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| **Focus Group 1 - 12.04.19** | |
| Aantal minuten: | 89 |
| Aantal sprekers: | 8 |
| Taal: | English |
| Rough transcript | |

Sp1: [name], Phd. Computational aerodynamics.

Sp2: [name], BA/MA, PhD aerospace engineering, simulations and aerodynamics modelling.

Sp3: [name], Germany, experimental side of things, measurements technologies.

Sp4: [name], Belgium, aerospace engineering, system to measure aerodynamic software of athletes, experimental

Sp5: [name], China, aerdodynamics, applied mathmetics, new method for computational measuring/modelling

Sp6: [name] China, simulation in aerodynamics,

Sp7: [name], India, experimental aerodynamics,

Sp1: Very individual work.

Sp3: For the experiments you require support with tools and ideas right people have to be there at the right time

Sp4: Once you’re working with your data, you’re working individually, we are not working together on one project or so. But you help out each other in the lab, with equipment.

Sp3: yes, well if you have a question you can ask a colleague, but then you continue individually.

Sp2: Well we have the same daily supervisor, of course different projects, but we work with each others problems, if he is stuck for example. Almost weekly meetings/biweekly meetings. New ideas or problems.

Sp3: in experimental side, we work a lot with master’s students. We have our own project but then rely on master’s students. Its too much to carry out the experiments yourself.

Moderator: Do you want to stay in science?

Sp1: I want to see during the PhD process, but for now I’m more yes than no.

Sp4: No, I don't like teaching so no.

Sp3: No, I think it’s sometimes a bit far from what is relevant.

Sp5: Yes, I would like to spend more time on the topic.

Sp6: I’m not sure if I can change my mind after graduation. Salary

Luck brainstorm

Sp3: If you work hard you get more chances for luck. If you are really lazy and don’t show up in the office. You need to be at the right time at the right place.

Sp4: if you want to win the lottery, you have to go there and buy a ticket. You wont win by sitting on the couch.

Sp3: sometimes it is also about being at the right time at the right place. For example, I wouldn't be here if I wasn't searching for a master thesis topic. And then produced that in the measurement system I’m now working on.

Sp2: I think it is a lot about being at the right place at the right time. Bumping into the right people. I mean, I personally have been very, I think most of my career path very accidental. Luckily. Let’s say to start, [name Dutch research institution] was my last choice, but I finished my application 2 days for the deadline. Looking for a master thesis was also very accidental. I wasn't really looking for something, but I was having coffee with my professor. Back then it was just a professor. He said ye I know this position it is with this company. And then I started doing my internship and master’s thesis at this company. Eventually that MA thesis resulted in a job after my graduation. It was the same when I was starting my PhD, I wasn't really looking for it, back then. It was just that. I switched jobs and started working at a new company. […]. In India the selection as from 80.000 students, I was lucky and the only one applying. At the right place at the right time. PhD topics and supervisor were anonymous. It was accidental that the project I chose for was from my thesis supervisor, at the same university. It all fitted very well.

Sp6: you say accidental in your examples. I don't agree. When you get something accidental. I don't think this is accidental. In the back of your mind, you must think about it. And since you think, you will attract it subconsciously. It is not always an accident

Moderator: do you have control over it?

Sp6: yes.

Moderator: do you all think luck in within your control?

Sp2: I don't think so. I mean its. I think it just happens.

Sp6: I am not saying it is complete control. But you have some attraction about it and that's where you go for it. If you think that is completely black and white.

All: what is the definition of luck? Moderator: that's part of the Focus Group, how you perceive it.

Sp1: Luck doesn’t make sense as a concept. Luck is what people call a satisfactory final state. Ultimately in life and science, you get a result or situation and that's what we call luck. But maybe you have missed many opportunities in-between that would have been way better for you. How lucky I was to reach that state. Ultimately, we rech at some stage and we call it luck. It can be better of worse, depending of theses stages, but ultimately it is some stage that you can calculate (?), that satisfies your inner..

Moderator: is it like faith?

Sp1: I was offered three topics for my PhD. One I couldn't choose, I liked it best. So, I chose B, it was nice and it worked. And I could say: how lucky because I chose B. No, this topic was offered to me, I did hard work. Its not luck. Maybe topic A could have resulted in 2 publications, then I could have though how lucky. No, it really depends on what you do and hard work.

Sp7: If you chose the topic next year and the choses this one and then say it was accidentally really lucky. But if you are given the chance to select a topic, then you select the topic based on your experience and knowledge. Then you can not say its accidental luck. But you made the choice. You selected the topic by yourself. It is not lucky.

Sp1: You chose a path and you work more or less and then results come out.

Sp3: If you put more work in the chances are higher. In case of my ma thesis, testing a new measurement method. I was lucky it worked out well, and therefore I could continue to a PhD. It could have happened that the method could have failed. Even though I would have worked as hard.

Sp1: But if it doesn't work, you can find out an aspect or new thing, the community was doing wrong. So ultimately you can find something good. How lucky.

Sp3: True…

Sp7: But how do you define when your experiment didn't work

Sp1: No results are also results. Maybe you have two pieces of methodology.

Sp5: When you called its lucky - Its luck, you don't have to know why its luck at that moment you think you are lucky. Luck is a feeling. I found ten euro on the ground, then I’m so lucky. If it goes so deeply, whatever you just said, there is no luck.

Sp1: Luck is for me not destiny. It is a satisfactory final result. It is not like a destiny that had to happen. A final result is it. If it worked it worked if not then not. You can always explain form it. The more you work, the more you increase the rate of success. But the right thing, right place thing… there will always be a right time and right place if the time span in long enough. If you don't find a position in [city in NL], you will find one in Canada.

Moderator: You say there is no right place right time?

Sp1: There will always be a right place, when given enough time.

Sp7: You spend one day, on a problem and no idea how to figure out. Suddenly over summer you know how to figure it out. Then I think I am so lucky I figured this out during a shower. I sometimes think I am lucky.

Research project leader: You mean when you say that when you relax you have creative input?

Sp7: Sometimes for work yes. And I talked with other guys, but this about his problem and they have had bad grants, and when you are relaxed and creative ideas

Sp1: Relaxation brings creativity, out of the box thinking.

Sp4: You say you don't think luck exist, how do you define not getting a job?

Sp1: There was somebody better than me there, so I was not the best candidate. I was not unlucky, there was someone better than me.

Sp4: You also do not believe in bad luck?

Sp1: Well, they look for the best candidate. Being consistent, yes, that cannot happen.

Sp4: Imagined you worked months on something, your computer crashed, your back up, everything is gone.

Sp1: Well as a professional, I should have a back up. Life brings you good things and bad things. Life is not a flat line, it has ups and down. Whenever a down comes, you should be prepared with back ups for example. But its not bad luck. If you don't prepare for downs for life, you may call it unlucky. If your computer fails, these are down in life and you should be prepared.

Sp1: you try 99 times and you succeed once. Then you’re not lucky or unlucky, ultimately it will work.

Sp2: Well if you get the position, you’re lucky.

Sp1: I like to call it success, and if I fail. I fail, not unlucky.

Sp2 (on white board): I see it as being at the right place at the right time. […]

Sp7: Luck is random. In the back of our mind we think of some things, when you take a shower, then you get the idea [..]. but you cannot say it is complete luck.

Sp5: I think with the shower. You cannot have this sort of act in science. You always need to think a lot about it. Then suddenly you have this idea. Even if you would not take shower, you would get this idea.

Moderator: Own experiences with luck?

Sp2: Actually no. sometimes when I was post operising the data, I got superperfect, better than expected, I thought I was super-lucky and went to my supervisor and he said: there must be something wrong. So, I checked everything and checked for errors in the code. During work, I’m never lucky.

[…]

Moderator: Its unexpected because you can’t explain it?

Sp3: Indeed, nobody can explain it.

Sp1: What does it have to do with luck?

Sp2: It's a surprise, it just happened

[...]

Sp5: In mathematics, we can prove something. If it is not wrong, we will know. 1+1=2, if we get 1+1=3 we know its wrong. I got that and went to my supervisor and he said go back to your data

Sp7: In science, we want it to be sure. We do these tests again and again and then average and get an average a good value. So, moving the randomness.

Moderator: You control the outcome?

Sp7: That's what happens in science

Sp4: In cycling, in my area, there is this guy X, he is the first to visualize and characterize the way aerodynamics works for cyclist. But, he was actually not looking for it. He discovered it by accident. He saw this flow field that nobody ever worked on or reported on. That is more interesting than my work here. So, he was lucky to be the first one to see it. And he is now the most cited in that field. In that sense, it is some sort of luck, but then again.

Sp3: It is a surprising result.

Sp4: So, he found it and then decided to work on.

Sp7: In science it happens, you call it luck. But in the future people will work on it and try to resolve it. This is the problem, here I had 20% of luck, but after certain years I have 10% of luck.

Sp4: I meant he is lucky to see it, but his paper was the starting point.

Research project leader: But knowing the reason behind it, makes it less lucky?

Sp7: No, I don't think so, if I were smarter, I would have never reached that point. […]

Sp1: I had such a situation, I did simulations that were very expensive, they took 3 weeks. At the beginning of the simulation, I had to choose two input parameters. We used to do by trial and error, but the simulations took three weeks, that was too long for random choice. I had to choose a method for choosing input parameters. After a few weeks we found a result that was way more relevant than what I was working on. Is it luck? Well, you go different ways, you choose this path or another. It just happened. We needed these tools.

Moderator: Any other types or examples of luck?

Sp2: I believe maybe sometime when you start, when you have no clue where to find information, you look randomly in the literature and read out random papers and find useful information there. If you call it luck. You just totally randomly scan the literature and all of a sudden you find an equation there, for your research matters. Might be lucky according to some people’s definition.

Sp1: In my simulations I will have to integrate the factors of human influence. These influence the results […].

Moderator: Should scientist be proud of the outcome of their work?

All: YES

Sp1: because luck doenst exist, it is about hard work.

Sp7: if you know the reason behind luck, you should be proud. If you don't know what happened, then you should be proud.

Sp3: well its still your work

Sp7: yes, but I don't know what happened exactly

Sp1: But, you are the creator of the environment to make it happen. Its like penicillin. The guy who invented it. That was an accident, but he worked hard and did develop it. [...]

[not really understandable]

Moderator: Should they get praise, prizes and extra funding for example for unforeseen findings?

Sp2: Luck doesn't strike twice. I mean I think if its. If it was luck, some people have luck of recognizing patterns. Visualizing things and [..] if you discover penicillin, you’ re not going to discover a cure for cancer. At least, when it has been by accident.

Moderator: The guy, who discovered penicillin received the Nobel Prize for it, even though it was an accident.

Sp7: I think the Nobel Prize is for society. It was an important finding!

Sp2: There is a difference between prizes and grants. A grant means your continuing your work. If you don't know how it works, the chances of reproducing it are low.

Research project leader: I’m curious about [name SP4] story. The guy who has written the paper.

Sp4: I think if he wins prizes he has deserved it. He has discovered it by luck, but worked hard for finding it out and published about it. Its also needs work for getting a prize.

Sp2: I think a prize would be ok, but some sort of funding for similar things, that is not the right approach.

[...]

Moderator: Is it symmetrical? Should people be blamed or punished for things going wrong or not working out?

Sp1: No results are also results.

Sp3: I think if people do consistently poor research, then they won’t find funding anymore.

Sp1: if their method is poor, they you should be punished. But if the results aren’t as good as expected, well yes that is science.

Moderator: One more puzzle: Two scientists equally talented, prize

Sp1: It is not fair, but it happens. It’s life. We don't value effort, we value result. It is how it works. Its not fair but yes.

Sp3: What should the other guy get a prize for? for being smart?

Sp7: If there is no result, there is no result. If he doesn’t bring anything to the table. Then no.

Sp1: You don’t want to reward hard work. We can all work very hard, train very hard. But rewarding the outstanding one that’s yes.

Sp4: It fits to more work is more chance on luck. From those people they work hard, if one finds it, then both have 50% chance of finding it instead of 10%. Then still, yes the one who finds it should get the prize.

Moderator: would you agree: chance only favours the prepared mind?

All: yes.

Sp1: Yes, and hard working. Its more important to work hard than to be intellectually prepared.

Moderator: Anything to add?

Sp7: For scientists it’s better to have little luck. Because then you know the things. I see luck as something that is sometimes good, but not always, its random.

Sp1: I said a lot about hard work. But experience may also help. You can work hard inefficiently, without reaching the results because its the wrong direction.

Sp4: We are trained to follow the idea of our supervisors, I trust him, because I value him, but I think sometimes its better to follow your own idea, and try it out. Because there are sometimes things also your supervisor didn't think of.