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[Flawed Assumptions Undergird the Program at the Partnership for 21st-Century Skills](#)

[Daniel Willingham](#) - March 2, 2009



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Since I [last wrote](#) about the 21st-century skills movement it has become a juggernaut.

At the forefront is the [Partnership for 21st Century Skills](#) (hereafter, P21), a group that seeks to serve as a catalyst for educators, business leaders, and government seeking to change the curricula, teaching methods, and assessments used in K-12 schools. Ten states have joined the effort, agreeing to design new standards, assessments, and professional development programs in line with the P21 goals.

On February 24 I participated in a forum at [Common Core](#) (transcript [here](#)) examining the P21 effort. The discussion included the President of P21, Ken Kay. In response to an audience member's question, Kay made a startling, but I think quite accurate statement: I'm paraphrasing, but he said something close to, "Our real expertise is in the setting of goals. Other people have the expertise in how to make it happen."



It's quite true that P21 has the expertise to set goals for schooling—at least, the goals that business interests would see as desirable. Business interests are well represented on their board, including people from Intel, Ford, Dell, and other prominent companies. The goals are not startling, and are ones that most observers would support: an emphasis on information acquisition, communication, problem solving, interpersonal interaction, self-direction, global awareness, economic and business literacy, and civic literacy. (Many of them skills that were pretty important in the 20th century and even in Plato's time, as [Andy Rotherham dryly noted](#).)

Sadly, P21 is not satisfied merely to set goals. A glance at the P21 website shows recommendations for policy, assessment, pedagogy (including links to lesson plans), standards, and professional development. When P21 says that they work with states, it certainly appears that this help involves much more than the setting of goals.

So what exactly are states getting when they participate?

Here's what they are *not* getting: methods, assessments, and professional development that have been assessed and shown to be effective.

P21 doesn't have a proven set of methods and materials. Rather, P21 has a vision of how the mind works, and how educational systems (classrooms, schools, districts, etc.) work. They believe that the methods they recommend are consistent with the workings of the mind and are compatible with the educational system.

P21's vision for changes in education is based on several flawed assumptions about human cognition.

Assumption 1: Knowledge and Skills are separate.

In a [prior post](#), I warned that the 21st-century skills movement in general is too focused on skills (analysis, synthesis, critical thinking) and ignores the fact that knowledge is critical to thought.

The P21 group claims to believe that knowledge is crucial, but there is a disquieting lack of attention paid to knowledge in the materials on their website. Diane Ravitch observed that she would be more convinced that they understand the important role of knowledge if the group were called "the Partnership for 21st Century Skills *and Knowledge*."

But even if one takes their claim as sincere, P21 makes clear that they don't understand how knowledge and skill work together. The P21 documents describe them as though they are separate, as though it's possible to train skills on their own and so train students to be "good critical thinkers."

As [E. D. Hirsch](#) emphasized in his talk at the forum, and as I've described [elsewhere](#), thinking skills are intertwined with domain knowledge. Hirsch noted that Steven Spielberg is a brilliant thinker when it comes to cinema, but that doesn't mean that he could manage the New York Yankees. Critical thinking in one domain does not apply to another. This is true because (1) knowledge is sometimes required to identify the root nature of the problem you're dealing with and (2) you might understand the problem and know what you're supposed to do, but still need background knowledge to *use* the

critical thinking skill you want to apply. The danger in describing knowledge and skills as separate is that it is a short step from that belief to putting knowledge on the back burner. That fear seems justified by statements like this one from the P21 [Intellectual and Policy Foundations document](#) (p. 6): “With instant access to facts, for instance, schools are able to reconceive the role of memorization, and focus more on higher order skills such as analysis, synthesis, and evaluation.”

In other words, students can always Google the facts, so teachers can focus on skills.

Assumption 2: Teachers don't have cognitive limits.

Everyone's cognitive system has limits. We can't remember everything that happens to us. We can't pay attention to five things at the same time. This is important in the classroom because the methods that P21 encourages teachers to use (as the ones most likely to develop 21st-century skills) are incredibly demanding—so demanding that almost no one can use them effectively without a great deal of preparation and training. The demanding methods include project-based learning, small-group learning, and others in which students have some voice in the direction of the lesson plan. These methods are difficult because it's so hard to plan for them; you can't know what's going to happen in the classroom until you get there.

Then, too, the knowledge that the teacher might need is broader—students have a say in what they will study, so the range of topics that the teacher must know is concomitantly broader. The greater cognitive demand of these lessons has been acknowledged by prominent proponents of them, including [John Dewey](#) and Michael Pressley. These types of lessons are also tougher from a classroom management perspective—a certain amount of hubbub is expected, and teachers might wonder whether hubbub will devolve into chaos, a point made by [John Goodlad](#) and by [Mary Kennedy](#).

It's important to note that teachers *already believe* the teaching methods promoted by P21 are the best ones. They are taught as much during their training. Yet classroom observation studies show that [very few teachers use them](#), almost certainly because they are so difficult to use.

The P21 group shows no recognition of the enormity of this problem, nor of the likelihood that teachers will end up not using these methods or having difficulty managing them. You can't just say “we've got great lesson plans.” The difficulty for teachers is inherent in the lesson plan. This doesn't mean that students should never do projects—it means that we should be clear-eyed about the challenges that projects present, and have a plan to meet them, rather than to simply suggest that projects (and other methods) are a good idea.

Assumption 3: Experience is equivalent to practice.

Just because you do something doesn't mean that you get better at it.

I have been driving for about 30 years, but I don't think I'm a better driver than I was 29.5 years ago. I've gained experience, but I haven't practiced. Practice entails *trying* to improve: noticing what you're doing wrong, and trying different strategies to do better. It also entails meaningful feedback, usually from someone knowledgeable about the skill. This means that 21st-century skills like “working well in groups,” or “developing leadership,” will not be developed simply by putting people in groups or asking them to be leaders. Students must be *taught* to do these things. We simply don't know how to teach leadership or collaboration the way that we know how to teach algebra or reading. As with Assumption 2, the conclusion is not that we shouldn't *try* to teach these things to students, but rather that we should start with a realistic assessment of what we know about implementing methods to meet the stated goal.

What do these three faulty assumptions mean?

I believe they mean that states that adopt the recommendations of the P21 group will find they don't work. [Jay Mathews](#) called 21st-century skills the latest doomed educational fad. Sadly, it will probably take a decade or so before that becomes evident.

I think it's important that states try to meet the goals set by P21—indeed, they are goals that have been articulated for at least 100 years. As [Diane Ravitch](#) noted, the history of education is a seemingly endless parade of “new ideas” that are actually old ideas renamed. The hoariest chestnut of the bunch is that students need “real world problem-solving and critical thinking skills, which can be taught through projects, small-group learning” and so forth.

Ravitch thinks that the P21 movement is merely the latest entrant in this historical parade. I agree, and so does [Gerald Bracey](#).

It's not that the ideas are bad, but they clearly are not workable in the way that *seems* obvious: we want students to be able to do X in the world, so stick more X in the classroom. **If it were that easy, it would have worked by now, because it has been tried many times before.** That is the great danger of the P21 movement. To those unfamiliar with the history of education, the ideas sound compelling, and in fact, obvious. In the classroom, they are anything but.

I hope that state boards of education *are* thinking about how to inculcate 21st-century skills.

What changes should they contemplate?

The change that is least risky and simultaneously the most likely to pay dividends is to write state standards that call for significant content knowledge from students. These standards must do more than list facts: they must delineate conceptual knowledge *and* factual knowledge, and make clear how the two are related. (For more on this point, see [this post](#).) Further, states can provide meaningful professional development and *time* for teachers to incorporate the standards into practice. The extent to which doing so will fulfill 21st-century goals may surprise policy makers.

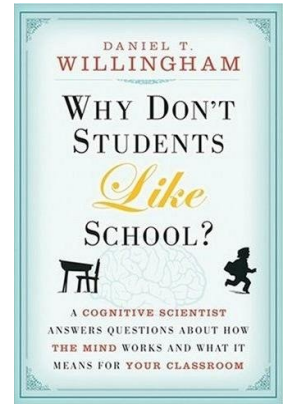
If they want to try something else, they should begin by asking themselves why previous efforts in a similar spirit have not worked, *and they should proceed cautiously*. **Recognize that you are moving forward on the basis of a theory, not on a proven method, and that students are thus guinea pigs in your experiment.** So start small and see if it works—and note that “see if it works” means that you need to have a meaningful assessment plan in place before you start. Most of the current state assessments focus on content, and most do a mediocre job with that. Measuring 21st-century skills is much harder.

Without innovation, we cannot improve. Therefore, I do hope that some states will explore new venues of instruction and cutting-edge content.

I fervently hope that they will ignore the recommendations of P21 as they do so.

* * *

Dan Willingham, author of [Why Don't Students Like School? A Cognitive Scientist Answers Questions About How the Mind Works and What It Means for Your Classroom](#), typically posts on the first and third Mondays of each month.



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20 Responses to “Flawed Assumptions Undergird the Program at the Partnership for 21st-Century Skills”

- [21st Century Skills: A Guide for Clear Thinkers at The Core Knowledge Blog:](#)
March 2, 2009 at 10:53 am

[...] Dan stole the show at last week's Common Core panel discussion in Washington, and his piece today on Britannica Blog lays out in a single reading three flawed assumptions made by The Partnership for 21st Century [...]

- [Kathy Madigan:](#)
March 2, 2009 at 11:45 am

You make a strong case for not using P21. At the same time you throw a bone to folks in the name of innovation. I understand and agree with your recommendation for innovation, yet I worry about having State policy makers involved in conducting research. Perhaps it would be better to have State policy makers demand more funding for research in this area from IES or NIH or even have the state send out RFPs for research.

Otherwise some of the questions could be:

Will parents and students be informed that they are involved in the experiment or pilot program? (Will all Human Subject research requirements and processes be reviewed by an independent panel?)

Will parents and students have the right to opt out of the experiment?

Will teachers be forced to use unproven instructional methods and assess students using non-validated and labor intensive tools, or can they opt out?

What is the proposed cost for retraining teachers; creating and purchasing new instructional materials/ new technology; developing new standards and tests; implementing and scoring these new assessments? What is the budget for the research?

Suppose student performance is negatively impacted (as it has been in other states), will the State board pay for the full remediation the affected students? What would that cost?

- [Nathan:](#)
March 2, 2009 at 11:47 am

Dan,

What do you make of Massachusetts being one of those ten states that is signed on?

I know you had talked in one of your previous posts how you thought they would accomplish a “successful balancing act”.

-Nathan

- [Daniel Willingham:](#)
March 2, 2009 at 1:59 pm

Kathy: you raise excellent questions, but let me be clear, my nod to innovation was more than bone-tossing. I'll probably write more on the importance of innovation in the future, but here let me note that **thinking that the P21 group is wrong is not the same as thinking that 21st century skills constitute wrong-headed goals**. Sure, calling them “21st century” is sloganeering because most of the skills are old stuff—but they are still good goals.

Regarding state officials as experimenters: to some extent, state officials inevitably take a risk when they make policy changes; I'm sure you

would agree that until one implements at the state level it's impossible to be 100% sure of what will happen. Through one lens, it's not different than the President "experimenting" with the economy. If he/Congress get it wrong, none of us get a do-over. Returning to education, the question we should ask is how well state lawmakers are managing the risk; how well-informed are they about the research base behind the policies they pursue? How good is their plan for assessing whether or not it works? Do they even have well-articulated goals by which to declare the change a success or failure, and a timeline of expectations? **Are voters holding elected officials to these standards?** I don't know enough about the specific plans in each of the 10 states that have signed on to know with what fidelity they plan to follow the recommendations of P21. The point of the post (obviously) is to give people my point of view on that research base: it's lacking.

Nathan: I was positively impressed by the task force report exactly because I took it to be a first step and as a first step I thought it was sensible, and as I said in this post I think it's essential that states continually evaluate the efficacy of what they are doing and think of ways to try to improve. I don't know the extent to which the MA DOE is contemplating implementing something close to what the P21 group envisions, or whether they share the goals of the P21 group and so joined up, but plan something quite different.

- *Kathy Madigan:*
[March 2, 2009 at 3:58 pm](#)

Dan:

Thanks for your response. RE: MA- the State Board has not signed on with P21. There has been no vote and only reports from a work group. Hopefully, the MA DOE and Board will read your review of the research and become more informed, so that they can adequately address the risks.

- *Kathy Madigan:*
[March 2, 2009 at 4:12 pm](#)

By the way, I am a huge proponent of innovation. I just think folks should be informed if they are flying in an airplane while it is being built. Even congress and the President have said they "hope" this will work. We know that it might not. This type of communication rarely happens with education innovation. When you write about innovation, I hope you will address the issues of informed consent, creating benchmarks for success, and what happens if things go wrong.

- *Common Core » Blog Archive » More Criticism of P21:*
[March 3, 2009 at 12:04 pm](#)

[...] Two scholars who participated in Common Core's panel about 21st century skills--historian of education Diane Ravitch and UVA cognitive scientist Daniel Willingham--have now written blogs expanding on their critiques of P21. Last week Willingham talked about two assumptions that underlie P21's work, which he deemed unsound. Now he's found a third. Not only is P21 mistaken in believing that skills can be taught separately from knowledge and that teachers (like the rest of us humans) cannot possibly retain the amount of knowledge needed to conduct the kind of project-based learning P21 touts. But Willingham also finds that P21 confuses the ideas of experience and practice: Practice entails trying to improve: noticing what you're doing wrong, and trying different strategies to do better. It also entails meaningful feedback, usually from someone knowledgeable about the skill. This means that 21st-century skills like "working well in groups," or "developing leadership," will not be developed simply by putting people in groups or asking them to be leaders. Students must be taught to do these things. Read more here. [...]

- *Flawed assumptions at Joanne Jacobs:*
[March 3, 2009 at 2:30 pm](#)

[...] a Common Core discussion of 21st century skills, cognitive scientist Dan Willingham attacks the "flawed assumptions" of the influential Partnership for 21st-Century Skills (P21) on Britannica [...]

- *21st Century Skills? « Schule For One:*
[March 4, 2009 at 8:39 pm](#)

[...] the heat? ...) Daniel Willingham posted an excellent entry on the Britannica Blog: "Flawed Assumptions Undergird the Program at the Partnership for 21st-Century Skills." He, along with E.D. Hirsch (of Core Knowledge), Diane Ravitch (the writer) and Ken Kay (of [...])

- *Competencias para el siglo XXI: ¿qué está en juego? « Intriga Personal:*
[March 5, 2009 at 1:21 pm](#)

[...] Daniel Willingham, por su parte, afirma que el principal problema con el enfoque de P21 es separar los conocimientos de las habilidades. En un reciente post, el explica cuáles son varias de las falencias del enfoque de P21, entre ellas creer que los maestros no tienen límites cognitivos, confundir experiencia con práctica o creer que los estudiantes pueden usar Google y resolver todas sus necesidades de información. [...]

- *The Great Content Debate « Digital Eyes:*
[March 9, 2009 at 10:24 am](#)

[...] <http://www.britannica.com/blogs/2009/03/flawed-assumptions-undergird-the-partnership-for-21st-centur...> [...]

- *Serendipity35:*
[March 16, 2009 at 11:50 pm](#)

Nothing New About 21st Century Skills...

I keep reading articles about "21st Century Skills" and I have written about that topic myself a few times (see end of post). I read a post by Doug Johnson recently that comes close to my own current feelings on these new skills. They are not...

- *An Education for the 21st Century Without 21st Century Skills? | Ecology of Education:*

[April 6, 2009 at 3:28 pm](#)

[...] dressing, concept wise. Their Framework makes for a compelling model, but the criticism (here and here) stands to stall its [...]

- [Analysis of the Initiatives and Motives of the Partnership for 21st Century Skills | Teach & Share:](#)
[May 27, 2009 at 12:18 pm](#)

[...] According to Daniel Willingham (2009) who participated in a forum discussion with P21 president, Ken Kay, stated that Ken Kay said “our real expertise is the setting of goals. Other people have to figure out how to make that happen.” The problem then is with P21 giving a variety of resources, lesson plans and assessments for educators, districts and states to use right off of their website. If their expertise is not in these areas, why are they giving suggestions on how to fulfill these goals? Willingham also points out a variety of flawed assumptions in P21’s vision for change that are definitely worth pondering including that: “knowledge and skills are separate, teachers do not have cognitive limits, and that experience is equivalent to practice” (2009). For a full explanation of Willingham’s flawed assumptions visit his blog by clicking here: Daniel Willingham [...]

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[May 28, 2009 at 4:39 am](#)

Very right said Daniel, the “Partnership for 21st Century Skills” or P21, quite looks like the 21st century image you got up there..

- [nagendra singh:](#)
[May 28, 2009 at 9:33 am](#)

Why don’t Student like School, nice book Daniel..!!

Hopefully the education system take note of these false assumptions to which they have stuck around for ages. And we see some radical changes even if it is at small level.

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[September 11, 2009 at 7:30 am](#)

It does seems that there is never a clear balance of what should be taught but P21 does not sound like it is exactly the right format and I hope as well that more consideration is given by institutions rather than just following what is considered the norm. As per Nagendra, radical change does need to happen but history seems to show it doesn’t.
Henal

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[September 20, 2009 at 9:28 pm](#)

I like the statement Kathy has to make about knowing you are flying in an airoplane while it is being built. What a great statement and relates to so many instances where we the public have things tested on us without being aware that the final product is not in fact finalized!

- [The Partnership for 21st Century Skills, Good or Bad? | Adventures in 5th Grade:](#)
[November 28, 2009 at 3:15 pm](#)


[...] As I delved deeper into the program I began to ask more critical questions of the program. Where are the specifics for the framework? An additional concern that I have is, why is it that in seven years only fourteen states have embraced this program as something of value? Input from researchers in the field of education along with the voices of educators and corporate America have established that there is definitely a need for change. My concern is that The Partnership for 21st Century Skills is based on a great deal of theory with little research to support participation in their program. When searching for research studies on the program’s success, I found websites and several blogs opposing this program. The main argument of those that oppose the program is a fear that core curriculum will be lost or “dumbed down”. The website Common Core gave valid points and had several blogs to interact with on the topic as well as many news links on the topic. In addition to the Common Core website, I found many blogs opposing the Partnership for 21st Century Skills program. Daniel Willingham, the author of Why Don’t Students Like School? A Cognitive Scientist Answers Questions About How the Mind Works and What It Means for the Classroom, , has a blog with topics on education, one of them being, Flawed Assumptions Undergird the Program at the Partnership for 21st-Century Skills. [...]

- [Diny Golder:](#)
[February 8, 2010 at 12:26 pm](#)

I was the co-founder of the Partnership (with Ken Kay) and work closely with some of the members as their organizations, outside of P21, support 21st century skill efforts that positively affect what happens in the classroom. As a group, P21 is more of an advocacy association (not what I had envisioned when it was formed) and relies heavily on their member’s individual efforts to show how to introduce 21st century skills to classroom teachers and demonstrate how success can be measured. I am hoping that we can do a better job tying P21 members’ 21st century skill programs to P21’s organizational message.

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