ID\_SS10\_M\_UK

**STAGE 1**

**BACKGROUND**

I would you like to introduce yourself?

SS10 …I’m an engineering foundation year student…I’m 19 years old. I’m English always been brought up in the UK

**EFY STUDENT EXPERIENCE**

I how do you find yourself being an engineering foundation year student so far?

SS10 enjoyable, it’s very different from school as to be expected

I why is it different?

SS10 it’s far more in-depth sort of content of the actual course. It’s requiring me to look far deeper, again as to be expected

I so, it's the content that’s for you is different?

SS10 that does feel like the different at the moment. There has been suggested you know far more self-study is needed, but I actually haven’t found that needed to go entirely independent with my study, lot of the stuffs were taught is as deeper it need to go. The things like Maths and Physics, you know you’ve been taught a principle actually and you don’t really need to sort of extra research, you just need to apply the theory

I so, can I say it’ more guided?

SS10 yeah, it’s guided

I what’s guided the programme itself or the modules, or the tutoring or lectures? Do they guide you or the programme is designed in such a way…

SS10 I think both, but I think particularly the tutoring, the lecturers have to give all that we need and I haven’t found particularly that I had to go any further, and I do feel prepared for the exam at least most of them, at least Maths

**PRE-EXISITNG KNOWLEDGE ON CRITICAL THINKING SKILLS**

I what do you understand by critical thinking skills in your own words?

SS10 Well, I actually studied critical thinking as ‘A Level’ course, I didn’t do the full ‘A Level’, it was just my school they required us to do GCSE just the ‘AS’ part of it, or something like that. I didn’t do well at all (laughs). I think I completely fail, but the course wasn’t the big part of…Critical thinking as I see is as problem solving. So, the great thing about Science in general is just the application of logical process, that’s process of logic given to us by Philosophy. So, I see critical thinking is that, you just apply logic, critical process to solve a problem, as much as identifying the problem as much as solving them

**PREVIOUS LEARNING**

I so, you actually attended lessons on it as well?

SS10 it’s sort of a very vague, trying to teach vague concepts and trying to apply to, you know there were sorts of lot of word play like that sort of stuffs. I think it might be have been useful for those who went on to do law, everyone else is pretty useless

I so this one you took it in ‘A Level’?

SS10 ‘AS’, actually I did it during GCSE because the school requires it. It was the funding thing by the government, it is actually ‘AS Level’

I AS Level, not A LEVEL, okay

SS10 I see critical thinking as problem solving process that wasn’t actually taught in the critical thinking ‘AS’, it was just as I say sort of lots of word play. So what I understand to be critical thinking, I don’t know, I think I have enough mind set for it, I would think, I don’ know, may not. May be I’m creative. Naturally, yeah I prefer to problem solving, it just fits the way I think, so I haven’t really had to learn or to be taught you got practice

I but, you were lucky enough to have had gone through sort of subject on it by itself?

SS10 yeah, to be able to identify it, yeah

**CRITICAL THINKING SKILLS FOR ENGINEERING FOUNDATION YEAR (EFY)**

I how important do you think critical thinking skills are for EFY?

SS10 extremely, it’s key

I why? You think it’s the key?

SS10 it’s key, why because I don’t know if my definition of critical thinking because when I say that I’m thinking the way of problem solving. So, applying logical process, thinking critically about things to identify where the solution can be found, for engineering that’s obvious, you know. It seems to be obvious that you take the concept of, I mean this is like not just foundation year, the way I see engineering in general, I don’t really have the experience of it, but the way I would see it would be that you take principles of science, scientific concepts, laws and stuff, you take Maths which is essentially a language, you apply them both, use those as your tools to solve problem by critical thinking. The world produces a lot of problems but you can use critical thinking to identify the solutions, engineering just give you the tools, critical thinking is the mind-set that you have to have to be an engineer. I’m not sure if engineering actually teaches you that mind set, it’s just give you the tools

I so, let me repeat, but you can correct me if I’m wrong. Engineering gives you the tool but you need the thinking skills to apply it in a relevant context, yeah?

**PRACTICE IN EFY**

I which semester gave you the opportunity to practice the skills the most?

SS10 the real difference between the two semesters is the Maths, and I don’t see Maths so much as critical thinking, more as a tool a language we use, so the critical thinking comes in when do things like Electronics, Mechanics and EP, so I would suggest both semesters were same in terms of critical thinking

I So, you feel modules like EE and EP gave you more opportunities, yeah? Can you give example in EE where you actually apply your critical skills?

SS10 so, reasoning, so you use of principles, you use the tools of electronics which are whole bunch of laws and principles, the basics ( ? 9:21:7) laws. Those things would change, what you do is the critical thinking aspect is to look at different circuit, new circuit, often a too complicated circuit and to think critically to go through by which ever process that make sense to you, applying logical process. For me I found that it’s very step by step process, but for a lot of people is just straight to the point. Yeah, so, not sure that’s specific enough?

I yeah, that’s fine because you’re giving example of circuit and how you decide which to apply…

SS10 like voltage drop

I and how about Engineering Principle?

SS10 it’s the same thing, you know using the tools to, you know you’re given the tools that’s what we learn that’s the maths, the physics inside of it, like the laws and the principles, and the critical thinking is the application, that’s how I see it. It’s any questions which is simply asking for, ‘what’s the law, what’s the principle behind this?’ that’s obviously is quoting the tools. It’s any questions that simply ask you to apply it to a situation that’s critical thinking as I see it, it’s problem solving’

I which module?

SS10 I would say, it’s just that personal preference is Mechanics. I suppose I have Physics ‘A Levels’, I’ve some small experience of EP, Mechanics and Electronics and Maths. I did find Mechanics, I could very easily identify, I can just take the core principles, things like, just for example momentum being linear, so it’s always conserve to one direction. So, taken that sort of principle being given a question about you know to ( ? 12:31.7) one another like random angles, just by knowing the principle by understanding of Maths I’m able to think critically to that situation be like okay will I know if I apply that principles of linear momentum. And, I can also apply Mathematics to that to see (13.00.5 ?) and the critical thinking is combining those two and applying to that situation. I just found that we do that with all different subjects except for Maths, but I found Mechanics is a lot easier. I can do the best with Mechanics I think

SS10 I wouldn’t say Maths is critical thinking, but Mechanical Science

I why not Maths?

SS10 I just see it as a tool, it’s like a language. It is a language. You don’t need to think critically when you’re talking that’s what I’d say. You could critically analyse of people’s language, and sure that make sense to do so, but when you’re using language it’s very often comes down to what you’re saying, that’s what you mean, that’s nuances that’s all philosophical. When comes to Maths it’s even more harder, like this is the process this is the answer either it’s wrong or wright, I don’t see it as critical thinking. I just say it’s a language again, it’s just a very concise one. So, I don’t see personally Maths as sort of I’ve to think critically about, it’s just a tool.

**PRACTICE – SUPPORT SESSION**

SS10 the support session I used them, like I say if you do a question, the best way to practise critical thinking is to actually do it, to identify where your thinking has gone wrong, how you could sort it out and get better at applying logical process. Yes, they do help because they facilitate me to do practice questions and having them checked by someone who knows what they’re talking about, so yeah

I most of the time you get one to one attention from the tutor right?

SS10 yeah, lot of students don’t turn out for the support sessions. It’s usually me and at most five others

I let’s say you got a problem, like a complex problem do they give you the answer or let you think about it before sort of give you the answers?

SS10 in general?

I yeah

SS10 it’s not so much of leaving us to think about it, he certainly tries to point out every step in the process. So, he starts in the beginning, he takes you to another logical step, then the next and then the next one, so he’s very good at that. So, I like why he does that.

I so, can I say like most of the times he justify why there are steps?

SS10 yeah, there’s never a jump or a leap understanding which is beyond

**PRACTICE – WORKSHOP SESSIONS**

I so, now we’re going to move on to the workshop sessions with PGTA. So what are their role?

SS10 what’s are their role? They’re just like the support sessions, really (laughs) to be honest. I think they’re pretty much the same. But I guess, they’re trying to get a teaching qualifications something like that. It helps them I guess that’s what it is really, you know. It helps us it helps them, and it’s useful you know like I say if you’ve questions and you don’t know where you’ve gone wrong and in there are people who do know what they’re talking about, yeah that’s useful

I so, do they provide opportunities to practice critical skills just like the lecturers do in support sessions?

SS10 if you’re doing questions, yeah. Perhaps you even left to little bit more to invent your own devices in a workshop, which I think in term of critical thinking it’s probably a good thing. There comes a moment when the PGTAs don’t really know exactly what the answers are, they look things up by themselves and that gives you a chance to think and elaborate but often that can lead to you not having the questions answered. But, when it does then you know you often come to it by your own revelation, that’s very helpful, that’s the best way to do it

I I think they play a big role in lab report isn’t it? So, during lectures you get the content or theory and then, you sort of test out the theory in the labs and you come up with your lab report. Usually they sign you off right?

SS10 oh! Yeah.

I so, will they just sign you off or do they actually make sure you understand, or…

SS10 yeah, they’re pretty useful in the lab, huge amount of checking. So long you’ve written down you got everything there fairly concise they’ll sign you off. But, I don’t think there’s such a problem certainly not in a term of critical thinking. I suppose yeah, maybe. Maybe we should put more effort into (laughs) in actual understanding in the lab report, but yeah

I okay, right. Let’s move on. Apart from the whole process that you mentioned learning, applying critical skills

SS10 uhm

I now we’ve came to the final question. As an engineering foundation year student, in what aspect you think you had more opportunity to learn and practice critical thinking skills? For example, do you think you learn and practice more during lectures, during coursework could be individual or group work, or just doing worksheets like every week, or attending workshops?

**MOST PRACTICE**

SS10 probably do worksheets because I see the lectures that sort of thing as a chance to give you the tools, that’s why they are there to do, occasionally they’ll go through questions or two, that’s just they’re just showing you how to apply the tools and that you can do that more extensively in your own time more in workshops or support sessions. Lectures are there to give you the tools, so when you’re trying to apply those tools that’s when you have to use the critical thinking process when you have to think around things, see how it works and that you can only do by doing the questions, so yeah, the worksheets

I so you have the worksheets for every modules?

SS10 yes, there’s worksheets for every individual modules

I I think computer application is more of a course work?

SS10 oh! Yes, the lab stuffs we don’t have worksheets for those. But, in term of computer skills I think it’s little bit different, don’t know there’s be too much critical thinking, I don’t know. I think computer application is just one of those things. It’s like language again, learning language of computers you know. So, for computer application it’s just good to do computer application be in the lectures, be in the workshops and actually do it

I okay, right.

**DEFINING CRITICAL THINKING**

I I’m just wondering if you could define critical thinking skills again?

SS10 define them?

I yeah. After talking through so much, you know you were sharing so much of things, I’m just wondering if your understanding has changed or

SS10 well, what I’m keep going back to, of my understanding of it, probably as well, but as I understand it critical thinking process is the application of knowledge. Knowledge very separate from critical thinking, so is the way of thinking it allows you to apply what you know to situations where there maybe obscure as what you try to find or what solution they need, problem solving. So, you have a problem, you try to solve it, that’s where critical thinking comes in

I so, can I just sum up, for you personally critical thinking is more towards problem solving

SS10 it’s absolutely, yeah

I thank you very much

SS10 my pleasure