

COURSE SYLLABUS

Course: Authentic Innovation in the 21st Century Classroom

Presenters: Cheryl Lemke

Credits: 3 Graduate Credits

Course Overview

Today's global high-tech world requires instruction and assessment that incorporate the latest social, learning, and neuroscience research on critical thinking, multi-tasking, multimodal learning, collaboration, and engagement. From classroom footage and lectures educators will learn how to use technologically advanced tools that extend students' thinking by serving as a means to explore ideas, research questions, test hypotheses, compose thoughts, and come to conclusions. Educators will learn to teach their students to use these tools as vehicles for exploring rigorous academic concepts in authentic environments—i.e., the world around them. They will help their students become genuine innovators who will thrive in the 21st century culture of collaboration.

Presenters' Bios

Cheryl Lemke is President and CEO of the Metiri Group, a consulting firm dedicated to advancing effective uses of technology in schools. She also serves as the practice leader for Metiri Group Policy Consulting. Prior to launching the firm, she was the executive director of the Milken Exchange on Education Technology for the Milken Family Foundation. Lemke specializes in public policy for K-12 learning technology, working at many levels with governors, legislators, superintendents, business leaders, and teachers. Last year, she facilitated public hearings in Silicon Valley, CA, and Atlanta, GA, for the Web-based Education Congressional Committee. This year, she is working with several states on leadership in technology initiatives, and most recently authored the definitive work on 21st century skills, published by the North Central Regional Educational Laboratory and the CEO Forum. Lemke's 25-year career in the public sector and her work with Metiri Group have included projects related to assessing the impact of technology on learning; gauging the progress of states, districts, and schools in bringing technology to the learning process; conducting surveys and focus groups; convening national experts in discussions on policy issues; and designing and prototyping educational technology frameworks

Course Objectives

After completing this course, educators will know:

- Digital innovations in education
- The implications for education of the democratization of knowledge
- Educators' evolving responsibilities in the 21st century
- What authentic collaboration looks like
- The foundations of authentic cooperative learning opportunities
- Students' needs as informed consumers, composers/producers of multimedia, and visual and multimodal thinkers



Student Learning Outcomes

After completing this course, educators will be able to apply the following skills:

- Employ digital innovations in education
- Adapt teaching styles to accommodate the democratization of knowledge
- Embrace new responsibilities as educators
- Create authentic collaborative and cooperative learning opportunities
- Advance students' critical thinking skills
- Advance students' creative thinking skills
- Address students' needs as informed consumers, composers/producers of multimedia, and as visual and multimodal thinkers

Create classroom structures that compel profound learning

Unit 1: 21st Century Learning

Educators, business leaders, and policymakers in the U.S. are increasingly questioning the relevancy of the Pre K-12 school experience in preparing students for life in the 21st century. Educators will learn from presenter Cheryl Lemke how to create 21st century learning environments in their classrooms that cull from research about how students learn best, what skills they need in the digital age, and how and why to incorporate technological innovations. They will begin their exploration into authentic learning—i.e., learning with real-world relevance—through videos of exemplary classroom examples.

Unit Objectives

After completing this unit, educators will know:

- 21st century learners' needs
- How adolescents learn best
- Technological innovations that should be incorporated into the classroom

Student Learning Outcomes

After completing this unit, educators will apply the following skills:

- Evaluate the needs of 21st century learners
- Incorporate technological innovations into the classroom
- Prepare students for managing their learning beyond the walls of the classroom
- Promote 21st century skills



Unit 2 : Democratization of Knowledge

The Internet has provided the “man [and woman] on the street” the means by which to access large numbers of databases, courses, books, publications, experts, and other information sources. Information and knowledge has thus been democratized – available to the masses. Access was formerly available only through formal schooling. If all students have access to such information, do the roles of the school, teacher, and student change? If so, how? And how can teachers shift practices to tap into the power of such universal access? This session will provide examples of the range of digital resources available to today’s students and how such access shifts the roles and responsibilities of teachers. As teachers take on new roles and accept these changes, they succeed in modernizing schools and learning.

Unit Objectives

After completing this unit, educators will know:

- The concept of the democratization of knowledge
- The educational implications of the 21st century participatory culture
- Digital resources available to teachers and students
- Shifts in the roles and responsibilities of teachers and students
- Essential 21st century skills

Student Learning Outcomes

After completing this unit, educators will apply the following skills:

- Use participatory technologies to create authentic learning opportunities
- Integrate productivity and social networking tools for the purpose of collaboration
- Demonstrate responsible and appropriate use of digital resources and materials
- Employ data tools for validity in teaching and learning situations
- Promote self-directed learning with their students

Text: “Strengthening Student Engagement: What Do Students Want (and what really motivates them)?”

Participants read “Strengthening Student Engagement: What Do Students Want (and what really motivates them)?” by Richard Strong, Harvey F. Silver, and Amy Robinson, and then respond to reflection prompts.

Unit 3: Collaboration and Teaming

Much of the power of the Internet—e.g., in social networking, blogging, and tweeting—is in the possibilities it creates for communication, collaboration, and interactivity. What does that mean for education? Over the past decade educators have increasingly acknowledged that learning is a social phenomenon. While research from the past 30 years has demonstrated that collaborative or cooperative learning trumps competitive or individual learning, many teachers have yet to incorporate such



collaborative or cooperative strategies into their daily learning environments. This unit will establish a framework for the elements essential to effective collaborative learning. It will provide examples of how such collaborative learning can be facilitated through digital innovations and simple ways to get started.

Unit Objectives

After completing this unit, educators will know:

- The Internet's possibilities for communication, collaboration, and interactivity
- The implications of the Internet for education

Student Learning Outcomes

After completing this unit, educators will apply the following skills:

- Create and implement collaborative and cooperative learning strategies facilitated by digital innovations
- Create authentic opportunities for collaborative and cooperative digital age learning
- Create a culture of affiliation
- Effect productive group processes
- Facilitate sustained interaction between and among students
- Exploit the collaborative and cooperative capacities of the Internet

Unit 4: Critical/Lateral Thinking

Among the 21st century skills most important to students' futures is critical thinking—i.e., applying reason and logic using established, scientific evidence and methods, to increase the probability of a desirable outcome. Young citizens need to think increasingly critically in this complex age of globalization, interdependence among nations, and sophisticated systems and challenges. Critical (or lateral) thinking enables students to analyze situations; decide what information, evidence, and algorithms are most applicable; and then apply them with fidelity. Educators will learn tips and techniques to use in their classrooms as they tap digital innovations to engage students in critical thinking across the academic disciplines.

Unit Objectives

After completing this unit, educators will know:

- What constitutes critical thinking
- Methods to promote critical thinking
- Digital innovations that augment students' critical thinking

Student Learning Outcomes



After completing this unit, educators will apply the following skills:

- Integrate higher order critical thinking into students' tasks
- Create authentic learning projects that promote students' critical thinking
- Model, explain, interact, and provide feedback to promote critical thinking
- Employ digital innovations to promote students' critical thinking.

Text: “Upside Down and Inside Out: A Challenge to Redesign Education Systems to Fit the Needs of a Learning Society”

Participants read “Upside Down and Inside Out: A Challenge to Redesign Education Systems to Fit the Needs of a Learning Society,” by John Abbott and Terry Ryan, and then respond to reflection prompts.

Unit 5 : Creative/Vertical Thinking

Creative thinking is as essential as critical thinking for success in the digital age; in fact, says Lemke, the differentiators in today's economy are creativity and innovation. Educators will learn how to incorporate creative (or vertical) thinking into students' repertoires, even as they extend their students' critical thinking skills. Through PowerPoint lectures, interviews with students and teachers, and exemplary student projects, educators will learn methods to help their students develop attitudes, behaviors, and techniques inherent to creativity and innovation.

Unit Objectives

After completing this unit, educators will know:

- What constitutes creative thinking
- How to balance critical and creative thinking
- Methods to develop students' creative thinking skills
- Teachable moments in which to promote creativity and innovation
- Digital innovations that augment students' creative thinking

Student Learning Outcomes

After completing this unit, educators will apply the following skills:

- Develop students' creative thinking attitudes, behaviors, and techniques
- Assist students in balancing and interweaving critical and creative thinking
- Create and exploit teachable moments
- Employ digital innovations to promote students' creative thinking



Unit 6: Authentic Learning

Researcher Dr. Fred Newmann notes that when teachers give students intellectually stimulating assignments, standardized test scores in mathematics and language arts increase significantly. Newmann also identifies three critical characteristics in these assignments that make them, in his and others' terms, authentic: profound (as opposed to surface) learning, relevant beyond the classroom, and involving tangible knowledge construction by the student. In this unit, Lemke showcases, through discussion and model student projects, digital innovations that provide the vehicle for bringing authenticity into the classroom.

Unit Objectives

After completing this unit, educators will know:

- What defines an expert learner
- How people best learn
- Key principles of authentic learning projects
- Sample authentic learning projects
- Digital innovations to promote authentic learning

Student Learning Outcomes

After completing this unit, educators will apply the following skills:

- Help their students become expert learners
- Create authentic learning projects
- Adhere to the key principles of learning projects
- Employ digital innovations to promote authentic learning

Text: "Where Everyone Can Overachieve"

Participants read "Where Everyone Can Overachieve," by Victoria Murphy, and then respond to reflection prompts.

Unit 7: Multimodal Learning

Today's students are bombarded with multisensory, multimodal communications. While many schools are concentrating on text-based learning, students are dealing with an onslaught of multimedia sensory input in their everyday lives. They need to learn the grammar and syntax of visuals and sounds in the context of text. Presenter Cheryl Lemke portrays the goals of multimodal learning as helping students to become informed consumers, composers/producers of multimedia, and visual and multimodal thinkers. From lecture and exemplary student projects, educators will learn the principles of multimodal design along with examples of how these principles can be applied in the classroom to increase the effectiveness of



communications in ways that ratchet up learning.

Unit Objectives

After completing this unit, educators will know:

- The principles of multimodal design
- How students best learn
- What constitutes informed consumers, composers/producers, and visual and multimodal thinkers
- Digital innovations to support multimodal projects

Student Learning Outcomes

After completing this unit, educators will apply the following skills:

- Design and execute learning experiences that help students to become informed consumers, composers/producers, and visual and multimodal thinkers
- Employ the principles of multimodal design
- Align their teaching with how students best learn
- Employ digital innovations to support multimodal projects

Unit 8: Getting Started—21st Century Innovations That Matter

This last session brings Dr. Lemke’s teachings together under the umbrella of “classroom structures to engage students in deep learning.” Teachers will consider ten key elements that could be incorporated into their classrooms tomorrow that embody the innovations discussed during the course. Inspiring examples of teachers creating innovative projects and showcasing student work are offered as examples of exemplary teaching and learning. Dr. Lemke challenges educators to “get started” making these exciting changes in their schools and classrooms.

Unit Objectives

After completing this unit, educators will know:

- Classroom structures that engage students in deep learning
- Ten key elements that embody the innovations highlighted in this course
- Three approaches to translating the research-based ideas presented in this course into practice

Student Learning Outcomes

After completing this unit, educators will apply the following skills:

- Structure their classrooms to facilitate deep learning
- Apply strategies such as providing choice, novelty, variety, scaffolding, and asking essential



questions to engage learners

- Create a classroom environment that is affirming and intellectually safe
- Use collaborative learning groups effectively
- Create a student-centered learning environment in which students create products that are meaningful to themselves and others

Text: “Mooresville’s Shining Example”

Participants read “Mooresville’s Shining Example,” by Alan Schwartz, and then respond to reflection prompts.

Methods of Instruction

- Videos (presentations consisting of lecture, interviews, and classroom footage)
- Readings
- Reflection questions (open-ended questions at intervals throughout the video presentations where participants are asked to reflect on the course content, their own practice, and their intentions for their practice)
- Quizzes (selected-response quizzes to assess understanding of the video presentations)
- Discussion forum (prompts after each unit that engage participants in online dialogue with their cohorts)
- Midterm (a project intended to get teachers to begin to develop their practice by putting to work in the classroom what they have learned)
- Final (a project that enables educators to reflect on their practice and assess their students’ work through the lens of what they have learned)

Plagiarism Policy

KDS recognizes plagiarism as a serious academic offense. Plagiarism is the passing off of someone else’s work as one’s own and includes failing to cite sources for others’ ideas, copying material from books or the Internet (including lesson plans and rubrics), and handing in work written by someone other than the participant. Plagiarism will result in a failing grade and may have additional consequences. For more information about plagiarism and guidelines for appropriate citation, consult plagiarism.org.

Percentage of Course Credit

- Reflection questions 25%
- Quizzes 15%
- Midterm 25%
- Final 35%



In order to complete the requirements of the course, the participant must complete all course work (e.g., reflections, quizzes, and any midterm and/or final), including watching all videos and participating in all discussion forums. We do not award partial credit.

Grading Policy

- A: 3.4 – 4.0
- B: 2.7 – 3.3
- C: 2.0 – 2.6
- F: >2.0

Reflection/Quiz Rubric

Activity	Distinguished (4)	Proficient (3)	Basic (2)	Unsatisfactory (1)
Quizzes	90-100%	80-89%	70-79%	69% or below
Reflection Question	<p>Participant has provided rich detail and supporting examples from the course content.</p> <p>Participant has made responses to prompts personally meaningful and relevant to his or her teaching practice.</p>	<p>Participant has included appropriate content from the course content.</p> <p>Participant has made thoughtful comments in direct response to the prompts.</p>	<p>Participant has included little that indicates consideration and comprehension of course content.</p> <p>Participant has answered most questions directly but some too briefly.</p>	<p>Participant has included little to no content indicating consideration and comprehension of course content.</p> <p>Participant has not addressed the specific questions posed.</p> <p>Participant has not responded to all reflection questions.</p> <p>Participant has copied from the course transcript without synthesis or analysis.</p>

Midterm

In 4-6 paragraphs address the differences between interaction, cooperation, and collaboration. To support your opinions, describe specific examples either from your classroom experience or by devising brief descriptions of new projects that would exemplify each concept.



Midterm Rubric

Step	Distinguished (4)	Proficient (3)	Basic (2)	Unsatisfactory (1)
In 4-6 paragraphs address the differences between: Interaction Cooperation collaboration	Participant has clearly and persuasively defined the differences between interaction, cooperation, and collaboration with supporting evidence from the course content.	Participant has addressed the differences between interaction, cooperation, and collaboration.	Participant has addressed the differences between 2 of the 3 concepts (interaction, cooperation, and collaboration), or has addressed all three concepts, but not persuasively.	Participant has either not addressed the differences between interaction, cooperation, and collaboration, or has presented erroneous definitions of the terms.
Describe specific examples either from your classroom experience or by devising brief descriptions of new projects that would exemplify each.	Participant has offered specific, persuasive examples of interaction, cooperation, and collaboration in the classroom. Or Participant has devised clear and specific descriptions of new projects that truly exemplify each concept as defined by the course content	Participant has offered effective examples of interaction, cooperation, and collaboration in the classroom. Or Participant has devised effective descriptions of new projects that demonstrate each concept.	Participant has either offered examples of only 2 of the terms or has offered examples that do not wholly illuminate their meaning.	Participant has either offered examples of only 0-1 of the terms and/or has offered examples that are erroneous.
Formal issues	Participant has made no grammatical errors. Participant has organized paragraphs around clearly articulated main ideas. Participant has written in an effective and eloquent style—i.e.,	Participant has made a few grammatical errors. Participant has organized most paragraphs around clearly articulated main ideas. Participant has written in an effective and eloquent style—	Participant has made some distracting grammatical errors. Participant has organized some paragraphs around main ideas but not others. Participant has written in a style that communicates	Participant has made multiple grammatical errors. Paragraphs are not organized around main ideas. Participant has written in a style that does not effectively communicate his or her thoughts.



	has varied his or her sentence structure and made careful word choice.	i.e., has varied his or her sentence structure though not always found the right word.	his or her thoughts but with no marked eloquence and insufficient attention to word choice.	
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Final

Lemke asserts that 21st century learning is the convergence of digital innovations, 21st century skills, and research from the learning sciences. For your final assignment design and implement an original 21st century project for your students that attempts to negotiate this convergence. Your design should involve authentic collaboration and emphasize critical thinking.

Please do the following:

1. Describe the project in two to three paragraphs.
2. Identify from what digital innovations your students will select.
3. Identify what 21st century skills you want to promote.
4. Identify what conclusions from the learning sciences research inform your project's design.
5. Indicate where authentic collaboration will occur.
6. Summarize the opportunities for critical thinking that the project provides.
7. Create an original rubric to assess the project.

Final Rubric

Step	Distinguished (4)	Proficient (3)	Basic (2)	Unsatisfactory (1)
Describe the project in 2-3 paragraphs.	Participant has described a challenging, engaging, and relevant project in 2-3 clear and articulate paragraphs. Each component of the project is carefully and clearly articulated.	Participant has described an appropriate project in 2-3 paragraphs. Each component of the project is articulated.	Participant has described a project in 1 paragraph and/or the value of the project is not clear and/or there are multiple components of the project that are not clearly articulated.	Participant has not described the project and/or the project is unlikely to be productive.
Identify from what digital innovations your students will select.	Participant has identified 2-3 clearly appropriate digital innovations.	Participant has identified 1-2 reasonable digital innovations.	Participant has identified 1-2 digital innovations, though their appropriateness is in question.	Participant has not identified digital innovations.



<p>Identify what 21st century skills you want to promote.</p>	<p>Participant has identified clearly appropriate 21st century skills that the project will promote and that are directly related to the content of the course.</p>	<p>Participant has identified 21st century skills that the project will promote.</p>	<p>Participant has identified skills though not 21st century ones or not ones discussed in the coursework or in line with what the course teaches.</p>	<p>Participant has not identified the skills he or she wants to promote.</p>
<p>Identify what conclusions from the learning sciences research inform your project design.</p>	<p>Participant has detailed at least 2 apt conclusions from the learning sciences research that inform his or her project design.</p>	<p>Participant has identified 1-2 conclusions from the learning sciences research that inform his or her project design.</p>	<p>Participant has identified 1-2 conclusions from the learning sciences research, though how they inform his or her project design is unclear.</p>	<p>Participant has not identified conclusions from the learning sciences.</p>
<p>Indicate where authentic collaboration will occur.</p>	<p>Participant has clearly and persuasively indicated where authentic collaboration will occur, making clear what he or she means by “authentic.”</p>	<p>Participant has indicated where authentic collaboration will occur.</p>	<p>Participant has indicated where collaboration will occur, though its authenticity is in question.</p>	<p>Participant has not indicated where collaboration will occur.</p>
<p>Summarize the opportunities for critical thinking that the project provides.</p>	<p>Participant has persuasively summarized with supporting detail the opportunities for critical thinking the project provides.</p>	<p>Participant has summarized the opportunities for critical thinking that project provides.</p>	<p>Participant has summarized the opportunities for critical thinking the project provides, but whether those opportunities will facilitate critical thinking is in question.</p>	<p>Participant has not summarized the opportunities for critical thinking the project provides.</p>
<p>Create a rubric to assess the project.</p>	<p>Participant has created and presented a detailed rubric carefully aligned to the project and with relevant performance indicators.</p>	<p>Participant has created and presented assessment rubric aligned to the project.</p>	<p>Participant has created and presented an assessment, though its alignment to the project is in question and/or the performance indicators are unclear.</p>	<p>Participant has not created and presented an assessment.</p>



Formal issues	<p>Participant has made no grammatical errors.</p> <p>Participant has organized paragraphs around clearly articulated main ideas.</p> <p>Participant has written in an effective and eloquent style—i.e., has varied his or her sentence structure and made careful word choice.</p>	<p>Participant has made a few grammatical errors.</p> <p>Participant has organized most paragraphs around clearly articulated main ideas.</p> <p>Participant has written in an effective and eloquent style—i.e., has varied his or her sentence structure though not always found the right word.</p>	<p>Participant has made some distracting grammatical errors.</p> <p>Participant has organized some paragraphs around main ideas but not others.</p> <p>Participant has written in a style that communicates his or her thoughts but with no marked eloquence and insufficient attention to word choice.</p>	<p>Participant has made multiple grammatical errors.</p> <p>Paragraphs are not organized around main ideas.</p> <p>Participant has written in a style that does not effectively communicate his or her thoughts.</p>
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