Transcript

Episode 143

The One Teaching Strategy That Will Fix Your Anatomy & Physiology Course

The A&P Professor Podcast

Contents

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Introduction

Kevin Patton (00:00):

One of the most influential American writers of the early 20th century was H.L. Mencken, and he famously wrote that "there is always a well-known solution to every human problem: neat, plausible, and wrong."

Aileen Park (00:19):

Welcome to The A&P Professor. A few minutes to focus on teaching human anatomy and physiology with a veteran educator and teaching mentor, your host, Kevin Patton.

Kevin Patton (00:32):

In episode 143, I clarify some things about my extra courses. We see why microtubules may have magical powers, and I reveal the one secret strategy for teaching success.

Clarifying Kevin's Wacky Supplemental Courses

Kevin Patton (00:51):

To start off this episode, I have a few things that I want to clarify from that two-part series that we did in episodes 140 and episode 141. That first one, episode 140 , described a pre-A&P course that I taught for many years, and the second one, episode 141, described the A&P 1 Supplement course. And as I make those clarifications and fill in some blanks and do some explaining, I want to share a few things that I learned by designing and teaching those courses. First off, I want to clarify something about course materials. Now, in episode 140 about the Pre-A&P course, I went into some detail about what resources I expected students to have available to get them through the course, and they were all optional and sort of used on an as needed basis because, well, it's a review course, a refresher course, so they would get stuck in certain places, but not every place.

(01:48):

So they used those course materials as needed as they made their way through the course. Now, as far as the A&P 1 Supplement course, I did have some specific resources that I wanted them to have beyond what they were using for their regular A&P course, and I realized that after the episode was published that I kind of glossed over that. So I did add a link to the show notes for episode 141, and you may have already seen that, that links you to the list of resources that were required of students the last time that I

taught the A&P 1 Supplement course. But I did want to call your attention to it in this episode, and I'll repeat the link to those items in the show notes for this episode. So you can see those show notes wherever you're listening right now, probably has the show notes and you can see the link there.

(02:44):

Or if not, go to theAPprofessor.org/143 and you can get all the links there, including this one. And if you go through those links, you'll see what resources are there, and it's pretty obvious why I used those resources, but there are some stories and explanations that I think that you'll find interesting and useful. I just didn't have time to fit 'em into this episode, so I'll circle back to that soon and we'll come back to it. Yeah, it's spacing. That's what I'm doing. I'm trying to, oh, yeah, interleaving, I'm interleaving this with other topics so that you learn better, right? See, I'm using my contemporary teaching strategies here. Now, something that I forgot to emphasize in that two-part series of episodes, especially in episode 141 relating to the A&P 1 Supplement course is , ah..., this is where I really started to appreciate what is now called ungrading or alternative grading, or in my case, wacky grading.

(03:52):

And yeah, I am waiting. I'm waiting for that term wacky grading to show up in the literature. That's one of my hopes for the future. Maybe I'll put that in the prediction episode that I always do at the beginning of a new season of this podcast. But back then I was totally unaware of any ungrading movement or alternative grading movement, and maybe it wasn't really something very visible back then. It's now very visible these days. Now, if you go back and listen to episode 141 and how I assigned points, I did have points, not a single point was based on correctness or percent of competence in any of the assigned tasks. In that course, I even let each student and a peer both review the portfolio of all their work in the course at the end of the semester and recommend how many points they should get for that portfolio of work.

(04:58):

By the way, there were always a handful of students who were aware of the fact that they didn't complete every part of every task at their best level of performance, and they were too harsh on themselves, and I ended up raising their points that they were recommending to me at the end and that their peer had recommended. At the end. I did that because I thought that was a better reflection of what they were doing because after all, and this is one of the things I think about many forms of alternative grading is students aren't used to it. They need time to get used to it. They need instruction in getting used to it. They need experience in using it, and I think that some students probably are too lenient on themselves and other students are too harsh on themselves. So that is an issue that I ran into with this wacky grading, and one way I handled it was

I could always override the grade they gave themselves by looking at what they were doing, and of course, I would discuss it with the students if I felt it needed discussing.

(06:03):

So yeah, not grading as usual, hardly grading at all, probably more like pretending to grade—wacky grading. I'm thinking more and more that name wacky grading is a good name for it. I think this course works best if it's more about a mentoring experience with a lot of self-discovery and building confidence and failing and then getting better. When we have experiences like that. Does a performance-based grade really mean anything? No. You may gain a few things by following this podcast and regularly listening. I hope you do. But would you think being graded on that would be helpful to anyone? Should I assign an A or a B or a C or an F to listeners of this podcast? Nope. Now, you can earn a badge for engaging in each episode, but it's not graded, not really. I mean, you have to turn in a reflection at the end to get that badge, and I suppose if it shows zero effort or it's blank or something, then you're not going to get the badge.

(07:24):

But really that's not the same as grading. That's not anything like traditional grading. Another thing I forgot to emphasize more was that end of semester debriefing that I did in that course. I did mention it a couple of times, but I kind of glossed over it when I did it. It took significant time, at least a half hour, but sometimes it just kept going, okay. Usually it just kept going. I found that at first I'd have to ask questions and sometimes even ask individuals to share a response, pick on people in other words. But because of the informal culture of the course all semester, it didn't take long before they warmed up during that debriefing and start jumping in and discussing their experience of the course. Casting it as a way for me to improve the course helped a lot with that. In other words, I just had a heart-to-heart with them and said, look, I don't know how this course is supposed to go.

(08:27):

This isn't something that you can look up and see how you're supposed to do it. Nobody taught me how to do this course, so I need some help from you. You've been through the course. What worked for you? What didn't work for you? What suggestions do you have? It also gave me an opportunity to give the rationale behind some of the weird things that I did, why I did what I did, and that I think helped them appreciate the things that they didn't really understand why we were doing it, still getting a benefit from it, but not really understanding that they were, it wasn't a graded discussion. This end of semester debriefing, I was asking them to be part of that never-ending course-design process, so there was no pressure on them to I have to contribute something. It has to be in this form.

(09:16):

You know how we often have these rubrics that grade discussions a lot of times, not even based on content very much, but based on form and format, and so was none of that. There was no kind of grading pressure on it at all. Anyway, I do have a link in the show notes to another episode that I did explaining more about those end-of-term reviews. Now, I just mentioned badges and badges in Pre-A&P were mentioned in episode 140, but a question you might have is, did I award credentials in A&P 1 Supplement? And the answer to that is no. I didn't. I hadn't broken through the wall yet, that wall of fear and lethargy and doubt and being chided for trying yet another wacky thing in my course. Remember back when I designed both of those courses, badges were new and most of us hadn't even heard of them yet.

(10:19):

I know I hadn't, or if I had, it hadn't really registered yet. It was a few years later that I added badges to the Pre-A&P course, and by the time I worked out all the kinks in using digital credentials in the Pre-A&P course, I was no longer teaching the A&P 1 Supplement course. I had handed it over to someone else, so nope, no badges and A&P 1 Supplement. Now, speaking of badges in the Pre-A&P course, in my mind, I wanted something like badges to be an incentive and reward and visible recognition of the obstacles that the students overcame and the difficulties that they push through. If you go back and listen to my description of the Pre-A&P course in episode 140, you may think, what?!, isn't that simply a refresher course? The basics that they already learned in previous courses?

(11:21):

Yep, that's true. It wasn't Calculus III or Advanced Physical Chemistry, but for many students, probably most students, it seemed just as hard for them. Probably a lot of that had to do with the fact that they thought it was going to be easy. It's a refresher, a review after all, and the grade is based entirely on open untimed online tests. Yeah, that's going to be easy. I can breeze through that. What they didn't expect was to face the fact that they'd forgotten most of what they'd learned. That's a common experience, and all of us all the time with everything, even if a lot of that learning was recent, and even if they had received good grades, they still ran into obstacles, things they forgot, things that they had struggled with originally and took a low grade on, and that averaged out for them. And a big thing was that they could not move to the next module until they got a B or better in the module that they were working on.

(12:35):

Students are used to that thing I just mentioned of doing badly on a test or two, but still carving an acceptable grade out of the remaining tests and assignments, and of course, hoping for extra credit at the end to balance out that lack of learning that they ran into here or there in the course. It was hard for them to keep going with attempt after attempt. When they did get stuck, they weren't used to just keep working on a problem until it was solved. They usually just moved on to the next thing. A lot of courses are designed, so that's their only choice is, Nope, you failed it. Sorry, we're moving on to the next thing, and F is enough, is an F. Sorry. Take this course again sometime. Why don't you? And that's not how I wanted this course to be. So yeah, that's hard to do that. Hey, I'm on my fifth attempt. This is ridiculous. I'll never get it. Oh, yeah, you will. People have had far more attempts than that, and it finally, they broke through and it worked for them, and it wasn't easy with their hard-case teacher, me, never, ever, ever allowing them to skip to the next module.

(14:01):

And yes, these were obstacles for them, challenging to their learning processes, but also perhaps more importantly, challenges to their concept of themselves as capable students. That's the source of their frustration. How could I be taking five attempts at this? I just, something is wrong with me. I recently read an article about building confidence in youngsters, and it resonated with this experience facing difficult challenges and eventually overcoming them is probably the most effective way to learn confidence and resilience, and that was something that I learned to appreciate while teaching Pre-A&P.

(14:54):

Lastly, something I learned by teaching both courses is that it pays to be generous to students, to be generous with my time, to be generous with my effort, and not always looking for ways to avoid interacting with students and their work just because it's easier that way, and I'm fundamentally a lazy guy. I found that when I took a breath and steeled myself and went ahead and put the effort into being really present for my students, even on my particularly lazy days, I was rewarded with student success and student appreciation and confirmation that I really could do good in the world.

Quantum Activity in Brain Microtubules?

Kevin Patton (15:50):

In episode 139 titled, Thinking New Thoughts About the Human Brain, one of the segments challenged conventional models of the brain and introduced what can be called the Transducer model, inspired by psychologist Robert Epstein. This thought provoking model likens the brain to a two-way, transducer, sending and retrieving

information, kind of like a mobile phone accessing external servers. While it may sound farfetched or even outright wacky, there's that word again, wacky. The transducer model encourages us to explore alternative perspectives and consider, at least consider the possibility of information exchange beyond what we usually consider the natural boundaries of the brain. Now, recently, the magazine Popular Mechanics, which often explores some really deep things in physics, I mean, surprisingly deep things for that kind of a magazine. They recently published an article that refers to current research that calls attention to a view of human consciousness, which yes, is a topic in physics, believe it or not, physics and biology are crossing over more and more these days, I'm finding

(17:15):

Maybe you found that too. Maybe that's your area of expertise. If so, hey, come on the podcast, let's talk about that because I'm very intrigued by it and know hardly anything about it, which is reflected in this segment, I think. But anyway, they are looking at human consciousness, and these are legit scientists who are doing this, looking at consciousness. There is this view of consciousness that's based on a theory proposed a long time ago, decades ago by Nobel Prize winning physicist, Roger Penrose and an anesthesiologist working with him on this, Stuart Hameroff. Now it's called, this is really weird, talk about wacky, I don't know where they come up with some of these names. But anyway, it's called the Orchestrated Objective Reduction theory. Okay, that's obvious what that's referring to, and it's not a very easy to use name if you need to use it 13 times in a paragraph.

(18:21):

Well, luckily for us, it's most often reduced. It has the word reduction in it, so that was a pun. Boy, that's bad when you need to explain puns like that. Okay, let's leave that aside. So it's Orchestrated Objective Reduction. We can reduce that name to an abbreviation Orch OR that is O-R-C-H-space-O-R —so, Orchestrated Objective Reduction Orch OR. So, that's how I'm going to refer to it because easier for me to remember that name than the full name. So that's the short name. So in a nutshell, and the nut reference is intentional. There I go explaining puns again in a nutshell or proposes that human consciousness is a quantum process facilitated by microtubules in the neurons of the brain. Now, the part of that that I know about is that there are microtubules in the neurons of the brain. I have a very passing, quickly passing familiarity with what quantum processes are.

(19:32):

I mean, just really very barely, and I'm afraid that some of what I think I know has seeped in from science fiction stuff, and so it is probably really wrong, but well, there it is. Maybe all of us need to learn more about quantum processes. Orch OR says that

consciousness is a quantum wave that passes through those microtubules in the brain, and as every quantum wave, it has quantum, or at least quantum-like properties. For example, these proposed quantum waves in the neuron microtubules may have the property of superposition, which is the ability to be in many places at the same time. Now, I had heard of that. I probably didn't know that it was called superposition. That seemed familiar to me when I read that recently, but I don't know if I really knew it as that. But I knew that there was this idea that a whole bunch of things could be in the same place at the same time.

(20:42):

So I knew that my brain was going to have a hard time wrapping around quantum properties, and that's probably why I've kind of avoided it, because thinking that my brain isn't complex enough to understand it, and you know what? The more I read about it, the more I realize that even experts in quantum properties don't really understand it very well yet. So there's this property of superposition where there can be particles that are in many places at the same time, but the thing is, there are very many places at the same time, unimaginably many places as I understand it, which as I said, isn't really very much understanding at all. Another quantum property these microtubule waves could have is entanglement. That's the possibility that two particles that are far away from each other are connected in some way, or maybe in many ways, unimaginably far away particles, as I understand it, which, yes, I'm saying it again, it's a very, very shallow understanding that I have.

(21:54):

I think it is safe to say that if there are quantum waves in the brain's microtubules, they're weird. Hameroff, one of the originators of the Orch OR hypothesis recently proposed that human consciousness is kind of like a fractal, a fractal put simply, which is the only way I can put it because it's a mathematical phenomenon involving fractional dimensions, which is way beyond my meager abilities to calculate heart rates and stroke volumes and cardiac outputs. That's the limit of my mathematical expertise and understanding. So put simply a fractal is a never ending pattern, but it's not just any simple pattern that repeats like a square, or a cube, or a cone, or a torus, or any other kind of simple pattern. It's a pattern that can be complex —and be very tiny, tiny, tiny, or gigantically huge, and exhibit the same properties at any scale.

(23:02):

Now, this exhibiting same properties at any scale that is sometimes it's called self-similarity, where you zero in on some little part and it looks just like the whole picture did it. It has the same similar look to it. It's not exactly the same. If you go point by point, you're going to see some differences, but it looks like it came from the same roll of wallpaper. Let's put it that way. It looks like the same kind of complex pattern. Now,

that's an essential feature of fractals. That idea that the pattern remains recognizably similar, no matter the level of magnification or level of reduction, if you want to think of it, that in size. So you can zoom in, you can zoom out. It's going to look kind of the same Hameroff goes from there to say the typical conscious states are simply, well, ordinary.

(24:02):

They're just ordinary. For example, when I know that I exist, that's a simple kind of consciousness, a simple state of consciousness, but perhaps if I'm in a higher conscious state according to Hameroff, it has those weird quantum characteristics like being in all places at the same time. Whoa. Yeah, I can't say that I recall ever being in all places at the same time. I mean, yeah, okay. My mind is often scattered and hard to keep focused, but not really in all possible places at the same time. But if it can happen, then maybe my brain can connect or entangle with quantum particles outside of my tiny fractal-like brain. Maybe my mind can connect anywhere in the universe or maybe in more than one universe or dimension or whatever, and if that can happen, then maybe that idea about the brain being more of a transducer that connects my mind to some quantum computing function that resides way beyond the clouds, perhaps even connecting all of us together at some level is possible.

(25:25):

Like that transducer model I talked about in episode 139, I know, I know, this is getting weirder by the moment, and that's exactly how many scientists reacted when the Orch OR idea first came out. Nope, they said, sorry, too weird to work. So it never really went anywhere. But more recently as we learned more about the brain and more about quantum concepts, there are a group of real scientists, not pseudoscientists, maybe I should call them euscientists, to contrast with pseudoscientists. Anyway, there's a group of real scientists who are considering a revival of some of the Orch OR ideas. This recent work that I mentioned potentially helps answer one of the arguments against Orch OR. That is, there's an argument that it's too warm and too wet in organisms for quantum waves to be sustained. They're usually only observed in cold controlled laboratory environments. What our understanding has been is that quantum waves should just fall apart into a pile of quantum particles, I guess, that don't have any superposition and therefore cannot also be somewhere else far, far away, but quantum reactions are now being shown as possible in chlorophyll, for example, during photosynthesis and maybe in other processes in biology.

(27:08):

The recent research that prompted that article I mentioned at the beginning of this story, seems to show that quantum reactions can be sustained in the tubulin that makes up microtubules, even in the naturally warm and wet conditions inside of neurons. I

know this all sounds real science fictiony, right? But isn't that how science works, wacky ideas that are set aside and then later picked up and examined again, and then set aside and then examined again, and at some point they seem a bit more plausible. Sometimes they deserve to be set aside again, sure. But sometimes, not. With these quantum wave ideas, with the ideas that consciousness may reside in microtubules inside brain cells, who knows where they'll go? They'll probably go everywhere at once, right? Well, wherever these ideas go, it sure will be fun watching it happen.

Could there be more than one strategy?

Kevin Patton (28:11):

Earlier, I promised to tell you the one teaching strategy that will fix your Anatomy and Physiology course, but the question is, does your course really need fixing?

(28:30):

Well, in one sense, no, your course does not need fixing in the sense that hearing about all kinds of new and different ways of teaching A&P and hearing my peers gushing about this technique or that technique makes me start thinking the way that I teach A&P must be pretty lame. It surely has to be, I don't know, "less than." But I don't think that's true. I mean, if you know that there are things about your course that need attention or you're not satisfied with the learning outcomes, well, yeah, then, okay, it needs fixing to put it one way, but I think some of us are intimidated by all the different ways we hear about our peers doing their classes, and we shouldn't be intimidated, curious, maybe intrigued, probably, but hey, we all have our own paths, and that's good, but in another sense, the answer for all of us is yes, our course needs fixing, but not necessarily because it's broken.

(29:47):

Any course can and should evolve over time and get better and more effective. So what is that one magical strategy that will fix my course—that will really, I don't know, fix any course? Well, I have an answer to that. It's a two-part answer. Here's the first part. Part one is there is no one strategy. Teaching is an art and a science, and the art of teaching necessarily implies choices. The art of teaching also implies using a variety of strategies and techniques often as needed and mixed together and layered on top of one another. Learning is complex. Teaching is therefore complex. Courses are complex, so it's not surprising that strategies for teaching and course design are complex, and they are many. Historically, we've developed a lot of great teaching strategies. Not all of them can be used in one course, so we use our artistic teaching sense and our teaching experience and our training to choose what fits our objectives, what fits our students, and what fits all those other aspects of our situation.

(31:31):

Yeah, it's true that some of our classic techniques have been shown to be less effective than some more recently developed techniques, and well, robotic machines have replaced hand carved wood fixtures. That is sometimes the classic slightly less favored techniques are just right in a particular situation. Sometimes I want a hand carved wood fixture with all its flaws, and sometimes I want something that's perfectly done or maybe more inexpensively made so we don't throw the old things out always when new things are developed, and I think that should be true of teaching strategies because some of those old teaching strategies are just right for this part or that part of a course or maybe for an entire course, and our available choices grows over time. Cognitive science, and sometimes just a quirky non-conformist here or there continues to offer new rarely seen strategies or new angles to old strategies, and all of these strategies, classic, contemporary, and truly wacky may each work well.

(32:54):

There are choices, right? The thing is, if you take any one of those strategies and add, or maybe swap out, that teaching strategy into your course, it could be the one thing that really cranked things up a notch in student success.

(33:16):

Over the last few years, I've shared some of the classic contemporary and truly wacky strategies that have had big impacts on my A&P courses, whether traditional, non-traditional, or from outer space. I resisted every one of them. Many of those I thought were ridiculous or stupid, or Ill-conceived when I first encountered them. Oh, I can be so judgmental and full of myself about these things sometimes, and as I've shared before, I've mulled them over often reminding myself how unworkable or heretical they are, and yeah, I eventually let some of them win me over, and then I try 'em out and then tweak 'em a bit and then either accept them or reject them.

(34:16):

Sounds kind of like the scientific method, doesn't it? Well, whatever it is, it works for me. Now I have more, just hold on for a second or two.

The TAPP Hotline

Kevin Patton (34:26):

Before I move on, I want to invite you to share teaching strategies or modifications to teaching strategies that you've found to be worthwhile. Just call the podcast hotline at 1-833-LION-DEN. That's 1-833-546-6336, and either leave a recording that we can use in the podcast or leave me a message so that we can chat about recording a conversation with me, or you can send an audio recording to podcast@theAPprofessor.

There Really Is Only One Strategy

Kevin Patton (35:10):

I said earlier that I have a two part answer to the question. What is that one magical strategy that will fix my course? The one strategy that will fix any course? Well, the first part was my thesis that there is no one strategy. The second part is there is one strategy. That one's strategy is be open to all strategies. Those strategies that have been around since the dawn of humanity, the strategies that were developed and refined more recently, and those oddball experimental strategies, even the strategies that suddenly came to mind are while walking your dog, because that new strategy may be the one that really does move your course up a notch or two on the student success scale, and if it doesn't, well, that's okay. That's part of our profession. We'll just try another one, right? Based on this message, I have a warning that I hope y'all will heed: beware of course templates.

(36:31):

I should say that in a spooky voice or something... Beware of course templates. Beware of insisting on too much uniformity in our courses. Beware of so-called master courses. I don't like that. Oh, the colonial overtones of using the term master for anything. I explained this back in episode 102, but that is the term used by Canvas and other learning management systems and is widely used in academia, but I'm uncomfortable with it, so I'm going to call them official courses or designated courses or some other synonym like that.

(37:13):

Now, why should we beware of course templates? Because uniformity in teaching is evil. It's immoral, and it tends to wreck learning. Now, as I look in my notes, the thought occurs to me that words like evil and immoral may sound a bit too hyperbolic or dramatic, but you know what? I don't think so. Let's look at my reasons, and then you can decide if I'm overplaying this.

(37:50):

[melodramatic music clip] Yeah, okay. That's overplaying it, but hear me out. Why do we think that having everyone in our department or institution or system or state or nation all use the same course design or the same learning outcomes or the same teaching strategies or the same course policies and on and on and on? Why do we think that's acceptable or even desirable? Is it because it helps learning? No. No, it does not help learning. How could it help learning? Yeah, I know. I suppose one could say that course templates developed by experienced educators, perhaps paired with trained course designers, make it more likely that students will succeed. Okay, maybe. But I think that's true only for someone new to teaching, or someone who struggles with teaching, or someone who lacks talent or motivation in teaching, or someone who's maybe new to that particular course. In that case, having a course template that's well-designed is like having training wheels on a bicycle.

(39:12):

The goal should be to wean off of that template or designated course as soon as possible as we start looking for that one or two or six strategies or techniques or redesigns that will make the course work better for all involved. Imagine how boring and discouraging and, well, just downright insulting to our professional abilities, it is to lock us into a uniform lockstep, cookbook of a course for our whole career. It's already getting intolerable in modern academia. Is that really what we want? An army of drones teaching A&P with no autonomy, or very little autonomy, in the courses that they teach? But wait, we might say, wouldn't rigid, permanent templates and officially designated courses make it less likely that an incompetent instructor will interfere with student success? Yeah... no. No, it won't. An incompetent instructor won't be any more competent if they follow a recipe from a cookbook.

(40:40):

It may help them figure some things out at first, but they need to become competent. That's another whole conversation. But getting some counseling and/or some mentoring and/or some coaching, getting some direct guidance, engaging in more training, and having some fun dabbling in designing new elements in that course, well, that's a good start to turning the incompetent instructor into a competent instructor. I think that rigid course uniformity can make really good teachers, whether they're good now or they have the potential to be good later, less competent. That is, the uniformity can make them less competent over time by taking away their creative autonomy, by taking away their will, their motivation for continual growth and improvement.

(41:41):

Another reason given for the desirability of a one-size-fits-all course design, and a one-size-fits-all course content, is that it reduces student confusion and makes it easier for

students if all courses are the same. Wow. Just, wow. Wait, let's make that four wows—the highest rating on my scale: wow, wow, wow, wow.

(42:12):

Really? What kind of confusion are we reducing by having a course template? Students in my A&P course are going to have very little idea what's going on in the A&P course going on down the hall, even as word gets spread among all the students in both courses, if the two courses have different characteristics, what matter does that make? Those students aren't confused by that. They're aware of it, but they're not confused by it, not usually, even if they are confused. We're educators. We have ways of helping them clear up their confusion.

(42:53):

That's what we're here for, right? I've seen so many cases of students failing A&P and retaking it with a different instructor who uses different strategies in their course, and those students end up being more comfortable, more engaged, and more successful. I've seen it happen in both directions. Not that one instructor was better or one course design was better, it's just that they were different and those differences mattered to students. But if we're talking about all courses in a department having the same course design and using the same strategies and techniques, how does that help learning? Wouldn't overall learning be improved by providing opportunities for students to learn new workflows in different courses? Wouldn't facing uncertainty with a new way to learn in a course improve their ability to face the uncertainty of real life, the uncertainties that they're likely to encounter in their careers?

(44:02):

In episode 135, my friend Michelle Lazarus chatted about her work, about her work and her new book focused on uncertainty. When I asked her what was it that led her along that line of investigation, she said that our students face uncertainty all the time as health professionals and in related careers, but they're not well prepared for it. They need more practice facing uncertainty and moving ahead successfully. She calls it uncertainty tolerance that they have to build up to be successful.

(44:45):

Maybe it should be part of our institutional or department or course learning outcomes, this improvement in uncertainty tolerance among our students. But written or unwritten, I think we owe that to our students, anyway. You and I know the real reason for designated courses and rigid templates and the making of courses less confusing and easier for students. It's so that you and I and our supervisors and folks all over the

college or university don't have to face all the questions and comments and empty complaints of students who say that a lack of uniformity makes them uncomfortable or makes it unable for them to succeed.

(45:37):

That's bunk. It's just not true, and we're either afraid of or tired of explaining that to students, so we make everything uniform. That's not a good answer. That's not only not a good answer, it's a harmful answer. The thing is, students still find ways to complain, don't they? So it really doesn't solve that problem. They still find ways to deflect from having to overcome obstacles that they really need to learn to overcome for learning to happen, to be educated people, to be prepared for their careers, to be uncertainty tolerant, and yeah. I know that sometimes there are logistical reasons for some uniformity. For example, everybody having lab practicals on the same day or in the same week or having a practical or final exam common to all courses or things like that, but having one or two or three common elements because we can't think of a better solution to our logistical challenges that can still allow an awful lot of choices about teaching strategies.

(46:52):

I'm suggesting that preserving instructor flexibility and freedom should be among the highest priorities as we implement courses. Okay? Yeah. Maybe using pre-made courses has some benefit to starting us off in teaching in general or teaching a particular course. So see, I backed off the hyperbole and drama a little bit didn't I? However, I still think that forcing all courses to be rigidly uniform does not do what some say it does, and it potentially damages students, and it almost certainly damages educators. So my warning is: resist. Please be very, very, very, very careful with forced uniformity. That's four verys, my highest rating.

Staying Connected

Kevin Patton (48:00):

In this episode, we went all over the place. We started out examining nuances of my extra A&P courses from episodes 140 and 141, for example. I further explained the evolution of my wacky grading approach and reflected on the significance of end-of-semester debriefings. Then I explored the impact of badges within courses. And I also emphasized the value of persistence, confidence building, and being generous. I then reviewed the transducer model of the brain, first mentioned in episode 139, where I compared it to a mobile phone accessing external servers. In this episode, I briefly explain the Orch OR theory that proposes consciousness occurs as quantum waves in the microtubules of brain neurons. Quantum properties such as superposition could

explain how the brain works as a transducer, and recent investigation counters the argument that quantum waves would break down in the warm and wet microtubules. And then we turn to the featured topic for this episode, the one, single, ultimate, sole, teaching strategy that will fix your A&P course.

(49:31):

A&P instructors often wonder if their courses need a revamp. While no universal teaching strategy guarantees success, the art of teaching lies in choosing the right mix of time-tested and contemporary techniques. Drawing from personal experiences, I highlighted a journey of discovering, adapting, and refining various strategies to boost student outcomes. In the final segment, I addressed the quest for the single ultimate course-fixing strategy. The emphasis was on flexibility and continually trying new things to improve a course. That flexibility includes having a very light touch when it comes to course templates and rigid uniformity among courses, which could stifle uncertainty tolerance among our students, and cut us off from experimenting with better ways to teach. From age-old techniques to fresh experimental approaches, being open to all strategies is really that one key to teaching and student success. Now, as you can imagine,

(50:55):

I have a lot of links to past episodes and external articles and other resources that help you dive deeper into any of these topics that you like. If you don't see links in your podcast player, go to the show notes at the episode page at theAPprofessor/143 where you can explore any ideas mentioned in this podcast. And while you're there, you can claim your digital credential for listening to this episode. I'll see you down the road.

Aileen Park (51:36):

The A&P Professor is hosted by Dr. Kevin Patton, an award-winning professor and textbook author in human anatomy and physiology.

Kevin Patton (51:50):

Please keep both hands on the steering wheel while listening to this episode.