STAGE 3

ID\_SS10\_M\_UK

REC: Voice084

ATTITUDE

I has your perceptions towards critical thinking skills has changed or remain the same since FY

SS10 I think it has changed. Previously I thought critical thinking skills were more related to mathematical skills and it’s actually language based problem solving. So, applying the features of maths and thinking around mathematical way to solve them I had to think differently about them. I think now I’ll take more pragmatic approach to critical thinking.

I umm

SS10 let’s say it’s less about sort of abstract thought processes it’s more about interest in finding an answers in many a times. So, particularly in engineering just doing a research finding out what you need to know you need to really apply lot of critical thinking. It’s a bit more of finding the answer and a, yeah, that’s it. It’s little bit more down to earth.

I is it surprising, or is it what expected to happen now. I mean foundation year is more about transition period isn’t it from your schooling from 6th form or high school?

SS10 umm

I you try to get adjusted to the university system, so now you’re already like more than a year now?

SS10 yeah

I were you fully aware or does it come as a shock

SS10 no, I think it came as a relieve what was expected to be honest. I was expecting it to be little bit, I was expecting far more things I didn’t understand like in any way, things were beyond me, but, it turned out that it’s not quite like that. I can understand the stuff, it takes work obviously, but there’s nothing, which actually like beyond my understanding

I alright

SS10 it does seem oddly less complex than I figured that it would be, which is a good thing

I less complex than you thought?

SS10 yeah, lot less

I right

SS10 the jump in understanding isn’t huge and certainly the application of critical thinking is very much the same sort of thought processes, just apply a little bit further, more in-depth. But, nothing incredibly new or nothing that shocked. It’s quite a relieve

I okay. In your opinion is critical thinking is important for engineering? If yes, why and if no why? What’s the reason for your answer?

SS10 I think it’s important, but depending on how, what sort of engineering you’re doing. Obviously, it’s not like one thing, but if you just solving problems will then probably you won’t have to do a lot of critical thinking because most of problems have been solved before you could just need to apply a little bit to other solutions of what you’re doing

I umm

SS10 of you’re trying to do new things then you need critical thinking which I suppose go against what I’ve said earlier what I thought critical thinking was, yeah, may be. I still don’t fully know what I mean by critical thinking is to be honest. But, yeah, may be in the abstract sense like thinking new things, thinking differently. That I imagine is useful in engineering and I perhaps got a hint of that in the stuff we’ve done in the course we’ve done so far. When you try to think of new things

I this news things, are referring back to the foundation year or now?

SS10 I think now, for sure. We’ve a little bit of leeway to do sort of the stuffs that we want to do

I you’ve more freedom now?

SS10 yeah, little bit, not much, but…

I right, okay

SS10 but, you know when you get to design some things, projects that interest you here and there

I umm

SS10 then you have the chance to apply critical thinking to trying to look at things differently, come up with new stuff. If you just try to solve problems there’re plenty of engineers, my dad was engineer. Lot of engineering just you know, you don’t have to think like new stuffs in imaginative ways you just try to solve problem which has been solved many times before just with new numbers

I right

SS10 yeah, it depends on the sorts of engineering that you’re doing whether you need critical thinking or not, it is important

I like for yourself you mentioned you’ve chosen mechanical engineering?

SS10 uhm

I so how important it is?

SS10 for mechanical?

I yeah

SS10 I think more important than it is, probably for any sort of engineering

I can you give an example, how is it important?

SS10 the way it’s important is the same way for all forms of engineering, try to think of new things, develop a new thing, but mechanical is more so, because mechanical is so broad

I umm

SS10 so, there’s more application of critical thinking, you know it’s equally important to have critical thinking skills especially if you’re doing aeronautical or electrical engineering, but your application for that considerably more narrow. So, you’re applying to playing wing or something, or circuits. But, in mechanical it could be that and a whole bunch of other stuff, the whole point of mechanical engineering is that it’s very broad

I can you some specific examples

SS10 in terms of critical thinking?

I yeah

SS10 no, I couldn’t give you specific examples

I you couldn’t? how about something almost similar like in your mechanical course

SS10 (laughs) Well, I suppose code is a good example, coding

I coding for?

SS10 I would code to create ( \_ ) So, I just mechanical has more critical thinking, I would just say it’s hypothetical I don’t actually know, I would just suggest that, but probably true. But, yeah, that’s why I couldn’t give specific example. At this stage all of us are doing the same course, first year is same for everyone. I think second years slightly similar for everyone, the third year then you start doing mechanical engineering, aeronautical engineering that sort of thing

Interest = motivation (10:05)

PRACTICE to develop the skills + LANGUAGE

I what would be the effective way to develop the skills

SS10 as for the past couple of weeks I’ve been sort of thinking, sort of it occurred to me, or the only thing in terms of critical thinking I would say that the most important thing is languages and in every sense that you can mean language. So, obviously spoken language, that itself is an exercise of critical thinking, you’re taking different inputs, you’re getting different responses from the people and you’re coming back that you sort of and we do it very well. It shows anyone is capable of critical thinking, I think. Spoken languages is a small example of that and that’s quite an important one that we take it for granted. But, in term of engineering the language is Maths and also code, so what you really have to learn is how to be fluent in Maths and be fluent in code. If you could do those, there’s no strict solutions, well there are obviously, but there are no strict applications. They work for anything, that’s the beauty of language. You know, I will use the same Maths in trying to explain how gravity works that I used to explain all sorts of simple things like you know, ‘stress,’ and, ‘strain’, that kinds of stuffs. So, I think to become fluent in the languages, and now I can represent what I do mathematically using code, you know that sort of thing. So, I think by learning those that’s the best way to learn critical thinking

I enough practice on foundation year

SS10 they did a great job of facilitating questions, so there was tutorial and stuffs, where we set questions by weekly basis, I think, whole bunch of questions. I was for every modules, though there’re slightly less for some of them, but every modules have regular questions, and that was great. And, they also gave tutorial sessions where you can go through the questions with the teacher when you don’t understand something, so yeah, that was great, and they did a great job for that

ASSESSING CT

SS10 Obviously in the term of the society now you think you have to have assessment. Just being a realist need to have assessment, otherwise, I mean how do you know who’s good at what, you know, so, you have to have it. That seems to be some sort of matrix, but whether it actually benefit critical thinking skills ( \_ ) So, I think it this way, using coding again, so this is like my matrix to critical thinking, how I do code something like that, that’s me. Like thinking of random new things and I enjoy it, that sort of things. I’m getting, I’m good at code now, I’m getting good, getting better and doing well at it because I’m taking an interest independently the course and the stuffs that we’re assessed on, fair enough you need to get to the (veneer : 18:55?) of what we’re doing so that we understand the basics. But, in terms of critical thinking I got good at using code now because I’m doing the stuff that’s not assessed. I just do stuffs that I enjoy doing

I alright

SS10 again, I guess interest, just taken interest, that is not a sort thing you say in a course I got interest, but yeah, that’s what I can think of

LANGUAGE

I so, do you think students need to have high command of academic English for the to develop and acquire critical thinking skills (20:18)

SS10 no. Because I think critical thinking is independent of what language it is. I reckon, you can take born and raised let’s say Malaysia and he doesn’t, obviously speak English may be, he could be considerably better as a critical thinker than anyone who’s fluent in English. But, it’s just that they can’t write down those stuffs in English, that does not mean he’s not a critical thinker, in my opinion. Yeah, having a good grasp of English isn’t necessary, but obviously if you try to work in England just like the pragmatic thing, yeah you need to have a good grasp of English

SS10 I think, it helps in written and reading, because verbal communication is important when you’re dealing with people, obviously…when you’re trying to give your engineering work to your manager or something. If you do group work or something

I so, does that affect the way students acquire the critical thinking skills, or is not?

SS10 I think language it is critical thinking it’s just sort of manifested as a language so, where maths is clearly which very quantifiable way of critical thinking, code is just represent that, it’s just that maths is more of a visual way, and spoken language, and I think critical thinking is just applied in a different way. It’s way you could express critical thought, I think

I so, in order to express critical thought, which you’ve interestingly mentioned, do you think students with low level command of English will excel in this?

SS10 yeah, they just do it in a different language, in England, no. If you’re talking in terms of critical thinking generally?

I no

SS10 yeah, it would be useful to have a good grasp of English. Worth bearing in mind, I’m an English speaker, brought up and speak English and I don’t speak any other languages, so, probably I’m the worst person to ask the question to (laughs). Because, I don’t have problem with it. It’s fine for me, speak English, read English, write English…but, it doesn’t matter if it’s maths. I think, I probably say, on the whole, to be honest you probably find the statistics for, I just be saying like an anecdotes, generally those not having it as first language probably do better, I imagine. But, again that’s just

I from your observation were you surprised or shocked

FIRST LANGUAGE, CULTURE AND PREVIOUS LEARNING

I does you first language, culture and previous learning affect your critical skills in academic context?

SS10 I take it for granted that I can understand lots of the terminologies and stuff, when come to using like new words, basically. Engineering words like long ones which is difficult and stuff I find that, if that were to influence my critical thinking that wouldn’t be a problem because I’m fine with picking up new words, English is obviously is my first language. So, may be it had helped me having English as a first language … again, this is something I can’t tell because I’m English

I based on you background

SS10 probably independent thought. I was aware that I was taught differently to general consensus, don’t know what it is. Yeah, I was very much aware of that, my Mum will influence me very much to think, you know to not care what are other people thought and generally take a different line. I still sort of have an underdog complex (laughs). I need to even if it’s a ridiculous position, if there’s you know like two differences of opinion and one of them is like generally widely held one, people believe and another one an underdog one, is less believed I always support the underdog, I can’t help even if it is ridiculous, it’s not good in all situations. You know, lots of times it gets me into arguments, but it helps with critical thinking

PREVIOUS LEARNING

I how about your learning background? Were you consciously aware that you’ve been encouraged or to think differently or independently and there’s always opportunity for you to apply critical thinking skills in your previous learning

SS10 yeah, I’d never taught that…I’ve never aware of that. I never knew any of that, I didn’t go to particularly a good school, but it wasn’t a bad school, you know very mediocre. Yeah, there wasn’t much of that

I how about the classroom, it was more student centred or teacher centred?

SS10 I don’t know what the differences

I that means like the teacher talk more the students talk less or students talk more teacher talk less, that means teacher’s role is to facilitate…

SS10 teacher talked more, it was teacher centred

I teacher talked more, surprising, yeah?

SS10 yeah, to think it back it was ridiculous!

I do you think this is an isolated case you think, or do you think it’s general…

SS10 no, I think it’s general. May be I just not remembering well

I you finish your 6th form, yes?

SS10 yes

I in your 6th Form, how was your student experience, was it very independent, lots of critical thinking, lots of projects which promote critical thinking that kinds of things?

SS10 No, we didn’t (laughs). No, it was still very much the same. I was very much conscious that we were taught to past year exams

I so, it’s very much exam oriented?

SS10 massively

I umm

SS10 completely… occasionally a teacher would you know make an effort to do something different we had like my chemistry teacher she certainly tried to, you know she set a project at one point where you can just research. There’s an element of research, it was great, I felt great that’s why I get 2 A++, write up a paper about something that you’re researching. I think, that’s the only thing I remembered we did properly, I think

I how about your primary school?

SS10 it’s way back (laughs)

I no, because I’ve observed students very intelligent at a very young age here, so, I’m just wondering if you’ve gone through a same process?

SS10 yeah, I like, I think I was the smartest that I ever was when I was in primary school (laughs). That’s because I took more interest at early age sort of interested in Science and my grandma sort of buy for me books about science and it was great, it was really fun

DEFINITION OF CRITICAL THINKING

SS10 I still think independence of thought, which comes from taking an interest is the key to critical thinking…interest facilitates.

SS10 I still say solving problems, finding solutions in difficult situations and add to that now is coming up with new things, is creating scenarios of your own solving them, you know. Creating a problem of your own and solving them. Previously, I just thought it’s just problem solving now it has changed