects co-exist and interact in real time.

* Extended Reality (XR): An umbrella term that includes AR, VR, and MR, referring to all the real-and-virtual combined environments and human-machine interactions generated by computer technology and wearables.

****Blended Learning****

Concept: A teaching and learning approach that combines face-to-face and online learning, allowing for flexibility and personalization of the learning experience.

Related Terms: Flipped Classroom, Synchronous Learning, Asynchronous Learning

* Flipped Classroom: A blended learning model where students watch lectures or complete readings at home and engage in interactive activities in class.

* Synchronous Learning: A blended learning model where students and teachers interact in real time, either in person or online.

* Asynchronous Learning: A blended learning model where students and teachers interact at different times, often through online discussions and forums.

****Data Analytics****

Concept: The process of examining data to draw conclusions and make informed decisions, often used in education to improve teaching and learning and to measure student outcomes.

Related Terms: Learning Analytics, Educational Data Mining, Predictive Analytics

* Learning Analytics: The measurement, collection, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs.

* Educational Data Mining: The application of data mining techniques to discover patterns from educational data, often used to improve teaching and learning and to measure student outcomes.

* Predictive Analytics: The use of statistical algorithms and machine learning techniques to identify the likelihood of future outcomes based on historical data.

****Digital Citizenship****

Concept: The responsible and appropriate use of technology to communicate, collaborate, and create in a digital world, often taught in schools to prepare students for the challenges and opportunities of the 21st century.

Related Terms: Cybersecurity, Digital Literacy, Digital Footprint

* Cybersecurity: The practice of protecting internet-connected systems, including hardware, software, and data, from attack, damage, or unauthorized access.

* Digital Literacy: The ability to use, understand, and create digital media and technology, including the ability to evaluate digital content critically and use technology safely and responsibly.

* Digital Footprint: The information about a person that exists on the internet as a result of their online activity, including their use of social media, search engines, and other digital tools.

****E-Learning****

Concept: The use of digital tools, such as computers, tablets, and smartphones, to deliver instruction and facilitate learning, often through online courses and programs.

Related Terms: Mobile Learning, Synchronous E-Learning, Asynchronous E-Learning

* Mobile Learning: The use of mobile devices, such as smartphones and tablets, to deliver instruction and facilitate learning, often through apps and mobile-optimized websites.

* Synchronous E-Learning: The use of digital tools to deliver instruction and facilitate learning in real time, often through live video conferencing and online chat.

* Asynchronous E-Learning: The use of digital tools to deliver instruction and facilitate learning at different times, often through pre-recorded lectures and online discussions.

****Game-Based Learning****

Concept: The use of video games, simulations, and other digital games to deliver instruction and facilitate learning, often through interactive and engaging experiences.

Related Terms: Gamification, Serious Games, Simulation-Based Learning

* Gamification: The use of game elements, such as points, badges, and leaderboards, to engage and motivate learners in non-game contexts.

* Serious Games: Video games that are designed for educational, training, or simulation purposes, rather

than entertainment.

* Simulation-Based Learning: The use of digital simulations to create realistic and interactive learning environments, often used in fields such as medicine, engineering, and aviation.

Learning Management System (LMS)

Concept: A software application for the administration, documentation, tracking, reporting, and delivery of educational courses, training programs, or learning and development programs.

Related Terms: Virtual Learning Environment, Course Management System, Content Management System

* Virtual Learning Environment (VLE): A type of LMS that is specifically designed for online learning and teaching, often used in higher education and corporate training.

* Course Management System (CMS): A type of LMS that is specifically designed for managing and delivering courses, often used in K-12 education and higher education.

* Content Management System (CMS): A type of LMS that is specifically designed for managing and delivering digital content, often used in corporate training and marketing.

Makerspace

Concept: A collaborative workspace where students can design, create, and build projects using a variety of digital and physical tools, often used in schools to promote creativity, innovation, and problem-solving.

Related Terms: Fab Lab, Hackerspace, DIY Culture

* Fab Lab: A type of makerspace that is equipped with digital fabrication tools, such as 3D printers, laser cutters, and CNC machines, often used in engineering, design, and art education.

* Hackerspace: A type of makerspace that is focused on technology and computing, often used in computer science, programming, and electronics education.

* DIY Culture: A movement that encourages people to create, modify, and repair their own products and projects, often using digital and physical tools and resources.

Open Educational Resources (OER)

Concept: The use of openly licensed educational materials, such as textbooks, videos, and images, to deliver instruction and facilitate learning, often through online courses and programs.

Related Terms: Open Licensing, Creative Commons, Open Courseware

* Open Licensing: A type of licensing that allows users to access, use, modify, and distribute educational materials without seeking permission or paying royalties.

* Creative Commons: A non-profit organization that provides free, standardized licenses for creators to share their work openly and legally.

* Open Courseware: A type of OER that is specifically designed for online courses and programs, often used in higher education and corporate training.

Personalized Learning

Concept: The tailoring of instruction and learning experiences to meet the unique needs, interests, and goals of individual learners, often through the use of digital tools and resources.

Related Terms: Adaptive Learning, Competency-Based Learning, Differentiated Instruction

- * Adaptive Learning: A type of personalized learning that uses algorithms and machine learning to adapt the content, pace, and path of learning to each learner's needs and abilities.
- * Competency-Based Learning: A type of personalized learning that focuses on mastery of specific skills and knowledge, rather than seat time or credit hours.
- * Differentiated Instruction: A type of personalized learning that adjusts the content, process, and product of learning to meet the diverse needs and preferences of learners.

****Robotics****

Concept: The use of digital and physical tools, such as sensors, actuators, and microcontrollers, to create and program autonomous machines, often used in education to promote creativity, innovation, and problem-solving.

Related Terms: Coding, Programming, Artificial Intelligence

- * Coding: The process of writing and testing instructions for digital devices, such as computers, smartphones, and robots.
- * Programming: The process of designing, writing, testing, and maintaining instructions for digital devices, often using high-level languages and tools.
- * Artificial Intelligence: The development of computer systems that can perform tasks that normally require human intelligence, such as learning, problem