

What are the Key Characteristics of an Era 3 Curriculum?*

By

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A coherent curriculum emphasizes instruction in all subjects at all levels, is focused around meaningful understandings from all subject areas, and integrates the learning of key skills into all subject areas.

Curriculum organization matters! Just as it would be impossible to build a house (or airplane, or skyscraper) without a blueprint, so it is impossible to have a high performing school without an effectively designed curriculum. Just imagine how an architectural design influences and affects the construction of a building. Building construction based on a poor design may make it difficult to walk from one part of the building to another, make communication among building occupants difficult, make furniture arrangements impossible, make lighting too dark or too light. In the same vein, a poorly designed curriculum may lead to too many unclear, vague goals that do not match student needs, include too much to teach, teach the wrong skills, provide few connections between its different parts, have little meaning for learners, and make alignment of content among teachers and grade levels difficult.

Much of what's wrong with the current 21st century education in many schools can be traced to the current curricular emphases and poor design. For instance, at the early childhood-primary school grade levels, students often spending their mornings working on discrete skills in reading and mathematics, using worksheets, and doing very little real actual reading in literature, social studies and science. There is a great deal of discussion in America about the importance of science and technology education, yet there are few opportunities for students in the early grades to actively explore scientific concepts, ideas and skills. In many schools, social studies units that provide substantive learning about history or geography are usually not regularly taught in the early childhood-primary school years. Teaching and learning the arts has been significantly reduced in many schools, yet the arts provide powerful and interesting learning experiences that stimulate conceptual understanding, positive habits of mind, higher levels of thinking, interpretive and creative skills. In the upper grades, students often learn through uninspiring textbooks, covering too much content, doing too little writing, and being assessed through traditional tests. Schools that have poor standardized test

scores often have the worst curriculum, because the thinking is that students have to learn how to take the test, and much of the school year is devoted to teaching students how to take reading and mathematics tests. There is often very little coherence at all levels across the curriculum, especially in the skills area – few teachers at different levels work together to assure that a core set of 21st century skills are developed over time and across grade levels.

What is an effective Era 3 curriculum?

A powerful, effective Era 3 curriculum promotes learning in all subjects at all levels, and focuses learning around a core set of key content, skill, attitude and behavior goals. The content is meaningful, interesting, and significant to students, motivating them to want to learn about science, technology, history, geography, the arts – in short, all subjects studied. It is well organized, sometimes through interdisciplinary activities, and allows for “learning progressions” that foster more complex learning over time. Multiple types of assessments, especially through performance tasks and projects, enable students to apply learning to authentic tasks and real life situations, and promote high standards for all.

How do we develop or select curricula that are effective? That are focused around core Era 3 learning goals? Based on our Era 3 mission and outcomes, we propose that six key curriculum characteristics, listed in figure one below, are used to focus the curriculum, provide coherence, incorporate multiple types of assessments, synthesize learning, develop learning progressions, provide students with many options and choices, and enable students to apply learning and make connections with the outside world. These curriculum characteristics, when put into place, increase the odds that students will be better prepared for lifelong learning, informed, intelligent citizenship, and self-development and understanding. Each of the six characteristics is described in greater detail below.

[Insert Figure One here]

Figure One

Six Characteristics of an Era 3 Curriculum, K-12

At all levels:

- 1. Priority is given to meaningful instruction in all subject areas and across subject areas and grade levels, focused around a core set of ideas, understandings, themes and essential questions;*
- 2. A core set of lifelong learning skills, attitudes and behaviors are naturally integrated and embedded into all aspects of the curriculum;*
- 3. Multiple types of assessments, including critical knowledge exams, performance tasks, self-reflections, formative assessments, and portfolios, are an integral part of the curriculum;*
- 4. The curriculum incorporates “authentic” learning experiences that enable students to apply learning and make connections to the outside world.*
- 5. Choice and options, including enrichment and supplement support activities, are a major part of the curriculum;*
- 6. Capstone experiences and learning progressions help to organize a “design down” approach to teaching and learning.*

1. *Priority is given to meaningful instruction in all subject areas and across subject areas and grade levels, focused around a core set of ideas, understandings, themes and essential questions*

In the movie “Mona Lisa’s Smile”, there are two scenes that depict the difference between a typical learning experience in America’s schools and an experience built around a less crowded, more understanding based curriculum. In the first scene, Julia Roberts, playing the role of an brand new high school art teacher at an exclusive private girls’ school, begins an introductory art class with a traditional lesson built around “covering” information about artists using a traditional art text and art slides. She quickly learns that her students have already read the text and have little to learn from her when she uses this approach. So, after agonizing over this, she comes to class with a different approach, beginning with two essential questions: What is art? What is the difference between “good” and “bad” art? She shows a new set of slides (including slides of her own artwork as a child) with these questions in mind, and begins to get thoughtful debate, discussion, disagreements and even passion from her students. Her new focus is on some really big ideas about art, the very nature of art itself, and differing perspectives of “excellence” in art, with each student having the time to reflect on these provocative questions and think through and share their answers with others in the class. A whole new level of learning is opened up with this approach. And her jaded students begin to become curious about art, the nature of good art, and the meaning of art.

This new approach illustrates a key feature of an Era 3 curriculum. Learning moves away from a laundry list of goals that promotes a “learning everything, but remembering little” approach, to an approach that provides the opportunity to explore a few important ideas in greater depth. Much of the same content is taught in this Era 3 curriculum, but it is taught in the context of a few big ideas and questions that organize knowledge into meaningful frameworks.

Note also that the arts education approach explained above, developed from a few broad and profound ideas and essential questions about art, can also be used to guide teaching and learning in subsequent art courses. These are called “throughlines” in one model¹ and “overarching” big ideas in another². The initial discussions and learning in this course lays a foundation for later in-depth examination of the definition of art itself,

artistic excellence, art interpretations, and the essential meaning of “good” vs. “bad” art. The few big ideas and essential questions identify the “core” curriculum focus. Artistic study of names, dates, movements in art, and so on become either part of the study in depth of the few big ideas or “supplemental”, “teach to the moment”, “nice to know” parts of the curriculum.

This approach is useful at all levels of learning and in all subjects. I have experiences with art teachers who, at kindergarten level, begin to teach students about artistic excellence, different movements in art and their effects on artworks in different periods of history, and how to interpret art. In all subjects, major big ideas and key skills can begin to be taught in the early childhood years and content and skills learning can build over time.

As illustrated above, the key to an Era 3 curriculum, that supports Era 3 outcomes, is to “unclog” a crowded curriculum and create a clear conception of a few core ideas in all subject areas, at all levels, focused around essential questions –“entry” questions that lead to inquiring into these ideas-- that help to organize meaningful programs, courses, units and lessons at all levels into a cohesive whole and guide learning experiences. Doing so makes room for in-depth learning experiences that foster significant skill, attitude and behavior development (see #2, below).

Teaching knowledge in the context of understanding

A concern for many lay people and educators is that students should learn and remember a significant amount of knowledge as part of their educational experience. Often schools emphasize the learning of specific knowledge, such as dates, events, chemical and mathematical formulas, specific information about literature, and so on. Many courses in a variety of subjects “cover” a lot of information, and students are expected to remember this information and demonstrate their knowledge on multiple choice and other knowledge-based tests. Many AP courses emphasize learning and remembering large amounts of information to demonstrate their readiness for college classes.

While the learning of specific knowledge is important, the real goal of an Era 3 education should be to put specific knowledge into some context that makes it meaningful and leads to greater understanding. The term “background knowledge”

signifies that information learned should be part of a larger goal of understanding complex ideas, answering significant questions, understanding important social issues, having the knowledge base to solve complex mathematical problems, and the like. Thus knowledge, in this scheme, is not learned for its own sake, but is learned to help to understand and provide insights into meaningful ideas and questions. Knowledge in this context is background knowledge learned as one inquires into essential questions or explores big ideas, knowledge that supports in-depth interpretations and analyses, discussion, reflection, and the like.

For example, in studying the Civil War, there is a temptation to focus on the mastery of huge amounts of information, including the battles fought, the wartime strategies, and so on. With a focus on the concept of “civil” war -- “brother against brother” -- the knowledge focus becomes narrower, examining the motives and goals of Northerners vs the Southerners, and why the decisions were made to take the extreme course of fighting and dying against each other. Why did the North decide that it was more important to save the Nation instead of allowing it to divide in two? Knowledge learned and ideas discussed in this context will probably be remembered and perhaps used to help analyze other civil war battles in order to understand the motives, conflicts and issues that led to them.

2. A core set of lifelong learning skills, attitudes and behaviors are naturally integrated and embedded into all aspects of the curriculum.

Our view of schooling and graduation from high school is that it is a beginning of learning, not an end. In today’s world, students must be prepared to continue their learning, whether for college, career skill development, a career in the military, or any future path. From our perspective, preparation for lifelong learning requires students to have developed the skill areas, attitudes and behaviors suggested in figure 2:

[Insert Figure 2 here]

Incorporating this set of skills into the curriculum, along with these positive attitudes and behaviors, is much easier once we have pared down the knowledge and information that we want students to know, understand and learn. A pared down curriculum built around fewer topics, themes, big ideas and essential questions, makes it

FIGURE TWO
KEY SKILL AREAS, ATTITUDES AND BEHAVIORS
FOR LIFELONG LEARNING

- **Inquiry and Communication Skills**
 - Ask meaningful questions, pose and define problems and challenges
 - Search for and process information and data
 - Think deeply and flexibly
 - Draw conclusions, apply learning to authentic, novel situations
 - Communicate effectively
- **Positive Attitudes, Behaviors**
 - Curiosity
 - Persistence
 - Manage impulsivity
 - Strive for excellence
 - Connect prior knowledge to new situations
 - Think and communicate with accuracy and precision
 - Work and learn independently and interdependently
 - Remain open to continuous learning
 - Take responsible risks

possible to use more learning time in every content area and at every level to formulate and find answers to meaningful questions, search for, categorize and sort information, understand what is read in multiple types of texts, think deeply and flexibly, examine multiple perspectives, help students critically and logically reason and solve complex problems, incorporate creative activities, and summarize, reflect on, and communicate what has been learned.

In the art example cited above, as students explore the questions “What is art?” and “What is good art?” they naturally develop and use these lifelong learning skills. They work from important, meaningful questions, discuss different forms of art, analyze and interpret paintings, communicate and debate opinions and points of view, provide evidence for their views, suggest creative ideas, and apply learning by creating their own artworks in the styles of different periods and artists. Another significant benefit is that they also become much more engaged in the learning process and passionate about the subject. Teachers also have the time to develop curiosity, help students persist in improving their work, becoming more accurate, strive for excellence, and work collaboratively.

Thus, in a powerful Era 3 curriculum, key core ideas and knowledge, a focus on five inquiry and investigation skill areas (asking and formulating questions and problems, processing information and data, thinking deeply and flexibly, drawing conclusions and applying learning, and communicating effectively), and key attitudes and behaviors – are continually integrated and embedded into, and reinforced throughout the curriculum through subject area units, interdisciplinary themes, or project based learning.

3. Multiple types of assessments, including critical knowledge exams, performance tasks, self-reflections, formative assessments, and portfolios are an integral part of the curriculum.

The typical assessments used in traditional schools and classrooms focus on making sure that students have learned and remember information (e.g. multiple choice questions) and can use discrete and low level skills (e.g. informal reading inventories, short written explanations, low level inferences). In some instances, longer research projects enable students to find information and write papers based on their research. In

some occasional situations, students are given longer performance tasks that require them to use information and make presentations.

Unfortunately, too many assessments focus on testing what was “covered” in the classroom, and in “sorting” students with “gotcha” tests – tests that often measure esoteric facts and information, in isolation from important ideas and meaningful learning, in order to determine who in the class has worked hard to memorize frivolous and meaningless information. No wonder that so many students are bored and disinterested in learning!

Instead, we believe that assessments should for the most part check on whether students “understand” important ideas and have organized knowledge accordingly, whether they can use inquiry-communication skills, and whether they have developed “soft” skills -- attitudes and behaviors that support powerful learning. We do not deny that assessments should focus on whether students know core background knowledge important for understanding big ideas and inquiring into essential questions, but they also should determine whether students can search for and process information, use and apply information to explain important ideas, interpret data, transfer and adapt learning so as to solve new and novel challenges and problems, write coherently, and effectively communicate with others. Assessment should also regularly and periodically check for student understanding (formative assessment) during the learning process so as to know how to proceed in the learning situation and provide feedback to students to help them better understand and improve their work.

In our Era 3 work, we argue for a core of three types of assessments:

- *Critical knowledge exams that assess whether students are developing the core knowledge base and understandings they will need for future learning;*
- *Performance tasks that enable students to apply their learning to authentic, real life situations and produce “real” work;*
- *Self-reflection tasks that enable students to reflect on what they have learned, analyze their strengths and talents, and develop plans for the future.*³

These three types of assessments, along with other measures, such as observations of students, formative assessments, short quizzes, and the like, enable teachers to collect comprehensive data about student success. Placing student work into portfolios allows

teacher and students to determine student growth over time and the success of teaching over time.

A powerful curriculum regularly includes multiple opportunities to use all of these types of assessments, along with information as to how to develop, maintain, and share portfolios of student work.

4. The curriculum incorporates “authentic” learning experiences that enable students to apply learning and make connections to the outside world.

In schools and classrooms where authenticity is an important curriculum component, students have the opportunity to apply their learning to new and novel situations that demonstrate their understanding. For example, students might be given the opportunity to demonstrate their understanding of scientific research and inquiry by developing their own scientific experiment. As they learn about the American political process, students are asked to discuss and take a stand on one or more current issues, take part in a mock election, or visit a local courthouse. An applied mathematics curriculum provides students with the opportunity to transfer their understanding of mathematics to the world outside the classroom (such as in designing a model house, using mathematics in science experiments, analyzing historical and current data). In health and physical education, students design a “wellness plan” that supports their own physical health and well-being over time.

Connections to the outside world are formed in other ways. Students interview experts via the Internet. They take field trips to museums, offices, colleges, and other places of worldly learning. Many curricula programs suggest that students intern in the real world in order to build on and apply their learning to the outside world.

5. Choice and options, including enrichment and supplement support activities, are a major part of the curriculum.

In order to help students self-develop, grow, and understand themselves, the curriculum should give students the opportunity to choose areas of interest and enable them to practice using and growing their diverse talents. For example, multiple extra-

curricular activities at all levels should provide students with a rich diversity of options, both during and after school, to “try on” a variety of experiences, such as chess, sports, the arts, issue discussions, current events, robotics, book clubs, and the like. Classroom research projects might enable students to choose topics to study based on their interests. In developing the final product for a project, students might be able to choose the method of presentation – a written paper, a powerpoint presentation, or the use of cartoons and other types of drawings. Much of the junior-senior high school program might consist of elective courses, internships, options to take courses in nearby colleges, Internet courses, and other options that help them develop skills, interests and talents necessary to fulfill future plans.

6. Capstone experiences and learning progressions help to organize a “design down” approach to teaching and learning.

Capstone experiences, developed at the end of a sequence of learning experiences (such as at the end of elementary, middle and high school courses) help students to synthesize learning and make connections to the outside world. They take many forms. A required “Problems in Democracy” social studies course, taken in the junior or senior year of high school, helps students to focus on key national and world-wide problems, issues and challenges, and apply their prior history and social science learning to help understand these problems and develop solutions. Similarly, a science course at the senior level devoted to “investigation” – finding a science problem of interest, conducting research, organizing an experiment, developing hypotheses, and so on, helps students to synthesize, expand, and apply their science learning.

Internships and service learning experiences in fields of interest help students expand their understanding in a variety of fields and put their knowledge to good use. For example, working at a hospital as a volunteer helps a student understand biology and medical terminology. Students who work with political organizations learn first hand about democratic institutions. And students who work in arts institutions learn to analyze and interpret art and music.

A school or district can also consciously create capstone (sometimes called cornerstone) experiences through the development of a series of benchmark and

graduation projects (e.g. performance assessments) that help students to synthesize learning in a variety of subjects⁴. These generally take the form of projects/performance assessments that are placed in a portfolio, along with self-development reflective essays and information (e.g. my future plans) and presented to a panel of outsiders and teachers.

Explicit learning progressions prevent the repeated teaching of the exact same procedures and facts over and over again, a significant problem in American education. Mathematics curricula often repeat the same arithmetic learning in mathematics, thus preventing students from growing their math learning. In science or social studies, students often go from grade level to grade level learning new facts without connection to previous learning. Instead, learning progressions⁵ enable students to develop more sophisticated understanding of key ideas, concepts, principles, skills, and habits of mind over time. They become the foundation of a coherent curriculum. In every subject, big ideas, understandings, the five skill set areas, attitudes, and behaviors are developed with greater complexity as students progress through grade levels.

Reconfiguring the Curriculum

What are the practical implications of building an Era 3 curriculum around these characteristics? One practical implication is that the curriculum at all levels is not built around the teaching of discrete skills or coverage, but around meaningful, significant ideas and skills in subject areas that are developed over time. From the very beginning of a child's formal education, learning in science, social studies, literature, the arts, foreign language, health, and so on is given priority. For example, in the early childhood years, science becomes a priority. Children grow and observe plants under different conditions, go to the zoo and observe similarities and differences in animals, look at science picture books, and are read stories about science. The goal is to introduce some core concepts about science and interest students in the sciences. The same is true for social studies, the arts, and literature.

A second key practical implication is that a core set of 21st century, Era 3 skills, attitudes and behaviors are the focus of skill development over time. The five skill areas cited above – asking questions, defining problems and challenges; searching for and processing information and data; thinking deeply and flexibly; drawing conclusions and

applying learning; and communicating effectively exemplify a relatively simple focus on five skill areas that can be integrated and embedded into every subject area in ways that naturally fit with subject area learning. Positive Era 3 attitudes and behaviors are a natural outgrowth of a focus on core ideas and key skills over time.

Here's an example of a more focused American history series of courses. Suppose all of the American history courses, at all levels, focused on the following question: "Does the American Dream still exist"? Each period of American history examines some form of this essential question. For example, young children can examine children's books that focus around American heroes, learn about a variety of career options, and read about overcoming obstacles (i.e. *The Little Engine that Could*).

At the upper elementary and middle school levels, when studying the Revolutionary Period in American History, students can examine the question "What were the formative ideals of the American Revolution"? Students are given, research, find, evaluate, and process texts and articles related to this question. They analyze the Declaration of Independence and some of the other original writings of the Revolution to determine what evolved as the core principles upon which the Revolution was based. They create a graphic organizer that helps to summarize the formative ideals, using categories such as individual founding father perspectives and commonalities among them.

In order to check for understanding, each American history unit in the upper grades employs a variety of assessments based on the overarching question about the American dream, along with key questions and big ideas derived from the overarching question. The American Revolution unit concentrates on assessing whether students understand the formative ideals of America – for example, inalienable rights, "Life, Liberty and the Pursuit of Happiness", equal opportunity, and the role of government in a democratic society. Unit assessments might include a few traditional tests that make sure all students have acquired basic background knowledge about the Declaration of Independence and other writings, but the key summative assessment might consist of a project in which students are asked to write an op-ed piece for the local newspaper (or a blog) that explains four key ideals of the American Revolution and argues whether these ideals are still a part of the "American Dream" today. A major activity at the end of the

unit might also include a debate in which students take sides as to whether these ideals are still included in the American Dream today. Note that an important goal is to assure that ALL students do well on them – that all students master their understanding of the ideals of America formulated during the Revolutionary period. Note also that a goal is to make sure that students gain both important ideas and background knowledge, and are also able to use critical communication, reflection, problem solving and investigation skills, among others.

The process of “checking for understanding” should lead to assessments that evaluate some or all of the following – searching for, finding, organizing and evaluating information; analyzing, explaining, solving problems; thinking creatively; and interpreting data. Assessments might take the form of take-home questions that can be researched and examined in greater depth (but written or developed during class). Projects and performances culminating in written products and presentations demonstrate in-depth understanding of ideas, the ability to use multiple skills, and the ability to transfer and apply learning. For example, mathematics assessments consisting of complex, real life, multi-step problems determine whether students can apply their understanding of mathematical core ideas to new situations. Design problems (e.g. designing a playground) demonstrate understanding of physical principles and mathematical understanding and application. Instead of basing grades on whether students give wrong answers to difficult fact based questions, grade differences might focus on the accuracy of information, the ability to justify and defend arguments and points of view, and the greater depth of analysis and creative thinking demonstrated by some students.

Examples of “real life” subject area curricular that promote meaningful and interesting learning and concentrate on a few key skills include the following:

- The science program at an elementary school uses a curriculum at every level with four science units taught each year, one each in biology, chemistry, physics and environment/ecology. Each unit is focused around understanding a big idea and inquiring into an essential question. During each unit, students conduct scientific investigations and experiments, develop and test hypotheses, and build on previous year’s work.
- An English/Language Arts middle school program is focused around a different, interesting, and provocative theme. A few core books are chosen each year around

the theme for their interest and the issues that they raise. Each book is read, discussed and analyzed using interpretive, open-ended questions as a starting point for discussion. Part of the program also includes the opportunity for students to choose interesting books connected to the theme to read on their own. Developing writing and speaking skills are also extensive parts of this program.

- An introductory high school art course is focused around the questions “What is art?” “What is good and bad art?” “How can we best interpret art?” and fosters multiple opportunities to search for, examine, analyze, and interpret art from different periods, and to hold in-depth discussions about the nature of art and artistic interpretations.
- The core elements of an American history curriculum consists of yearlong courses at the elementary, middle and high school levels, each focused on different periods in American history. The curriculum uses a few key big ideas and essential questions (e.g. Does the “American dream” still exist?) to focus the entire program, and requires students to answer this and other questions through reflective discussions, examination of a variety of points of view, written position papers, media analyses, and essays and research projects and performances through which students apply learning to recent events and current time frames.

As these examples demonstrate, with a pared down, clear set of content and skill learning goals, teachers have more time for in-depth exploration and reflection that critical understandings, along with cognitive abilities, attitudes and behaviors. The early grades provide a core idea and skill foundation through the subject areas and interdisciplinary units. At all grade levels, teachers can use learning time to help students understand and explain fundamental concepts in their subject areas. 21st century interdisciplinary themes can be developed over time within and among subject areas. Because the curriculum is more focused, allows for in-depth learning, and incorporates projects and performances, teachers also have time to integrate and naturally incorporate 21st century skills into the curriculum. Students develop and examine important and interesting questions, find, organize, classify, process and evaluate information, analyze issues, learn to be creative, work collaboratively on and discuss problems and issues, conduct research in order to access and evaluate information, learn how to apply technology effectively, make presentations, and become self-directed learners. In sum, students are well prepared for college, career, and future life experiences in an Era 3, 21st century world.

ENDNOTES

¹ For further information about throughlines, see Martha Stone Wiske, editor (1998). *Teaching for Understanding: Linking Research with Practice*. San Francisco: Jossey-Bass publishers, p. 69.

² For more information on overarching understandings, see Grant Wiggins and Jay McTighe, *Understanding by Design, second edition* (2005). Washington, DC: Association for Supervision and Curriculum Development (ASCD), pp. 130-132.

³ For further insights into these three types of assessments, along with an overall picture of an assessment system, go to Seif, Elliott, *Demonstrating Achievement and Success in an Era 3 World*, that can be found online at www.era3learning.org.

⁴ For more information about graduation performance assessments, see the article on this website in the teaching and assessment section: Seif and O'Connor, *Making a Difference with Data: Cornerstone Assessments for a 21st Century World*.

⁵ For further information on learning progressions, see Paul D. Nichols, *What is a Learning Progression?* Pearson Test, Measurement and Research Services, at http://www.pearsonassessments.com/NR/rdonlyres/6C8F4D6F-EFB1-47CE-9247-3712D274190F/0/Bulletin_12.pdf