Higher Ed Rewired
Season 1, Episode 5
The Potential of Artificial Intelligence to Enhance Student Engagement
Host: Oliver Wong
Guests: Dr. Amir Dabirian and Dr. Elizabeth Adams

Campuses are using artificial intelligence technology to respond and advise, on-demand, to student, faculty and staff via text or auditory messaging. Meet Cal State Fullerton's iTuffy and Cal State Northridge's CSUny, chatbots that extend accessibility of student support services 24/7 and engage students in a manner most conducive to them.

Dr. Amir Dabirian, California State University, Fullerton, Vice President of Information Technology

Dr. Elizabeth Adams, California State University, Northridge, Associate Vice President for Undergraduate Studies

OW:
It's move-in day at California State University, Fullerton.

AMBIENT SOUND - move-in
"Do you guys need help carrying anything? Lifting anything?"

OW:
Students and parents are navigating dorm hallways while wheeling giant bins full of duffel bags, bed sheets, and other necessities.

AMBIENT SOUND - transition to outside

OW:
Outside, it's a festival atmosphere. Music blares, balloons bob and newly arriving students mill around, clutching bags of kettle corn they've picked up at one of the info tables encircling the plaza.

AX - Imaan
"I'm Imaan Parekh and we are showing students what I-T does at Cal State Fullerton."

The campus information technology department is set up under a white tent, with stickers, notebooks and free pens. And naturally, they have an app.

AX - IMAAN

"i-Tuffy is mobile and you can take it anywhere. And it's a good way -- instead of asking strangers where you are -- by asking your phone where you are. And giving you a quick guide around the campus."

OW:

In fact, i-Tuffy is an artificial-intelligence - AI - powered chatbot. It's launching this year campus-wide. The aim of i-Tuffy is two-fold. First -- it's meant to help students navigate those first few bewildering weeks on campus when new students -- like Lexie Watkins and Fallon Heaslip -- want to know things like…

AMBIENT SOUND - PIE-OLOGY

"Student 1: Where are places to eat on campus?
i-Tuffy: Pieology is located in the food court in the TSU.
Student 2: It is really? I didn't know that.
Student 1: Me neither."

OW:

After lunch -- the two freshmen can return to i-Tuffy to ask about their G-P-A… or help with financial aid issues...
Basically, the app can help address some of those critical questions that new students often have as they realize that mastering the college experience goes beyond just setting up their dorm rooms, picking their classes.
Amir Dabirian, who heads Fullerton's I-T department -- developed the app for both smart-speakers and smartphones.

AX - DABIRIAN

"When you have a need, you can't wait the next day to go see advisor. Our students are 24 by 7. And they're attached to these devices. So we wanted to provide 24 by 7 intelligent service to all of our students."

OW:
Fullerton is one of several Cal-State campuses with interactive chatbots.   At the Cal-State *Northridge*, Dr Elizabeth Adams has launched C-SUNNY -- a mobile texting bot. Her hope is that all of these pilot chatbots can help reduce some of the administrative barriers that often frustrate students.

AX - ADAMS

"They all have smartphones. And so, if we can give them access to a real breadth of knowledge in their hand in a device they're already using, then we start being able to at least give them all access to the same information, rather than hope that the ones that don't know will seek out the right person to get the answer."

OW:
On this episode… Artificial Intelligence helps colleges get smarter about reaching students. I'm Oliver Wang. This is Higher Ed Rewired.

[POST THEME MUSIC]

[PROMO]

INTRO

OW:
This is Higher Ed Rewired. I'm Oliver Wang. Professor of Sociology at California State University, Long Beach.

Cognitive computing and Artificial Intelligence are all around us: we find it in Apple's Siri, Amazon's Alexa and customer service chatbots that exist on countless websites.

These apps are programmed to convert speech to text, learn as we use them, and to try to understand language in context -- all to help deliver information that we're asking for.

Universities are now trying to figure out how to best use A-I to transform the way students find the critical information they need.

A generation ago, schools might have delivered that info via physical mail or phone lines. Then the internet ushered in email and web pages. But now, campuses are testing out chatbots and text messages, an acknowledgment that each generation has their own preferred methods of communication.

Earlier, we heard a little bit about i-Tuffy. Cal-State Fullerton's v-p of information technology -- Amir Dabirian -- demonstrates how that app can answer important questions.

AX - DABIRIAN DEMO
"Dabirian: Where can I get money?
i-Tuffy: Financial Aid office is located on the first floor of the GH building, room 146.
Dabirian: When is the finals?
i-Tuffy: Semester examination Fall 2019. It happens between December 14th 2019, December 20th, 2019."

OW:
Dabirian says the idea with I-Tuffy is to replicate familiar experiences in students' everyday lives.

AX - DABIRIAN
"Having had a Siri-like and intelligence chatbot that be your assistant, that can be at your service, understanding the campus needs, we can provide such a services for them to be able to get rid of some of their administer barriers, be able to provide more services and really getting them from A to B without having to go find an advisor or somebody on campus to help them out."

OW:
Several Cal-State campuses are investing in A-I-based chatbots… One hope is that they can help students avoid administrative missteps that might impact their ability to stay in school. The chatbots are programmed to give students *critical* information that can mean the difference between graduating or not.

At Cal-State Northridge -- C-Sunny can do things like prompt students to register for classes and remind them of deadlines.

Dr. Elizabeth Adams is helping five other CSU campuses launch similar tools and says that the chatbots are there to help deal with a major challenge.

Adams: which is that we need to do a better job with retaining our students and getting them to the degree. CSUN is fairly typical in some ways of other CSU campuses where we're graduating 54 percent of our incoming first time freshmen in six years. And I don't want to talk about the four-year number. And the truth of the matter is that we don't always know why we're losing them, but we do know that sometimes it's a function of them not understanding how college works.

Oliver: You'd like to tell an anecdote about how much students actually seem to read the official emails that they're sent to by the school. Do you mind sharing that with us?

Adams: Yeah, of course. So we were at a gathering of the student leadership at our president's house last fall and we've had a controversy going on on campus. And she was asking whether the student leadership understood the nature of the controversy and the sort of pieces to it. It's a fairly complex issue. It has to do with executive orders and the like. And she said, well, did you read the e-mail we sent? And they shook their heads. And then she said, Did you look at the Web page we set up? And they said, no. And then one of them, I thought she was very brave, raised her hand and said, We don't read e-mail and we all laughed.

Adams: And then a few minutes later, she raised her hand again. And she said, just to be clear, we know how to e-mail. We just don't read it. But I think that to me, I know I was sitting on, you know, it tough did bench in the president's house thinking that's that's it. That's it right there. We have had this tendency to say to students, e-mail is the official communication of C S U N, and you should read your e-mail. We say that over and over and over again. And let's take let's go back to our freshman 54 percent graduation rate so I can assume fifty point four percent of them are reading their e-mail at least some of the time. But that 46 percent are to some degree or another not reading their e-mail. And I don't mean that literally, but I think the the the the metaphor holds. And so we need to figure out how to get to them where they are. We're not in a position anymore where we can say you either do it our way or you don't get a degree. There's too much at stake there, too many people that are getting lost in that system. And that's not OK, because, you know, for an institution like CSUN, where all of our students come in at the same basic preparedness level, some of them are persisting to a degree and some of them are not. I don't think anybody thinks they'll all get a degree, but why are they not persisting? And is it what we're doing? And can we use technology to sort of bridge that divide? You know, and I think we can.

Oliver: So the CSU, as you well know, of course, is in the middle of a very ambitious graduation initiative, 2025, which people just called GI 2025. Within that initiative, what are some of the primary goals that Northridge is trying to address? I think the more difficult question to ask here is how far along are you in meeting those goals?

Adams: Well, we really from the beginning of that launch, of the launch of GI 2025, we really tried to refocus our efforts. One of the things we sorted out really quickly was that when we were looking at the six year graduation rates and looked at the retention year over year -- by year three or four, we had lost more students than we could afford to lose and still make our number. And that we were losing most of them in the first year.

Adams: And so we really tried to reframe the conversation not as a graduation initiative, but as a retention initiative, because we knew that if we could keep students into their third, fourth and fifth semester, they were likely to continue. Then the other piece we wanted to really look at pretty seriously was that equity issue. We're a majority-minority campus. We had over 60 percent of our incoming freshmen last year were Latin-X and we were losing that group disproportionately.

Adams: And so we really tried to do two things, which was to focus more on freshmen and first year transfers to a lesser degree and to have those efforts go to helping first generation in traditionally underserved students to start closing that gap. Because, of course, if we closed the gap, then our rates will go up. Right. Given the population of our students.

Oliver: You mentioned earlier the equity gap. And just for the sake of our listeners, can you just explain what that refers to?

Adams: Sure. The equity gap is the gap between traditionally better-served students -- and at CSUN that typically means white and Asian-American students -- and traditionally underserved students, which mostly at CSUN is African-American and Latin X. And the gap is the rate at which the better served students graduate. That's higher than the rate at which the underserved students graduate. So right now our last gap was 12 percent. So white and Asian-American students graduated at 12 percent higher rates than their underserved counterparts.

OW:
That's Dr. Elizabeth Adams. Associate Vice President of Undergraduate Studies at Cal State Northridge.

Let's head back to Cal State Fullerton -- where this year, the i-Tuffy chatbot is being deployed via Alexa smart-speakers placed in common areas in dorms.

Amir Dabirian says the goal is for students to have natural conversations -- no need to know which keywords to type into google. And through those interactions, students can hopefully find the answers they need.

Dabirian: i-Tuffy is available to all androids and available for all iPhones and iOS devices. We also have it available on Alexa devices. We have rolled it out to all the dorms for Alexa. So we're putting it in all the activity rooms so students can use it in every door. But we are encouraging people to download as an app and having it as their companion assistant on everyday 24 by 7.

Oliver: Especially for privacy reasons

Dabirian: Yes that's right, especially for privacy reasons and also by knowing their profile, you can actually give them more information. This social after work is fine. But most of the time, social aspects after going to university a couple of years, you know where CSU is, you know where all the, you know, games are, you know, very tractable for freshmen. Those things that come really handy, but for rest of them is not. Also building directory into this. So you can actually look for. I'm looking for my faculty and here's I'm looking for Amir librarian. Here's the history. Amir is in here. Which one do you want? This one call Amir, Liberia. It can make a call directly to it.

Oliver: And it sounds like this was something that was developed primarily, if not exclusively at the Fullerton campus. So this is very unique to Fullerton.

Dabirian: This was a started as FULLERTON project. What we were looking at part of GI 2025. We were discovering how much a student did not know things. Some of the services they have no idea about and the students have, you know, many searches on Google. A lot of times you don't get what you need for the indexing is off or you're not getting there. You need to be. So and also we wanted to be able to speak this student language. So. So we said students are using Siri a lot but the concept of speech to text is improving. Right. Artificial intelligence get into a point that I can answer that. Having have a Siri like an intelligence chat, but that be your assistant, that can be adversaries understanding the campus needs. We can provide the services for them to be able to get rid of some of their administer barriers, be able to provide more services and really getting into an A to B without having to go find an advisor or or somebody on campus to help them out. And also being 24 by 7, we don't have these gigantic budgets that we have 1 to 1 advisors. You know, we have very limited number of professional advisors, faculty advisors having ability to provide advising services, financial. All of those to our students is a key. And having available to be at it, to be available 24 by 7 is is really paramount for our success. So our goal is to use this not as a replacement for adviser, but really to help the students to get him to write places so we can have our professional advisors have to be able to, you know, advise them in a different level.

OW:
So that's the goal. But how's the CURRENT iteration of i-Tuffy helping students?
Remember our incoming freshmen -- Lexie Watkins and Fallon Heaslip? We asked them to take i-Tuffy for a spin. And the results were… well, listen for yourself.

"STUDENT 1: Where can we get coffee?
ITUFFY: Aloha Java is located near the H.S.S. building.
STUDENT 1: Ok, thanks.
STUDENT 2: What about smoothies? Do they know about smoothies?
ITUFFY: You are most welcome.
STUDENT 1: She's so cute. Where can we get smoothies?
ITUFFY: You can click on a related topic below or rephrase your question.
STUDENT 1: Maybe she doesn't know about smoothies.
STUDENT 2: We need to open her up."

OLIVER: Based on like two minutes of interaction, do you think this is something that would be, number one, useful to each of you and something that you would be likely using more as the semester goes on?

LEXIE: I definitely think so. Just because of the fact that I mean, we didn't know that pieiology was on campus. That's kinda cool. And the more we use it, the more information it will get and then the more useful it will be for everyone on the floor.

FALLON: Yeah, I agree. I think I mean, she probably just doesn't know. She (LAUGHTER).
She doesn't know like you know gastronome -- like those kinds of words -- because that's just what we call it.
So, I think definitely as the year goes on, like it'll just get more and more information and be useful. Definitely.

OLIVER: One of the things that the campus is really hoping that this can help is with around student services. And so, for example, things around class schedule, things around adding or dropping classes. And for each of you, especially as incoming college students. How confident do you feel already about navigating some of those things that are going to be relevant to how you matriculate through the university the next four or five years?

LEXIE: To be completely honest, not super confident just yet. I don't know where a ton of things are on campus. And if this can help us with finding that that is a huge like just a weight lifted off my shoulders at least because like knowing where to go to student services, knowing where like the disability area is and like financial aid offices like that would really help, especially counseling offices too, because I have no idea where those are.

OW:
So, I-Tuffy still has things to learn, even for seemingly simple questions. But it's already helped Amir Dabirian's team learn a lot about what students need. During last year's trial run, they were surprised by some of the complex issues students were raising with i-Tuffy.

Dabirian: It's interesting because they are willing to talk to this and not talk to the counselor sometimes, so. So, for example, somebody says, I want to drop all my classes. So the minute we see this, we want to send it to an adviser. But we can also reach out to the students and say, hey, we heard you were trying to drop all your classes. Is it financial? Have you applied for financial aid so we can actually have dealings with students, reach out to those students, that normally will be dropped out of school and gone?

Oliver: What are some things that you didn't necessarily anticipate? But based on the first year of rolling it out, you realize students actually had questions about?

Dabirian: things for mental health. We had a question about suicide. You know, things about how does that the counselors, suicide hotlines. Things that we didn't think it was gonna be there. You know, I want to drop all my classes. We didn't think somebody says somebody's gonna talk to this device, instead of going to talk to a counselor. But the new you kids today, you know, we're looking at the generations that are coming out. They're more comfortable talking to this or texting to this or chatting with this than it is to actual advisor. And this will help us to do that along those lines.

Oliver: I would think that one of the concerns, though, is there are certainly going to be times where you want students to talk to a living human being. And so I think at least for older generation folks who look at these kinds of technologies with a little bit of wariness, the concern would be that in using an app as a way of allowing students to interact with something it bypasses or may lead to them not speaking to someone who is a living human being. So how do you address those concerns?

Dabirian: So so one of the things we are looking at, the next step of this, is be able to make an appointment for them with advisors and recommendation of going to see them. So the goal of this is not be answering to all your questions, ability to answer you when you need the answer and give you a path to get to a successful result, outcomes. So what we are looking at, for example, I need to change my major here is a form to fill out. Take the form and go and see an academic advisor. OK. So if you already have that ability because we don't want people to change me, major, and I don't want this device to tell me how to change our major. Tell you the truth. So the goal of this is really be a triage, not really be the answer to the end. So the outcome of this, how do we get him to the right help and see the right people?

OW:
That's Amir Dabirian - V-P of Information Technology at Cal State Fullerton.

And to elaborate on what he said about students' mental health: there are protocols built into i-Tuffy.

It can listen for certain phrases that campus experts have identified as requiring additional action. Different offices -- such as for the Dean of Students or Title Nine -- are notified in order to reach out to students directly.

Over at *Northridge*, Elizabeth Adams is working with a consortium of campuses. They're evaluating how students interact with chatbots… and figuring out how to use them *proactively*.

Adams: Our bot is text only. There's no web presence. And we're trying to use it on a number of levels, one is as proactive outreach. So we run campaigns. Financial aid is a good example. We run campaigns to make sure they know when the FAFSA deadline is. If a student gets their FAFSA in on time, they're much more likely to persist. I mean, it's really that simple. If they get their money from the federal government, then they can go to school. And if they don't, they can't. The other campuses that are in the CSU chat bot consortium are Humboldt, Sonoma, Pomona, San Marcos, East Bay and Channel Islands. And we are really specifically in this project trying to look at different kinds of campuses to see which ways we can use the bot with different populations. So, for example, the folks at Humboldt are really interest ed in using their bot to make sure that the students have all their basic needs met. So they're gonna do a lot of interventions and texting from their bot about basic needs issues. Makes sense, right? Humboldt is very isolated and if a student is food insecure, it's not like there are lots of resources available in Humboldt County that make it easy for them to sort of address that food insecurity.

So we're really going to look at this in lots of different ways to see where the bot is most useful and where we can use multiple layers of technology. One of the things we did last year that I really liked was that we had set up a project with some of our faculty who teach lower division courses that have relatively high failure rates. And in those courses, the faculty were giving students updates on how they were doing in the class. And what we did was if they were in the CS, any pilot. We only had CS any available to half of our freshmen last year. But if they were in that group, they got a separate text from C Sunny saying, hey, your faculty member has told us that you're struggling in class. And you know, here are some things you can do. The results, especially from the students who got notified in Week 2 that they were struggling are phenomenal. They ended up with an average GPA of two point eight as opposed to the students who got warnings in week five and eleven where it was well under 2.0. For many of them, it turned the class around and they were able to pass. The equity gaps went down and it wasn't any one thing. But these layers of technology.

Oliver: Do you have a sense of how much is it costing to both develop and implement these tools, both in terms of the money, but also the labor hours involved.

Adams: It's a good question. I've been fortunate in that I've gotten a couple of grants, one, a collaborative grant with the University of Pittsburgh, which allowed us to launch last year. And I've got this grant from the Irvine Foundation that is allowing us to expand to other campuses and is covering most of the startup costs. Right. So it varies from campus to campus. It's it's a per student kind of thing. I don't find it is a technology product, particularly expensive. But I also recognize that not all campuses are in the same sort of financial situation as others. And it's why I actually admire a lot of what Amir's done at FULLERTON, because I Tuffy has been mostly home grown …So it's not particularly expensive to keep it going. You don't need anything other than a person who can check the database and make sure that the questions are getting answered.

Oliver: I want to come back to our discussion earlier about the equity gap and just about addressing the changing demographic of the students within our system, which is how do you think that these technological tools that you're implementing. How do they play a particular role in assisting everyone from first generation students to at risk students to just first year students in general especially, and how it might help them adjust to a campus environment? In addition to just succeeding in their classes and being able to pursue matriculation in a timely manner.

Adams: Yeah, I mean, I hope that one of the things that we're doing with this is leveling the playing field. Right. If a second or third generation college student has. Access to humans who have gone through the system, then they essentially have a built in knowledge base, right. Whereas first gen students and you know, in a lot of our students English isn't the language spoken at home. And so you've got parents who can't even really help navigate the system. But what they all have and they do all have them. They all have smartphones. Right. And they all look at their smartphones all the time. And so it seems to me like if we can give them access to a real breadth of knowledge in a device they're already using, then we start being able to at least give them all access to the same information rather than having to hope that the ones that don't know will seek out the right person to get the answer.

OW
That's Elizabeth Adams. Associate Vice President of Undergraduate Studies at Cal-State Northridge.

There are glimmers that some of what Dr Adams hopes the chatbots can accomplish might in fact be coming to pass.

Back at Cal-State Fullerton -- we caught up with resident advisors Sarai [sah-RAH-ee] Marroquan [Mah-ro-kwan] and Marissa Cummerman. They were at the move-in day outdoor festival we visited earlier.

They took part in the i-Tuffy trial last year. And -- as they described it -- students were finding the chatbots useful.

"Sarai: I was an R.A. for the women's floor last year. We partnered up with a women's center. The point is to guide women through this college's experience, to guide them, to give them extra resources, talk about consent. ~~A lot of my residents are first-year students, LatinX. They've never been to college before. They don't know the resources.~~ And so I know that sometimes they would ask Alexa first or the i-Tuffy before they would say, like, hey Sarai, I just wanted to know. So like, is the university really hosting this program? Like, are they really inviting students to this? And so I would be like, yeah, they really are."

"Marissa: I-Tuffy helped with having them answer the questions. If maybe they didn't always feel comfortable asking… say, like I had a resident that was like: I asked I tuffy this question and they told me this, but I'm not sure. So I'm gonna ask you now. they kind of checked in with i-Tuffy first and then felt more comfortable and came to me and asked me a question. And it was actually in regards to financial aid and I helped them fill out a loan. i-Tuffy provides those like instant resources, which is something that's really great."

OW:
That's Cal-State Fullerton resident advisor Marissa Cummerman -- and before her -- Sarai Marroquan.

[THEME MUSIC - POST]

And that's it for this edition of Higher Ed Rewired. We'd love to hear from you about innovations you'd like to hear us discuss on our podcast. You can reach us by email at graduation initiative at cal-state dot e-d-u. That address is also on our website at higher-ed-rewired-dot-com.

OW
From Cal-State Long Beach -- I'm Oliver wang. From all of us here at California State University -- thanks for listening!

[MUSIC POST AND OUT]