Episode 72: John Fritz

# KL: Katie Linder JF: John Fritz

# KL: You’re listening to “Research in Action”: episode seventy-two.

# [intro music]

# Segment 1:

# KL: Welcome to “Research in Action,” a weekly podcast where you can hear about topics and issues related to research in higher education from experts across a range of disciplines. I’m your host, Dr. Katie Linder, director of research at Oregon State University Ecampus. Along with every episode, we post show notes with links to resources mentioned in the episode, full transcript, and an instructor guide for incorporating the episode into your courses. Check out the shows website at ecampus.oregonstate.edu/podcast to find all of these resources.

On this episode, I’m joined by Dr. John Fritz, Associate Vice President for Instructional Technology at the University of Maryland, Baltimore County (UMBC). Working within UMBC's Division of Information Technology, John is responsible for UMBC's focused efforts in teaching, learning and technology, including learning analytics. He is also responsible for tier 1 (basic) user support including knowledge management. Previously, John served as UMBC's Director of News & Online Information, and has more than 10 years’ experience as a public information officer, writer and editor in three University of Maryland campuses. John holds a Ph.D. in Language, Literacy and Culture from UMBC, a Master’s degree in English (with an emphasis in rhetoric and composition) from the University of Maryland, College Park, a bachelor’s degree in English and religion from Columbia Union College in Takoma Park, Maryland, and certificates in New Media Publishing from the University of Baltimore and Instructional Systems Design from UMBC.

Thanks for joining me, John.

**JF:** I’m happy to join you. Thank you, Katie!

**KL:** So I know that some of your research has focused on faculty course design, and this is an area of special interest to me given my background in faculty development. I’m wondering what areas you are exploring.

**JF:** So um a lot of what I’ve been doing certainly with learning analytics rightly or wrongly has been tied to the Learning Management System or LMS, so what I’ve been looking at is how faculty design their LMS courses and the impact this has on what students can do in them. For a lot of my research, and there has been work from others as well, there’s a lot of sort of convergence around this notion that student activity in the LMS could serve as a proxy for engagement. It doesn’t mean that it, I wouldn’t necessarily call it engagement learning, but they’re related. I think that as students are engaged, what they attend to inside the LMS icing is largely a function of what the faculty allow them to do. In other words if you’re primarily using the LMS as a support for a Luxor course, you know maybe they download the syllabus, notes, PowerPoint, but there really isn’t a whole lot of interaction going on there. On the other hand, if what you’re trying to do is get students to practice and apply concepts, and things like the discussion board, um, being able to turn in homework electronically, even practice quizzes and exams are really more for higher order sort of activities and skills that the students can engage in, but the faculty have to do that by design.

**KL:** I think this is one of the most challenging things of with working with technologies is that the pedagogy is not built in, and I think that some faculty hope that it is or assume that it might be built in, but you actually have to bring the pedagogy to the tools. Are there any components of the LMS that have the most possibility there in terms of really helping to engage students? Are there components of the LMS that you think are missing that you’d like to see some extra things added in to help with that engagement?

**JF:** Well I kind of hinted at it, but what – there’s some support of this in the research literature, I won’t necessarily be able to cite them all right here, but in my dissertation I looked at this. There’s really three broad ways in which the faculty use the LMS, The first I kind of just described as more of a document or content repository. You know, you post things, students go to download it, you know maybe if they lose the syllabus, or they lose the handouts they’ll come back again, but for the most part it’s sort of a one and done sort of thing. The second way faculty tend to use it is more for interactions, you know things like the discussion board. We don’t do a lot of “real time” chats here, but faculty can do those things. It’s really meant to kind of substitute for time and place when you can’t meet together in the same time and place. So asynchronously discussions are good, um synchronously, you know where they have web video conferences, and that technology’s getting better um that those are the kinds of things you might see. Even just posting announcements where you are either trying to extend the conversation, or you follow up, or prime the pump before they come to class. The third area that I think is the most potential, but it’s the least used by faculty is for online assessment, and that’s really what an LMS does well. Whether it’s practice quizzes or exams or even just checking the gradebook. These are things that students could be doing more, and what I try to focus on is there are ways students can demonstrate taking on responsibility for their own learning. It’s not so much the transmission model, it’s more of a constructionist model where students are engaged with each other, with the faculty member, maybe even with their own understanding and they’re constantly testing themselves, maybe it’s testing their ability to stay on pace with the course, maybe it is actually, even better so, um testing their understanding of conceptual items and being able to apply those, but that third area is online assessment. That’s probably the least used, but that’s probably what an LMS is designed best for. I know we might spend a little bit of time down the line, but things like personalized learning where a student can test, “Do I understand this concept?” The best example I can think of this right now is Khan Academy, where you actually test yourself and have to get ten in a row correct before you can move on to the next subject. That’s a lot harder for faculty to do, but that’s the kind of thing that I think would eventually be useful in an LMS

**KL:** So I think this is such an important point and I know that one area of assessment that people are starting to look to is the concept of learning analytics and how LMS and other kinds of online tools are starting to have these analytic platforms, dashboards that people can look to to help with this assessment work. Can you talk a little bit about that and how that kind of dovetails with the research you’re doing on faculty course design?

**JF:** Sure. So rightly or wrongly I’m a practitioner so I use the tools available to me, and for a lot of faculty, and for myself, that’s the LMS, and that’s where I’ve been spending a lot of my time with analytics, but I just want to be clear that LMS analytics is slightly different in learning analytics in that I would say learning analytics is much broader and can be encompassing a variety of things. Right or wrong this is the one that I chose. I think in terms of you know the best explanation for analytics, I mean there have been a lot of definitions, but basically you’re trying to use prior activity of students to predict what future students will do; not just for the purpose of prediction, but what will you do with that information? That is probably the biggest thing where I think analytics is sort of dried up a little bit, and that is that. Instead, we are trying to perfect prediction perhaps at the expense of implementing a good intervention. You know, if we could predict what students are doing, are going to do or think we do, how do we then use that information to intervene to change the predicted outcome? And that’s where I feel like the field is really sort of, you know, not gone as far as it should. We developed a simple little tool really, where we allow students to check their own activity and their LMS compared to peers. Now the kicker is that if the instructor will use the online gradebook, then some students can check how active they are compared to peers who earned the same, higher or lower grade on any assignment, and that is often the killer app in this little tool, that they can go back and check how active they are. They can also see now how active their course is overall compared to other courses that they’re taking, and recently we’ve allowed faculty to do the same thing so that it’s not necessarily showing how active they are, per say, but how active their course is overall compared to other peers in the same department. That’s the kind of thing that I think starts to get people to think about their own behavior and in the case of students, they’re more motivated by their classmates, you know, what are they doing and how can I compare? When you think about it this is the whole quantified self-improvement, you know the Fitbit, the My Fitness Pal, the Apple Watch, I mean kids are doing this all the time, and I don’t just mean kids, we’re all doing it. We’re all checking to see how many steps we’ve earned, and if you do it in a family you can see how active everybody is and that motivates people when you can see relative. Now in our case we don’t let students see the names of their classmates, but if a faculty identifies and uses the grade center, you can see who earned the A. Not so much who, but how active a students were compared to B, C, D and F, and why might students want to do this? In our experience, students who earned a D or F in the course use the LMS about 40% less than students who earn a C or higher. Every semester since 2007.

**KL:** Wow. That’s an incredible statistic. I mean I think this work begs the question, at least for me, but what about the students who aren’t motivated by looking at that data? Is it possible that they may be demotivated by seeing that they’re not doing so well compared to their peers?

**JF:** It its possible, and to be perfectly honest um about 54% of the students at our institution are using this check my activity tool, so not everybody’s using it um and the ones that tend to use it are one’s who you know, compared to those who don’t they are earning a C or higher are about 1.4 to 2.8 times more likely to earn a C or higher. It does beg the question. I do think that there is a little bit of the “rich getting richer”. In other words, students who tend to earn higher grades tend to take advantage of resources that are available to them more than students who are disengaged, and that is the real problem, but, and this has been an ethical problem for me because while I would like to have a silver bowl that helps all students, you know, maybe I can’t do a whole lot for the students who are going to get F’s. But maybe if I can take some of the D’s and help them take more responsibility for their own learning by comparing them to what their peers are early enough in the term where they might have time to change their behaviors, maybe some of those D’s can turn into C’s.

**KL:** Well this is very interesting work. We’re going to take a brief break , when we come back we’re going to hear a little bit more from John about adaptive and personalized learning. Back in a moment.

# Segment 2:

**KL:** John, you’ve mentioned in the first segment this idea of adaptive and personalized learning. I know that you do some work in this area as well, so I’d love to dig in to it a little more. For our listeners who might not know, what is adapted and personalized learning? And maybe offer some examples.

**JF:** Sure. So um this is I think for a lot of people, this is where we’re trying to go with educational technology. It’s difficult because what you’re trying to do is um, sort of customize the experience that each user or learner has within any kind of system. In a broad sense I think that adaptive or personalized learning is really just the means to an end, and that end is developing a student’s ability to honestly and accurately self-assess their current knowledge, skills and abilities. Um, what does that mean? So one of the best proponents of self-regulated learning, Barry Zimmerman from the City University of New York, he has written extensively about this, and what he found what that there are two things that really are important for students to take responsibility for their learning. The first thing is they have to take ownership of their problem. That is, you know, in my own case I was an English major trying to learn statistics. You know I had some spotty math backgrounds. It wasn’t until I started my Ph.D. where all roads were leading toward statistical data mining that was like “You know, I don’t really understand this, I don’t know how to do this” and you know for years I had been avoiding it. Well I think sometimes students avoid things that they don’t feel comfortable in. Maybe they even say “I had a bad instructor” or “The textbook was too hard” or whatever, but some point you have to own that you don’t know how to do something, understand, or have a skill to do that. The second thing is that for students, once they have reached that kind of ownership level, the second thing is that any sort of remediation needs to be specifically tied to the weakness. It cannot be some general aphorism of “try harder” or “study harder”, you know, it has to be, you know you don’t know linear equations, and here’s how to do them, and you have to test yourself. That’s one of the things that I think students struggle with, they say “Well I listened to the instructor” or “I read the textbook” but when it comes to actually applying the concepts, asking yourself, well what kind of instructions do I expect to see on the exam? You know? What did I do in my review homework? Where did I get things wrong? To me, one of the best examples of learning in play right now, and it’s completely free, is Khan Academy. If you haven’t go to khanacademy.org, um and you know they specialized in math and they’ve now broadened onto many other subjects, but they had a really interesting concept and that is, you know, yes they are YouTube videos you can watch Sal Khan explain linear equations or probability and statistics, and that’s what it early on got noted for, but what it also has is adaptive learning software that presents problems that you have to answer. Now if you get ten in a row correct, you’re proficient and you get moved onto the next subject. But if during that ten in a row streak you struggle and you get something wrong, you can either ask for a hint and then your streak starts over, or you can go back to a video, you can pause your streak, go back to a video, watch the concepts and then try again. Again your streak is paused, it’s not, and you know you don’t have to start over unless you get a hint. What’s great about something like that is you can do this on your own time, you know, when I was taking my two doctoral stats courses I would listen to Sal Khan over and over and over again, you know I could pause, replay and rewind him without having to waste anyone else’s time but my own, and in some cases I had to do that. I just did not understand the Central Limit Theorem, you know, and I had to know this for the course, and I had a really good instructor, but being able to use something like this really helped me sort of get down to the specific things that I was weak in, and I think that’s probably the best example that I have seen of adaptive learning. At our own institution we use the Blackboard Learning Management System, and there’re actually a tool that Blackboard itself doesn’t even promote very much, it’s called Adaptive Release of Content. The basic idea is that instructors can create access to content that is based on 3 conditions. One is membership in a group, two is maybe a date or a time that it gets released and the third area is maybe the grade on a prior assignment. This is, this to me is the killer app on this particular tool. For example, we have instructors that will do a syllabus quiz in the LMS that students must take and pass before they can turn in any assignment for credit. We had one instructor who did this extensively it was just amazing, he was an adjunct economics professor, and what he did was he was tired of having to explain to people how to use pivot tables, nobody knows how to use pivot tables, so what he did was create a little two minute, three minute video and required students to watch that video and then take a quiz on the skills that they had to master that they would use to do the assignment with pivot tables. Students hated it because it meant everything sort of this, you had to go through one step at a time, but his students ended up earning 20% higher on the common final exam in the economics department. In the next course that required this, that he didn’t even teach, his students were at a half letter grade higher than students from other sections of that same course [**KL:** Wow]. These are the kinds of things I wish certainly were in the LMS, but that I wish faculty were more exposed to and could take the time to develop that sort of learning environment as opposed to “let me put the syllabus on the LMS and let you download it.”

**KL:** So, John, this is such a new area, in terms of the technology at least that available to help with adaptive and personalized learning. I’m wondering if you can talk about the components of adaptive and personalized learning that you think need the most research moving forward. What are the places that we really need to dig in and start asking the kinds of critical questions that we might ask from a research perspective?

**JF:** Well this is an area that the Instructional Management Standards, IMS Global, has actually been spending a lot of time on um and it’s called interoperability. The problem that I see right now is that it’s difficult to scale these kinds of solutions, everyone has a kind of adaptive or personalized learning platform and for faculty it can quickly get very abstract, it can get very complex, and you know their time is limited as well, and so the question that I think schools, and faculty and self’s have to constantly decide, and this is the same with any kind of technology, is are you going to build this yourself or are you going to buy it? And that’s a difficult, that’s a difficult choice. For some faculty if they don’t build it themselves, and you see this a little bit even with the criticism of Khan Academy, you know there’s a mistake or an error here, you know so – some will throw the baby out with the bath water. But if you want to try and build this yourself and have it meet this sort of usability from variety of users in different context, that’s really hard to do. You know? So those kinds of challenges of scale, interoperability, you know those are the things I think both at the faculty level, in the course level and at the institution level that people kind of have to wrestle with, and I would say that’s where the field in terms of adaptive and personalized learning is still struggling. You know is, you know if it takes the faculty sort of a second career to master this, they’re not going to want to, that’s not what they’ve been payed to do. Their research and subject matter expertise is in one area, are they going to have to become programmers? Developers? You know some faculty they just don’t want to have to do that, and I think that’s where scalability then becomes a big issue, but I think in terms of whether it’s of whether it’s a vendor solution or it’s a community open source solution, how will those things plug and play interoperable? And that’s where IMS has been spending a lot of time on standards. You know so whether you build it or buy it lets all follow the same sort of standards of how one application protocol docks to another.

**KL:** Well we will be sure to link to some of that information in the show notes for people who want to learn a little bit more. We are going to take another brief break when we come back we’re going to hear a little bit more from John about the art and science of nudge analytics. Back in a moment.

# Segment 3:

**KL:** So, John, one of the areas I know you’re really interested in is the art and science of nudge analytics and I would love to hear a little bit more about this from you. First, what do you mean by that? What is the art and science of nudge analytics?

**JF:** So um with all due respect I’m taking part of my interest from the Thaler and Sunstein book *Nudge*, uh which I believe came out in 2008, but this is all about the premise of what they talked about in terms of “choice architecture”. Mainly choice architecture is literally how it sounds; how do we build the environment in which people make choices? One of the first examples they give is elementary school kids when they’re in the cafeteria, if you put the desserts last and up high and you put the fruit and veggies low and upfront, they’re going to make better choices about their food. some other examples that they give um is if the people stay on the organ donation on the driver’s license, a yes or no, and the default is yes, they’re going to choose that. When it comes to looking at credit card rates and offers, you know nobody knows what APR means or you know how to weigh the terms over time, but if you could enclose your 12 month most recent spending on your debit card into various credit cards, well now what you’re doing is giving people a way to bring their own data to inform their choices. So choice architecture as Thaler and Sunstein describe it is sort of built around a term they call libertarian paternalism, two terms that sound better separately than they, or together then they do separately. But essentially what they talk about is notion that people are free to choose, but it is acceptable for organizations, universities, whatever to try to optimize the choices that people will make to improve their health, wellness and happiness. You can say “Well who are you to say what’s going to make someone else happy or not?” and that’s a perfectly valid criticism, but I would say from their perspective and I agree, nobody’s neutral on this, and when it comes to college and universities we have a notion of what we think students should do.

So, I think from a nudge analytics perspective, how can we help students take more responsibly for their own learning by presenting optimal choices? I think the same think can actually work with faculty as well, but you know there’s a difference between telling a student or a faculty member that “I predict you’re going to fail”. The worst example of this occurred in my own state, a university that I even hesitate to mention, but the president said, “We should just drown the bunnies” based on the entrance exams with in the first three weeks of the term where the students who he or his colleagues thought weren’t going to succeed. They said we should um dismiss them right now. It was such a poorly, it was just terrible in terms of sort of even tact, or diplomacy or even touch. What I’m interested in is rather than saying to students, “Here’s where I predict you will be” what I would rather say to students is “Here’s where you currently are relative to your peers.” Sort of like the “You are here” indicator that you see on a map in a mall, and what I mean by this is that sort of like the check my activity app I was talking about in an earlier segment, if you can allow students to compare themselves anonymously wither their behavior and their performance in something like a computer system, I think that’s a digital learning environment that institutions have some influence and control over in how they design that as choice architects.

I think this falls squarely in the research of Albert Bandura um in terms of um you know kind of how self-regulated learning or self-efficacy works, and I’ve mentioned Barry Zimmerman, the two together really go hand and hand. There’s sort of four things that go together with this, and that is when you are trying to learn how to do something, you may not know how to do it but if you can find a peer that does then, you know Bandura felt this and Zimmerman sort of laid this out as well, you can clumsily sort of replicate what they’re doing, you may then take on a little bit more competency as you’re doing it, and then get to a state where you’re even unconsciously competent. I’ll give you an example: tying your shoes. Whoever taught you how to tie your shoes? [Many people learn just by watching] Well you know, in the age of Velcro straps maybe it’s not as big an issue, but you know when I was a kid I don’t know how I learned to tie my shoes but what a lot of us probably experienced was a sibling or a friend who could tie their shoes, and maybe even pointed out “You know, Katie, you don’t know how to tie your shoes!” and that sort of position of discomfort can be motivating where it’s like, “Gosh I want to know how to tie my shoes.” So, I do the rabbit that goes around hole kind of thing and clumsily try to emulate what somebody else did, and then I can get to a point where tying shoes means I have to do this, I know the drill but I consciously competent, and then I get to a stage where I don’t even think about tying my shoes, I just tie my shoes.

You know the other example, I don’t think it happens that much anywhere anymore, is driving a stick shift car, you know when we first drove a stick shift we ground the gears and it was a mess, but you get to a point where now you don’t even know how you got from A to B because you drive the car and you get there. That’s role that I think peers can play in a sort of lack of a better term, nobody learns from a position of comfort, so if we can use analytics to provide peer comparisons to people I think that it might be a little bit of a discomfort, so you want to, this is the science and the art. The science and the data will show, will tell us who’s predicted to succeed or fail, but if you were to present that information, it would be demoralizing, it would be fatalistic, it would be like “Okay well why should I start this?” But if I can use that information to identify, and I don’t mean target, but identify students who performance currently may not lead them to where they need to be and say, you know, “Here’s where you are compared to your peers, would you like some help?” At the end of it is still on them to seek or accept that help, but if we can use the analytics to identify people, we might be able to use the peer comparisons to help raise their awareness to seek accepted help that the institution can provide.

**KL:** It occurs to me that a really important part of this work is connected to Carol Dweck’s work on mindset, and how do we work with students who may or may not as we talked earlier be motivated in this way? Um and ensure that when we’re working with students and trying to nudge them in certain directions as you really pointed out well, that there’s a lot of ethics to this in terms of who gets to decide and how we’re engaging students and make sure that the really diverse range of our students are being served by the kinds of things that we’re talking about here. Can you speak to that a little bit because it seems that like it’s such a central part to the work?

**JF:** Well I’m a big fan of Carol Dweck, I used her in my dissertation, and I couldn’t agree more. Um you know the whole fixed versus quarrels mindset, you know the perfectionist who, you know I either know how to do it or I don’t, you know maybe it’s relative to tying shoes or shifting a car. If failure is not seen as an opportunity to improve then that leads to the fixed mindset where “thou shall not ever learn”. You know you will never. So what ends up happening, you know, people move onto other subjects? I’m not saying that everybody should know everything, but you know me, where she talks about sort of the growth mindset in terms of “At present I currently do not know, understand, or can do the following.” That’s a very different kind of mindset that I think can be developed in students, but I also think the technologies to digital learning environments that we’re working with, they can sort of help, at least maybe try to influence students developing those kinds of transitions from a fixed to a growth mindset. I’m not saying that the technology is going to do it for them, but you know it might help them realize that you know at least compared to my peers I’m not where I want to be. If I’m okay with that, okay then move on, but if I’m not upset sort of you know a positon of discomfort. It’s sort of the grain of sand in the oyster that creates the pearl. It’s that irritant that sort of have wrestle with and struggle and it’s not until you sort of own it and then get very specific as to what you need to work on that the things have the chance to improve, but if you just feel like you’re either – I mean if you come to a university and you either know if or you don’t then what’s the impact of teaching? You know why? Let’s just have an entrance exam and then have an exit exam and here’s what you know. That’s where I think faculty enjoy working with students and I think students who remember the most meet with faculty and exchanges where people may have been a little tough on them, you know but yet still work with them and try to help them develop those knowledge, skills and abilities.

**KL:** I’m so glad to hear there are researchers who are working on these issues. Thank you so much for coming on the show and sharing about your work in this area!

**JF:** Thank you very much for having me, Katie! I appreciate it.

**KL:** And thanks also to our listeners for joining us for this week’s episode of Research in Action. I’m Katie Linder, and we’ll be back next week with a new episode.

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