



## TRANSCRIPT

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### Title: David Conley Part 2

So where did all this come from? I think it's worth taking just a minute to let you know that it started back actually in--research I did that was reported in 2003 that was summarized in a book that was published in 2005 called, "College Knowledge." I'm just curious. Has anybody here seen or heard of "College of Knowledge"? I got a few folks, thanks, thank you. It's alright. I think the key take away from "College of Knowledge," if you wanna save yourself reading 250 pages, is that habits of mind are important. I call 'em key cognitive strategies.

I think AI was talking about critical thinking skills. But really the key message we got when we worked with over 450 postsecondary faculty members and not only had focus groups and interviews and met with them, but we also analyzed their syllabi and their assignments and, of course, documents, is that postsecondary instructors expect students to do something with the knowledge they're given. For the most part they do not just expect students to absorb it. They expect them to apply it, and they expect them to apply it in ways that require cognitive processing. Another way of saying it is that students need to think about what they are doing when they are doing it. This kind of evolved into a monograph that came out in 2007 called, "Toward a More Comprehensive Conception of College Readiness." And I introduced the notion of a four-part model there, and you notice I've got habits of mind at the center and then key content.

Then what I call the academic behaviors, which became the key learning skills and techniques. And then contextual skills and awareness, which nobody was quite sure what that was, but, you know, so we changed the name to--the idea is that you have to understand the context of high school and the context of college, and it's skills and awareness to make the transition, but in the model now it's called, "Key Transition Knowledge and Skills." In 2010 college and career--and since the show of hands on the last book, I won't ask how many read this one. But this was based on a study of 38 high schools that outperformed expectations, and so it's got some case studies in it and a lot of more detailed information, and it starts to relay the model out, but where we finally get down to brass tacks is in this book, which we do have some copies of here, and in chapters 3 and 4 I go into the model in detail, this 4-part model I'm talkin' to you about today. And a lot of the research that underlies this comes from a study we did of about 2,000 postsecondary courses in understanding the relationship between the common core and those courses. So that's the evidence for the model. Most of it comes from analyzing entry-level college courses' content, and this is really sort of bizarre, but no one had really done that before.

People had asked postsecondary instructors what topics they taught, but no one had really kind of gone in and analyzed the content of the courses themselves or had instructors identify the knowledge and skills that students need to succeed in their class. A lot of times instructors were asked what students should learn like in high school, but they weren't asked what students needed to know and do to succeed in the college class. So that was the way it started. There's was lot of this variety of sources of evidence, and then we also pulled information from other social science studies in areas we could talk about. I won't spend any time on this slide. I just--if you're interested in the research side of things, you can see that URL, then that's also where you can find this presentation.

It should up in probably a day or so, epiconline.org. That's where this will be, and that's where all these studies are as well. Okay, so let's go through the four keys kinda quickly. I love these graduation pictures. This one, in particular, I like because it's my youngest kid graduating from high school. There she is. I always do commercials for my children, and my wife's here today, too, so it's a family affair. Well, let's start with the cognitive strategies. Remember, we've got cognitive strategies, key cognitive strategies, key content knowledge, key learning skills and techniques, key transition knowledge and skills. And I'm gonna give you some examples of the cognitive strategies, but you notice the model, problem formulation, research, interpretation, communication, precision, and accuracy.

And for each of those there's two sub-points, hypothesizing and strategizing, identifying and collecting information and research the part, interpreting, you analyze and evaluate. For communication you organize and instruct, and then precision and accuracy you monitor and confirm. Now I should say real quickly, you could start anywhere in this circle pretty much. You could start by researching a question and then developing a hypothesis. You could actually have data presented to you. You could start with an interpretation that leads you to generate a hypothesis that leads you then to interpret more information. But this is kind of the inquiry cycle and I think a way that's easy for it to be taught, in particular, if you start with problem formulation. And you notice it doesn't say problem solving. Problem solving, as it is done for the most part in schools, it's not a solution process at all. It's a task completion process. Very often the problem is given to the student, the methodology is known, and solving the problem is the act of following the methodology or the procedure. So it's a practice exercise in learning how to master a procedure, which is great, but it's not problem formulation. It's not really solving a problem.

In the real world problems where you already know the process are not problems. Those are just given to people as tasks to complete. In the real world the trick is to formulate the problem in the first place. So generating a hypothesis, having an idea, knowing how to systematically develop information and knowledge, is an important skill. So here's an example. "Why did you build a death ray?" "To take over the world." "No, I mean what mad hypotheses are you testing?" Or, "Are you just making mad observations?" "Look, I'm just trying to take over the world. That's all." "You at least are going to leave some of the world as a mad control group, right?" So hypothesis generation is really, critically important when you're thinking about cognitive strategies, to start with having to think about what the problem is and how to work it. So let me just give you one other example here, and this is gonna be an audience participation example. Anybody here ever try to put something together that you bought somewhere? Alright, here's what I want you to do. This is gonna be very quick. This is gonna be another 1-minute, partner exercise, and when I call you back I'm gonna ask you to very quickly kind of bring the volume back down. But I want you to turn to your partner, and I want you to identify at least one strategy that you can use in a situation where some assembly is required, one or more strategies that you can use in that situation. One minute. I'm sure you thought about a lot of possible strategies, being competent and capable adults. Do I have someone who'd be willin' to kinda shout out a strategy for me that you used? Okay, we got a read the instructions person here. That's great.

You know, increasingly we're finding people do not read instructions. The instructions are becoming more like pictures, and they're becoming less and less informative. I had someone over here. Hey, honey? Well, that's a good one. Okay, looking at all the different parts, so you're a visual learner, and you wanna look it out there. We got in the back here, 28. Don't tighten all the bolts at once. Make sure it fits right. Any other strategies people

use? Start the tools first. Anything else? Trial and error. Okay, and what happens when you get done, and there's a few parts left over? You just kinda hope that they're not important. Anything else? How 'bout-- A lot of times you can look at the picture and try to kind of pattern match against the picture. One more.

YouTube is increasingly useful, and what never ceases to amaze me are people who go to the trouble to video themselves putting together any number of weird things, and you can go there, and it's not just one video. It's like 11 videos on, you know, how to put together a bed, you know? So the one that didn't come up here is actually one that gets used--you wanna toss one in? Yeah. It's a mindset, so basically that's kind of a metacognitive thing where you're in control. That's a self-efficacy, metacognitive thing. We're gonna come back to that exact idea in a minute, so thank you.

One that didn't come up here that normally comes up is the idea of you hire somebody else to do it, and so you're a very self-reliant crowd because none of you came up with that one. I'm very impressed. Well, what's interesting about this is that, as adults, I think it illustrates, first of all, that you do have a lot of choices and strategies in your arsenal when you try to approach a frustrating task, right? Let me ask you this. Have you ever watched somebody else try to put together something when they were clearly using an ineffective strategy? What did that look like? And how interested were they in having you give them some strategic advice? So you can see that when you head down the wrong road, it's not a pretty picture, and I ask you to think a little bit about our young people in classrooms, particularly if we think about some of our more challenged learners.

A lot of them only have one strategy for learning. They go at it one way, and if that one way doesn't work they're like that person that you're watching put together something where it isn't working, and we wonder why they get frustrated. They don't know how to come at it a different way. Teaching students to be strategic thinkers is not just about critical thinking. It's about how to approach learning tasks. It's about what to do if you don't know the answer to the solution. It's about having lessons that might have multiple ways to complete them successfully, that might have multiple approaches students could take. So cognitive strategies, I'm gonna go back just a second to the diagram. You can see for each of these there's a set of skills that students need, and they need to be able to practice them.

So for research, our young people--we talk so much about how technologically proficient they are, and yet when you ask them to search for information they're likely to take the first three things of 148,000 hits on Google. They'll take the first three on the top of the list, even without a lot of examination about the relevance, importance, and value of them. You know, there are some pros and cons to that kind of easy access to information. How many of you remember card catalogues, anybody? Okay, and, you know, card catalogues took a lot of skill, and you had to think about what you were doing, and you wanted to be efficient, didn't you? And, I mean, I think a lot of people liked 'em. I remember I went to CU Boulder for my graduate work, University of Colorado, Boulder, and I remember walking by in the library on the day that they were taking out the card catalogues, all of those big pieces of furniture that had all the cards in 'em. And I remember there was a small group of people standing around, kind of wringing their hands. They were just very disturbed that the card catalogue was going away.

Our young people have the opposite problem, which is so much information, that teaching people how to collect and identify and prioritize information is incredibly important. And I think it's a team effort, and we were talking at our table about the kind of skills that librarians have and can bring to this process. I think we haven't utilized that necessarily as much. And

even in universities and colleges the research librarians are incredibly important people, and our students need to know how to use those resources better. It's difficult to learn how to become a good researcher, and even in areas where it's not a matter of doing kind of formal research. It's just collecting information to buttress an opinion or a point of view, even for an essay in an English class. Postsecondary assignments for the most part require far more documentation and support than do assignments in secondary school.

Students in high school are very often used to having their opinion be sufficient in and of itself, and the act of critiquing the opinion is taken as a personal attack on the student. And I think getting into postsecondary ed it's much more the idea that you've got to learn how to accept that feedback and improve your performance as a result. Interpretation is the act of knowing how to take the information and format it and organize it into a pro-con list, into a matrix or a grid, into an outline, and to determine what's important, to throw out what's not. I mean, students--particularly, you know, I had mentioned people wanna know how long the paper needs to be. People a lot of times just take all the information they have and put it in there to get the length of the paper they need, and they haven't really thought about the importance of what goes into it. And then organizing and constructing a response, I would submit to you that postsecondary ed is becoming much more diverse in terms of the way information is expected to be presented, a lot more group presentation, a lot more use of PowerPoint, a use of posters.

Group assignments are very, very common in postsecondary. We just analyzed several thousand more--in a different study from the one I referenced previously--several thousand more documents to identify the exact types of assignments that occur, a much wider range of presentation modes. So research papers are important in postsecondary ed, but in our experience they're not the 20-page kind of thing that takes a whole semester to do, that very often gets taught in high school to students at the higher end. They are short 3- to 5-page papers, lots of 'em, shorter periods of time to do them, more expectation that students will use source material to support any contention they make. And this doesn't come naturally to our young people. It's something that has to be taught and developed in them, but to be college and career ready, I think you really need to be able to support your assertions, and I consider that to be a 21st-century skill as well. And then, you know, monitoring and confirming your precision and accuracy.

A lot of what happens when students when they go from high school to college is the rules change, the expectations for precision and accuracy. What was in high school okay to get away with, all of a sudden is not as okay to get away with in college, and so we've gotta gradually bring up the expectations and the standard for precision and accuracy, and I would also add to that quality. I was an assistant principal in a middle school in Colorado--or at a high school, I'm sorry, in Colorado--and I had, you know, an administrative credential, a master's degree, and I'd taken a lot of courses in administration, school change, school law, finance or organizational development, which prepared me really well for standing in the hallways and guarding the trash cans between classes, which no one ever got a trash can on my watch. And I remember one day as the sea of humanity was, you know, flowing by me, one young man was walking. He had his backpack on, and another student had a piece of paper positioned on the backpack and was writing while they're walking. This is not easy to do, and that kind of fascinated me. I'd never seen that one before, so I followed 'em, and I went along, and students have this uncanny kind of internal timer where they can manage to step into the classroom 2 seconds before the bell rings, which is exactly what these two kids did. Excuse me.

And I was able to watch what happened, and as I turned into the classroom, bell rings, the student with the backpack peels off. The second student takes the paper, walks up to the teacher's desk, puts it on top of the stack of papers that every other student had previously handed in. That kid was doin' his homework in the hallway between classes while walking. Now you can call that good time management on the one hand, but from a quality control point of view I'm gonna say that's not the standard I particularly want to accept.

So I worry a little bit about sometimes how our young people not developing these habits that they're gonna need at the postsecondary level. So those are key cognitive strategies. You see in other lists that have other things, but these are really we feel important for the kind of academic work that one does in general ed classes. We think it's also important for what occurs in career training programs and certificate programs as well. So student ownership of learning, I've said it's key, and these are the elements of the model that we have, and they include motivation and engagement, goal orientation and self-direction, self-efficacy and self-confidence, metacognition and self-monitoring, persistence or resilience, or grit and tenacity. And these things build on one another, that if you are motivated and engaged, you're more likely to set goals for yourself and direct yourself.

If you direct yourself you're more likely to become self-efficacious, to be more in control of your own success, and to become more self-confident. And when you do that your metacognition improves, and your notion of monitoring your own performance improves, and that's kind of what you were talking about with preparing for a task like that. You have to have some confidence when you start that that you're gonna be able to do that to complete it successfully. And then some words that have really been in play a lot lately, persistence or resilience, grit, tenacity.

I use persistence only because grit and tenacity to me imply too much that the students have to overcome some obstacle that's put in their place. I think all students need to be persistent whether they've had challenging upbringings and challenging lives or not. I think all students need to know how to persist. I also think we can build activities that cause students to persist with challenging tasks without having to make them become tenacious to overcome obstacles. So this is kind of the ownership of learning model, and I'd argue that you can look at your own curriculum, you can learn at a school's program and instruction, and you can ask yourself, does this course, does this curriculum, build student ownership of learning, and, if so, how does it do it?

And if it's working properly you will see these things happening, and you can just see them. You can hear kids talking about their goals. You can see them taking charge of a problem to solve it themselves, maybe creating their own study group, for example. You can see them thinking out loud about the problems that they face. You know, learners who have difficulties just do not have an internal monologue. They do not vocalize the problems. They do not understand why they're not succeeding. If you ask them why, they will tell you they don't know.

And, finally, you will see students more willing to persist. And this is a pretty broad generalization, you know? Don't take it too seriously on the one hand. On the other hand, U.S. students, relatively speaking, are probably less inclined to persist than students in a lot of other countries around the world when faced with a difficult task. U.S. students tend more toward an aptitude explanation of success as opposed to an effort-based explanation of success. They tend to believe if it doesn't come easy to them, they shouldn't spend a lot of time and energy on it, and they do get some reinforcement, you know, from different places

in their lives as well. And we don't want that because students who believe that they are "smart" or "bright" the research is pretty clear that they avoid anything that might show that they are not smart or bright, and that if it doesn't come easy to them they avoid it because it challenges their mental model of themselves, and particularly they do not wanna be publicly shown to be not smart or bright. So moving to an effort-based model, effort-based attribution, lets you engage students around student ownership or learning too much to a greater degree.

There's more to it than just what I've said, and I'm gonna come back on a couple of other elements in a moment. So just to review on this again, college ready students know themselves. They can become self-aware by exploring their interests, passions, skills, and ambitions. And I'm gonna mention this again later, but I'll just say it now. Take a look at the places in the courses and in the school's program where students have an opportunity to explore their interests, their passions, their skills, and ambitions. And if there are no places for that to happen, then we are asking students to learn strictly because we tell them to.

Students need to be able to set goals for themselves, need to know how to achieve those goals, and those goals need to be short term, medium term, and long term. I mean, a lot of times what we get is just a long-term goal, you know? My youngest daughter said she was gonna be a computational fluid dynamics engineer, and I don't--and when she was in 6th grade. I don't think she had any idea what that meant, but, boy, it stopped the adults from askin' her.

But, you know, I mean, students just don't know what options are available to them, you know? And I kinda joke about this a little bit, but, I mean, if you ask the average 6th grader if they wanna be an insurance claims adjuster, most of 'em are gonna probably not say, "Yes," but what if you told them, "Hey, look, how would you like a job where you get your own car, you drive around all day, and you take pictures of car wrecks?" You know, I mean, you probably would find a few takers for that job, so I think there are ways for us to make more connections between what we're asking students to learn and what they might be doing. And I don't think it has to be gimmicky, but I do think we have to have opportunities for them to see there's reasons to learn a lot of what we're teachin', not every single thing applies to a job or in a career or an interest area, but a lot of things can, and we need to make that connection.

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