

# The Learning Curve

## Episode 11: Crafting Learning Objectives with Dr. Nanette Tomicek

### Presented by the Academic Commons

[00;00;00;22 - 00;00;11;22] **Demi Harte**

Welcome to The Learning Curve, a podcast presented by the Academic Commons.

[00;00;11;25 - 00;00;16;03] **Demi Harte**

Your hosts for today's episode are me, Demi

[00;00;16;05 - 00;00;17;28] **Jacob Santos**

And me Jacob.

[00;00;18;01 - 00;00;25;01] **Demi Harte**

Our mission is to illuminate higher education, teaching and learning through the power of shared experiences and research informed practices.

[00;00;25;07 - 00;00;49;25] **Jacob Santos**

On this episode of The Learning Curve, we'll be discussing crafting learning objectives with Nanette Tomicek. Stick around through this episode for advice on developing strong learning objectives for your course, and insights on the role language plays in an objective. As you listen, reflect on the learning objectives in your course and how Nanette's insights might help you rethink them.

[00;00;49;27 - 00;01;20;11] **Jacob Santos**

Doctor Tomicek is a professor at Thomas Jefferson University in the College of Life Sciences. Her current work focuses primarily on pedagogy, active learning, laboratory, and excellence in anatomy and physiology education. Doctor Tomicek is engaged in work with the International Human Anatomy and Physiological Society, aka HAPS and sits on committees for curriculum and instruction testing and participates in an expert panel to author learning objectives for Anatomy and Physiology curriculum.

[00;01;20;14 - 00;01;28;02] **Jacob Santos**

It is her work with HAPS and the development of learning objectives that brings her to us today. Welcome, Nanette

[00;01;28;05 - 00;01;31;03] **Nanette Tomicek**

Welcome. Thank you so much for having me.

[00;01;31;06 - 00;01;45;28] **Jacob Santos**

So one question we like to, ask all of our guests on the podcast is, could you please try to describe your teaching practice in three words?

[00;01;46;01 - 00;02;12;00] **Nanette Tomicek**

Okay. Sure. I would describe my teaching practice. I would say that I'm very deliberate. I really think a lot, about what I'm trying to do, what the goal is. And, you know, what I want the students to get out of it. Connections would be another great word. There's a lot of connections to make in biology and in specifically in my discipline physiology.

[00;02;12;02 - 00;02;32;29] **Nanette Tomicek**

So I like students to be able to connect back to something. And oftentimes if I find something in my curriculum doesn't have a connection, it goes. And the last word I would use is active. I'm definitely on the active learning train. And anything I can do to make things, a little bit more hands on, a little bit more active, a little bit more student driven.

[00;02;33;02 - 00;02;36;17] **Nanette Tomicek**

I absolutely do.

[00;02;36;20 - 00;02;59;06] **Demi Harte**

Thank you. Those are those are excellent words. And I think they are great words to relate to writing good learning objectives. And so we're going to move more into that. And my question for you is what preplanning do you feel is essential for instructors who want to revise or create learning objectives for new course or program? Sure.

[00;02;59;12 - 00;03;31;04] **Nanette Tomicek**

I would say there's a lot of pre-planning before you get started. If you are someone that is not going this alone, I would absolutely recommend forming a team. And then that can get the pre-planning a little bit more jumpstarted. And definitely a huge advantage there. I know whenever I was working with perhaps, exam program, you know, we had a nine of us this, excellent braintrust of us working together.

[00;03;31;04 - 00;04;02;01] **Nanette Tomicek**

So absolutely, having a team, you have to know where you're going too. So I would say, secondly, know what you want your students to get out of the course. And again, this might require conversations with other folks. Is this an individual course. Is this part of an academic program that's progressing across four years. And if so, you know, you might want to align your learning objectives with the class before the class after to vertically integrate and thinking about other things that are in the curriculum.

[00;04;02;07 - 00;04;14;17] **Nanette Tomicek**

So you might want to be talking to other instructors that teach in your college, your discipline program directors, things like that, people that are guiding the curriculum and have kind of like a goal.

[00;04;14;19 - 00;04;37;09] **Jacob Santos**

I like that the first place you went with that was collaboration. Talking either, you know, in your situation where you had this group of nine individuals who came together, but for, you know, the average instructor who may not have that distinct set up, you know, they've got their colleagues, they've got the heads of their college people. There's always people around that they can talk to, and they don't have to do this in isolation.

[00;04;37;11 - 00;05;01;25] **Jacob Santos**

So we have that square one where, okay, you want to work on learning objectives. You're trying to figure out your path, aligning it with the courses around you. And you started talking to other people. So what when the you sit down to design those learning outcomes, what framework do you use, and potentially recommend to ensure that you design those learning outcomes well?

[00;05;01;26 - 00;05;26;24] **Nanette Tomicek**

Yeah, this was going to be a little bit of a long answer because there there is no one framework. And when we sat down we actually used about seven existing frameworks. So it was really nice to not start from scratch, but kind of looking at all that there is and kind of cherry picking and finding the things that worked for us.

[00;05;26;29 - 00;05;56;11] **Nanette Tomicek**

I can definitely talk about that. You know, one of the bigger things that we used as biologists, there is this biology skills guide, and this was published as a as a larger initiative, probably like 15 years ago on the biology, vision and change. We also used a core concept model. So I said I really like to make, connections, in my curriculum with my students.

[00;05;56;14 - 00;06;24;24] **Nanette Tomicek**

So having this idea of core concepts in physiology, things like gradients and flow, things flow from high concentration to low that comes up over and over and over again. And there's other common themes like that. So, whenever we were thinking about our framework in designing, we wanted to make sure things always came back to those core concepts and that we were really hammering them and utilizing them again and again.

[00;06;24;26 - 00;06;51;25] **Nanette Tomicek**

Of course, Bloom's Taxonomy, using that terminology and establishing kind of which core learning outcome verbs that we were going to use out of Bloom's Taxonomy. We also looked at some best practices for writing, learning objectives. We also went back to textbooks too. And that's kind of a unique thing to physiology. It was typically historically taught at the graduate level, like medical school level.

[00;06;52;02 - 00;07;19;06] **Nanette Tomicek**

And in recent years it's being brought down to undergrad education, which, you know, kind of begs the question, you know, how far do you go if you're if you're working with a different audience? So, yeah,

we even use textbooks and, you know, some existing learning outcomes that were in our disciplines. So lots of frameworks and thinking about lots of things to to make it work for our discipline.

[00;07;19;08 - 00;07;36;29] **Demi Harte**

So you bring up verbs and selecting the right verbs with Bloom's Taxonomy. So when you're going about deciding which verbs to use for a learning objective, what practices should educators avoid to ensure that they are measurable?

[00;07;37;01 - 00;08;13;22] **Nanette Tomicek**

Yes. The learning outcome has to be measurable. That's very important. The good question. Again, you need to be thinking about what do you want your students to be able to do at the end of the course? So that's important. And just kind of designing that goal. And then again, it was helpful for us to go back to, you know, that Bloom's list and look at some of those things and there's some words that maybe are on the list or maybe have crept in like, give an example of how do you just give an example, like what does that mean?

[00;08;13;25 - 00;08;38;11] **Nanette Tomicek**

Or, or things that yeah, maybe aren't so measurable. One of the things that we kind of married in, with those biology skills was putting some of those in as LOs so things that were really like calculate blood pressure. Right. So that's something where there's a, there is one right answer for that. So having things that are a little bit more skill based.

[00;08;38;14 - 00;09;05;18] **Nanette Tomicek**

We also worked a little bit harder to come up with higher level Bloom's. So you know Bloom's are tiered like the lowest level or kind of like identifying things, listing things. And those are all well and great and very foundational. And we certainly do have some of those mixed in. But we tried to avoid just making lists or maybe doing things that could kind of just be recognized out of a multiple choice question.

[00;09;05;20 - 00;09;25;28] **Nanette Tomicek**

We tried to push a little bit harder and move up to application style Bloom's. If we could, things that were like a prediction. You know, given a model of diabetes, what do you think's going to happen to, you know, blood sugar after a meal? So things that are a little bit more prediction, getting them thinking a little bit more.

[00;09;26;01 - 00;09;36;05] **Nanette Tomicek**

And again, if it's something, really high level, like create a graph or, you know, create a figure, right. Those things are a lot more measurable and a lot more accessible.

[00;09;36;07 - 00;09;57;00] **Jacob Santos**

I like how you, in this process of designing the learning objectives, to go a little bit back to some of the words you use, during our question. This idea of being very deliberate in what you're choosing, in your word choice and your verb choice, it sounds like you were also very intentional about making sure your objectives kind of only had like one verb.

[00;09;57;01 - 00;10;25;17] **Jacob Santos**

If you were focusing on that one thing in your objective and the tangibility, right, you know you're talking about predicting something or creating graph, creating a chart. Now in your work on this, I believe there was some discussion around using inclusive language and terminology and learning outcomes, and I was wondering if you could speak towards rationale behind why having that approach or why that approach was significant and important.

[00;10;25;19 - 00;10;51;17] **Nanette Tomicek**

Absolutely. Yeah. And I do want to back up because you did mention, you know, LOs really do need to have a, a singular focus. So just to address that, really quickly, that was something that was really important to us and a flaw that we noticed in some other learning outcome frameworks that we were looking at. You can even see that in like surveys, like customer satisfaction surveys and things like that.

[00;10;51;17 - 00;11;13;09] **Nanette Tomicek**

Like, you know, the instructor was prepared and on time. You would hope both of those things are true. But what if I was prepared and late every week or or vice versa, right. It becomes really hard to to answer that. And it gets a lot muddier with the assessment with things like that. So it is really important to make sure you break them into two learning outcomes.

[00;11;13;09 - 00;11;59;08] **Nanette Tomicek**

If you're actually looking at things that way. That said, you did ask about inclusive language, so I'm happy to speak about that a little bit more. So multiple different things we were thinking about with the inclusive language one. One, we wanted to have a common voice. So we kind of all had to agree on what types of words we were using, or maybe avoiding, but, you know, one of the things specifically in biology and, physiology that has given us challenges over the years, are eponyms that means when someone's last name is used as the acceptance term for a structure.

[00;11;59;11 - 00;12;21;28] **Nanette Tomicek**

So imagine if I discovered some cells next week and I just called them Tomicek cells. That's great for me. I get a little pat on the back for the discovery, but my last name maybe doesn't pronounce the way it's written. It's a little bit of a challenge. And then forever, you're having to associate me with those cells and not really thinking about the structure.

[00;12;21;28 - 00;12;53;01] **Nanette Tomicek**

Or like, maybe they're in the liver, so they should have like a prefix or a name that's kind of related to that. And then what makes matters worse with a lot of eponyms a lot of them weren't the people that actually did the work. They were people that just kind of came after. This shouldn't shock you at all, that it's a lot of white European male scientists, and often things would have been known about for 500 years, and they would just say, oh, we're going to call these, you know, the circle of Willis now after my last name.

[00;12;53;03 - 00;13;20;00] **Nanette Tomicek**

And you know, we're it's one again, really hard for the students to learn because there's no connection there. And two, it's definitely stealing the credit in the history from another scientist presumably a person of color, a person from another country, a female scientist. So there was definitely a big push in our group to remove those eponyms and other groups have done that before.

[00;13;20;03 - 00;13;57;07] **Nanette Tomicek**

In 1998, the a group of anatomists actually kind of rewrote the book, taking a lot of eponyms out. But even though we're educating students whenever they come in, there's still people that have taken the class, you know, years and years ago that work in the field. So this is always a little bit slower, this type of change. I can also comment on the use of the word normal, which might seem not like a big deal, but if someone's reading, you know, a standard and it says, oh well, this is this is normal, it kind of implies that the alternative is abnormal.

[00;13;57;11 - 00;14;22;08] **Nanette Tomicek**

And if that condition affects you or your patient, you know, we don't want to feel less than. That we're abnormal. So it was easy enough to either drop the term use healthy or typical. There are a couple places in the clinic where you know if you're looking at a blood profile, perhaps you would say something is like within normal limits, and that WNL that within normal limits is often on medical charts.

[00;14;22;08 - 00;14;39;19] **Nanette Tomicek**

So we couldn't get rid of it entirely. But pulling out like a thousand instances of, of a use of a word that we really didn't need was pretty easy once we agreed to it. And, you know, I don't know that we've got it 100% right, but we certainly made an effort at it.

[00;14;39;22 - 00;15;07;01] **Demi Harte**

Yeah, I think, you know, the efforts important. Right. You know, making this move to be more inclusive. And you're thinking about, how you could do that and approaching different language that, would be better suited for inclusivity. And so I think that's great. And I think that's important, you know, even if you feel like you're not there yet, you know, making that effort to try and get, you know, just do better, it's always gonna be better than what it was before.

[00;15;07;01 - 00;15;31;15] **Demi Harte**

So. And so you brought this up earlier how working with others is important and collaboration. And so we just wanted to have you open up a little bit more about that and talk about more about your collaborative

work and how it's a key element in designing your learning objectives. So what are some of the benefits of collaborating with colleagues in your field when designing these objectives?

[00;15;31;17 - 00;15;59;18] **Nanette Tomicek**

Sure, I would, I would love to talk about that. Yeah, I'm definitely I would characterize myself as being closer to like early career, mid career at this point. So getting to collaborate with folks that are much more later career very seasoned, even having that emeritus title, it was it was huge for me to work to work in that group and just to get some wisdom from some from those folks.

[00;15;59;18 - 00;16;27;23] **Nanette Tomicek**

And again, beyond just the learning outcomes, you know, conversations always, always kind of drift. So that was huge for me as someone that's more early career, just getting exposure and getting to work on a team as a peer and people I really Revere. I mean, I'm sitting next to the textbook authors in my field and folks that I really admire like Dee Silverthorne and Valerie O'Laughlin, who are leaders in the exam program at HAPS.

[00;16;27;25 - 00;16;57;21] **Nanette Tomicek**

It was also really helpful to appreciate perspectives from other folks too not just, you know, how long they've been doing something, but, you know, kind of where they teach. So the the chairs of the panel that I worked on through HAPS they made a really concerted effort to have some representation from different, institutions. So I was representing Thomas Jefferson, you know, where professions based, institution, we have a lot of four year programs.

[00;16;57;21 - 00;17;30;24] **Nanette Tomicek**

We have a lot of two and three plus additional year programs. But we had folks, at the community college level, we had folks, you know, international. There was some one person working with us in the UK at Aberdeen. Yeah, we had folks at big institutions, small institutions, medical colleges, junior colleges. So it was really nice to see that, you know, we teach the same thing, but we're going to have to tweak it and pitch it at different levels and, and different levels of detail for those different types of groups.

[00;17;30;26 - 00;17;34;14] **Nanette Tomicek**

So it was yeah, it was really great to work with such a diverse group.

[00;17;34;18 - 00;18;14;01] **Jacob Santos**

I would like to I do have kind of just a follow up question that popped in my head. So it's kind of, going a little off script, here. So I was curious because we've talked about the importance of collaboration, and you've gone into detail about the process of designing, learning objectives with HAPS. So I was curious about how has your work with HAPS and, either impacted how you kind of approach learning objectives and teaching in your own personal coursework courses that you teach or, or kind of how you if it's impacted collaboration amongst colleagues within, your own department?

[00;18;14;04 - 00;18;44;23] **Nanette Tomicek**

Oh, sure. Yeah, I can absolutely speak on that. Yeah. I, I think I would be very silly to work on such a important learning outcome project and not use this in my everyday practice. So I should clarify there. I absolutely, use these learning outcomes because we use that core concept framework where students are always coming back to, you know, something that was taught, like within the first week or so, like a very foundational idea or things are building.

[00;18;44;26 - 00;19;18;03] **Nanette Tomicek**

We always joke in physiology, you know, we don't always intentionally write a cumulative exam, but things snowball. And if you don't have the stuff down from exam one, it's going to be really hard, you know, to progress. So I absolutely use those learning outcomes in my practice. I use the core concepts and I tell the students I'm doing it because you need student by and for this stuff to, to really work and for everyone to to walk away benefiting and feeling good about it.

[00;19;18;05 - 00;19;43;05] **Nanette Tomicek**

So there is some time that you need to carve out of class and just remind students, guide students. I often tell students, why don't you take these learning objectives? They're often written as a statement with that LO verb at the front, turn it into a question, right. Make sure you can do everything a lot of them start with like compare and contrast or define and describe.

[00;19;43;07 - 00;20;12;12] **Nanette Tomicek**

And if they can do those things, you know, I tell them, I think you're ready for the exam. I think you're prepared. So yeah, I absolutely use these in my classroom. And I absolutely, let the students in on that. So I adopted them first in my upper level physiology course for, you know, junior and senior students. But I'm also incorporating some of these ideas into our introductory level, anatomy and physiology.

[00;20;12;12 - 00;20;36;08] **Nanette Tomicek**

And you're right. You know, I'm having to bring some of my instructors that I teach side by side with me because Lord knows AMP is the biggest academic unit in our in our college. So lots of people working with me. And it's it's nice to share that and nice to see even if I don't have a student in class, they might come up to me and say something that I know is the pedagogy that's buried in those learning outcomes.

[00;20;36;08 - 00;20;40;00] **Nanette Tomicek**

So I'm like, this is working. You know, if we all work together and deliver it.

[00;20;40;07 - 00;21;03;15] **Demi Harte**

Thank you for answering that. And so we are actually really wrapping up our, our interview today. And so we have one final question for you. And it's what 1 or 2 pieces of advice would you give to educators who are designing learning objectives, or may want to revise their current learning objectives? After listening to this episode?

[00;21;03;18 - 00;21;30;28] **Nanette Tomicek**

Oh, absolutely. I would say the number one is give yourself adequate time to plan, you know, and I'm saying that for myself just as much as anyone else, I am definitely an "I want it now" person. Or I can just get this done real quick. But you can't. You need a plan. You need to be thoughtful. You need to talk to other folks, whether they're going to be writing them with you, or if you're just trying to align within a in a program or a college.

[00;21;31;00 - 00;22;01;04] **Nanette Tomicek**

So we spent almost a year planning on how we were going to utilize these frameworks, how we were going to develop one voice because it is super distracting. If you know you have all these different voices in there. And again, you got to keep thinking back to what do you want the students to get out of the course, especially to there's only so much time you have across a semester, so some things might have to be removed from the curriculum to create space for other things.

[00;22;01;07 - 00;22;37;05] **Nanette Tomicek**

So really, that planning what do you want him to get out and make sure you give yourself the grace and time to do it. I highly recommend using some type of framework to write. You don't have to reinvent the wheel from nothing. Okay, so my discipline of physiology really lends itself to these core concepts. And going back to this, this basic, fundamental couple of ideas, or if you're more skills based class like mathematics or something like that, if it's a more hands on type course, then maybe you want more of a skills framework, regardless of if you choose one or both of those.

[00;22;37;05 - 00;22;48;19] **Nanette Tomicek**

Again, you know there's great resources out there. Absolutely. So that would that would definitely be my advice.

[00;22;48;21 - 00;23;07;01] **Jacob Santos**

Well, I think that's excellent advice for people to get started, especially adequate time planning. I think a lot of us really like to want to be we we hear about the cool new thing and we're like, okay, let's do it now. And it's like, well, now we need to think about it a little bit. Give us time to make sure that when we do, do it done really well.

[00;23;07;03 - 00;23;18;14] **Jacob Santos**

So Nanette, that brings us to the end of our interview for today. Thank you very much for taking time out of your day to be here with us, and for sharing your knowledge and your expertise.

[00;23;18;17 - 00;23;24;11] **Nanette Tomicek**

Thank you so much for having me. It was really wonderful.

[00;23;24;14 - 00;23;50;10] **Leah Miller**

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some upcoming Academic Commons workshops. If you would like to be featured on a future episode of The Learning Curve, please contact us by using the button on our show page.

[00;23;50;16 - 00;23;51;23] **Leah Miller**

Thanks for tuning in.