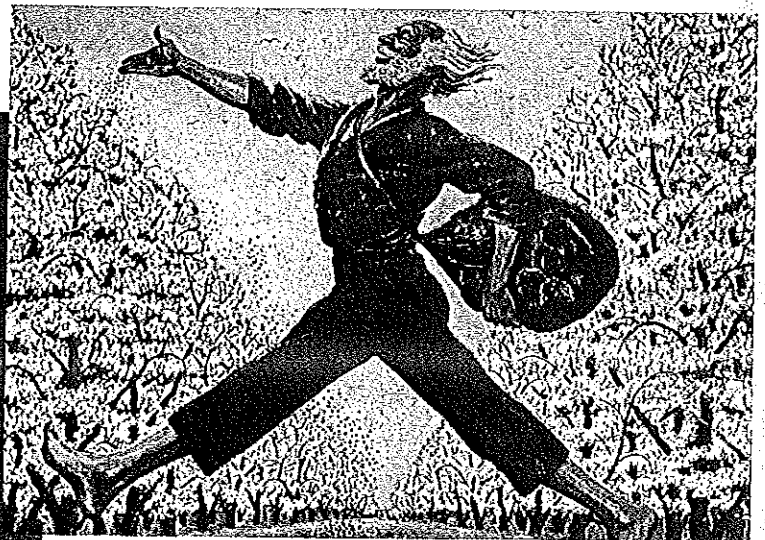
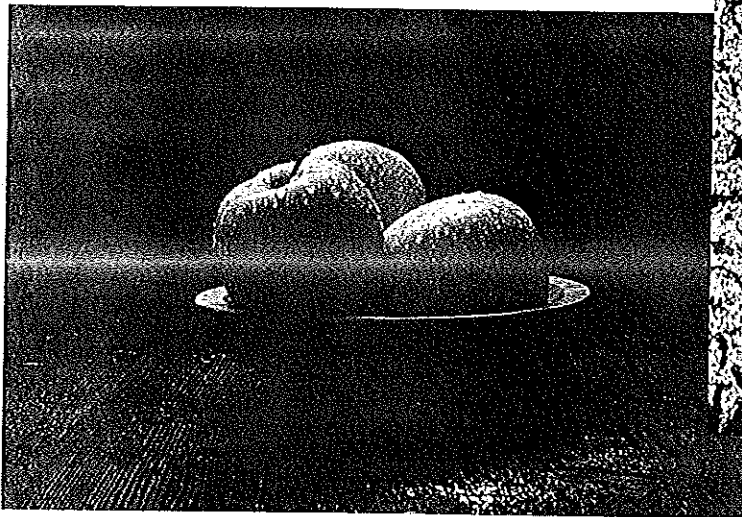


Learning in

*Imagine if schools were repositories of expertise—
and the students were the experts.*



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Kieran Egan

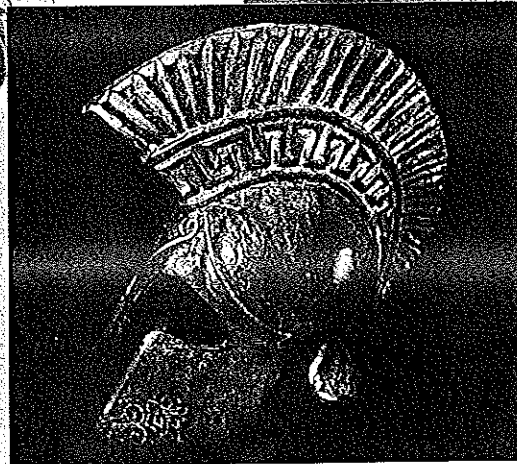
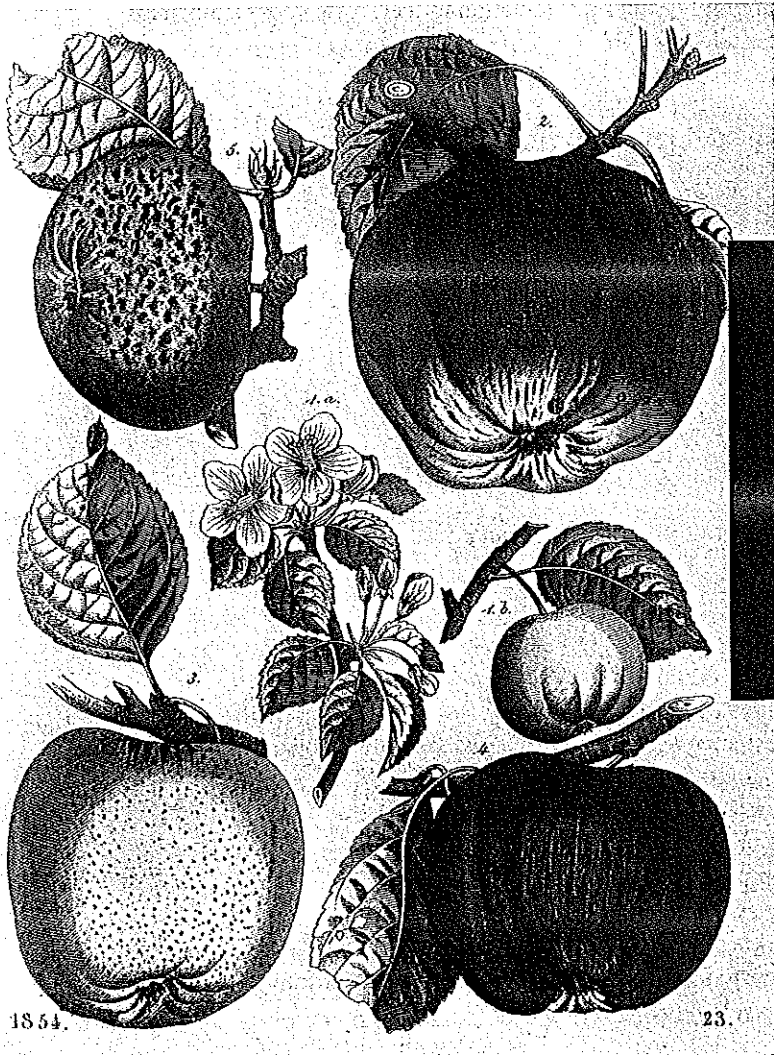
At the end of the first week of 1st grade, at a ceremony attended by family members, Sara and her classmates each receive a topic that they will study throughout their schooling. There is much excitement as the students prepare to discover what they will become experts in. Sara walks on the stage in her turn, and the teacher hands her a folder. Inside is a small, colorful tile on which her topic is written, along with a picture of the topic and her name. Sara announces to the audience that she is to learn about apples for the next 12 years. The tile is added to a wall of such tiles in the school.

The teacher has received materials related to each of the topics her students will study, along with suggestions for getting the process of engagement and discovery going. In her first

meeting with Sara a week later, she asks what Sara's caregivers and older friends have suggested she might do to learn about apples. Then the teacher suggests that Sara check out the varieties of apples in her local supermarket and, if possible, buy one apple from each variety.

Sara begins to make a list of the apple varieties she finds. With her teacher's help, she develops a table in which she gives each variety one to five points for taste. She finds additional varieties at a farmers market, adds their names to her table, and also scores them by taste. She draws the apples, trying to show the differences among the varieties. She learns by the end of her first year that there are about 7,500 varieties of apples in the world and that nearly all those varieties are descended from a sweet apple that grew wild in Kazakhstan thousands of years ago and that still grows there. She looks the country up on a map.

Depth



Her teacher suggests that she might like to learn stories or poems about apples, so Sara learns about William Tell, Johnny Appleseed, Isaac Newton, and many others. Then her teacher guides her to a series of sayings about apples whose meanings Sara is to explore: "the apple of my eye," "one rotten apple spoils the whole barrel," "an apple a day keeps the doctor away." She learns to write in part so that she can make a list of these. She decorates her page of sayings with a barrel of brightly colored

apples on a pirate ship because she has discovered that apples protected sailors, as they do the rest of us, from scurvy.

Year after year, Sara's portfolio on apples grows, in directions driven partly by her own interests and partly by the guidance of her teachers, family, and older students who are studying the same topic. If you were to browse through her portfolio as she enters secondary school, you might see sections on the fact that apple trees are part of the rose family and that the biggest apple documented was around four pounds. One small file explains why apples float. Another explains that the current Lady apple was first cultivated by an Etruscan woman named Api and that in France, it is still called *pomme d'Api*—a good way for someone to be remembered, Sara notes. The Greeks and Romans prized apples and knew about 20 varieties. Sara has created a complex family tree showing the development from those early apples to our current abundance of varieties.

By the end of her schooling, Sara is an expert on the medicinal properties of apples and the manner in which the human body metabolizes their various healthful components, as that has become a special interest of hers. She also knows many poems about apples, a favorite being W. B. Yeats's "The Song of Wandering Aengus," with its magical images of a "glimmering girl/With apple blossom in her hair" and of Aengus and the glimmering girl plucking "The silver apples of the moon, the golden apples of the sun." Sara also knows much about the Trojan War, which began with Eris, Goddess of Discord and Strife, throwing a golden apple into the middle

massively expert about something. It has come at little cost in teacher time and has beneficially influenced everything else she has done in school.

A World of Experts

Imagine a future in which it would be routine for schools to randomly assign 1st graders one topic to study through grade 12, along with the regular curriculum. Students would learn about birds, apples, the circus, railways, the solar system, and so on. They would meet regularly with their teachers, who would give guidance, suggestions, and help as students build personal portfolios, which are ungraded, about their

with a supervising teacher for perhaps 15 minutes at a time. Sometimes groups of students would meet with a teacher to report on their progress; both teacher and students could comment on further directions the portfolios might take. Each year, students would make a presentation to their class, to which parents

Learning in depth is not simply a matter of accumulating facts about leaves or apples for 12 years.

of a wedding party and Paris of Troy awarding the apple to Aphrodite in order to win Helen.

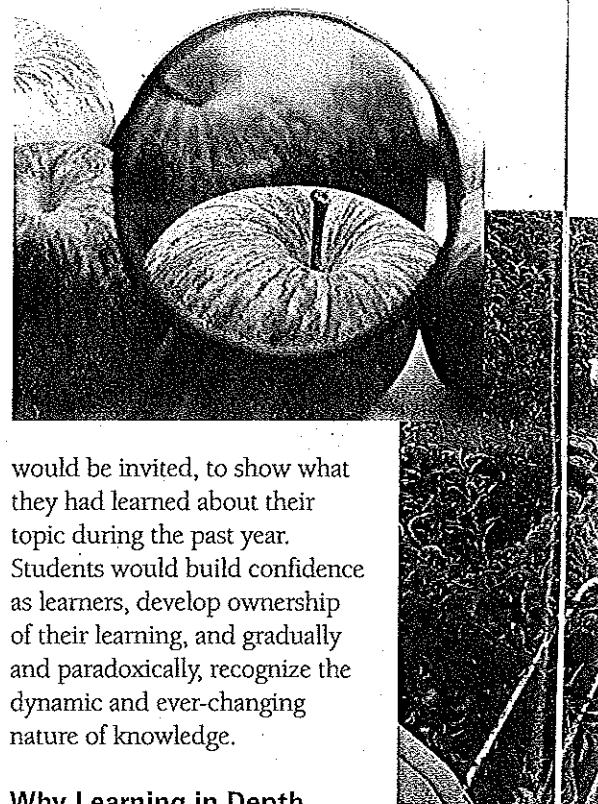
Sara has become active in campaigns to preserve rare apple varieties. Current monoculture farming, which reduces these species' ability to survive diseases, puts these less popular varieties of apples at risk of extinction. Sara is also knowledgeable about the production of apples in different countries. She has learned a good deal of mathematics from calculating the proportions of apples produced in both the United States and China and the prices at which they were sold on different world markets. She knows the locations of the major orchards of the world as well as their owners, costs of production, profits, and transportation problems.

Like all her classmates, Sara is

topics. Each student, by the end of his or her schooling, would know as much about that topic as almost anyone on earth.

Imagine what school would be like if we implemented such a project on a large scale. Instead of simply introducing students at a superficial level to the vast encyclopedia of human knowledge that constitutes the current curriculum—of which, depressingly, students retain so little when they leave grade 12—the school would become a repository of expertise. It would be a place in which each student would amass knowledge about something, classify it, reorganize it, and develop an increasingly sophisticated understanding of it.

Each student would develop a single portfolio through his or her entire school career, meeting once or twice a month



would be invited, to show what they had learned about their topic during the past year. Students would build confidence as learners, develop ownership of their learning, and gradually and paradoxically, recognize the dynamic and ever-changing nature of knowledge.

Why Learning in Depth Is Important

There are six good reasons for implementing such an innovative curriculum.

1. It makes students specialists.

Surveys have consistently reported that a majority of students know little of the curriculums they have studied during their 12 years of schooling (see Barrows, 1981; Bauerlein, 2008; National Commission on Excellence in Education, 1983). Students who are successful in school remain disturbingly ignorant even of concepts and content they do

well on in tests. For example, physics students at Harvard were unable to correctly answer basic questions about principles they had “learned” when asked about those principles in a slightly different context (Gardner, 1991). Gardner concluded that 12 years of study had barely disturbed students’ misconceptions in physics and that this situation appears to be prevalent in other disciplines as well.

One problem is that throughout their schooling, students remain “outside” the knowledge they study. Learning in depth

“In 8th grade, I did a yearlong study on pyramids. I ate, drank, and slept with pyramids on my mind! It was the happiest memory of my schooling.”

Learning in depth is not simply a matter of accumulating facts about leaves or apples for 12 years. Knowledge makes its own demands on the mind.



Once the student learns a significant amount of knowledge, he or she must classify it and, in time, develop new conceptual structures to organize and enrich its meaning. During a typical 12 years of schooling,

students’ understanding of their topics will go through distinctive changes in the kinds of understanding brought to bear on the elaborating portfolio. Their focus of interest will likely shift from collecting and classifying facts to a more theoretical appreciation of their topic and even to social action related to it.

2. It teaches students the difference between opinion and fact.

I remember taking a taxi in New York City some years ago and the driver

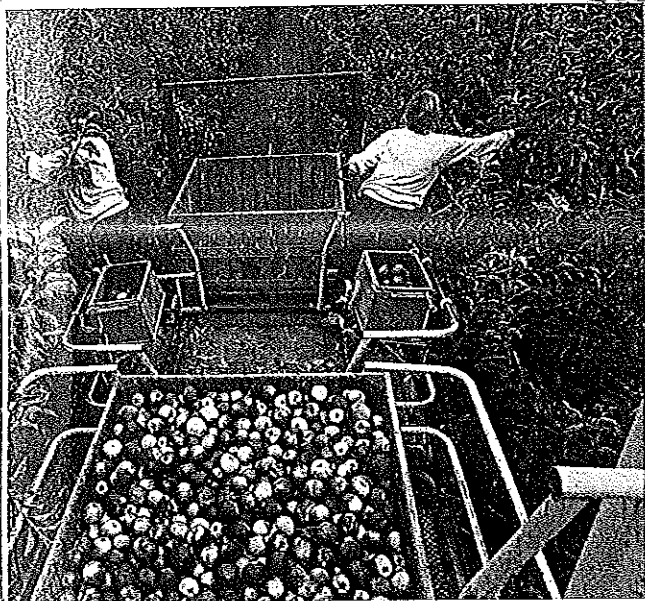
solemnly telling me something I’ve since forgotten. I forgot because I was so taken by his concluding assertion: “That’s my opinion—and it’s very true.”

At present, the superficiality of most school learning leaves many students vulnerable to deceptive claims. Students don’t really understand what it means to secure a claim to knowledge. They seldom learn how knowledge differs from belief and opinion, thereby making them, potentially, more gullible. Some are prone to take on board unsound beliefs whereas others become assertively confident in their own opinions about things in which they lack secure knowledge. As G. K. Chesterton once remarked, it’s not that people who lack deep knowledge come to believe nothing, but rather that they will believe anything.

Consider the thousands of people who eagerly pass on various urban legends, from the recent tales of camel spiders in Iraq, which supposedly attack and eat camels, to the notion that sleeping in a room with a revolving fan can cause death by asphyxiation or hypothermia. Learning in depth provides an inoculation against this confusion between knowledge and opinion by making it clearer to students over the years of building their portfolios that securing knowledge claims is a complex endeavor.

3. It hones skills that transfer to learning in other content areas.

Students can’t study something in detail for 5 or 10 years without that experience profoundly shaping their understanding of everything else they learn. If they have learned that it is possible to classify apples in a number of ways—by size, color, nutritional value, shelf life, times of ripening, and so on—they will carry this understanding into the organization of other content areas as well; if they



would permit students to get “inside” that topic area. At present, this virtually never happens in school. At best, students specialize in some curriculum area and learn it a bit less superficially.

Students occasionally have the opportunity to study some topic in depth for a semester, or even a year. Learners who have had such opportunities remember those extended studies as highlights of their education experience, recalling details with pleasure far into adulthood. As one teacher remarked to me recently,

have grasped the importance of preserving apple varieties to protect the species against devastating disease, they will be able to use this cognitive skill in looking at how humans manage other food sources. Students who go through this kind of program will likely demonstrate increasing energy and interest in learning across the board.

4. It encourages learning for its own sake.

The superficiality of so much learning in schools and the insistent drive to “cover the curriculum” deprive many students of the intense delight human beings experience as they acquire massive, detailed knowledge and understanding. This kind of knowledge stands apart from the increasingly common utilitarian purposes for learning—we learn what we need to know for the demands of everyday life—and from how we so often spend the rest of our time—in entertainment.

Students who have had the opportunity to learn something in much greater depth than usual in school usually take great pleasure in their special knowledge. Think of those collections that students become so enthralled in—of dolls, hockey cards, action figures, and so on. They think of their topic as a hobby—it’s theirs, and they can take it in whatever direction they wish. They are working for themselves and not for a grade. Chances are, they’ll become lifelong learners.

5. It creates a community of learners.

Learning in depth can help schools develop new kinds of communities. If we define specific and recurring topics for students to study, a 5th grader and a 10th grader, say, would have the same topic as each 1st grader. Students with the same topic could work together now and then, with older students helping

younger ones and each sharing their findings.

Students of different ages could collaborate on their annual presentations. This would work as well for students with the same topic as for those with different topics. Imagine the following scenario: Sara meets Jon at a

knowing things and having access to knowledge in the memory—because the imagination works only with what we know (Egan, 1997, 2005).

The imagination is not some idle spinning of airy nothings, as some have represented it, but one of the great work-horses of learning. The more we know

Chances are, students who have had the opportunity to learn something in depth will become lifelong learners.

friend’s party. They happen to discuss their topics—she has apples and he has birds—and they decide to do a joint presentation at the end of the year that will show the many ways in which apples and birds interact. They will thread through their presentation the Italian folktale “The Dancing Water, the Singing Apple, and the Talking Bird.”

Sara meets Jon’s older cousin, who, it turns out, also has apples as a topic. In a subsequent meeting, she shares with him a section of her portfolio on the historical development of apple species. He shows her, on his laptop, a world map he has drawn that indicates where different varieties of apples grow and in what quantities. They discuss merging the information and producing a similar map for every century from ancient Greek times to the present.

6. It stimulates the imagination.

Being able to find particular knowledge in the mountains of information in libraries or on the Internet is educationally valuable, of course. However, the downside of the emphasis on such procedural skills is a disastrous underestimation of the importance of actually

about something, the more imaginative we can be about it—and the more imaginatively we can problem solve. At the end of her schooling, Sara will have immensely stimulating material that can engage and enrich her imagination when she thinks about her topic.

Ah, But It Will Never Work

No doubt a number of objections to such a project might already have occurred to you. Some may say that students will get bored studying the same topic for 12 years. But boredom is a product of ignorance; the more we know about something, the more interesting it becomes.

Some may suggest that the random assignment of topics is absurd and that student choice must be part of such a scheme. Of course, some flexibility would be important here, but children’s interests change. Which of the topics you’re most interested in today are the same ones you were interested in when you were 7? So picking a topic on your own at that age is no guarantee that you’ll be interested in that topic years later.

Others might suppose that it would be too complicated to organize, but if we are

more committed to an education system than to a school system, then we can make it work. In addition, teachers, librarians, volunteer parents, and older students studying the same topic in depth can help mitigate some of the costs in time.

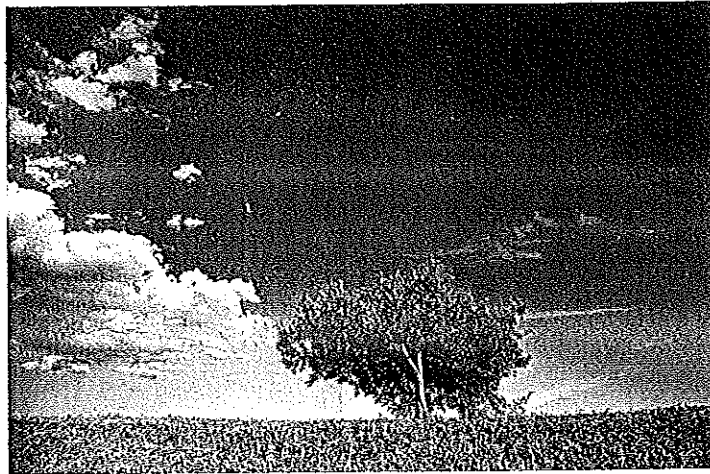
Some may think that many of these topics are developmentally inappropriate for very young children. I have always liked what psychologist Jerome Seymour Bruner had to say about that. He wrote, "Any subject can be taught effectively in some intellectually honest form to a child at any stage of development" (1966, p. 33).

Finally, some may worry that *depth knowledge* won't transfer to *breadth knowledge*. I suspect it will transfer unstopably.

Curiously, when I talk with groups of administrators about learning in depth, the most common response I get is that it would be a great addition to what schools offer—but that teachers will never go for it. When I speak with teachers, the most common response I get is that it would be a great addition to what schools offer, that they would love to be involved in nongraded explorations of topics with individual students—"This is exactly what I got into teaching for!" one teacher said recently—but that administrators will never go for it.

A Notion That's Taking Off

A dozen or so schools in the Vancouver, British Columbia, area have expressed interest in learning in depth. Several are preparing their staffs for a pilot project slated to begin in 2009. The principal of an Australian school who heard about learning in depth is now determined to



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have his school be the first in Australia to implement the program. A school district in Oregon has requested detailed information. A Japanese school has already begun the program, with a cultural twist: Students make fortune cookies, slip a piece of paper with a topic inside, then randomly choose a cookie—and their topic.

Pilot projects initially cost little to put in place. Teachers would need to decide on a set of suitable topics so that each student would have a different topic to work with. They would also need to do some preliminary research to understand what kinds of information and experiences students should be exposed to as they explore their topics.

Schooling—Transformed

Learning in depth can transform schooling. As students gradually build their portfolios, they exercise increasing ownership of their learning. They become explorers in a long and fascinating adventure in which they invite the rest of us—teachers, peers, and parents alike—to explore along with them. ■

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Author's note: For additional information about learning in depth, visit www.ierg.net/LiD.

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