5 Minutes with Ryan Baker on Bias in Artificial Intelligence

On today's episode, we sat down with Ryan Baker, an Associate Professor in the Graduate School of Education at the University of Pennsylvania and directs the Penn Center for Learning Analytics. In Ryan's work he's done much research and analysis on the impact on Artificial Intelligence (AI) in education and how it impacts a range of learners. We asked him a few questions specific to students with disabilities and how we can analyze AI's ability to help all students. A few of the questions discussed were 'what impact does bias truly have on AI and 'what opportunities are there for individuals with disabilities with current and future AI.'

Mentioned People/Resources:

- Info on Ryan Baker: https://www.upenn.edu/learninganalytics/ryanbaker/
- Ryan Baker's work on Algorithmic Bias in Education: https://edarxiv.org/pbmvz/download?format=pdf
- René F. Kizilcec and Hansol Lee's work on Algorithmic Fairness in Education: https://arxiv.org/ftp/arxiv/papers/2007/2007.05443.pdf

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Transcript of the podcast episode:

Gabrielle Oates: Hello everyone and welcome back to the educating all learners alliance podcast we're really excited to share today's episode with you, which is another episode in our five minutes of series.

Gabrielle Oates: And such day we are having five minutes with Brian baker discussing anti bias in artificial intelligence and will be referring to it as Ai throughout the episode, so that means, but really excited to be fine so welcome Ryan, how are you today.

Ryan Baker: Good, thank you for having me.

Gabrielle Oates: Absolutely.

Gabrielle Oates: And we definitely want to jump right in but i'll give everybody a little bit of an intro to who you are so.

Gabrielle Oates: Brian baker is an associate professor in the graduate school of education at university of Pennsylvania, and he opened direct so penn Center for learning analytics so he does want to work.

Gabrielle Oates: In Ai as well as other topics, but for today we'll go ahead and jump right in with the first question so.

Gabrielle Oates: You know, recently we've had a discussion on bias in research and so people know that bias bad and it can have negative effects on different communities, especially students with disabilities, but in terms of Ai what impact can buy it have on it.

Ryan Baker: So bias and artificial intelligence can be a really big problem, because a lot of a lot of decisions these days in education and and other areas.

Ryan Baker: Get made on the basis of predictive analytics various sorts where it makes a prediction about what's going to happen so that it can then take the right action.

Ryan Baker: And if that prediction is significantly less accurate for one group of learners than another, then there's going to be differential.

Ryan Baker: impact positively for those groups and particularly given that a lot of educational algorithms are developed on convenience populations.

Ryan Baker: suburban middle class students say the algorithms may be less effective for other learners another product bias and artificial intelligence and education is when people.

Ryan Baker: Out of a perhaps well intended attempt to make the model more accurate actually put demographic variables in their models now.

Ryan Baker: That may sound like a good thing, because it makes the accuracy higher, but what it often ends up doing is saying that you're going to take two students from different groups.

Ryan Baker: And you're going to explicitly treat them differently, because their group membership.

Ryan Baker: And That to me is problematic, and a lot of ways it's much better to create models that are more universally designed, where you build a model and test to make sure that it works for different groups learners.

Gabrielle Oates: wow that's a.

Gabrielle Oates: Great point and I was going to ask who Ai is developed for but that kind of answers the question so would you largely say is most commonly made for one population and then just hope that it works for other.

Ryan Baker: I mean it depends on the research group or the or the development group doing it, I would say that there are groups that are responsible about trying to build it on the various populations.

Where it's going to be used.

Ryan Baker: i'd say that a lot of other people out there just build out on the most convenient population or group of populations, whatever they have at hand.

Ryan Baker: that's fine to start, but if you then just use it on the populations, without testing it, you could have.

Ryan Baker: Some problems another problem for the field and I just recently released a review on this with Aaron Han a colleague of mine i'm.

Ryan Baker: finding out that that even though people care about this issue, we don't entirely know what groups are being affected and, in particular, for example, there's been insufficient attention paid to learners with disabilities, when testing algorithms and education.

Gabrielle Oates: what's The thing that we are definitely hoping improve as Ai becomes increasingly more prevalent, and so I guess just in thinking ahead for students with disabilities and I do you see any upcoming opportunities of how they would be more engaged.

Ryan Baker: I guess, I would say that i'm a lot of education designs can be better for learners with specific disabilities some can be worse for learners with specific disabilities there's been there's been some really good work coming out of a couple of places, including T RC around.

Ryan Baker: Around trying to develop a learning systems that work well for learners with autism, for example.

Ryan Baker: But there's a lot of cases where learners with disabilities aren't being paid attention to and one issue for Ai and specific.

Ryan Baker: Is that oftentimes a learner's disability status or specific disability is concerned, protected information, information which is good for protecting their privacy, but isn't so good for being other validate that an Ai model works for learners with.

Gabrielle Oates: disabilities.

Ryan Baker: If we can't know which learners have disabilities, then we can't guarantee that our algorithms are going to work, and so I think that's actually a place where some very well intended laws and policies actually are going to make it a little bit harder to make sure that our Ai is equitable.

Gabrielle Oates: that's good perspective, I never thought about that wow well, thank you for sharing now, are there any highly recommended either resources organizations that you would share with people and even where they could look into your work if they're interested.

Ryan Baker: Sure um so as I mentioned, I recently put out a review on algorithmic bias in education um I guess the best way to find it would be to go to Google scholar and Google Ryan baker algorithmic bias and education.

Ryan Baker: renee kids will check K Ay Z I Ic EC also recently put out a pretty good review on algorithmic bias that's also well worth taking a look at.

Ryan Baker: And then there's a bunch of more specialized technical conferences and meetings where people are talking about these issues, so there are people who care about these issues, but we still got a long way to go.

Gabrielle Oates: yeah absolutely and i'll go ahead and link to those resources, you mentioned in the show notes.

Gabrielle Oates: Of this podcast so its listeners if you scroll down you'll find those links there as well as well as more information online, so thank you so much for joining us today.

Ryan Baker: you're very welcome thanks for having me and I look forward to continuing the conversation.

Absolutely.

Gabrielle Oates: wow Thank you and then that's it for in terms of recording.

Ryan Baker: super give me one second i'll actually give you those links.

Gabrielle Oates: Oh yeah that would be awesome.

Gabrielle Oates: i'm typing noises recording or you can wait after the third step but.

Gabrielle Oates: If you have them now would be awesome.

Ryan Baker: yeah give me a second.

Ryan Baker: i'm a slower Internet connection, so this one should work for the paper I mentioned me and Aaron Han and then.

Ryan Baker: We get the other digital check one.

Gabrielle Oates: yeah.

Ryan Baker: yeah Both of these are actually pre prints they're both under under review, because we I think both renee the author, the lead author, the other paper and I kind of want to get this out there community as quickly as possible.

Gabrielle Oates: Well, as you're reviewing them.

Ryan Baker: I don't remember what journal, this is under review our minds under review at the International journal for artificial intelligence and education.

Ryan Baker: Great well Gabriel is great to have you and to work with you on this, and please let me know if I can be of support to your organization and the future.

Gabrielle Oates: Yes, absolutely Thank you so much, and.

Gabrielle Oates: When we share this.

Gabrielle Oates: and release the episode is a few weeks, is it like do you have a media Twitter handle I can tag or would you prefer I attack pen.

Gabrielle Oates: Their.

Ryan Baker: tag at baker edm.

Gabrielle Oates: edm okay.

Gabrielle Oates: whoa Thank you I will.

Gabrielle Oates: Definitely let you know when it's up great.

Ryan Baker: super of you're most welcome have a great rest of your day.

Gabrielle Oates: You as well bye bye.