Respondent 9 Interview

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students, plant, people, science, competencies, question, university, practicals, narrow, discipline, lecturers, concepts, interpreting, bit, botany, subjects, system, driven, evolution, teaching

**SPEAKERS**

Megan Roberts, Respondent 9

**Respondent 9 00:00**

Give me a quick second. Okay. Cool. There you go.

**Megan Roberts 00:11**

Okay, cool. So, I'm basically just going to run through a couple of questions with you. And then we can have a bit of a discussion about it, and then that'll be that.

**Respondent 9 00:23**

Great.

**Megan Roberts 00:24**

Okay. So, my first question for you is, is plant blindness or a lack of interest in plants a problem in your institution?

**Respondent 9 00:38**

I'd say it's a general problem everywhere. But yeah, it's a yes. I mean, being a university, it's not as bad as, as elsewhere. But yeah. It's always a problem. Yeah.

**Megan Roberts 00:54**

Do you have a particular reason as to why you think that this is?

**Respondent 9 01:00**

Well, I think it's just that it's an it's a natural phenomenon of humans, that plants tend to be background to what they're interested in. And that manifests itself in, in what people choose to do and what they put emphasis on. So, for the majority of people, plants are not as significant or important as pets or animals or other things. So yeah, I think it's just a natural, natural thing with humans. Not a natural thing, but something that's intrinsic to, to our behavior and our value system at the moment. Yeah.

**Megan Roberts 01:42**

Okay, then my next question is, do you have issues getting students to enroll on science degrees.

**Respondent 9 01:54**

So, I have the unique opportunity to work on plants that are of value to humans, so medicinal plants, and things like that. So, in that sense, that tends to attract students, and students like the idea of medicinal plants and working on them. So as far as general plant science goes, that's probably one of the more popular aspects of plant science. And so, in that sense, not really, we always have quite a few students applying for medicinal plant science. But in general, the numbers would be much lower than some of the other zoology or biotech type subjects.

**Megan Roberts 02:34**

Do you think that's a problem?

**Respondent 9 02:37**

Definitely, because of the importance of plants, and in everyone's lives, right, from food to clothing to the environment. So, I would like to see more students doing classical botany subjects, subjects around diversity, ecology. And, yeah, it's a bit harder to find jobs in that area, as well I suppose could be one of the contributing factors.

**Megan Roberts 03:07**

In my next question, do you think that a first-year plant science module should have a narrow approach covering a few concepts in detail or a broad approach on multiple concepts within the field?

**Respondent 9 03:25**

Um that's a tricky one. But a current thinking goes with the kind of narrower focus in depth. And it's something I haven't had a lot of experience with teaching. So, I am in favor of the narrow approach at the moment, because that's something I want to try and implement myself. Yeah, so a narrow deeper thing that they can hang on information later on. So, if we teach them a few core concepts, the idea is that moving forward, they can learn others based off that, that solid backbone. And so yeah, that's, that's what I'm doing. But yeah, it's a bit of a risk. And there's a lot of subjects later on that require that of prior knowledge that the students might not necessarily have straight off the bat. And I'm kind of hoping that narrow focus or focus will help them gather that information quickly as well. And that's what the new future is going to be like. You can Google just about anything and get information really quickly nowadays. So having that broad knowledge is not as useful as it used to be. At least from an immediate recall point of view, because you can you can access information so quickly. So, concepts are more important.

**Megan Roberts 04:51**

Do you think that using this approach will help with creating interest or enrollment numbers?

**Respondent 9 04:59**

Um I think it'll be hard to express that to the future students that this is what they're going to be getting for them in a way that they will understand and appreciate it. So, I think in terms of a marketing tool, maybe not. At least in the beginning, maybe when word of mouth happens, I think you certainly can make more exciting courses with that kind of format. So, it's not so much content driven, but, but more activity and inquiry based driven, then you can really build a nice long, solid story through the program instead of trying to cover as much of the discipline as possible. Yeah.

**Megan Roberts 05:42**

Okay, um, do you? Did you read through the information, interview guideline that I sent?

**Respondent 9 05:51**

Actually, no sorry, I completely forgot.

**Megan Roberts 05:53**

Okay. I will post the next question in the chat

**Respondent 9 05:58**

Okay. Sorry about that.

**Megan Roberts 06:02**

That's okay.

**Respondent 9 06:07**

How did I miss that?

**Megan Roberts 06:10**

Okay, so my next question is, which of the following concepts Do you think should be incorporated into a first-year plant science module? evolution, pathways and transformations of energy and matter? information flow exchange and storage, structure and function or systems?

**Respondent 9 06:33**

Which one? or which ones?

**Megan Roberts 06:36**

Which ones. Whichever, you think? It’s completely your opinion that I’m looking for.

**Respondent 9 06:43**

Okay. So, for me, the two that go really nicely together and would work well in first year, because I think they kind of core concepts that cut across many different disciplines, not just on science, evolution and structure and function. So, structure and function can be explained within... well rather, all of the things that you mentioned, can be explained to through evolution or understood through evolution as well. So, evolution is always an easy one to bring in. Because it's happening. And it's how we got a lot of what we got. And, and it describes kind of the relationships and the existence of things in the living world and structure and function is a good foundation. And that's why I think it's nice for first year as well, it's a good one. The pathways and the information are essential, but that can be learned at a later stage. Yeah, and then I think you must science method, scientific method is one of the five.

**Megan Roberts 07:53**

That's coming up in the next question.

**Respondent 9 07:55**

Okay. Okay, yeah. So that's Yeah, structure function and evolution.

**Megan Roberts 08:00**

Is there one that you think anyone that you think should maybe not be taught in a first-year module?

**Respondent 9 08:11**

No. Other than the fact that you don't want, as we discussed, we want one narrow approach than a broad approach. You need to reduce a little, and you're never going to take all of it outright. And biological systems, you can't narrow down to bits and pieces. So, it's more about where you going to put the emphasis. So, I don't think there's one specific that should not be taught, they all the essential but you need to focus on a few.

**Megan Roberts 08:42**

Okay. Then my next question. Let me just post some of it in the chat. there we go. Okay, so. Which of the following competencies Do you think should be incorporated in a first-year class module, the process of science, the interdisciplinary nature of science, integration of science and society, communication, collaboration, understanding and interpreting data and quantitative competency?

**Respondent 9 09:14**

Sure, it's also a tricky one. And again, all of them essential. The process of science is a good one to start off with. And it’s a great vehicle for teaching, right? So, if you can show the evidence for what you're trying to teach, that is the process of science, the explanation of how we know what we know, and so that's clearly one that's in there. And interdisciplinary nature is probably not essential at this stage and but again, an easy one. Kind of, yeah, happens on its own integration of science and society is a good one to catch students because it makes it relevant for them. And again, doesn't need to be taught as a separate thing, you can easily bring that in. Communication. You, you're going to be communicating with your students, and they're going to need to share what's in their minds during assessment and stuff. So that that, again, is one of those easy ones that kind of happens. And collaboration, again, that's something you can do without putting much emphasis, the classic pair share kind of questions and interactions. So, for me process of science, understanding interpreting data and qualitative competencies, those three would be really good at first year, and I think it's three things that are generally lacking from our school education. So pre university education. So yeah.

**Megan Roberts 10:50**

Is there one that you think is unnecessary to add?

**Respondent 9 10:54**

No, I think, again, you can always bring little bits of them in. And none of them are unnecessary. They're all necessary. But focusing specifically on the three related so for me process of science, interpreting data, and qualitative competencies are all kind of linked. And are the meat of science. Yeah. And so, they can grasp that. All the others can be woven in, incidentally, around them. So, yeah.

**Megan Roberts 11:30**

Okay, then I think I already know the answer to this next question. But have you heard about vision and change before I contacted you?

**Respondent 9 11:43**

Yeah. Yeah. And so, it's the model we're using for our first year Botany.

**Megan Roberts 11:53**

And obviously, you think it's a good way of restructuring or looking at restructuring.

**Respondent 9 11:59**

We're not solely using that. So, I think it is a good way it provides a nice framework. I like and for me, this is quite useful in having these, because you the competencies, and the core theories are you can teach one and the other at the same time. So, you could take, you know, core concepts like evolution, and teach communication, or the scientific method or interpreting data within that concept. And it helps you build interesting lesson plans. So, I came up with a simple grid system. And so, for me, it's, it's not going to be a religion it’s going to be a useful tool in structuring. And I think they know your I like the theory behind why they chose those things, the sound, and I think the 12 principles of plant biology are useful. So having a specific discipline concept as well helps you kind of tick off the finer details within a very broad biology, vision and change biology. So that's Yeah. So, I think it's great. But yeah, I'm not 100% disciple. But if that makes sense.

**Megan Roberts 13:19**

Then what do you think the barriers to changing a first-year curriculum will be?

**Respondent 9 13:27**

Time, energy, enthusiasm. So, unfortunately, the education system and university teaching is not prioritized. Because as lecturers we not incentivized as much to focus on that component. And our research is what we measured by so there's that you have very few academic staff who are willing to contribute the amount of time and energy to the education component, and it needs buy in from a larger you know, it's not you can't be a one-man warrior in this you need to have buy in from, from almost from faculty level. And because these curricula interlock with each other, right, so you've got within your discipline, the pre and post effects and so they need to kind of dovetail there and then these are often feeder subjects into other disciplines. So, you need to kind of maintain a certain content and that's a bit tricky to figure that out, especially in a big institution like University of Pretoria. And so yeah, I think for me, it's your incentive to do it is generally lacking. So there needs to be more motivation, from within the department and the University at large and proper times made available for the people working on it and support at UP, we lucky we get a lot of support. And these initiatives so that's, that's good and useful. Yeah. And so that's pretty much it. Yeah, probably the biggest is incentive to do it. So, there's a lot of talk, but there's no tangible incentive to do it. So generally, the people who end up doing it are those who are passionate about education. And the discipline, want to produce the best, the best graduates in a discipline.

**Megan Roberts 15:37**

Do you have any suggestions as to how we might overcome these challenges or barriers?

**Respondent 9 15:43**

Umm I think, so for example, the states that are really good job with vision and change. And then the plant biologists, the American Society of plant biology, whatever it is, came up with the principles and they have a lot of, so it's a discipline driven initiative, that that gained a lot of publicity and a lot of traction. And I don't see that happening yet, in South Africa, so maybe that's something that could be done. Yeah. And that would, then, you know, you know, fire up the system at all that end gets get people talking about it and working on it. So, I'd like to see someone kind of, say, South African-ising and making it more locally relevant the system. So, you know, that is very biased towards America and the West in general. And so, it would be nice to have something that's a bit more locally relevant, based off the specific issues we have in South Africa. So large classes for one, relatively poor botany in schooling is another challenge we have. So, I think having a national initiative that that's well supported, and perhaps even funded would be, would be great. Especially Yeah, I think the key thing is to buy time for the people to work on these things, and then provide the additional support, I think, when you think about it, every single University is going through and producing first year material. If there was a centralized database, so like, if we had UP produced textbook for first botany that could be shared with University of Fort Hare or Zululand, then that would greatly help them with support material for the lectures and stuff. And standardized practicals where the, you know, the materials that they need for the practicals could be supplied by whoever, government donors, other universities, yeah.

**Megan Roberts 17:48**

Okay. What kind of resistance Do you foresee would lecturers have, if this change is being introduced?

**Respondent 9 17:59**

Anything that's going to impinge on their time. So, lecturers are extremely time deprived, so anything that's going to add extra, extra work that takes them away from, from the research or piles more on what they're already trying to do. So that's probably the main thing. From an ideological, philosophical or theoretical point of view, I don't see much resistance. And other than that, some people may feel that a particular specialty is not being addressed strongly enough or well enough. And but even that, I think will be not as minor as the, you know, the mind on time of those who, who have to be implemented or be involved in its development. Yeah.

**Megan Roberts 18:57**

What would potentially be a good selling angle as to motivate people to be willing to take part in the change?

**Respondent 9 19:09**

Well, I think what's quite clear is the lack of interest in doing plant science. So, and often, that is job market related, right? So, I think a lot of the students don't see high paying high value jobs in South Africa. And so, one way to get really good by in and would be maybe to approach some of the big industries that that we feed into, and to kind of be co-sponsors and supporters of the program. So, this was maybe not just at the university level, but it could start there but you get at the national level. And that would get lecturers excited, because, you know, there's the link between the research component and industry. So, there's money an incentive for them to be on board. The process like this. And for me, that will then align the whole system of it better, because then the students will see the value of doing a plant science degree because that's the job at the end. Unfortunately, we have to deal with South Africa's legacy. And working with plants are seen as something belittling the classic garden boys syndrome. So, we need to kind of break that and make you know, make people know that this is a sophisticated cutting-edge technology driven vital industry. And it's not always about, you know, big industry, conservation is the key component, and we need it. And that's benefits, you know, so bigger picture type stuff. And, and I think, you know, a lot of the young students, the conservation angle is big. South Africa has got this weird dichotomy, right? So, you've got, you know, fairly well-off kids mixing with kids that have come, you know, that will have a lot of need to start providing for their family very quickly. And, and so the conservation angle is a luxury for them, they want to walk into a paying job as soon as they as soon as they can. So, you've got these two kinds of streams of people interests or needs of people that you need to kind of capture. So, expressing that in your, you know, reason for doing what you're doing will also be quite useful. Have I answered the question, it was about how can we promote this? Yeah. And, look, I think it needs to change. And, and I don't think any lecturer disagree with that. You know, the system is the current way of teaching plant sciences, all the students don't like it, it’s having effect on class numbers. And, and, yeah, if you're heavily involved in research, you will see it in the quality of students that are coming through. And so, you know, in the in the long run, it only benefits us to have a better stronger plant science education. It'll attract more students will create better students, which will feed into better research, and a stronger, stronger field. Okay.

**Megan Roberts 22:18**

Okay, then my final question for you is, how important do you think hands on practical sessions for a first-year plant science course.

**Respondent 9 22:29**

So having had an entire semester of teaching online, and it is possible, but you do lose a lot. So, you know, I don't think it's entirely essential. But it does add big value. Done, done properly. And I think that's part of the problem at the moment, is we not, we didn't value face to face contact time, as much as we should have. You know, I don't know, we have this stupid three-hour practice yet to entertain the students for. And, you know, and, and so it just became an extension of a lecture almost, with a little bit of, you know, show and tell, and, what we really need to do is get the students. Yeah, doing those competencies, right. So scientific method designing, implementing, and analyzing results. Oh, yeah. experimentations, and really getting them asking questions, engaging with the material in front of them. And so, this kind of recipe practicals, I think needs to change. And we need to get better value in terms of the learning, learning those competencies during the practicals. And, of course, the core concepts can be the material that they working on, but the competencies are what she actually training.

**Megan Roberts 24:00**

Do you have any suggestions as to pracs that could potentially be run, or skills that you think particularly important that need to be handled in pracs?

**Respondent 9 24:11**

So again, it's the ones that I’ve have mentioned the scientific method, and all the components of it. So, and interpreting data, working with data and designing experiments. I mean, it's always good to give them a little bit of the safety aspects. So, you know, the sooner you get them into good lab practice, and, you know, that's one of those kind of marketable skills as well, having had that experience they can put that on their CV. So, you know, that's something that should always be focused on and it's a win win. You're not going to have hopefully problems in the laboratory then if all the students are following the rules. But again, it needs to be explained to them why. And I think we too much have a problem of just dictating what they have to do without getting them to understand why they do what they do. And that will make for a much better learning process, it'll be more meaningful for the students. And, you know, they're not going to blindly just do stuff, because they were told to, they're actually going to understand that thing. I mean, mask wearing, that's a prime example of the world at the moment, you know, they just see it as a "I have to wear a mask", they don't understand the infection, pathway roots. And so, they touch their mask or take it on and off in the field, drop it on the nose. And it'll be the same thing with lab practice, if you can explain to them why you're doing what you're doing, what the potential dangers are, that you're trying to avoid, there will be a better, better attitude than just following, you know, rules. Yeah, so there's that and, and scientific method. So that's it, yeah, getting them to experiment. And that's what we train them to do. So, asking questions, designing tests, and, and why they are, why we do certain test controls, etc., etc., and interpreting data. And then lastly, they could communicate as well in practicals, it works nicely, you know, get them into teams to communicate with each other, and, and share their results.

**Megan Roberts 26:27**

Yeah. Okay, well, that's it from my side. Do you have any questions for me? Anything that you'd like to add?

**Respondent 9 26:39**

No, not the stage. And how are you using Atlas it to translate your interviews? Or was it getting straight into numbers?

**Megan Roberts 26:55**

I’m using Otter AI to translate it. Yeah.

**Respondent 9 26:58**

Okay. Cool.

**Megan Roberts 26:59**

And then into numbers

**Respondent 9 27:01**

Very good. How many people you interviewing?

**Megan Roberts 27:06**

Umm, at the moment our goal is 30 and 20 from UP and 10 from outside. So, I’ve nearly got my 20 from UP I think I need about five and then outside has proven to be a bit of an issue. They're taking very long to reply to my emails.

**Respondent 9 27:30**

Who have you written to? Maybe I can help you contact some of them.

**Megan Roberts 27:34**

I’ve emailed a whole bunch of people from WITS, from UJ as well. I still need to today is Stellenbosch, their emails are going out today.

**Respondent 9 27:48**

Okay, if Prof. Makanga doesn't get back to you let me know and I'll nudge her that's one I can help with and Kenneth could probably help with Prof Dryer.

**Megan Roberts 27:57**

Yes. Kenneth did send me a couple of names.

**Respondent 9 28:01**

Yeah. And then have you thought about people like Prof Linsey McGraw, at Onderstepoort. So, in the phytomedicine so she's a trained botanist to start off with but she's just she's like a feeder discipline, right? Um so yeah, I will email you, her details.

**Megan Roberts 28:25**

Thank you. I really appreciate that.

**Respondent 9 28:27**

Okay, cool. And yeah, if there's anyone else that you struggling to get hold of? Yeah, the WITS people yeah, I know them from conferences, but not in a friendly manner. But yeah. I mean, Angelique should know the Gauteng people quite well. And her husband should know almost everyone because he's heavily involved in SAAB, so. Good. Okay.