

Dead Ideas in Teaching and Learning Podcast Series

Season 6, Episode 4: Teaching Students About the Science of Learning with Todd Zakrajsek

Center for Teaching and Learning, Columbia University

[00:00:00] **Catherine Ross:** Hello and welcome to "Dead Ideas in Teaching and Learning," a higher education podcast from the Center for Teaching and Learning at Columbia. I'm Catherine Ross, the center's executive director. As a quick reminder for our listeners, in this podcast series, we are exploring dead ideas and teaching and learning. In other words, ideas that are widely believed, though not true, and that drive many systems and behaviors in connection to teaching, exercising what Diane Pike called the "tyranny of dead ideas."

[00:00:38] Welcome everyone. I'm speaking today with Dr. Todd Zakrajsek. Todd is an associate professor at the University of North Carolina Chapel Hill and Director of the International Teaching and Learning Cooperative. Dr. Zakrajsek was a tenured associate professor of psychology and built faculty development efforts at three universities before joining UNC Chapel Hill School of Medicine, where he currently provides resources for faculty on various topics related to teaching, learning, leadership, and scholarly activity. Todd has served on many educationally related boards and work groups, and served as a consultant for organizations such as the American Council on Education, Microsoft, and the Bill and Melinda Gates Foundation. Todd's most recent books include *Teaching At Its Best* with Linda Nilson, due out early 2023, and *The New Science of Learning*, the third edition 2022, which we will be talking about today. So welcome to our Dead Ideas podcast. Todd, I am so excited to be talking with you today.

Todd Zakrajsek: Thank you, Catherine. Really looking forward to this conversation.

Catherine Ross: So in our spring 2023 season, we've been focused on just thinking about why the science of learning is so often ignored or simply unknown in higher ed by both instructors and students.

[00:02:04] And I would like to understand better how students interact with the science of learning. I'm assuming in their case that they just don't know about it. Hence why Todd has written a book for students on the science of learning to

know why Todd thinks that students might prefer to hold onto their dead ideas about learning and what we can do about that.

[00:02:28] It's a little bit of a tall order. So we're going to dive right into the first question. Todd, in the intro to your book, you note that students regularly come up after the presentations that you do and ask why nobody told them this information before. And in your book you also talk about the fact that universities do very little to help students learn about learning.

[00:02:56] I myself have had similar experiences with students, so it makes me wonder if the answer to this maybe requires like a systemic change. For example, the first-year programs at many universities that are, you know, taking on and ensuring success for all new students and maybe they require students to read your book. I'm not sure what other systemic ways we may have to address that.

[00:03:24] But also I wonder, does it require a change on how instructors approach their teaching. In other words, can we educate students about learning if instructors don't change?

Todd Zakrajsek: Those are tough questions. So, I think first of all, let me just take on this concept of the students who say, why didn't somebody teach them this?

[00:03:45] And my response, I guess, is somebody should have taught them this. We have an educational system where we really focus on content and the ideas. We just hit content over and over and over again, which was great before there was an internet because there was no really other way for them to get the information.

[00:04:00] But you know, internet came along and I think that a lot of the content, we can kind of work with the internet to get that done. The thing though is that if we don't teach students how to learn the questions, how do they come to learn? How do they, how do they figure this out? And we basically leave that up to themselves.

[00:04:18] So the students will come up after a presentation and say, why didn't anybody ever teach me about chunking before? Why didn't they teach me about spaced learning or interleaving? And why don't we get these? And my response, typically, to the student is, "I'm really sorry, but it's not part of the system." And so I do think we need to get it part of the system.

[00:04:36] And the book really is for students, but also for faculty. And I've written several other books for faculty. *Dynamic Lecturing* is a big one. *Teaching for Learning*. Both of those are basically how do you integrate active and engaged learning with lecturing. But it's not just doing active learning. It's why do we do active learning? Why do we do lecturing? How do we facilitate learning? All of those things kind of rolled up together. And the sad serious thing is it doesn't take that much to make the big gains. To learn all of it is a lot. But to learn enough to really make differences is really a relatively small amount.

[00:05:14] So I would love to see systemic change on this and have students start in the third grade learning how to learn. But at the present concept, we're still focused on content.

Catherine Ross: And here we are. Well thank you for that. And probably we should also be thinking about how the piece you said about instructors also needing to change is another systemic issue. Really the way teaching's valued, evaluated, rewarded, all of those things.

[00:05:47] So I guess really we're just talking about systemic change, all in all.

Todd Zakrajsek: And it is because the same as students not being taught how to learn, the faculty aren't really taught how to teach. And so in higher education we've got those issues where we should be teaching teachers how to teach right along the system, along with teaching students how to learn and just so we don't leave anybody out, it wouldn't hurt to teach the administrators how to leave, but that's probably a different program. We'll hit that another time.

Catherine Ross: All right. We know that there's a ton of research that has shown that students often prefer the, what I call legacy practices, or maybe I should call them the dead idea practice, teaching practices. For example, straight lecturing, overactive learning. And you acknowledge this in a quote from your book.

[00:06:38] You acknowledge the student resistance, citing student comments about active learning. For example, "I pay a lot to hear what the professor has to say on the topic. I'm not interested in what the person sitting next to me thinks." And you respond to this reality by saying, "Although some students knee jerk reaction to prefer lectures because they're used to them, most students find that participating in the class activity increases their grades. If you tend to prefer the traditional structure of a lecture-based class, keep an open mind and give engaged learning a chance."

[00:07:16] I think I'm just wondering, like given the sometimes less motivated, transactional approaches some students have in college --or students who are struggling perhaps--and see any change as threatening.

[00:07:33] If you believe that there are any other ways we can convince students that putting effort into learning is worthwhile, aside from grades, right? And that difficulty in learning is actually normal, like learning is challenging, right?

Todd Zakrajsek: Yeah. Here's the issue we run into. I love to chat with students and say, which do you think is more important? Grades or learning? Ask the same question for faculty when I do workshops, which is more important: learning or grades?

[00:08:03] And invariably, almost everybody says, well, the learning's really important. The learning's really important. If that were true, we should build a system like that. But the system we have in place is ... when I was very young -- and I love my grandma, she is so fabulous. But when I was young, if we got on the honor roll when I was in fourth, fifth grade, we got a little US savings bond, which was cool. She didn't give me United States Savings Bond if I had good ideas in the classroom, or if I tried hard or tried to do extra things. I got them if I got on honor roll. It turns out in middle school, if you don't get decent grades, you don't get into the college prep classes in high school, which means you're not going to college.

[00:08:37] So there we start to define who you're going to be and what you're going to be at 13, 14 years old. Then you're in high school and if you don't get good grades in high school, you can't get into college. If you don't get good grades in college, you don't get into graduate school. If you don't get good grades in graduate school, you lose your scholarship. Almost lost that one time.

[00:08:55] And so this concept is all the way along. We love to talk about how important the learning is, but we keep reinforcing grades. And by the way, listeners, if you've never done it, go online and type in free stuff for good grades because your kids can get free donuts. At donut shops, they can get ice cream, they can get a hamburger, McDonald's, which is not really conducive to learning to begin with.

[00:09:21] So all this stuff is going on about grades, and then all of a sudden they get a job, which is still dependent on grades, but then their second job, all anybody cares about is what happened on your last job. So I'd love to talk to

students and say, it's all about grades, until all of a sudden nobody's going to care.

[00:09:40] And once they don't care, you need the learning part. And so the concept is here. I think we need to start talking to students earlier on about the idea that the learning is important, and if grades are done right, there should be a high correlation between their grades and learning. So number one, I think we should try to devalue that whole emphasis on grades whenever we can.

[00:10:03] I think we should talk up learning. I think sign posting is helpful. We use that a lot in the medical school. Sign posting is telling somebody what happened. You know, it's like, "Is this a good time for you to give some feedback" versus just saying, "Here's, what I think just happened. " Because if you don't say what's going on, a lot of times this, the learner doesn't know.

[00:10:22] So I think talking to students and say, "Look what you just learned. Look, what you just learned is going to help you in all these different areas. "

[00:10:29] So I think if we started pointing out when learning happened, it's good. I think helping students understand that part of the learning process is to be able to remember it later and to talk to somebody about things and have good ways of processing information.

[00:10:43] And that comes from talking to other students. So as the professor, sure, you should be interested in what I have to say. I'm the one who's running the class and I should know a lot about this, but you should care about what your neighbor has to say because your processing of how they're processing, it starts to determine how you're going to think and interact the rest of your life.

[00:11:02] And if you think that's all going to happen just because you get a 90 on an exam, it's not what's going to happen. And by the way, I'll say real quickly too, is that at the UNC School of Medicine, the GPA get into the School of Medicine is down around a 3.4, 3.5. It's not four point oh because the School of Medicine's not interested in somebody who can just reel off good grades.

[00:11:24] They want to know if people have done something. And so I think that's what we need to do is talk to students a little bit more about why it's worthwhile to get the education and you know, maybe then they'll start to believe us.

Catherine Ross: Yeah. Well, I think we have a lot of other people in line to convince as well. Talk about a huge systemic change. I will, however, brag a

little bit that the medical school at Columbia has made the first year of medical school pass fail for the same kind of reasons, right? To help students really focus on the learning and not on just getting those grades.

Todd Zakrajsek: Yeah. You know, as it stands right now, it's interesting because in medical school that step one exam, the exam that happens at the end of your first year of medical school, determines the rest of your life in medicine.

[00:12:14] And so there are students now who never go to class, they just study all the time to score high on that one exam. And I mean, what a sad situation. So getting away from that, great. I can't get into the conversation today because it's a whole other program, but un-grading is kind of taking off now.

[00:12:31] And for people who can't even conceive this, they're talking about, I mean, assignments that have no grades, courses that have no grades, and students learn more. It's amazing.

Catherine Ross: Well, you know, I had a conversation at the end of the 2020 semester with some students here at Columbia about what happened with pass fail grading and their learning, and they were very clear that not having the grades freed them.

[00:13:01] To pursue things, to pursue topics beyond what was required in the class because they found something intriguing. And also interestingly, to assess their own work more honestly, because they weren't worried about their GPA.

Todd Zakrajsek: Yeah, you know, most of our learning happens outside of college classrooms.

[00:13:24] College classrooms are a little microcosm that we have, that we teach specific things, but our real learning happens when we're driving cars and talking to friends and going into stores. And none of that has grades. Yeah.

Catherine Ross: Oh yeah. That's grading. We could do probably a two-year podcast on grading.

Todd Zakrajsek: That'd be great. I'd try really hard though, so I could get at least an A minus.

Catherine Ross: So I want to move to another section of your book that I particularly actually just really loved, called *A Note to Faculty*, and you wrote, "Although I wrote this book for students, I hope you will find much of it useful

in your teaching. The vast majority of students are in our courses to learn. Unfortunately, we lose too many students filled with potential because we fail to teach them processes necessary to succeed in college along with the content of our fields. It could be argued they should have these skills when they come to our classes, but if they don't, whether due to graduating from under-resourced schools, lack of support, or simply not being taught how to learn, we are morally obliged to remedy the situation."

[00:14:42] You reinforced this quote by sharing your own experience, of almost dropping out of college in your very first semester. And you tell the story about how you were saved by one faculty member's intervention an experience, which I also went through in my sophomore year, in which I was also saved by one concerned instructor.

[00:15:05] And in your case, and I'm quoting you again, "Four out of five faculty members that fateful fall would've watched me fail and blamed me for it. One of five went another way, and here I am today. "

[00:15:20] So my question about this is: I think that jointly our stories can make a case for the potential that teaching has to be seen as an act of social justice.

[00:15:33] But I'd love to hear more about your term, the "moral obligation "and how you see that connecting to this sort of broadly agreed upon imperative for equity and learning in higher ed in particular.

Todd Zakrajsek: That's a great topic to bring up. First of all, I just want to mention that I didn't almost withdraw from college.

[00:15:57] I almost flunked out. I was trying really hard. My very first test I took...I was going to be a criminal justice major. That's what I wanted to do. I wanted to go be a state trooper and I had a class in criminal justice, and in my intro to CJ class, I think I got a D on the first test and thought, "Ooh, I was a good high school student. That was strange."And then I had a course in math, and I got an F. And then I thought, "Well, at least it can't get any worse than this."

[00:16:24] And then the next course I got an F minus minus. And when I went to talk to the faculty member and the faculty, I said, "I didn't know they existed. "So, I went to the faculty member and I said, "Excuse me. I don't understand this F minus minus." And he, I still remember this. He says, "Given you received an F minus, minus, it doesn't surprise me. You failed to comprehend it." And I thought, "Oh, so teachers are mean too." I'm a first generation college

student, and as a first generation student, I'd never talked to a college prof before. So that concept of the four out of five, I went and got a drop slip and I was going to withdraw from college. And the registrar said back then, "Just get each of your teachers to sign this form and I'll take care of the rest." And four out of the five teachers signed it. And then Tim Sawyer, who was my psych prof, he says, "What are you doing?" And I was six weeks into my fall semester as a first generation college student, and I just told him, I said, "I was high school smart. I'm not college smart. I'm going home. " And he talked me into not going. And again, the thing that that occurred to me now that didn't back then is if I had flunked out, four out of five faculty members that fateful fall would've watched me fail and blamed me for it. Because when I left, they would've said "He didn't study hard enough, he didn't care, he didn't have the motivation."

[00:17:42] Everything would've been on me and I was doing my best, but I didn't know how to study and I couldn't understand how they were teaching me. So that moral obligation part, we know the difference. In our society of when a person gets a college degree and doesn't, and what that does with their life and how it sets them up. So if I teach in a way, well, let me just back up just a little. If I'm teaching a class and a student comes in who has no motivation and I try and I cannot motivate them, and I've had those students. If I have a student who doesn't have the prerequisites, I taught statistics and algebra was a prereq and a student asked me once, "How do you divide on a calculator? Would I push like four and then the divide button and then five then equal, or would I do five divide, four equal?"

[00:18:29] And if, if you can't divide on a calculator, a post hoc analysis of variance done on a calculator, it's never going to happen. So those two, no pre-reqs and person's not motivated. I guess there's also life gets in the way. Other life things that can happen, but pretty much everything else is on me. We know from the 1960s that just putting students into groups changes the rate of failure for African-Americans versus Caucasians. African-Americans were failing and getting withdrawals at twice the rate of Caucasians.

[00:19:02] Put everybody in small groups. The difference goes away. If I teach in a way that helps a student to survive in the classroom and get a college degree, their life changes. If I just stand up there and say, it's not my fault. If you don't want to, I'm going to lecture. And if you don't pass, you don't pass. That's not on me. Think that's morally reprehensible. I'm just going to say that. And if people want to yell at me, they can yell at me. Because all I'm doing is spewing out information the same as the internet would and a person's failing.

We know what the failure rates are. I'm old. Back to the correspondence courses, it takes a human.

[00:19:38] And actually, Richard Light wrote a book, years and years ago at Harvard. What he found was the biggest predictor of whether a student comes back, and this has been found now too. The biggest predictor of whether a student persists is making a connection with a human being. It could be a peer, it could be a roommate, it could be a faculty member, but making a connection. So as a faculty member, I do everything I can to teach in ways to get students to talk with each other because group work's not good just because it's group work.

[00:20:08] It may just be that, that you've learned somebody about something, about somebody, you get to know them and then you succeed because you help each other pass. So that concept is, I really think we have to work at this.

[00:20:20] And if, as far as the equitable landscape, the students who are the fourth generation college students who have the big support system, they're going to be okay. They're going to do fine. But me, a first generation college student who when I went to school and flunked out almost, I called my mom and I said, "Mom, I don't think I'm going to make it. I'm just not doing it." And I can remember this too. She said, "You know, we talked about it and we're not sure anyone in our family is smart enough to make it in college, get a college degree. But we thought you had the best shot."

[00:20:51] My daughter got an F on her first exam. And when I talked to her, I was ready to tell her, "Don't worry about it, you're going to be okay." And she immediately looked at me, looked at me and says, "I'm not worried dad." And I said, "You're not?" She says, "No, you started out with an F minus minus and you got a PhD." She said, "I've got an F. I'm so much better than you." So that's the difference though. My daughter had me as a resource and I knew the day she started college, she was going to get a college degree.

[00:21:22] Going back in time, I wouldn't have ever expected me to get one because I didn't have the resources. We can't keep slotting people into tracks of life based on things that are out of their control, and we have control over that.

Catherine Ross: Yes, yes and yes. Thank you for that, Todd. I mean, basically the situation you're describing with the way teaching is often viewed as "I'm doing the teaching, I'm giving you this information, and the rest is on you" is what perpetuates the inequities in our higher ed system and just allows those things to be repeated through generations. So I am totally a hundred percent

loving that you see this as a moral imperative. What dead idea do you most wish that you could get students to let go of?

Todd Zakrajsek: You know what? It seems like this would be a huge answer, but this is a really quick response, is if we could get not just students, everybody, if we could get people to let go of the idea that they have an implicit assumption of how their brain works and they think they know how to do things, how to think about things, how to learn things, and they're wrong.

[00:22:43] Most everybody is wrong. The things that we think make a difference in how we process information. I have so many students who say, "Oh, I do it this way because it's the best." And I'll say, "Well, have you ever tried it these other ways? " And they say, "No." Alright, try it different ways. And so the big thing to let go of is just learn about how the brain learns so that you can then process information a lot differently. That would be a great one to have people let go of it. Just, you can't implicitly just assume you know what your brain is doing.

Catherine Ross: Yep. That's a big one. So, Todd, what is it that keeps you inspired and motivates you to believe in the possibility of change in higher education teaching? You and I have both been at this a very long time.

Todd Zakrajsek: Yeah, I hate to think about how long at times because I still feel like I'm 25, 30 years old and that hasn't happened for several decades. The thing that keeps me going, you know, I'm not advocating for gambling, not advocating for that in any way, but the thing that keeps person at the slot machine is every once in a while, they hit it big.

[00:23:49] And they get small pots here and there, and then they get a big one and they can never stop doing it. I think education's a little bit like that. I'll be teaching the class and I'll have 30 or 40 students and 30 or 20, 25 students, you know they come in the class and they go and through and they go, there's a couple students, I see some little sparks here and there, and I see their eyes light up and that's good.

[00:24:08] And every once in a while I hit a jackpot. It's a student that I know that without me helping out, without me doing my best to help them, would never have graduated from college. The person who's like Tim Sawyer, who wouldn't sign the form when I almost dropped out of college and he changed my life by the way.

[00:24:26] I went back just a few years ago, just before Covid and got an honorary doctorate from that institution, and I was the commencement speaker, one signature. That's all it was. I've asked multiple times in workshops, think of somebody in your life that made us, that said something, just in passing, that changed your life. And they probably, two hours later wouldn't have hardly remembered saying it, and yet it changed your life.

[00:24:51] And when I asked that to faculty members, almost everybody has a story. Somebody who kept them going when they almost quit. Somebody who said, "Why don't you try it this way?" Somebody who just said, "I believe in you, or you can do more, or, this isn't the best thing I've seen and I've seen some of your really good stuff."

[00:25:09] Later in life, 10, 20 years ago. And for those of you listening, especially if you're earlier career faculty, you'll blink and it'll be gone. But 20 years later, if somebody says to a faculty member, "What changed your life? What kept you here?" Wouldn't it be so cool if that person says your name and something that you said in passing that kept them?

[00:25:33] And so that's what keeps me going for faculty. I've got faculty have said, "I wouldn't be teaching here if it wasn't for you." And I've got students and I'm not saying I'm all wonderful or anything. I don't care about that. I love to hear the fact that they're in a slot because I made a statement one day and it changed how they look at things. That's what keeps me going.

Catherine Ross: We're going to end on that because I can't say anything that could top. Thank you so much, Todd. Thank you for taking time to talk with us and helping us change higher education, teaching, and for being part of our Spring 2023 podcast.

Todd Zakrajsek: Appreciate the opportunity for being here. I've enjoyed the conversation and I've admired everything you've done. So thank you again for letting me participate.

Catherine Ross: If you've enjoyed this podcast, please visit our website where you can find any resources mentioned in the episode, ctl.columbia.edu/podcast. Please like us, rate us and review us on Apple Podcasts or wherever you get your podcasts. "Dead Ideas" is produced by Stephanie Ogden, Laura Nicholas, John Hanford, and Michael Brown.

[00:26:46] Our theme music is *In the Lab* by Immersive Music.