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All right. So welcome to Research and Beyond, a podcast that explores the cutting-edge developments and pressing issues in the world of scholarly communications. I'm Uttkarsha, the executive editor of Enago Academy. And in light of this year's Peer Review Week theme, Innovation and Technology in Peer Review, we have Jennifer Mahar joining us. Hello, Jennifer. Hello. It's so great to be here. Thank you. Thank you so much for agreeing to have this discussion with us. So Jennifer, for all of us, brings nearly three decades of experience as an editor and is currently serving as a peer review manager. Her extensive background in academic publishing gives her a unique perspective on the evolution of the peer review process and the challenges facing scholarly communications today.

I'm sure, Jennifer, that this conversation promises to be both enlightening and thought-provoking for all of us.

And welcome to you own research and beyond. And I'm very excited to dive into your wealth of experience and insights. Thank you so much. It's so exciting to be here. I've had some opportunity to reflect. I received some of your questions in advance and I'm excited for our conversation. Great. So to begin with, let's just go back in time and understand that you almost have 30 years of experience as an editor. and currently you're donning the role of peer review manager. Over the years, what significant changes have you observed in the field of peer review? So that was an interesting question. The changes that have happened in peer review have been great, small, and everything in between, I think. But certainly one of the largest changes that I have experienced is the boon in ethics.

So the things that have come up in large and small areas, everything from fake journals, fake authors, paper mills. Retractions have always been part of our life. I love to consider retractions as to be corrections to the literature, but they've taken on a punitive form over time. And I think that's really difficult for our industry as a whole. I would also say that, of course, AI has become a huge part of our work. And when we think about AI, everybody's talking about ChatGPT and all of the things that come with that. But we have had AI in our space for many, many years. I remember when Authenticate came out. I remember that Crosscheck became part of our world. That is AI. So to think that ChatGPT is revolutionizing what we do, it is in a different way, but it's

it's an extension of what we already had in our space. And so I feel that we have to take it, accept it, build on it and see how it works best for us in our industry. Things like open access happened. Oops, I'm sorry, I didn't mean to interrupt. No, please go on, please go on. The last thing that I was gonna mention is that open access became something of a standard during the course of my career. There was no open access when I started. And to give you more perspective, I was a beta tester on ScholarOne. There was no relational databases that were operational in the sense that we use them now. Everybody is using some sort of a database in order to manage their peer review systems, but there wasn't that. I was using FileMaker Pro when I started, and I was cutting the tops off with faxes so that I could send them to the author so they wouldn't know who the reviewer was.

Anybody who's of a certain age won't even know why that's relevant. But those of you who do, that's a little insider tip. Oh, definitely. I think it will surely help a lot of peer reviewers listening out there and other researchers who aspire to become peer reviewers in future. But as you clearly mentioned, the transition keeps happening across regions and across domains. One of the things that we definitely look for is how do we combat ethical misconduct in terms of every field that we are in? So to mention that recently, El Xavier Journal issued 73 expressions of concern for manipulated peer review. How widespread do you believe this issue is within the STM publishing industry? So.. I believe that these are hard questions for all of us, but we have all faced some form of ethical concern in our journal. Whether or not we caught it was always the concern, but these have always happened. Have they become more elevated because of something like Retraction Watch? Obviously, Ivan Oransky did us all a service by starting Retraction Watch.

It's something that everyone should read every single day. And hope being created during my career has been such an asset to our industry. So all of these things, education has to happen so that we can try and combat the different types of ethical concerns that happen in our journals. But it's always been happening. It's just that we're probably better detectors. And when you think about it, our output is higher and growing. by the year, year after year. So do we have more retractions? Do we have more ethical concerns? Yes, we have more publications. We have more science happening in our space. Thank goodness, because the things that we do are so important to even an everyday life. So we have to take the good with the bad and we have to try and educate ourselves. But I think the hardest part and something that I actually took away from our recent CSE conference was

that the Council of Science Editors back in May was that the hardest part is that now we're trying to catch up. Every time we have an ethical concern, you're behind. And so exposing how we're doing that becomes a little bit more tricky. And we want to hold some of that to the vest and be careful about sharing how much, but we still have got to educate. And we've got to make sure that people know how to go through the steps in order to make sure that an ethical situation is managed within your editorial office. Absolutely, Jen. And recently, I had the opportunity to also have a conversation like this with Ivan Oransky from Retraction Watch. And it was such a wonderful experience to speak with him, where he brought in and shed some light on how I think it's been almost a decade, over a decade,

that they've founded Retraction Watch along with Adam Marcus. And the kind of experiences that they have had to face, like how you mentioned, it's been there. The sleuths have been there and they have been finding these issues that have been happening, the misconduct that has been happening in the STM industry. It's just the kind of awareness that platforms like Retraction Watch also bring in front of people. And I think till date... others documented, I would not be sure of, but the ones that are documented, there are around 47,000 cases that attraction watch themselves has documented till date, which, and without having any kind of, you know, them getting sued or anything, it has been a very smooth journey. And this also brings you know, us giving us a different perspective in terms of how necessary it is. It's not about you know,

reducing the number of retractions, but about being aware in terms of how it is necessary to eradicate the entire ethical misconduct as a concept in itself. So more the retractions, the better, I believe, and the more careful will people become in terms of conducting and reporting research in future, right? I agree. I agree. I think that there are always going to be bad players. There is in every part of our lives, unfortunately. Yeah. How we try to combat that and how we address that is important. We have done things like create entire positions around ethics in organizations. We have come miles in that sense. But it's also important to note that the bad players are not our fault. It is not necessarily the responsibility of the editorial office to catch every bad player.

situation in a manuscript and to think that it is our responsibility to do so is, I think it is not well placed at times because the publisher, the editorial office, it lies with the author. The author is the one who has become the bad player. And it's really hard because we have to do our best. We will, of course, do our checks and balances. Our reviewers are amazing. Our editors are champions. They do their best to try and make sure that there is a good ethical stance in every manuscript that we publish, but things are getting crafty out there and entirely manipulated manuscripts and manipulated reviews are, I think, something that has really surprised me over time, have crept into our world. And those are very concerning. So we do what we can to combat them. Yes, absolutely. And as you speak about reviewing manipulation, so as the executive director

peer review manager, how do you think can peer review manipulation be combated? Also, how can publishers ensure that their peer review processes are transparent and trustworthy? Well, of course, you have to be as transparent as you possibly can. I found a long time ago that trying to shroud whatever my response to someone is, is not helping anyone. So I try to be as transparent as I can at any given time without giving away, you know, private information and the things that we now have to be careful about that have come to light over time. But systems are getting better. Mauricie is scanning manuscripts. There's as good as the programmers, though, looking for nonsense words, repeated phrases, duplicates from the published literature. But you can only do as much with the information that you have.

I think that we are always reactive to a situation and that makes it really hard, but it has got to start with education. Education, training your researchers, education, training your editors, making sure that the peer review programs that you're presenting are all systematic and standardized so that we're all looking for plagiarism, so that we're all looking for the different things that we need to now be questionable about. When a manuscript comes in the door, we should also tell the author exactly what is happening to their manuscript during the process. So is their paper going to be checked by cross-check? It seems so basic, but if you do not tell the author in the instructions to authors, or even in the letter back to them when the manuscript is submitted, then they will turn around and say, well, I don't see it in your literature. So being that transparent even, it seems very basic, but it's a very important part of your process, and it's a

It's a workflow process that has to happen underneath your policy. The two things that I have always talked about over the course of my career are policy, and I will create a workflow underneath that policy all day long. I don't create policy because I think that is up to the publisher, the organization, whoever that is, but I'll create you a workflow any day. Definitely so. And like you mentioned that, you know, retractions are on a rise. And in that, in this entire process, of where people are trying to combat ethical misconduct and trying to avoid retractions as much as we can. In your opinion, and also that we mentioned about making sure that we, at regular intervals, train our editors, train our reviewers so that they are at par with the changing dynamics of the industry, what do you think are the key areas where editors and reviewers would need regular training and updates on?

So I think that editors need regular training on obviously any system that you are using. So if you're using a peer review system, then you need to be making sure that they understand the system inside and out. But then all of the little widgets, whatever the language is that you use in order to place them in there. So you're authenticate. So hopefully we're coming up with a checker for four figures. And they need to know how to use those. They need to be properly trained and they need an update on that training. It's not a one and done. You shouldn't always assume that your editors, just because they were editor over at JAMA doesn't mean that when they come over to the BMJ that they're going to know what they're doing. Things are different in every system. Situations are different. Policies are different. So

We need to make sure that the training is continual and updated and that you're making sure that everybody is on the same page. I think one of the things that's very concerning is to find out that somebody is doing something different than the way that you are doing it. And it's not the way that you thought that they were supposed to be doing it. So I think all of that training and almost sort of like that CME, that continuing education, but in editorial is really important. for all of the parties in our journals. Absolutely. I agree with you. And especially with the point of image manipulation, you can always check for plagiarism across texts and so on. But image manipulation is something that has risen exponentially with generative AI, to be very precise. And just recently, we, like at Enago, we launched a service on image manipulation detection. And that is also giving us a different perspective wherein we are understanding to what,

Like even the most esteemed of the journals are also where we find that, you know, there is some manipulation in image. And, you know, sometimes it may come from an honest place of mistake, but it cannot be something that can be overseen in the eye of science. So this also would come as part of researchers wanting to adapt to, you know, AI revolution kind of embrace the technology that comes in picture. So moving on to role of innovative technologies in peer review, per se, and editorial systems. Do you think innovative technologies can be helpful in countering peer review manipulation? To make it more specific, how can AI and machine learning be used to improve the entire peer review process? That's a loaded question, right? So there's a lot there. How can AI help in the manipulative process? That's part of what I was talking about. I think that we want to move as far forward ahead as we can. But the second that we disclose what we're doing, the second the bad players find out how we're detecting that information, and they will use that against us.

What we've found now is that there is a true punitive sense to some people and that they are out there too. I think that was probably one of the most shocking things to me was, well, there's always people who make errors, mistakes in the literature. And to be clear, I believe that there should be two paths to misconduct. One is a retraction when there's an actual misconduct and the other is a mistake in the literature. They are together right now. There's bad actors and there should be repercussions for bad actors. But when somebody needs to truly correct the literature, then they're faced with a retraction at times. That's their only option. I think we can do better. I think whether or not we change our systems to reflect that. And I don't, AI is created by people anyway. So AI is something that comes out. Thankfully, we are still needed, at least in the editorial office, from a publisher perspective, all of that. We still,

are needed in that sense, but we have gotten to try and catch things upstream a little bit better. The transparency of preprints have helped out a lot. They've helped to identify inconsistencies. Much is caught on like Papier and identifying misconduct earlier would be ideal, but some of that is unfortunately caught after. And that's something that I think we could do a better job of trying to catch it a little bit further upstream. But I do think that preprints are amazing in that sense. I work in physics also, and archive has been around for a very, very long time. And it has not hurt peer review. It has been very helpful. I remember somebody saying at one point that they wouldn't review a paper if they didn't see it on archive. So that was very telling. Yes, that was an interesting story. And I felt like, well, that's very enabling for our industry because it shouldn't be threatening.

It shouldn't be something that scares us. We should use it in conjunction with each other and try and vet out the bad actors, the difficult situations in manipulation. Absolutely so, Jen. And like you said, we need to, because we would want to consider AI to be inevitable and it is something that's not going to go away. So when we talk about embracing AI in the right possible way, in an ethical way, we What are the benefits and potential drawbacks of using innovative technologies, especially in the peer review system that you are foreseeing at this moment? Well, I think just like with any of the situations that we run into, it's going to help us detect. But then you still have to come in with your human eye.

and take a look at the situation. So I liken it to a cross-check report. So if we're looking at a cross-check report and it captured the references, oh, well, all right, then we know you can let that pass and it's okay. But if you're seeing an entire abstract taken from somewhere else, that is not a pre-print server. So again, that education of saying in medicine, people were, were up in arms in the beginning about pre-print servers, and now they're coming around and it's finally gotten to a normalcy spot for us. And so I think that you just have to take that AI in a sense that it is an asset. It is something that's going to help you to do your job. It may reduce your time too. That's the wonderful part. It will give you time to do the other things that have crept into our realm and that we have to look into. So I think that AI

absolutely has a place and we have to utilize it in the best possible way. But I think we need to be careful as we're using it so that it doesn't replace the human eye. That was going to be my next question. I wanted to ask you, do you see AI replacing humans in future? As peer reviewers, especially, do you think we can depend on AI solely to review a scientific manuscript? And I think the answer is clearly no. I agree with you. And I wouldn't ever actually try and speak for an editor in that sense, because it's very funny because over the course of my career, I've probably worked in 20 different types of science, but I didn't need to know anything about those sciences. I've learned things about them along the way, but I think that any editor would say to you that AI would not be able to replace. It augments what we do. It helps. It's another spoke in the wheel.

to try and help us. And I think we need to use it in the sense of trying to detect ethical concerns. I think we need to use it in a sense of trying to make sure that our style guides are standardized. Like there's ways to use it and cut down time so that we can spend time on the really hard things that require intervention, authorship changes, hard discussions with different people that need to be vetted out and a human needs to look at them. Yes, definitely. I agree. Maybe we can, you know, consider using AI for peer review in terms of checking out, let's say, the gaps in a research or identifying the gaps in a research or reviewing the literature that is presented to them, checking if the references mentioned in the research are credible enough that are being given. Also kind of ensuring that the acknowledgments or the authorship is in place and so on and so forth.

I think for these preliminary checks or, you know, basically mainly I believe literature review is one of the primary reasons or key areas that peer reviewers can look into in terms of ensuring that the management that they receive to review is adhering to certain standards of science and that it is not breaching any kind of ethics that we are standing by. in scientific inquiry. So I think these are one of the key things that we would want to consider as we embrace AI in future. But close with, and I would like to understand your opinion as to one advice that you would want to give aspiring peer reviewers that are coming in the industry. What is this one advice that you would want to give as they are

peer reviewing cycle and their journey is going to be enveloped with AI typically. So what is that one advice that you would want to give peer reviewers? Oh, you know, it will be hard just to say one thing. You can shoot, you can fire away as many as you can. The thing that I would ask of a peer reviewer as they were peer reviewing a manuscript, again, I would never step into the scientific portion of the peer review, but please do ask, for training, please do ask your editorial office for support. That is exactly what we're here for. We want to help you through the process. We don't want it to be difficult for you. We don't want you to get so frustrated with our systems that you say forget it and i don't want to review for you, but please ask for training. Ask for advice. There are many great programs out there where we can couple you with a senior scientist with somebody else who has been managing peer review.

the editor would always be happy to give advice, the associate editor, whatever the nomenclature you want to use for your journal is. But I think that I would always say, absolutely, ask for guidance and help. And I ask that this guidance and help be pushed further upstream even. I want to see in the master's programs, in the PhD programs, classes on peer reviewing, on how to give back in science, Peer reviewing is a really difficult game out there. We're asking people to do work for free. The only thing that they are getting out of that is the manuscript, is to look at the literature, be ahead, and on the flip side, your paper will also be peer reviewed. This is a hot topic in our area, but I think that if there was better training, and there is better training out there, I wouldn't say that there isn't, but

I think if we had more universal training regarding peer reviewers, that we would probably have a more universal system at hand. Yes, absolutely. And as we speak about, you know, what do they get in return? I want to understand, yes, there's exposure. Yes, there is an understanding, a deeper understanding into your subject area. But do you think, should there be a way that peer reviewers are incentivized in any format? That incentivizing your reviewer is absolutely an option. I think that what I've seen over time is the smallest to the largest of things. I'll give you a couple of examples. So certification, you can get a certificate that you have been reviewing for a particular journal and that's nice to hang on your wall. You can receive tokens or

or a monetary incentive to publish within that journal in the future, perhaps an open access token in that sense. That's become probably a bit more of a heated debate since the expense is large and it really depends upon the financial state of your journal before you can be giving out free open access. One of the things that one of my journal does is that at the annual meeting, we do a word cloud. The biggest person on the word cloud is the one who reviewed the most. Let me tell you, everybody comes by to look at that workflow to see how big their name is at the annual meeting. So it seems like a small incentive, but it is an appreciation incentive that we give to our reviewers as they come by the booth and they're taking a look at the state of the journal for the year. So those are smaller to larger incentives that I've seen over the course of my career that I think that people do appreciate. They certainly...

like the thank you, but I’ve also on the flip side heard, I don't love the automated thank yous. They want something more personalized. You cannot make everyone happy, but it has to fit for your journal um so if you are particular, when i was in evolution, then we actually gave out socks to our reviewers at the annual meeting because they were all hikers and they were these amazing socks with the little word evolution on them. And that was an incentive to have them stop by and allow us to thank them for working on the journal throughout the past year. I think that's wonderful. Like even the smallest of the effort that is taken to make them value of the kind of service that they're providing without having, it's basically just contributing to the betterment of science and to the betterment of research at a large scale. And everything like, you know, whenever you,

you say that a manuscript is peer-reviewed, automatically you have that sense that, oh, I can trust this manuscript, right? So that's a lot of pressure and a lot of responsibility that every peer reviewer holds on their shoulder. And it is, I think, with evolution in terms of technology and innovation that we look forward to, it is going to be a very beautiful journey for all of us, every peer reviewer as well, in terms of embracing technology in the way that it comes and use it in the right possible way in the most ethical manner that they can. And ensure that scientific inquiry does not lose its integrity that it is built on. I agree. I agree 100%. My best advice to anybody would be to keep current. Go to the conferences.

Remind your editor and your publishers about the conferences and the free training that's out there. Keep yourself reading Scholarly Kitchen. Keep yourself looking at Knowledge Base. Look at James Butcher's newsletter. Do a Google search on whatever your topic is that you're interested in. And sometimes it's very enlightening. Sometimes it's a little scary, but at least you'll know. You'll know what's going on out there and you'll be current. You'll be able to address it if it happens in your own editorial office. Absolutely. I totally agree with what you said and I think it will be and whatever that we have spoken today in this conversation, it will definitely help a lot of researchers to take on peer reviewing as something that they would want to give back to science and the community that they are into. Thank you so much, Jen, and thank you for your time. It was lovely speaking with you. The recording and the conversation went so smooth.

I would like to really appreciate the conversation and the anecdotes, especially that you shared in terms of your experience at Evolution as well. So thank you so much for your time. You are very welcome. It was a pleasure talking with you today. Same here. I will be sharing, as I mentioned earlier, once the recording is completed, it will go through a process of video editing where our video editors will be implementing some digital elements also across it. And yeah, then we will be having the final video in place and that will be shared with you. It will also go live on Enago's Research and Beyond podcast page. The link of that also will be shared with you. And thank you so much once again for making the time and also agreeing to reschedule at such a short notice. Yeah, at such a short notice. So thank you so much for that. No problem. If they can go ahead and pull out those...

Those bags under my eyes, that would be great. I will definitely ask them to do so. Thank you. Thank you so much. And I hope to connect. Yes, I hope to connect with you again and have more such interesting and candid conversations and learn so much from you. I mean, 30 years of experience, that's a lot for me. Like, yeah. I know it is actually. And it scares me a little bit, but I'm still happy to be in the game. You don't look any like that. Your talks resonate. But no, the eye bags are just only something that you are seeing, not me. You're very kind. Thank you so much. I'm so glad you're feeling better too. Yes, I am. I am better today. All right. Yes. Have a lovely day. Yes, I will. And have a lovely day. So thank you. Bye-bye.

Bye bye.