

# Subject Scoop With the Answer Series podcast - 2021 Examination Review\_Transcript.

[00:00:00] **George Eadie:** Welcome to subject scoop 2022 with me your host and answer series CEO, George Eadie. In this year's episode of subject scoop, I chatted to three subject matter experts in mathematics, life sciences and economics about what they experienced during matric marking at the end of 2021. We also unpack what learners are really struggling with and how you as a teacher can help them on a practical level.

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[00:01:39] Welcome everybody! It is absolutely awesome to be here with you. Feels like such a treat to be sitting down and having this conversation about last year's examination period and I know

all of you have been so steeped in what it means to succeed in exams in South Africa, relating to the CAPS curriculum and your various subjects.

[00:02:02] And I look forward to consolidating some of your opinions and perspectives, um, for the benefit of our listening audience and anyone passionate about education in South Africa and how do you drive better outcomes. But before we get into all the details, I'd love to have each of you have your voice in the mix. Um, and so just as a kind of way of introduction, perhaps share with the audience where you fell in love with your subject to what subject that is?

[00:02:27] And, and then also, um, you know, what makes you feel like you're informed about the examinations last year, and, and then perhaps what you're working on at the Answer series right now? Jenny, why don't you kick it off?

[00:02:40] **Jenny Campbell:** Okay. So I fell in love with maths, uh, way back when I was at school. I like the fact that you don't have to learn for it, you have to practice it.

[00:02:47] And I liked the logic and the argumentativeness of it. So, uh, and also I loved sport, but when I went into teaching, I probably went in because of the sports and the holidays, [00:03:00] but then found that I actually loved the teaching side more than I realized. So, passionate about maths. Love the fact that you can see if the kids can understand or not, because their little eyes are like light bulbs when they understand, you can see that they understand, um, really enjoy.

[00:03:15] Uh, being out of the classroom because I'm finding myself in a position now to connect with more people. So I absolutely love being in the classroom, but suddenly now I have the opportunity to connect with a lot of different teachers. And so, although I didn't mark this past sessions, I have time to connect with many different people.

[00:03:33] So I no longer relying on my own opinions, but rather on networking and finding out what lots of people think. So I think

there's value in that and I really appreciate all my friends and colleagues who have been happy to support me in keeping up to date.

[00:03:48] **George Eadie:** And Jenny, what are you working on at The Answer Series at the moment?

[00:03:51] **Jenny Campbell:** So we've been feeling for a long time that they want to start a support group for teachers. And last year we planned a support program for the year, which [00:04:00] we've just launched. And in the process of doing that, we've been growing our support group with teachers and it's been super exciting to see the broad mix of people, people teaching in.

[00:04:11] Uh, very rural schools, people teaching at university level, uh, people from the different education departments, inexperienced teachers, just a massive different mix. So much interest that we've had to change our core group from a interactive group to a Admin group so that we can post resources, challenging questions on that group only.

[00:04:33] And now we creating a second interactive group for people who want to communicate with each other. So we're very excited and we have a large group of people wanting to connect. What has changed with COVID is that we can connect across boundaries and across barriers. So suddenly connected to people I never thought I'd have the opportunity of working with.

[00:04:52] **George Eadie:** Amazing! That's Jenny Campbell representing mathematics, and doing her bit together with her network [00:05:00] to arrest the, um, I would say decline in participation in mathematics in South Africa. I think that's a big concern, um, and just loving the momentum gathering there and the, and the real passionate interest that's coming from the, the network of people participating in that community. Um, for those of you listening and wanting to get involved, all the information will be on our website.

[00:05:21] So, uh, Jenny Campbell is also very humble. Um, she culminated a very powerful teaching career as the head of maths at Bishop Diocesan college and Cape town. And, um, last year

coordinated the examination review, um, that, uh, was hosted and invited national participation. And so very interested to hear your views, Jenny, going forward into this conversation.

[00:05:49] Thank you so much. Um, And representing, uh, the sort of commerce side of things and specifically economics. Um, Nazlie, would you like to introduce [00:06:00] yourself please?

[00:06:01] **Nazlie Mohamed:** So, um, my name's Nazlie Mohamed, as you know, I am an economics educator, I'm a passionate economics educator. Um, I taught at Herzlia for many years. I was very fortunate because I dealt into other components of education as well.

[00:06:16] So I did lecture the economics BGC course at UCT and I did do teacher training and that just enhanced my passion for everything education related, but it also gave me an opportunity to engage in other platforms of education. If I was made minister of education for a day, or preferably for three years for that period, I would make sure that economics was a compulsory subject because I just think, I don't think of it as a subject.

[00:06:46] I think of it as a life skill, George and, um, I think that a learner who leaves the economics classroom after three years is just in such a, has such a better platform to under [00:07:00] where their problem solving skills have been enhanced to better engage in the world, to better understand and unpack the south African economy and most importantly, to add value.

[00:07:03] So irrespective of what career they end up embarking on, the skills that they would have learned in those three years are just skills that they'll be able to take into any career, which is, which is just so fantastic.

[00:07:24] **George Eadie:** Thanks, Nazlie. And yeah, just again, from our side, we're so incredibly grateful and proud of what you've produced and the reviews that are coming in, like quite like gob-smacking. So, um, for those of you out there looking for extra support and economics for your grade 12 learners, um, make sure you go and have a look and there's samples available on our

website. Um, and, uh, yeah. Appreciate all your feedback and support. It's always a village that raises the child, um, aspect when it comes to a new production at the answer series.

[00:07:58] Um, so yeah. Thank you so much for your interest there and Naz and looking forward to hearing your passionate views as always. Um, so great. Um, yeah. Now Mariechen, um, I always struggled to get your name exactly right. But maybe you can do a little bit of an intro as well, where you fell in love with your subject and, you know, um, What perspectives have you gained on the 2021 examinations? And what are you working on at the Answer Series right now?

[00:07:58] **Mariechen Vermeulen:** So, um, I also fell in love with life sciences as a learner in school. I had a very passionate Life Sciences teacher, and it's just always been one of those subjects, which is just the story of life for me. And I just want to tell it to everyone because it's so relevant every single day. Um, before starting at the answer series, I was a life sciences teacher at La Rochelle Girls high school.

[00:08:47] Been teaching for eight years and I've been a subject head for four of those and I've worked very close with subject advisors and the WCD as part of the telematics school project as well. I was a presenter there for two years and I've been marking for six of the years that I've been teaching so I have good experience with that as well.

[00:09:04] I only recently started at the answer series, but I'm currently working on a curation layer for the life sciences eBooks, and also updating some of the content and questions, especially for the grade 12 book one. Which has a lot of content had removed as a result of, um, changes to the curriculum. So hopefully that's going to be a very good resource for teachers and learners.

[00:09:24] **George Eadie:** Mariechen, we are so excited to have you on the team. January having been your first month at the answer series. And, um, yeah. Really loving having a new energy and fresh perspectives, and I'm looking forward to the months and

years ahead, so lovely to have you on the team. And, um, what's all going to happen there.

[00:09:44] So guys let's get into the heart of it. I mean, you know, the 2021 examination series is really just, uh, kind of being completed with the results having come through and. Yeah, let's open it up with just your overall tech on the exam session. And perhaps we can kick off with yours Naz and, um, and then Mariechen and Jenny, you can just chime in where you feel necessary.

[00:10:05] Um, we've had this a bit of a free-flow, um, perspective.

[00:10:10] **Nazlie Mohamed:** So George, um, when you are at the matric marking center, what definitely becomes apparent is that there is an unequal, well, there is a big disparity in education. As educators we know this, but I think that what COVID 19 has really illustrated is that this divide has become even more excuse pun, "inflated".

[00:10:38] So at resourced schools, they were far better equipped to cope with the challenging position that, um, that they found themselves in. They were able to adapt. I wouldn't use the word seamlessly, but I would say they were able to adapt easier to, um, to the challenges that were presented, but in [00:11:00] less resourced schools, this was obviously not the case.

[00:11:03] And so teachers were in a position where there was a dramatic loss in teaching time. And our class of 2021, were in a position where they did not have, um, the examination skills honed because they did not write examinations in grade 10 or in grade 11 and you could really see this, um, in, in the style of how, um, I marked essays, George.

[00:11:29] So you could see in the style of the essay writing skills and the open-ended section of it, that, that, um that this gap had become even more widened because of COVID 19.

[00:11:43] **George Eadie:** And so Nazlie, are you in your examination review and during the marking period, are you seeing a decline in capability in learners?

[00:11:52] **Nazlie Mohamed:** So in our subject, um, the trend is very much to test open-ended questions, [00:12:00] um, where you marry content with the learner's knowledge and, um, the higher order questions, the 8-marker questions, the critically discuss, the evaluate, um, those questions speak to a specific skillset and that skillset, um, in my opinion, definitely needs more honing.

[00:12:23] So you cannot teach content in isolation in my subject. Content has to be married with, with the actual application. So you have to teach a section and then you've got to look at how can this be? How can this, how can this be questioned in an exam? And then you've got to unpack it in a way that a learner knows that they could say.

[00:12:45] Well, they could say this or they could say that. We've got to look at memos and say, what about if we added this in? Would this answer be correct? So what you're doing is you're defining a skill set and because learners were at school, either in a rotational [00:13:00] capacity or they, um, you know, they, they, the teacher-learner contact time was dramatically reduced. You could see that that content was definitely lacking.

[00:13:12] **George Eadie:** And Mariechen, what about you, what's happening on your side with the life sciences?

[00:13:15] **Mariechen Vermeulen:** Well I, in terms of the life sciences papers I felt that they were relatively fair, given that a lot of the questions reflected the styles and expectations of the previous years, I think from about [00:14:00] 2016. So I felt that if, if a learner took the time to actually work through the June and the November papers of those years, they would have been fairly well prepared for what to expect. Um, maybe the memorandum might not have been exactly the same, but at least you could see the type of questions. As Nazlie mentioned now, there have been a lot of discrepancy.

[00:13:48] Some of the schools have been back full time. Some of the schools have been on rotational timetables. And I think given that, maybe to some extent it could have helped a bit for the life sciences component, especially because a learner could have

worked through those papers. They're available to everyone at any time.

[00:14:05] So maybe it's some point that could have given them a little bit of a fairer playing field. But, um, I just want to reiterate, I mean, the, the time losses with COVID the learning losses and then the loss of the formal assessments opportunities, the June exams that fell away and were being replaced with tests. I think that definitely had a lot of impact on learner preparedness and performance.

[00:14:29] **Jenny Campbell:** Okay. So, uh, I'm getting very strong feedback about the concern about the divide that Nazlie mentioned, but it's very dramatic. So all the students who you would expect to be in the 80% range and above are performing perhaps better than ever, because the papers have been set [00:14:46] very fairly and very accessibly. So the routine questions are very accessible, problem solving is still there, and the bright students who are well-resourced, et cetera, are performing absolutely brilliantly, but there appears to be this massive hole in the range from 40 to 70%. So usually you would have a very good spread of results throughout.

[00:15:07] And then you would expect the big band to be in that middle section. But this year you've got more pupils or more learners dropping into the lower band because they haven't been able to be as independent as they should. So you've got very strong performance at the top end, very disappointed performance in the middle zone. And then everybody jamming in the lower section.

[00:15:29] So the, the reason for that would be that their basics are not solid. They've missed two years of strong teaching, the kids who are able to learn on their own have not struggled in the slightest, but the majority of learners require face-to-face contact, they require motivation. They feed off each other.

[00:15:50] And in the absence of that consistency, it's coming through very strongly. So, disappointing depth in the understanding of maths. There's no doubt about it.

[00:16:01] **George Eadie:** You know, I think this topic of inequality, uh, has obviously been on our agendas you know, nationwide. And, but it's devastating to, to think of, of, you know, the rotational school timetable learners, having a best half, um, you know, the schooling time and that's provided that, um, you know, that teachers are always in the classroom, which itself has been a challenge, um, with, you know, health concerns, et cetera.

[00:16:29] Um, and some of the things that we often talk about is that, um, you know, the learners that do have access to the answer series have this kind of, sort of unfair advantage, um, when it comes to preparation because of the depth and, um, and rigour with which the examination preparation, um, is available to them within the answer series.

[00:16:50] And I think it might be just worth mentioning now that this is partly inspired. Um, our move in 2022, um, to open up our entire e-book range, um, for under one single license, um, and for a very affordable price. And so, uh, just look out for those if you're listening and that sounds attractive. You know, what we finding is that, um, for a learner who's prioritizing a tough subject, be it one of the three represented here, Economics, life sciences or mathematics.

[00:17:20] Sometimes they have to make trade off decisions about, okay, well, which is more important. And which book am I going to get? Um, but now what we've really tried to do with this all access opportunity is to say, You know, those trade-offs don't need to be made. Um, you can get all the answer series under one, under one kind of, uh, license.

[00:17:35] So, um, that's, that's something that I think we're doing to contribute to this inequality thing, but it's, but it's just massive. And you know what I'm what I'm putting forward there with the all access e-book thing is, is, is perhaps a silver lining aspect where, you know, digital solutions that, that, where perhaps a child of this big COVID digitisation, um, Catalysing event, it could be a silver lining, but the reality is right now, we are dealing with a massive inequality issue and, and, um, I thank you to the three of you for kind of highlighting that.

[00:18:08] And, uh, yeah, but I mean, now look going forward. Um, what are some of the teaching tips that you feel like you could offer to the teachers of 2022? I know, um, as a, as a, as a rule at the answer series that we don't try to feel like we always have the answers, but we, we, uh, no pun intended, but, but we do make it our business to see how, if we can be as well-informed as possible.

[00:18:34] And so, um, you know, what are some of the things that you feel. Um, would, would best serve teachers as they navigate towards the 2022 examinations?

[00:18:43] **Jenny Campbell:** So I think we have a strong maths team with an EDD, beta lamp and Susan Collins and myself. So we sat down and tried to plan for teachers in the classroom.

[00:18:55] And what we've done is we've made videos available in every section that covers the syllabus free to the students in the time that they need it. So at the moment, patterns and sequences are being taught. If the learners or the teachers go online, the videos are available. And what's important to know is that the video starts always with the easiest stuff and the introductory stuff.

[00:19:16] And one of the comments coming through from all the markers I've spoken to is that particularly in maths, you need to go back first to what you should have done in the earlier grades. And then from there, you need to build into the grade 12 syllabus and students needing to back up what they're learning in the classroom.

[00:19:33] Will find the videos extremely helpful. Teachers will find that they take, it takes pressure off them because when learners are stuck at home because of a COVID scare or something has happened, they are not unable to access teacher help because we are teaching through the videos. So, and they tie in brilliantly with the books.

[00:19:51] So if you don't have to have the book in order to understand the videos, but they are even examples from the books to supplement what's happening in each video. So strongly recommend that students take advantage of our efforts to try and help

the kids. So you have to go back of your basics. You will not write a good matric at the end of this year.

[00:20:13] If you just go along by grade 12, especially in maths because you are examined on everything you've done in grade 11, which immediately brings in everything from grade 10 at the same time. So you have to basically go back to everything that you have missed and the best way to do that is to go through the videos which are freely available while the sections have been taught and are backed up by the books that we wrote.

[00:20:34] **George Eadie:** Incredible. Thanks, Jenny. And what about on your side, Mariechen?

[00:20:39] **Mariechen Vermeulen:** So for me, I would, I would start as a teacher, but first and foremost, looking at maybe the diagnostic reports as well. I mean, they're still coming out, but looking at some of the questions that learners did really poorly in and why. Again, this year, we saw that, that kind of shift with life sciences, from the old biology to kind of just this learning and recall to more of a understanding and applying your knowledge subject.

[00:21:02] And that's because you see the papers peppered with these explain questions where you're not just asking for a description of a function, of an organ, but rather like explaining what would happen if it wasn't performing its function well, and something that's happening a lot more frequently now in the papers is that learners are being given more of a case study type of example, um, something that they haven't done in class, a different type of natural selection or medical problem or something.

[00:21:28] And they have to use their base knowledge to answer it. And the learners did really poorly in these type of questions because. They kept approaching it as a type of a comprehension taste quoting from the given text or example, rather than trying to apply the knowledge that they have to make sense of it.

[00:21:45] So, um, in terms of teaching tips for this, I think because of the novel nature of those questions, you can't really like teach it. You need to practice that type of thinking. So try as a teacher,

not to just cover the given examples of diseases or natural phenomena in the curriculum, but maybe have class discussions with them about things that aren't in the curriculum aren't in the textbook.

[00:22:11] Diseases or phenomena that I don't know, they aren't aware of. But to do that, you kind of have to keep up to date with what's happening as well. I mean, science is an evolving subject, new things happen every day. Um, you need to take the time to look for those interesting examples of natural selections or weird neurological diseases to help them make sense of it.

[00:22:31] Um, and I know teachers are over stressed and overworked, so, you know, when do I find time to do this? And, um, a tip that I did this the past few years is I basically went on to Facebook and Google and I looked for scientific websites or pages, and I signed onto newsletters because it's nice to get to that content once a week.

[00:22:50] And you can actually go through some of the most important discoveries of that week. And I found a really nice site. And they send a scientific articles that are phrased in a way that, you know, the common man can understand it. And what I've done is I've often forwarded those via WhatsApp because I mean, not everyone has technology to show this to the learners, but maybe with the COVID thing, you had a WhatsApp group, you could send an article just to like stimulate that type of thinking as well.

[00:23:15] Relating the content to the world and giving them examples that are not necessarily in their textbook or in their curriculum and then maybe having discussions about these, incorporating them into my exams. That's an important thing is to actually give learners, practice of these unfamiliar scenarios and not [00:23:33] using past papers, but to formulate new content for your papers to take these interesting things and make it relevant for them, um, and practice the explain part of the work, you know, um, there is often opportunities during the course of a class where you're discussing something about the ear. And instead of just giving them answers, ask the question.

[00:23:54] Why? Because that stimulates the explain, the cause and effect kind of reasoning, um, because this therefore for that, so why would, you know, hardening of the eardrum lead to partial deafness? It's something that you have to teach them, but you don't have to give them the answer, you can help them get there, so practicing that critical thinking.

[00:24:16] **George Eadie:** And Nazlie, what about, what about from your side? How do you think teachers would, uh, would be well-advised going into 2022 to succeed within the economic space?

[00:24:25] **Nazlie Mohamed:** So I think this will be an interesting year, George, because these are the two COVID babies. Um, these matriculants would have been in grade 10 and, um, and so, um, you know, I, I really feel that the year group of, of 2022, we need to do everything in our power to support them and to.

[00:24:48] To give them every available opportunity to, um, to, uh, hone their matric needed skills because they are at a, at a disadvantage [00:25:00] relative to their previous peers. And so I would say to educators, please make sure that you marry content with application that you do not teach in isolation. It's no use going through all the content, but then the learner is not exposed to a typical database of questions.

[00:25:22] And that even though, you know, we know that educators time, um, is, is extremely stressed. We still need to bring in current affairs. We still need to bring in what is happening in terms of global economics, because. Um, an economics learner does not learn content in isolation. When we learn things in isolation, we're not able to piece it together in a meaningful way.

[00:25:48] And so if educators can go into the classroom and combine the content with what is actually happening out there, the learner is in a position where they're able to just [00:26:00] unpack it in a more meaningful way, and we need to be doing that.

[00:26:04] **George Eadie:** So now, I mean, one of the features that seems to be directionally applicable to all subjects is this move

away from summative assessment and more into formative assessment.

[00:26:16] I'd love to hear some of you have some perspectives on this as it applies to your subject. Um, is it a good thing? Is it a bad thing? You know, um, what does it mean for teachers in the coming year and beyond?

[00:26:28] **Jenny Campbell:** Okay. So I think assessment for maths is particularly stressful for many people, and I don't think you can do one without the other.

[00:26:37] And the biggest challenge as a teacher is helping the parents and the learners to understand that it doesn't matter if they do badly in their formative test. So you don't know if you understand something until you've been given a chance to test yourself on it and if a test is well set, it, isn't just testing knowledge as both Mariechen and Nazlie pointed out.

[00:26:56] You need to test understanding concepts, relevance, all of that. So with your formative assessments, you can afford to ask questions that are perhaps unexpected, that help both bright learners to see if they understand the more difficult concepts and weaker learners to see if they understand the basics.

[00:27:17] And once you've done enough formative assessment, then summative assessment makes sense. And this is completely reflected in what's happening with the current November final exams in matric. The learners last year did not write exams in June or November in grade 11, and they never had many of them in June this year.

[00:27:34] So for many, many learners who wrote matric in 2021, they did not write exams for three exam sessions prior to the final matric exam. And you can see the danger of a big formative exam when there hasn't been enough summative testing going on. So I'm not a fan of emphasising summative because summative doesn't make sense without formative, not in our subject and I assume it's probably similar in other subjects.

[00:28:02] **Nazlie Mohamed:** As an economics educator, because our subject is just so dynamic in grade 10 and 11, you really are spoilt for choice in terms of the different approaches that you could take and the different styles that you could use in, in testing. Unfortunately in grade 12, it becomes a lot more.

[00:28:21] Um, I'd go so far as to say regimented, cause you. The testing is a lot more standardized. So, um, you are, um, basically instructed by the education department in terms of what you must follow and what you must, um, and what you must do, but certainly for grade tens, and Eleven's where there's a lot more leeway and there's a lot more, um, there's a lot more value that can be added.

[00:28:47] In that tasting process so that you not just doing a normal hundred mart cycle test so that you engaging in other platforms that will still get the learner to the end point that you'd [00:29:00] like them to be at, but using a different route such as. Uh, you know, I'm just thinking off the cuff. One of the concepts that we cover in, um, in economics in the third term is we look at economic development and economic growth and the Gini coefficient, and, um, and you could really take a section like that and, and go to town with it.

[00:29:24] In terms of unpacking it in a way of what, what, what is the Gini? Why is the Gini coefficient so wide? Um, what, what is the government done? What are the different platforms that they have, um, engaged in and then letting, small little groups engage in one platform and then cumulatively putting all those.

[00:29:45] Platforms together so that a child comes almost a specialist on, um, broad based black economic environment. And another group becomes a specialist on why was the RDP introduced and, and what were [00:30:00] the big flaws in it by doing this in grade 11, by the time the learner comes to grade 12, they, that that section has already been covered without them realizing it.

[00:30:10] And, you know, the, the whole educational experience of being able to unpack something and then see it in a macro perspective. You know, that box has been ticked then.

[00:30:20] **Mariechen Vermeulen:** I just want to say to that, I think for, for any science subject, it's, it's wonderful to have formative assessment because, um, in science you need to practice the skills that we teach you.

[00:30:30] And that's one of the things that formative assessment offers you, um, so you don't want to just have one test per term, but I mean, I started out every single year with the best of intentions of having pop quizzes and beautiful little things to do in between and then the curriculum catches up to you.

[00:30:48] So the problem I find with, with, you know, having a greater emphasis, maybe on formative assessment is the time constraints, um, of adding that to the requirements as well. Like the assessment and learning that actually needs to take place. And putting that in the context of COVID. I mean, yes, you could technically give learners maybe formative assessments to go do at home the week or the day that they're not at school, but then you actually have to make time to look at that in class as well, because otherwise what would be the point then?

[00:31:18] Um, so I think it's, I think it's a wonderful ideal to have maybe more formative assessments, but I just don't know how realistically it's implemented with teachers who are stressed about getting the curricular boxes and the summit of assessment boxes, tick that actually need to be ticked. Um, I mean, I was one of the few life sciences teachers I knew of that, that gave homework and actually marked it because our subject is very content based. There's a lot to get through.

[00:31:44] So you start off with good intentions and then, um, yeah, the, the time catches up to you. So I don't think it's a bad thing, I'm just questioning how it fits into the current curricular structure to put more emphasis on that.

[00:31:57] **George Eadie:** And that might make this next question, you know, linked through to this next question around technology. [00:32:03] Um, you know, how is technology playing a role in the learning experience for the better? I mean, we obviously have this big catalyst with COVID, um, our teachers, uh, retreating back to previous ways, or are they now, um, finding that they're actually things you know, that can really benefit them and save time and energy and get better outcomes. Like, what are you guys noticing with in relation to technology going into 2022?

[00:32:29] **Mariechen Vermeulen:** Well George, it's definitely opened up the content that we, as, as life sciences teachers have to teach, um, if you have access to it, and that's an important thing to say because it's not a given, not everyone does. Um, but life sciences is a very visual subject, so it's wonderful being able to use technology, videos and animations, um, online to make things that are unseeable and untouchable, a bit more relatable to learners.

[00:32:54] And I also think it's wonderful as, as a resource, when you are sitting with a large group of learners, I think for the practicals we have to do, for example, it's very difficult to do microscope practicals or food test practicals when you have 50 learners in your class, you don't have enough apparatus for all of them.

[00:33:10] And even if you decide to go the route of demonstrating it, how are 50 learners going to look at exactly what you're doing all the time? So in that case, it would be wonderful to maybe put on a video of someone actually doing it so they can clearly see the results of this experiment, but yeah, I think the problem that comes with adding technology layers to your teaching is that, that overwhelming feeling of having so many resources as well, and having to not take the time to go through and evaluate their effectiveness and their accuracy as well.

[00:33:43] **Jenny Campbell:** I think, uh, technology is amazing, particularly amazing in maths as well when you're trying to explain concepts. But I also found that when we got our learners back into the classroom, after the initial three-month lockdown, where

nobody was having any face to face that our learners arrived back with complete screen burnout.

[00:34:03] And in the past classroom dynamic, if we asked him to take it up, tops ops, it was bishops and every boy has a laptop, there was strong resistance because for the first time in my teaching career, they didn't want to see a screen. So. It's about the appropriate use of technology. So you can have burnout if everything's on the screen and there's a time and a place for everything.

[00:34:24] So the novelty factor of having technology is amazing when they've never used it before, but then when you're just using technology all the time, we get the burnout factor. So it's definitely a compromise of when does technology actually enhance what I'm doing? And when is it just putting on somebody to do a recording and not having the passion that comes through when you're doing it live?

[00:34:46] So, and also pen and paper, all the exams are still in all subjects on pen and paper. So you've got to be careful of having too many assessments where you just click a button and then you can basically guess your way through something and now suddenly, you sit for an exam and you have to explain and justify and reason, and you can't just put somebody else's done for you.

[00:35:06] So I really love technology, love it in the classroom, but be careful of overusing it. Make sure that when you use it's definitely appropriate.

[00:35:16] **Nazlie Mohamed:** Technology is amazing in terms of, from an educator's perspective, it empowers you to go back and look at different ways of approaching different topics. Um, looking at how, um, it is being engaged in, on other platforms.

[00:35:32] But I do think personally, I do think that a blended learning approach is probably the most sensible one, because there are certain sections of work, certainly in my subject, George, where you actually need to teach it from scratch. With pen and whether you're using a smart board or whether you're using a

normal whiteboard, um, a graph needs to be drawn from step one, putting in the headings, starting off with the obvious things, labelling your axes, um, putting in the first curve, um, putting in your demand curve, putting in your supply curve, showing where they intersect, um, showing your equilibrium, um, then adding and scaffolding.

[00:36:15] So without a doubt, there's definitely a role in technology and technology can definitely enhance that learning process. But the more I think about it, I realized that if there's anything that COVID has taught us is that learners actually want to be engaged with, and that platform of standing in front of a classroom and teaching, you can only see whether a learner is, is, is truly engaged and understanding when you are.

[00:36:47] In fact in that classroom, you cannot see that on a screen.

[00:36:52] **George Eadie:** Awesome. Thank you so much for those nuanced answers. One of the things that I've become curious about is, how do you tap into and connect your subject to the futures of your learners? How would you advise teachers out there to then try to start making those links and getting those motivation levels up? Mariechen, why don't you share your perspective on this?

[00:37:13] **Mariechen Vermeulen:** I think science is, um, it's a very easy thing to make relatable to learners because it's literally what they're experiencing every day. We have this fast changing world and I, I have this saying that my learners have started saying back to me over the last few years, which is that the only constant is change.

[00:37:31] And I don't deal very well with change, but it's true. I mean, the very nature of the content that we teach in life sciences or any science subject for that matter is, is that it's an evolving field. It's a changing field and you need to be adaptable. Um, you need to be able to alter your hypothesis. The things we knew last year or last week have probably changed since last we taught it.

[00:37:55] Um, one year we related to Neanderthals genetically, and then the next year, no, we never shared any genes with him. Um, I saw an interesting, um, post the other day where they were asking people on the internet, you know, what was one scientific fact you learned in school that is no longer applicable? There were quite a lot.

[00:38:12] I mean, top of the list was that Pluto was a planet at one point, you know, it's been demoted. Um, so I think I love staying in touch with scientific breakthroughs, as I've mentioned, and to relate that to the content that we teach the learners. And I think that excites them a lot about the life outside of school, um, to tell them you do a science discovers and it changes.

[00:38:33] and it moves with the times. It's, it's not a stagnant thing and it's highly relatable and relevant to the world around them. Just take the last few years with COVID. I mean, talking about vaccines and viral epidemiology and things like that, and life sciences teaches them about this and why we shouldn't be afraid of it.

[00:38:54] So you can go into, into many different careers with the life sciences, although it's, I think very much an underrated subject. You can do medicine and psychology and forensics, et cetera but I think besides that as a teacher in life sciences, you need to instil with them this idea that the subject teaches you how to live in the world outside, and you should be excited about the story of life.

[00:39:15] It teaches you how to care for your body and the environment around you and understand the basic mechanisms of life. It instills a curiosity within learners. I think that's an important thing for any lifelong learner for that matter.

[00:39:31] **Nazlie Mohamed:** So an economics learner. I think I may have mentioned this before George, um, after three years in the economics classroom, they've actually lent a language.

[00:39:40] So they're able to engage better in the language of economics. They're able to understand better the challenges that

the South African economy faces. They also in a position where they are able to embark and go out into a world, irrespective of whether they're going to a tertiary education, whether they need to be pursuing tertiary knowledge or, um, whatever realm they, they, they choose.

[00:40:07] Um, To to undertake whether it's a gap year or whether it is, um, going into the workplace, they are able, because they've been exposed to the language of economics, they're able, they problem solving skills have been enhanced and probably problem solving skills are something that our time. And that is something that we actively encourage, um, within the economics classroom of looking things at different angles and, and unpacking things in a way that it has more meaning.

[00:40:37] So that economics language, George, is actually based on problem solving skills and irrespective of what career you embark in problem solving skills is something that is universal to all those, um, all those careers.

[00:40:55] **George Eadie:** I mean, Jenny, what about you? I know that a lot of people have nightmares about mathematics and, um, and I know like, uh, you know, a lot of maths teachers, they almost say that you know, until they've been able to be a therapist and get people sort of comfortable and over the fear barrier, um, they can't really get into the maths.

[00:41:13] Um, um, so that whole, that whole conversation early on for learners is really important. And I suppose, as you mentioned earlier, this idea of painting a vision, um, for how masks connect into that. Um, yeah, just what comes up for you.

[00:41:27] **Jenny Campbell:** I, I think, uh, the psychologist in us as teachers is critically important to every teacher in every classroom, but possibly more so in the maths classroom.

[00:41:38] And I think actually, uh, getting your children to disconnect the sense of emotional wellbeing from their mark is the first step and saying to them, you know, there's nothing, uh, there are many famous people who have made quotes along the lines of, if

you never fail, you're never going to succeed because failure leads to success.

[00:41:58] And so there's no need to fear writing a maths test. So any test you write, subject irrelevant. If you haven't done any preparation, you should just, you know, there's no point in being fearful. You should just be cross with yourself because you haven't prepared. But if you have prepared and you don't succeed, even in something like your final matric exam, there's always a second opportunity.

[00:42:21] So don't live in fear. Don't not take chances don't take all the soft options of subject simply because you're scared or afraid of failing. You often need to fail in order to develop success out of that failure. If you do do bad in a test, the taste itself in the mark itself doesn't necessarily give you any information.

[00:42:41] It's what you do afterwards. So you might get 80% in a test and a friend might get 40%, but they might benefit because when they go through what caused him to trip up, they will have better diagnostics in place the next time around. The child that gets 80% is thinking, I'm so good. I've got 80%.

[00:42:59] Ah, yay. And they're not worrying about where the other 20% wind. And then the next time there are two tests. The emphasis might be on the 20% they couldn't do another in big trouble. So the results don't matter throughout the year they do, because they give you feedback but if you're going back, don't be fearful of results, plan to succeed in the long-term.

[00:43:19] And I think maths teaches kids resilience. If you give up easily, then you're never going to succeed. But when you fail, figure out how to tune the failure to success. And I think that's the life story. Many ventures in business don't work out the first time around. Then you have to go see exactly why the business went wrong.

[00:43:37] How do you reinvent? Economics can testify to that many successful people were not successful in their first venture. So I think maths teachers logic common sense, perseverance,

how to explain yourself. I think many, many skills are taught that have nothing to do with trigonometry or geometry. It's simply a tool for teaching logic that is extremely helpful.

[00:44:02] **George Eadie:** We're coming to the end of this conversation today. I wondered if any of you felt that there was something perhaps that you wanted to add as a parting comment, especially with those teachers in mind as the year you awaits us. So any, any sort of concluding comments from each of you would be fantastic. Perhaps Mariechen, you can kick off?

[00:44:25] **Mariechen Vermeulen:** Yeah, I think, um, if I were still a teacher this year, I think, um, focus on the small victories and the same goes for learners. Just, you know, keep your eye on the big prize, but take it day to day. Um, one of the things that's the most frustrating for any teacher is the chopping and changing that happens continuously.

[00:44:46] You know, you just got everything sorted and then they pull the rug from under you and you need to plan again or strategize again. And I, I think just stay healthy, stay happy and focus on the small victories. Um, even if it's just those learners who actually pitched for class today or the two or three that are actually paying attention. Um, focus on that.

[00:45:11] **Jenny Campbell:** So if you want to do anything on the sporting front, everybody understands that you need to train in advance, be prepared, eat the right food, get the right amount of sleep and so on. But in academic subjects, many people think that they are short cuts and they simply aren't because your brain is a muscle.

[00:45:27] So if you don't train your brain, It's going to backfire on you in the same way that you weren't able to finish the comrades if you don't train. So my advice to everybody is don't underestimate the power of the brain. I would also like to share that we all have the same brain. So I have had the nasty experience of other people having the exact same laptop as I have

[00:45:49] And they have managed to do the most ridiculous things with their laptops. And I've always thought I'm missing some software. Or, you know, somebody has disadvantaged in some way, because 10 people can have the same laptop and I guarantee you, they will not get the same stuff out of that laptop or out of yourself and give a parent's cell phone.

[00:46:08] And you will immediately see the advantage of being a younger generation learner, because most kids are teaching their parents how to use their cell phones. So my comment to you is you might think that you're disadvantaged and life is not fair because your brain doesn't work as other people's. And my challenge to you is have you actually bothered to develop.

[00:46:26] So you have this amazing gift. Our brains are never going to actually use all of their potential. Nobody has yet used all potential that their brain has. So stop complaining, get off your backside, get to action, do the hard yards and enjoy the victory at the end of that.

[00:46:45] **George Eadie:** I love it. There's some conventional love and kindness and some tough love and kindness coming from the TAS team, which is just awesome.

[00:46:54] Um, but it's only because we care so deeply about the standards getting [00:47:00] raised and more than that individuals and people feeling supported throughout. So thank you so much for listening. Thank you to you three for helping us to unpack last year's exams and, um, yeah. All the best for those out here for a no doubt challenging year, but hopefully meaningful one. Choose the best study guides for your learners.

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[00:48:34] Bye for now.