

The VICTVS Podcast

Episode 8 – Publishing Under Pressure: Fraud, Data and Institutional Complicity

Carly Culver

So hi and welcome to this episode of the VICTVS podcast. My name is Carly Culver, and as always, I'm joined today by VICTVS CEO, and founder Ben Clayson. Hi, Ben.

Ben Clayson

Hello.

Carly Culver

How are you doing today?

Ben Clayson

Very well. Thanks.

Carly Culver

Good, good. Excited for another episode?

Ben Clayson

Absolutely.

Carly Culver

Perfect. Now, for those of you that have listened to any of our previous episodes, you'll know that we've discussed the topic of academic integrity in regards to sort of assessments and exams and learning, at length, whether it's cheating your way to nuclear exam codes that we spoke about with, Dereck or, kind of the paradox being represented by AI and Learning in Assessments, where we spoke to Phil Dawson.

So, however, academic integrity obviously is not just limited to the classroom or the exam hall but extends way beyond this into all kind of facets of academia, whether it's research, whether it's publishing, and then, of course, beyond that, into the real world, into policy and into applications. Joining us today to explore this topic further is Kim Eggleton.

She's the head of peer review and research integrity at the Institute of Physics Publishing. So hi, Kim. Welcome to the podcast.

Kim Eggleton

Hi. No problem. Thanks for having me.

Carly Culver

Thanks so much for joining us. So I guess what I'd love to start with today is for you to tell us a bit more about yourself and kind of how you've come to your role at IOP publishing.

Kim Eggleton

So I've worked in publishing for as long as I can remember. It was what I did at university. Not many people grow up wanting to be an academic publisher, but I'm one of the outliers. I think it's really fascinating. It never research, Integrity just wasn't a part of publishing as I started in the industry, and it was probably only around the 2010 mark that people started to think, oh, actually, can we trust everyone that's involved in this system?

Yeah, we probably can. But maybe let's just make sure there is some safeguards in there, and let's make sure there's some best practice for what happens if something goes wrong or an allegation is made. And that was when I first got involved, really was through an organisation called Cope, which is the Committee for Publication Ethics, and a lot of academic journals become members of Cope.

And that basically means that they follow that code of practice. So that's where my journey with it really started. Since then I've, I've moved companies. I've worked across the broad range of academic disciplines, but academic integrity is one of those things that sort of follows me around, And now it's a huge proportion of what I do at IOP and I'm, I'm really proud to say we've got a strong record in this area and we're reasonably progressive, I think, I hope.

Carly Culver

Fantastic. So I guess for full disclosure, I did used to work at IOP publishing many, many years ago. I started my career in, physics publishing, but I've never actually, our roles didn't intersect at all, did they Kim? So, as you said, research integrity is a no nonsense publishers. you mentioned sort of since 2010 It's become a thing. Was there a reason? Did something happened or is it just a natural progression?

Kim Eggleton

I think, I mean, there wasn't kind of a big bang moment, but I think if we look back at kind of the role of the internet and as things have moved online as authors have become more, collaborative as well research, a lot of research. There's always things, collaboratively, but it's much more collaborative nowadays than ever used to be, purely because of the ways people can interact with each other.

Now we can provide data, you know, in the, in the click of a button, we don't need to post reams and reams of manuscripts or anything off. So I think I think there's an element of, that digitisation of us globally has probably made it a lot easier both for people to cheat, but also for that cheating to be detected as well.

But it's been a long road. There's been a real surge, though. I would say 2017 onwards, and we'll probably talk about it more as the podcast goes on. But the last maybe 5 or 6 years, it's been record breaking. Not for good reasons, but, but record breaking and a research integrity sense.

Carly Culver

So before we move on to some examples of what we're really talking about with research integrity and sort of publication ethics and things like that, I'd love to kind of, understand more about what your day to day, week to week looks like within a publishing house, in terms of what sort of activities are you doing to relate to these topics?

Kim Eggleton

So we do, IOP publishing, we do what's called peer review. So that is where a scientist will submit their manuscript, and then in order for someone to gauge, is this worth reading? Is it correct? Do we want to publish it or not? We get other scientists to look at it. And so that's full peer review.

And normally you get two subject experts to look at the manuscript, make any suggested, comments to the authors, things they might want to change. And then ultimately, hopefully it goes on and gets published in a journal. And that's where a lot of the research integrity action happens, because those scientists who are doing the peer reviews are the people who are actually assessing the manuscript, sometimes saying that data is just not quite there's something off the year or that figure doesn't look quite right or that's too good to be true, that can't be possible, or that contradicts with this massive field of study over here.

So how can they have got those results? And so it's while we administer that whole peer review process that things start to come out of the woodwork and questions start to be asked. And our responsibility then the research integrity team at IOP, we basically manage everything. Think of us like a real geeky detective agency, we manage everything from allegation right through to potentially like conviction.

Obviously not real conviction, but, we'll, we'll work with a whistleblower or whoever it is that they think they've identified something. We'll really try to understand what the allegation is, and then we'll work with the person that's been accused and can put those allegations to them. We'll get a third party involved if we need to. So again, that could be in the subject expert.

It could be, an expert in a particular type of, I don't know, statistics or medical imaging or, you know, whatever the, the allegation result. refers to, we'll also often get the institution. These are all obviously working scientists. They're working at universities. So we'll often get the institution involved as well and say, you know, we've received an allegation relating to this paper.

Are you aware have you conducted any kind of investigation already? Are you able to support with any kind of documentation that proves or disproves that person accused did or didn't do what they're being accused of? And so it's managing all the different people that are involved and ultimately making a decision and saying we think this is basically a false allegation there's no case to be answered.

We'll proceed and we'll publish the paper or something, really not very nice has happened here, and we won't be publishing it. We will also be recommending that the university maybe talk some more serious action. We can't penalise anybody. All we can do is say, yes, we publish it or no we don't. But obviously a university would be that person's employer, and they can take any kind of corrective or punitive action that they feel they need to do.

Carly Culver

Have you got any interesting examples of things you've seen in recent years, in your time at IOP? of, where you've seen this kind of misconduct come through to you and be upheld.

Kim Eggleton

Yeah, sadly. Sadly lots. And I hate to say the vast majority of allegations that we get are upheld, we, we do tend to receive a lot of allegations during that peer review process, but it's also not uncommon for us to get allegations, sorry my phone just fell over. it's also not uncommon for us to get allegations after publication.

So something will actually get published in the journal, and then it could be a reader that gets in touch with us and says, this directly contradicts or this isn't right, or actually, I wrote this, somebody pinched it. So that's kind of one of the easiest things, for us to resolve almost, is when work is completely stolen.

And that's often it's a student or, you know, a PHD student's work that's been passed off by somebody else, either in the same institution, maybe one of their supervisors has passed it off as their own, but it's also potential that they've lifted it from a preprint server, which is really, really common in physics. A lot of authors will post that kind of work in progress on to a preprint server, where they invite comments from other scientists, but there's nothing stopping others scientists completely taking that work and claiming it as their own.

So that's kind of a really straightforward example, but it goes so much more murky than that. we've got everything from straight up plagiarism. So that's obviously just passing somebody else's work off as your own, whether that's a small part of the paper or the entire paper. We've got image manipulation. So, you know, it's what it says on the tin, punching the images to make it look like this sound of particular result or, that the data supports the hypothesis that the authors put forward that is increasingly common, especially in biomedical sciences.

There's a huge amount of, of technology, thankfully. Now that's really helping us identify when this has happened, but that's really only come on the market in the last year or two. Until then, it was done completely by eye. And there's one woman who, is an absolute god in the eyes of the image integrity world, and she's called Elisabet, and she really does have a sixth, sixth sense for this stuff. She can look at patterns by eye and identify where things have been manipulated or not.

We've got authorship theft, people being missed out of authorship. People being added to author lists because they think they're gaining an advantage. So, I don't know if I, if I were able to collaborate with somebody like Albert Einstein, having his name on a paper would probably increase my likelihood of getting that paper accepted.

So that's something we see quite often. People put on papers, when they actually didn't do any work to contribute to it at all. And then the really, really awful end of the spectrum is completely data fabrication. Like this experiment never happened. We've literally made up some numbers and got some images to support it. And what's scary, and I think this is what led to the crisis that we're in now since 2017, 2018 is that it's now been commercialised.

So just like in higher education, where you've got essay mills in research, you've got what's called a paper mill, and you can literally hand over money and receive a completely fabricated research paper in return. That pretty much says exactly what you want it to do. And these companies will guarantee acceptance through a range of fraudulent means. So it's now you're not just dealing with little individual bad actors, now you're dealing with it at scale.

And that's very, very difficult for us to, to kind of counteract.

Carly Culver

Yeah. And obviously you've outlined a really broad range of kind of like I said, severities of the things people are doing. But, especially in scientific research. And I suppose it's important to note that this happens across all types of research and not just scientific research, which is what we're talking about today.

But everything, that then gets published, then potentially has some sort of real world implications. So what, what kind of dangers do you foresee there, especially within the scientific sphere, but maybe broader than that as well?

Kim Eggleton

There's a huge amount of implication. A lot of what that it gets published ultimately goes on to inform things like maybe public policy, future research. You know, you give a really practical example, you can think about pharmaceutical research. So where we're testing and validating different methods of addressing and, counteracting a disease. If the papers published that said, hey, this drugs really great for curing XYZ, and actually that paper is completely fabricated, then the public health is at risk, and that is something that we've actually seen play out in the media quite recently.

There's been a number of allegations, especially in the Alzheimer's research community, where a paper that was written decades ago, there were allegations made that that data was fraudulent. It turns out that paper has now been retracted, and kind of 20 years of Alzheimer's research has effectively been wasted. And there's a huge amount of public money and funding and lives of ultimately been lost as a result of that.

So that's obviously the real extremely bad example. but there's a huge amount of people that are impacted by fraudulent research getting out there. It's it's wasting a lot of people's time. And it's, it's causing everybody, I think, to lose trust in science. And that's the really, really worrying thing when I think about my role as a publisher, because ultimately, you know, whether a business and if we want people to read our journals, they need to be able to trust our journal.

And if there's a suspicion that what we're publishing is fake, for whatever reason, then we don't have a business anymore. so it's a real commercial challenge as well as that kind of public, and global challenge, as well as the business implication as well for us all.

Ben Clayson

I'm interested in stepping backwards a bit in the timeline of this. But could you tell us something about the history of, research integrity and how this type of activity was conducted? You know, in the old days of research and publication?

Kim Eggleton

It's a really good question. And honestly, we don't really know because we know not many people made allegations. If they did make allegations, they have been in a very public forum. So it might have been, for example, in the very, very olden days, the only ways that scientists had to share their findings would have been by letter, or by a meeting.

So that might have been, you know, what we what we call a conference now, and it takes a lot to kind of call somebody out to their face. So I think perhaps there weren't as many allegations made because it was a matter of pride and respect. To actually call somebody out would have been a big thing and essentially to end your career.

And there was no way of doing it anonymously. That's another thing that's really changed. I'll maybe talk about it a bit later, but there is now mechanism for people to make allegations anonymously, which it definitely does increase the number that we get. But yeah, it would have been maybe writing you could potentially written a public letter, maybe through a newspaper.

But again, that's an extremely public way to make an accusation about somebody. And I think when you think also about the actual science, we talk a lot these days about reproducibility. So somebody does an experiment, can another scientist with the same materials reproduce using the exact same methodology. Can they get the same results. That's reproducibility. what scholars now refer to as a reproducibility crisis.

There's been studies done that said potentially up to 60 or 70% of papers are not reproducible. So a set of scientists get to get the methodology and they can't do it. So what you could have done in the olden days was try and reproduce the experiment, but actually they didn't share a huge amount of information.

Nowadays, we all share our data, or at least we try to share our data. There are numerous different, websites and repositories where scientists can put their data. They can put their images. Huge amounts of code can be shared really easily. It just wasn't the case back then. So, actually proving that somebody didn't do an experiment correctly or may have made the results really, really impossible to prove.

And I think the fact that you're putting your own reputation on the line as well probably put a lot of people off.

Ben Clayson

So you mentioned, 2010 as being the kind of pivotal points when this started to become more of a, an issue that was being addressed and more widely considered. So that would have been about sort of roughly 15 years after, the kind of you know, the beginning of the internet, if you like, and that kind of 15 years of the information age.

And I'm wondering, what you think the driver would have been then and what it is now for people to actually engage in this type of activity? The dates, I think an interesting and suspicious.

Kim Eggleton

Well, tell me why you think that's suspicious. But I'll answer your question first. I think what motivates all this ultimately, is that the way we measure productivity in academia is numbers of papers published. And what really matters to institutions is where those papers are published. So every journal has a rank its called an impact factor on the higher your impact factor, the more prestigious your journal is.

So journals like Nature or Cell really, really well respected. Extremely high impact factors, very, very rare that anybody would get accepted there. Their rejection rates are like 90 something percent. In your capacity as a researcher, you will get more funding and your institution is more likely to give you a promotion if you publish a large number of papers and in the better, higher ranked journals, then lower ranked journals.

And what we started to see in the 2000, and certainly is the sort of what we call them now, the 2019, whatever that decade was called. we saw institutions actually start to target and metrises that measurement and say to, to researchers, you need to now publish four papers a year in order to continue to receive our support or to keep using that lab or to keep having access to that equipment.

In order to make your next funding bid, you're going to have to get a paper in a, you know, ranked three or above journal. and we saw that particularly in certain countries, there's a massive global sort of issue around research integrity, but there are certain countries that will reward publication very, very, what's the word financially?

Basically, you will literally get a bonus, a payout if you get, you know, a paper published in Nature, you are guaranteed a promotion if you hit eight papers a year. And so what we've seen is that researchers, are typically relatively underfunded, they don't have amazing resources. There are some countries that are exceptions to that. But in the vast, far, education's not brilliantly funded part of society. And so they're saying, well, hang on a minute, I can't publish eight papers a year, and I certainly can't do it in those amazing journals unless I have some really, really amazing results.

And what's a quick, cheap way to get amazing results? You fake it till you make it. And so that's what a lot of researchers are, doing now, unfortunately, is that the the expectations that are put on them by the institutions are just, unrealistic and the only way for them to get ahead or even just stay afloat is to start cutting some corners.

And not everybody goes to that extreme example, but it's, increasingly common, because of because of the incentives system. And that's ultimately what needs to change. For us to fix a lot of this is that we need to think about how do we how do we reward good research, rather than lots of research? because ultimately, what we've got the moment is probably a lot of bad research and just a little bit of good research.

And actually we don't want that because it's noisy and distracting and a waste of money.

Ben Clayson

Is there much, ego behind these types of activities? Is what you've spoken about then? That sounds relatively kind of pragmatic and practical. And you're, you know, if you're motivated by a requirement to, earn a living or, like you say, if you're underfunded and you have a desire to make up your salary, through these types of things.

But I'm interested in knowing, you know, are there rock stars of the, academic research world?

Kim Eggleton

Totally. The more reputation you have, the more you have to lose. So if you, a big rock star name in in your chosen subject and somebody makes an accusation about you, you bet your backside they're going to fight it and they're going to fight it loudly and what we tend to see, though, is, at least in my experience, it doesn't typically I can think of some exceptions, actually, but it doesn't typically be, it's not those big names that are committing this because they've got what they need right there at the top of their game already.

They've got a reputation. They've got probably tenure. If they're in it, you know, system like in America, they don't need to worry about the security, the company don't need to worry about funding. So there's no need to cheat.

Where you see that the cheating happening is in the people that have got something to fight for. And so it's maybe the PhD students or their early career researchers potentially, or even into that middle, middle, sphere where it's not guaranteed, you know, that that potentially you're looking for a new job every couple years. It's very much about balancing your teaching load with your research load.

You know, tenured professors can research what they like, when they like, and can just teach a couple of classes a semester. And and it's all good. Everyone else is under huge amount of pressure to keep all that going. So I think it's actually the people without egos that probably have more pressure on them. That's not to say they're, egos being thrown around, though.

There certainly are, like any kind of crime. It can get quite nasty. I'm not going to go into too much detail about that. That's horrible. You don't need to hear that.

Ben Clayson

Are there more people, sorts of involved in research and then trying to get things published now than there were in 2010, for example.

Kim Eggleton

Yeah, massively. There's a lot of countries, if you look at India and China, for example, and how much investment those governments have put into their research, infrastructure, it's absolutely phenomenal.

Phenomenal. And you can see the output globally has increased not just because of countries like China and India. Most countries are increasing their scientific output, but certainly countries in Asia are big, big proportion of that. And that's where we've seen a huge amount of really good science, come, come out. But also, you know, some bad science too.

That's not to say that's an Asia issue. It's absolutely not. Research integrity is a global issue. And we've got people in all countries committing all kinds of misconduct. But the growth is the

growth in general, scientific output is as, at least recently, has been very much driven by Asia and China and India in particular.

Ben Clayson

And I saw that you mentioned, that within research, publishing, there's a tendency to equate quality with the number of citations that somebody has. And I just wondered if you could explain this a little more.

Kim Eggleton

Well, a citation is, is a reference basically. So somebody that cites your paper if building on your work and so every citation to your work is it's like a little stamp of approval. So it's somebody saying, oh this was great. And I'm going to try and explore that idea further.

So the more citations you accrue, the higher you're kind of standing. And there are actually, indices that that effectively measure that. So a lot of scholars will talk about their H index.

Everyone has this magical number which in some very clever algorithm that's probably not as complicated as that I think is but everybody's got a number, which is basically how many times that they've been cited relative to how many times that they've been, have they written something. And and so it's that little stamp of approval. These citations and citations is what, is easy to count. Right. If that's what ultimately, if you think you're an institution and you've got 5000 researchers, you can't sit and read all their papers. You need some way of counting what's good, what's bad? And so it comes down to things like citations.

Citations is what impact factors are made out of. So it becomes a little bit of a self-fulfilling prophecy and we end up with people gaming the system. So one of the things that I see these paper mill companies offering now is citations. You can buy a citation package and it will be a bronze or a silver or gold package, and a bronze package will be 20 citations, in a given year. So that's guaranteeing your index will be X. You could buy the silver package that's 50 citations in a year. That's guaranteeing you a H index of Y. And so people are buying these packages and then the fraud isn't even there, writing. It's not a fraudulent article that they've written that the citations to them are fraudulent.

And so we see that in our industry playing out like, I'll have a paper on some kind of nano fluids and something that is a reference to something to do with basketball. And, like, you know, in no world can you join those two things up and it nine times out of ten, it will, because it will be because the author of the basketball paper has paid to have those citations fluttered around, and, and yeah, artificially increasing their score, as it were.

I don't know if that's answered your question. I feel like I've gone off on a tangent. But I said citation alot, which is what you asked about.

Ben Clayson

Absolutely, it's, trying to understand, the difference kind of mechanisms that lead to somebody's research being regarded, well. Because it seems to me that it's not as simple as it's been published, because you have, it's been published, then you have your H score, then you have, you know, presumably in, kind of professional profiles on websites, social media, that type of thing.

And yeah, I'm sort of mentally imagining, you know, your professional researcher positioning themselves in social media as the person to go to with the expertise on this particular thing and, and creating that kind of brand, you know, but I don't know whether that happens or not because, I'm just imagining things. It does.

Kim Eggleton

It depends what your motivation is, really. I think the majority of sort of low level of fraud is, is purely that survival. It's about trying to stay in job. It's about trying to accrue just enough to keep getting by. There are, however, outliers. and there are people that, that, you know, I can't I can't really understand their motivation other than to say it must be ego.

That really do want to get to the top of their game, but are clearly doing it in a, in a, a dishonest way. And that that must just be about that reputational aspect and wanting to be the big name or whether they started out doing it just to get by and became, you know, just taken over by the the adulation that sometimes you do get as being a big name in science.

I don't know. but yeah, but for a small number of people, it's about that reputation.

Ben Clayson

Are there are examples of any organisations that are complicit in this type of activity with, individuals?

Kim Eggleton

Definitely. So we've got these companies that I talked about earlier, paper mills. So they're the kind of it sounds really dramatic but there kind of the mafia of academic publishing. like they're the people that you go to to buy illegal stuff from.

So whether that's a fraudulent paper or fraudulent citations, whatever it is, you've got these commercial outfits and they are legitimate companies in their own right. They've got websites, they've got office buildings, they're advertising on campuses. That's part of this whole problem, actually, is that there isn't much legal, control in this space at all. It's it's not illegal to write a paper and pass it off, you know, pass of somebody else's work as your own, unless it's copyright infringement.

So there's not really much legal defence. So those companies exist. The other organisations that are complicit, I would say that are they're not driving it, that they're complicit are the universities and the institutions, because they are absolutely turning a blind eye in most cases. And I'll give

you a real life example in a minute. But they're and they have a vested interest in having their research look good, because then they're climbing up the ranking tables themselves.

They're attracting more funding they're attracting more students. They're that attracting more international students. The higher the universities reputation, the more cash they're going to get. So the institutions don't want a great big scandal, and they want all their researchers to be doing very, very well. So it's in their interest to keep things on a down low. Now that doesn't mean they're actually supporting fraud.

Then what it does mean is that they're turning a blind eye to fraud. And they're allowing it to happen, and it's going unchecked. And the real life example that I mentioned, I had, I won't name the institution or the country, but I had a number of papers. I think it was about 30 papers all from the same institution.

So the author's doing, working or not working together. They all use the same service effectively and they published fraudulent papers. So about 30 of the faculty involved, and we wrote to the institution and told them what was going on. And they said, this is really worrying. Can we have a phone call? And I thought, yes. No one ever replies, no, this is brilliant.

Yes. Normally this honestly, normally it's crickets. Nobody writes back because they want to bury their head in the sand. So to have somebody replying was brilliant. Yes. Let's have a phone call. That would be great. And there's me thinking I'm going into a conversation where they're going to say, how do we stop this happening? What's gone wrong? How can we do better next time?

I kid you not, the first thing they said to me, how do we make this going to go? How do we make this go away? And how much is it going to cost? Right. And that's like the, you know, the dean and then and the vice chair and everybody's in that room and they're like, we're not really interested about the bad science here.

Like this is going to look really bad for us. Can we republish them somewhere else? Can we pay you to make this go away? No. But that that to me was just like, wow, okay. There's not a huge amount of people with a with any drive to fix this. And I think that's where I find our job really difficult, is that we're asking a lot of the community, the academic community as a whole, to step in and help.

And there's not a huge amount of people with motivation to do that.

Ben Clayson

Because you mentioned earlier that, obviously research integrity is really fundamental in underpinning the societal confidence in scientific research. And, and its contribution to the problems that we all collectively face. and I think it was an interesting phenomenon of the Covid lockdowns that we saw, whereby the government, used the message of follow the Science to kind of, abdicate any responsibility, on their part and shove it over to scientists, who were potentially working on research with incomplete data because of the timeline and the, you know, the the speed at which a response was required.

And ultimately led to I think it led to this sense that the science wasn't trustworthy and wasn't reliable. The research that we were being told was reliable wasn't necessarily fully peer

reviewed. It wasn't necessarily put together by people who were really well motivated. And I wondered what you thought of that, of that kind of, you know, whether or not that's correct.

Kim Eggleton

I think it is correct. I think what we saw a lot of during Covid was, slightly more lenient peer review because everyone was just like, we need to find a solution here. So let's get that science out there and we'll work out if it works or not. Later on. But let's take what everything we know and just get it out there.

So publishing companies were putting papers online for free. Absolutely. Rightly. papers were being fast tracked through what would normally be a very rigorous peer review process if it had the word Covid in, it was like skip that bit, skip that bit, get it out there because everyone was being disadvantaged. And I think what that what that's proved because there were so many papers and still more coming now, but so many papers that were proved to be fraudulent. I think was motivated by reputation. And so I think those people were just trying to get some of the limelight. but it's proven how important that rigor of peer review is. It would be very, very easy. And everybody says it now actually in the digital age. Just just put everything there on a blog or a preprint server or an institutional repository and let the really just make up their own mind.

Well, not every reader's an expert. Im not, physics is not my background. Publishings my background. I could tell you anything about bookbinding, but I can't tell you anything about you know nano fluids. so I could read from those papers. And are you looking really? If it's published in the journal, I'm assuming that it's rigorous and it's been assessed, and during Covid, especially those papers, not everything was published then, but those papers that were about the pandemic weren't as, weren't always as rigorously assessed as they should have been.

So I think we're seeing now, I hope anyway, a slight resurgence of peer review. And for people to understand why it's so important because things like implementation don't work. And, you know, Donald Trump's telling people to inject themselves with bleach. And that's clearly not the way to go. But, you know, you, you read something in Nature or Cell or any other journal for that matter, when you assume it to be trustworthy.

Unfortunately, as publishers, we've made the same assumption about researchers that, well, if if this is coming out of an institution, especially a well-regarded institution, it's trustworthy. So yes, we'll peer review it, but we give it the benefit of the doubt. We won't rigorously go through every bit of data. We won't double check that the person on that authorship list is who they say they are.

We've been unfortunately, caught out far too many times now. And so not only is the peer review rigor improving, but also things like identity checks we're having to do now much more than we ever did. Like this. This used to be a trust based system. It isn't now, and and that can feel like to researchers that it's a system full of friction and full of hurdles to get over.

But it's because of that fraud that did boom during Covid, at least there was a there was a spike then. And we were the only people really that seemed to be doing much about it.

Ben Clayson

And so in your work, when you do identify, something that has happened and you do report it to, an organisation that somebody perhaps works for, you mentioned earlier that they, organisations can often bury their heads in the sand, I'm wondering what the real world implications are for people who are caught, engaged in sorts of academic misconduct or fraudulent behavior in relation to research, because we see in assessments, high stakes assessments at global scale, often the punishments for the crime are notional.

Kim Eggleton

Yeah. At best. Yeah. Yeah I would agree it varies. There's obviously scale and I've got some examples where people have lost their jobs and I've got other examples where they've been promoted and nobody's bothered. and actually where you've got that quite large layer of people committing fraud in order, sometimes just in order to graduate.

There are an increasing number of, at least postgraduate courses that require you to at least have one peer reviewed publication before you can sort of pass, those people don't care if it gets retracted. They just need the publication to be live at the point of assessment or graduation or whatever it is. If it's retracted two months later, not bothered. There's no repercussions whatsoever.

They're out of the academic system, doesn't make any difference to the life going forward. There is the other end of the scale where you get people who are, you know, fully, fully sort of paid up members of faculty. But again, it is more often than not there's nothing you get a retraction and, well, that's it.

Mistakes happen. And a lot of the time misconduct is passed off as an error. And a lot of authors actually, we started to see this happened in the last few years, authors getting a feeling that they're about to be retracted. And they contacted us in advance and said, we've just we've just found an error in our paper and it would be the right thing to do for us to retract it.

Carly Culver

Yeah. That's so...

Kim Eggleton

...And then it's like it's a good retraction and nobody gets nobody gets in trouble without, we know the truth.

Carly Culver

It's like we, we talked about, you know, in our, plagiarism episode, wasn't it. Where is the scale of where it's just accidentally I did something wrong. I didn't realise I made a mistake in my research. It's a real honest mistake through to the whole spectrum of yes, I've falsified data and I'm actively buying my citations or buying my paper from a paper mill.

You know, do you see that spectrum where there are honest mistakes that get flagged both by peer review, but then also post publication and have to be retracted?

Kim Eggleton

Yeah, it's really difficult for us to know what the intent was. So was it on purpose? Was it not? Was it calculated? Was it not. And we can't ever know.

And what we can get drawn into things and try and work it out. And every now and then, myself included, and my staff. We have to say no, no, our responsibility is just to correct the record. It's not to decide who's guilty or who did what. It's just it's the science. Inaccurate. Yes or no. If it's inaccurate, then it either needs to be corrected or it needs to be retracted.

And that's that kind of all we can do. But you absolutely get the defense, at least that. Oh, I didn't realise or oh, that's not a problem in my institution or nobody ever told me that wasn't allowed. I used an out of date piece of software that, you know, must have been must have been, fixed by now.

And that's why we're getting a different result. So there's there's excuses to the Nth degree. but it's really difficult to know which ones are legitimate.

Carly Culver

Yeah. I think that raises a really interesting point. we said I've never been taught about this, or I don't know that this is wrong in terms of how I guess ethics works in terms of research and in terms of publication.

Is that something the research early stage researchers like you said, postgrad researchers, are they taught that generally as part of their education, or is it just assumed that people will have these inbuilt ethics that they then apply to their work?

Kim Eggleton

I think it's assumed in the vast majority of cases there are a number, a number of institutes now who are starting to create, courses or modules are inviting people like myself to come in and speak to their students that more often than not, it's just assumed kind of procedural knowledge that nobody ever actually sits down and tells you, and it's really easy to sit where I am and say, well, surely it's common sense, but maybe it's not. And there are some cultures where it's, you know, it is treated completely differently.

Plagiarism is a really interesting one where actually it's, you know, there's a deference to supervisors and to people above you and to not be seen to argue with them and actually to, to quote somebody is complimentary. So there's that fine line, just as you said, what's what's the difference between quoting somebody and stealing.

And there is a grey area in the middle. and you could, you could educate much, much more than we do. I think that I think you can never educate too much.

Ben Clayson

I read a comment in, an article by the Korean Journal of Medical Science, and one of their suggestions was that universities should create, a supportive environment that teaches students and researchers about the importance of research integrity.

But it strikes me that if ultimately you've been told that that's not the right thing to do, you do it, and then there are no repercussions. Even if you get caught, then the entire activity is for nothing because, the you know, if you if you're aware, children are aware if they've done something wrong and there is a punishment for having done something wrong, then they understand that in very straightforward terms.

But, we have seen that with higher education, institutions, there's a real, lack of willingness to engage with cheating as a topic, academic misconduct, because it makes them feel, I think that it makes them look bad. If they acknowledge that it happens and it makes them look bad, instead of understanding that it will happen because people are involved.

And it's a quite a human. Sort of there's definitely a drive within the human psyche to actually gain a competitive advantage, but not discussing it and not punishing people for it means that nothing, you know, there's no perception of danger around these types of activities. And, yeah, I've gone off on one now. But I was wondering whether.

Kim Eggleton

You're absolutely right. You're 100% right. And I've got examples where it's actually been that the PI, the kind of supervisor level who's encouraging the students to cheat because they got away with it, and that's how they got ahead. And this is how you're going like it's this is how the system works. which is horrendous, but I completely agree. Without some, some kind of corrective action, you see people getting ahead and that's how they're doing it.

Of course you can emulate it, especially if times are hard and resources are low. Of course you are.

Carly Culver

So you've given us some really interesting examples of kind of where this type of thing is happening all across the spectrum, both at the point when the research is happening and also then it's being published and also post publication when it's being recognised in the wider world.

What, are organisations like IOP publishing doing to try and recognise these things or what can be done in the sort of larger research integrity community?

Kim Eggleton

I think there's loads that can be done, and we touched on a few of them. if we start at the really kind of macro level, ultimately it's that incentive system that needs to change.

By trying to measure quality using quantity, you're not going to get the right thing. So I think there's a there's a call for action for whether it's government, or kind of a consortia of institutions to really think about how do we measure good research output and what does that look like? I can't do that myself. We can't do that ourselves.

That needs to be a kind of societal effort there to to turn that around. And that's going to take a long, long time. So coming back down a little bit, if you think about institutions, education is absolutely critical. It needs to be at that undergraduate level, I think, if not even earlier, that people need to be taught about, you know, what does what does a good experiment look like?

What does a bad experiment look like? You know, setting challenges for students like something about this paper is a mess. Find it. What is it? I think that's really, really interesting. It teaches them critical thinking. It teaches them about their investigatory skills, which they should need as a scientist anyway. But it also teaches them about, you know, what kind of things can go wrong, whether intentionally or not.

So I think there's a huge amount they could do in terms of education. and it's, it's that sort of scientific literacy. It's doesn't need to be subject specific. It's, it's about what does good science look like. And also making space for us to find for things to go wrong, I think is really important. We talk a lot in publishing about nobody wants to publish negative studies or null results.

So that's when an experiment hasn't proved its hypothesis or, you know, it went wrong for some reason. Nobody wants to publish that because it's not exciting. Nobody's going to read it. Well, I completely disagree with that. I think that actually tells other researchers, Hey, don't mistake, don't make the same mistakes we made here. How not to do it like you've built.

It's that whole building, what do they call it, standing on the shoulders of giants thing. Like every bit it's incrementally we improve and we don't just learn by watching others do it well. We learn by watching others make mistakes as well. And so I think being more honest about when research doesn't go the way we intended, but sharing that, you know, making sure that there's a home in terms of journals and, and the institutions are rewarding that kind of work just as much as the sexy, glamorous. We got an amazing P value, where, it's really important make space for all of that coming down even more to the publisher level.

Were like I said before, this is not a system that's based on trust anymore. This is about checking and verification and rechecking. And so to that end, there's a lot of technological advancements that that we've put into the system now.

Like there wasn't any you know, we've had plagiarism detection for a long time, but we've now got, you know, image, images are analysed from a technical standpoint as well. We've got things we're looking through signals that something may have been run through a generative AI. We're looking at people's identity. So the subject experts or the reviewers, are they who they say they are? Are they a mate of the authors?

It's really, really important. And it feels it can feel to researchers like we're putting hurdles in their way. But it's about verifying and knowing that what we put out there, we can stand by it because it's our reputation as much as it is theirs. And we've seen really good examples in the industry just in the last two years of journals, publishers.

Absolutely, getting trashed because of the lack of sort of rigor that they've had in that peer review processes. And as a result, garbage has been published. And I, I love my company. I really hope my companies do well. And so we're putting a lot of money and time into making sure what we're publishing is good, honest science and not something where somebody had to cut corners, that that takes cash and that takes time.

And so where everybody's saying, we need to do it cheaper and we need to do it faster. We're like, you can't, you can't have it cheap and fast and good. Something has to give. And so we're saying, look, good, good science might be slow and it might be expensive, but it's reliable. And that's surely the end game that we're all aiming for.

Carly Culver

Yeah. And, I'd love to pick up on your point about generative AI. Obviously very hot topic across many, many different, industries. Not just publishing, not just scientific research, where what kind of examples are we seeing within scientific publishing, for example, of generative AI being used?

Kim Eggleton

A lot for a start, lots. We're getting a lot of papers that are very clearly written by ChatGPT.

Right. They're really obvious ones. They're easy to kind of kick out. Yeah. Where the whole paper's been generated. And there's some really obvious telltale signs in there. But it's it's becoming more and more difficult. One of the first things before we even really knew what generative AI was, one of the first things a few years ago was spotted was something called tortured phrases.

And that's when somebody says, run somebody else's work, through a system like QuillBot, and so it's paraphrasing someone else's work. It's a way of getting away with plagiarism, basically. And we're seeing words appearing in manuscripts like that. That word belong, like why? Why instead of artificial intelligence, are you saying counterfeit consciousness? Why instead of breast cancer are saying bosom peril? Some of them are bonkers, some honestly, there's some really hilarious ones.

But there's, if anyone's interested, go and have a read or look up a guy called Guillaume Cabanac. He's a French scientist who does a lot of work in this space. and he's collected a taxonomy or thesaurus of thousands of these tortured phrases.

And that's one of the first kind of, times that we really experience this start of generative AI where people were starting to use machines to generate content or to butcher content. Now we see, like said, entire article being written, bits of articles being written, literature reviews. It's really, really common. Now that we'll see a synopsis of a paper that we think has been generated by a machine rather than a person, and one of the easiest, say easiest.

It's not easy at all. One of the most recommended ways I've seen people trying to tackle that in a higher education setting is they will talk to the student, interview the student, and say, what did you learn from that paper? What was really, you know, get them to tell you what they learned from reading it. You can't do that when you put in 62,000 papers through a system.

So, how do you verify that the author has read the thing they said? They've read? I don't know the answer. And the other example, and there are some very funny examples, one which was published on, by a company called Frontiers, and it was a dissection of a rat, and it was, let's just say, anatomically very out of proportion.

Carly Culver

Oh, I've seen this.

Ben Clayson

Yeah.

Kim Eggleton

With some very questionable labelling. Yeah, yeah, yeah. I'm, I'm trying to say without, without swearing. But a lot of the images now, are being generated and they're incorrect. Like, that's the critical thing. It's not about the, the, you know, the quality of image or anything like that. It's the fact that they are that one was anatomically incorrect and that was that was the real issue.

And it is laughable. But it's also worrying, and I've seen a number of those kind of examples not thankfully published.

Carly Culver

I feel like that's a wonderful place to wrap up today's conversation with, with yes, that. I just want to say a...

Kim Eggleton

yeah, everybody go google that.

Carly Culver

Yeah. I just want to say a gigantic thank you once again to, Kim Eggleton, thank you so much for joining us for sharing your insights today. Certainly, from my perspective, I can see so many intersections with a lot of the other things we've discussed previously and a lot of the work that we do, you know, a lot of the same problems occurring across both sectors.

So, it's really great to hear. Well, it's not great to hear that everyone's having the same problems, but it's great to hear that everyone's striving together to to kind of resolve those, those issues.

So thank you, everybody for listening to this episode of The VICTVS Podcast. Again, special thanks to Kim Eggleton, Head of Peer Review and Research Integrity at the Institute of Physics Publishing.

And, I'm sure you can follow her on LinkedIn, Twitter or X, formerly known as Twitter, etc. If you enjoyed this podcast, then please rate, review and share with anyone you feel might be interested. And yeah, thank you so much.