**STAGE 3**

IDSS02\_M\_Libya

I Thank you for coming for the final session of the interview today

SS02 you’re welcome

I So, you’ve now successfully completed your foundation year and now you’re in your second semester of first year undergraduate programme

SS02 yeah

I so, what is your understanding of critical thinking skills for engineering now? what are critical thinking skills for you now?

SS02 critical thinking skill? I think the way I define it is it more related to all aspects of lives. It’s not only academic life, like it’s not only study. You could have some critical thinking skills and apply them in life as my colleague last week said in politics and…

I yeah

SS02 yeah, I use that. So, I think I have some skills critical thinking. I use them sometimes I don’t realise I’m using them.

I umm

CT AND EFY

SS02 When I read about critical thinking, ‘oh! That’s critical thinking’, I think I have some skills (laughs)

I okay, can you give an example where you’ve used it and later you realised it’s critical thinking skill?

SS02 in life or?

I may be in your studies

SS02 in my studies?

I umm

SS02 in mathematics

I yeah, okay

SS02 mathematics. Sometimes the module or our syllabus makes you think in a specific way and solve it in a specific way. But, I think mathematics could be, it depends how you approach a problem there isn’t like a single way. So, sometimes you go around from a different way and I go to the lecturer and ask her, ‘is that right?’, she tells me, ‘yeah that’s right’. You can’t just like disagree just because it’s not her method

I umm

SS02 I think that, I don’t know whether it’s critical thinking or not, but it’s thinking differently from what’s usual

I alright, so, what’s usual? does that mean in your previous learning?

PREVIOUS LEARNING

SS02 yeah. Previous learning, I don’t know, like do you mean…

I like before you came here you went through a different education system, yeah?

SS02 yeah

I so, how is it different or is it the same?

SS02 in some modules, it depends on the topic

I yeah

SS02 how they introduce the topic, you know sometimes you have some background different from here

I umm

SS02 about, for example let’s say, ‘differentiation’ for example

I umm

SS02 here they introduce you more deeply. I understand the, ‘differentiation’, more but I can solve it in a different way more. (They?) have to write down some formulas but in my country we just do it by mine. We don’t like I don’t know if you’re familiar with the, ‘equations’, or not, but I realised that there are so many different of equations for, ‘differentiation’, but here so many different equations. It seems like a big topic, ‘differentiation’. But, my country just like you, it’s you just do straight away

I a single way of doing things…

SS02 single way of doing it. Yeah, that expanded my thinking of it

I right

SS02 you can go about it in a different way. It’s not this is specific way. Maybe there is a rule and it’s called ‘project rule’, but you can change it to, ‘caution rule’, just by putting the denominator down it becomes, ‘caution’, suddenly. So, you can deal with it you deal with the number to the power of minus one instead of (laughs) I don’t know…

I it’s problem solving isn’t it?

SS02 yeah, it’s problem solving. I t depends on how you go about it. Sometimes you take common pattern and make it changes another rule

I right

SS02 you can manipulate the rule

I okay

SS02 if you think this rule is hard you just change it to another rule by doing some simplifications to the problem

I so, what is your experience in doing this kind of things? How do you find yourself…

SS02 I enjoyed it. I can, I gained more knowledge and made me think like I can do that, apply that on all topics not a single topic. I can think about it in a different way. It’s not like, if I get stuck on the way the lecturer explain it I can just think it by my way, ask some others. Yeah, that (laughs)

I so you find very interesting, yeah?

SS02 Yeah, that’s interesting, yeah

I something different from your previous learning…

SS02 it encourages me think deeply independently, but I shouldn’t stick to the lecturer, I can come up with my way of solving the problems

I that’s interesting because you said, you mentioned the word independent, so it gives you some kind of freedom?

SS02 yeah, it makes me think independently I don’t have to go out and ask whether this way that I came up with is right because I seem to have the right answer to the final answer, is that the right method or not? I’ve done that in EP as well

I EP?

SS02 EP, yeah, and what topic? It was, ‘vibration’, I guess, yes. ‘vibration’, in one occasion this year there were some, the lecturer gave us a question, ‘parameters’ 5:52

…I think that’s an achievement

ATTITUDE ON CT developed

SS02 my perception I think has changed, I think it’s more about, I’m gonna talk about the skills, it made me like, consider there might be some other point of view, and most of them are right, and there isn’t a single way about going to specific problem. You can generate some other ways of solution just by analysing the results and you come with your own way of solving it if it’s in your study, may be

SS02 Throughout the course you apply them you realised that is critical thinking. The way the system works here, the education system in this university makes you like come up with your own answers, come out with your own work doesn’t make you rely on your lecturer’s way because sometimes even the lecturer’s way, there’s some puzzle there, you think like it doesn't make logical sense, you come up with your own way. It makes you go out and research and go out to internet and ask some others to get this knowledge. That will gain you by time some critical thinking skills because you start generating new solutions and analysing data, yeah

PRACTICE

I in your opinion what would be an effective way for student learn and acquire the critical skills?

SS02 I rather like that you make it in all modules not on specific modules, don’t like put critical thinking in small corner, that’s the module, that’s critical you can’t apply in other way, you can just apply in this module, no. I think in all modules, even in your life

I do you think you had enough practice in context? develop

SS02 yes, I think. We worked in computer apps groups, we worked in groups to generate a software programme to help, it meant to help the new computer students of foundation year of the following year, helped to make specific topic like vibrations, velocity, the topic that you choose, year. We split the work to four or three depends on group members and we have to do like slides work on power points and deliver it every two weeks to deliver some works. On some stage we got stuck and try to ask and meet together, and that gain you some skills when everyone say his point of view. Yeah this is how I apply it and gain some skills last year working in groups…yes, I think it’s enough and sufficient

LANGUAGE - ENGLISH AND CT

I do you think students need good command of English to learn critical skills?

SS02 No, it doesn’t require, you don’t have to be good in English, like some native people failed last year like some international students pass with very high grades. So, it seems like they’ll manage to go through the topics without having to go through difficulties, because engineering is about numbers, diagrams and sometimes, yeah we need English some specific level of English like you can understand the lecturer, but you no need to be really good at English…sometimes you can get away with it by translating some words, you google (laughs) of something…you can improve here, so I don’t think you need good English, it’s gonna improve by the time. The more you study, the more you get better on reading, you come across new vocabulary and new phrases

FIRST LANGUAGE, PREVIOUS LEARNING

I does student different first language, previous schooling affect learning of critical thinking?

SS02 I think it does affect, of course. I would say it depends on where you’re come from what your background is, and whether or not you’ve been encouraged by your family or environment to practise critical thinking. Yeah…like in my high school I don’t think you had any idea about critical thinking. The school doesn’t teach us, just teach you a specific way of solving thing, so yeah, it doesn’t encourage you to think independently, just makes you to stick to the teacher and write what on the board. May be some of them like encourage you but overall I wouldn’t say we had gain some knowledge or be aware of critical thinking skills in my country…personally yeah, I think I learn critical thinking may be from here, first time I heard critical thinking, even if I translate it and ask any speakers of Arabic they would say, oh, I don’t know that, unless they study abroad they might say, yeah that’s critical thinking