Teaching ethics to engineering students

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M A T E R I A Ł Y

TEACHING ETHICS TO ENGINEERING STUDENTS

Interview with Professor IBO VAN DE POEL[*]
Made on 25th September, 2014
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by EULALIA SMUGA-FRIES[**] during Her Internship There

Eulalia Smuga-Fries: Why should we teach engineering students ethics?

Ibo van de Poel: The main reason is that in their later practice when they are engineers, they will be confronted with ethical dilemmas. They will have concerns for example about the safety of the cars, sustainability or justice. The main reason to purpose of teaching ethics is to make students ready to see these issues and to deal with them when they become engineers.

E.S.: What can students learn on a course of engineering ethics? Are there any special skills or competences?

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I.P.: Yes, we can distinguish a number of them. The first competence is what you might call sensitivity, which is the ability to see ethical issues. If you don't see the issues, you will never deal with them. So, the first skill students have to learn is to be able to see the issues. The second skill is to be able to analyze them and talk about values that are at stake, about norms, stakeholders and conflicts of interests, which is a more analytical skill. Another skill is the ability to form judgments, to judge what is the best thing to do, and the ability to justify, to give reasons why you do things. There are also skills like being able to discuss and communicate things, so you should be able to form your own opinion and discuss the opinion with others. You should be able to listen to arguments of others, to accept these arguments or reject them, but also to communicate, for example to the public or a client why you have made certain decisions. I think these are the main skills and competences that students should learn.

E.S.: I guess that group work and cooperation is another skill that is quite important.

I.P.: That's right. It is important that students cooperate with others. Partly, this is what I meant by discussion but it is also the ability to do things together with others; in engineering work, of course, there is much group work.

E.S.: Some students seem to come to philosophy/ethics courses with a skeptical attitude. What can be done to change it?

I.P.: Well, yes, I think you are right. There might be different reasons why they are skeptical. One reason might be that they think there are no ethical issues, so why would they bother. Another reason is that students may ask themselves the question why these ethicists tell us how to behave, we don't need ethicists to tell us that. I think there are a number of ways to deal with this problem. The main thing that we try to stress is being close to students' own practice and the fact that they will have to deal with ethical issues because such issues are already present in their work. We are doing two main things: one is involving teachers form engineering faculties in our courses. The teachers present stories from their own experience to show students that it's not only the ethicists but also professors from engineering faculties that care about ethics and find it important. The other thing is to come with very concrete examples, concrete cases studies. An interesting thing is that many students that are skeptical at the beginning as soon as you talk about something concrete, they have an opinion and they care.

E.S.: What type of problems do engineering students encounter when studying ethics?

I.P.: One of the main problems for them is that they are used to problems that have clear solutions and their attitude is also to solve a problem as soon as possible. So, first comes the solution and only then the question, whether it is a good solution.

E.S.: Like a "true or false" way of thinking.

I.P.: Yes, it is indeed a "true or false" way of thinking but what I also mean is that first, they make some very concrete proposal and only afterwards they ask whether it is a good solution. That's the kind of attitude that many engineers have, they are problem solvers. Philosophers are not problem solvers, they are problem askers. The philosophical attitude is about asking questions and finding ethical problems. I think both are actually needed- asking good questions and solving problems. The hard part for engineers is to take time and ask a question and to be aware that even if you do not know the answer yet, asking the right question is important. Also, if you don't ask the right question and instead you get a solution to a wrong question, it is not a real solution. In my opinion, the main thing that students should learn that there are questions which do not always have one right answer; students should also become aware that asking questions itself is sometimes more important than answering them.

E.S.: What is the role of case studies in teaching ethics to engineering students? You have already said a few words about it.

I.P.: Yes, I have already mentioned case studies as remedies for skeptical attitudes. It is very important to get cross to students. It is the case studies that can be appealing to them. Theories are rather abstract and they do not mean much for them and with case studies they can engage. That's important. Another thing why case studies and generally ethics are important is that you see some of the complexity of real life ethical issues. In a sense, that's the problem with academic philosophy that it treats ethical issues as quite simplistic while in real life they are always complex and engineers need to be aware of these complex issues, so I think that case studies are also very important in that respect.

E.S.: What are the biggest challenges for a teacher conducting courses in engineering ethics?

I.P.: Well, I think I have already mentioned some of them. One challenge is students' skepticism and another one is the idea that there are no ethical issues. It is also important, as I have mentioned earlier that engineers want to solve problems rather than ask questions. These are some of the main challenges, but I think that it is also a challenge, connect ethical issues to theory and practice, and this has to do with case studies. On the one hand, we want students to do some theoretical study, we want them to think about values, ethical theories, but at the same time they should not just be reading about abstract issues, they should connect to experience. Connecting theory and practice is also a main challenge, apart from the other things that I have mentioned.

E.S.: Who should teach engineering ethics? Philosophers or engineers?

I.P.: A combination of both. Here, we aim at, what we call "co-teaching," which basically means that, we usually have lectures and tutorials. At lectures, we usually

have philosophers but we also invite engineers as guest speakers to talk about their own examples and, at tutorials, we might have philosophers as well as engineers to lead the group discussions and to get students involved and to show them that ethics is relevant to their own work. So, I think the best is the combination of both.

E.S.: You have participated in a team that has developed AGORA, an electronic tool to teach engineering ethics. It seems to be a very attractive teaching tool for young people. However, I can imagine that some philosophy specialists could argue that the use of such tools significantly simplifies moral dilemmas and ethical analysis. What is the role of AGORA in teaching ethics? How can it be used?

I.P.: There is certainly some truth in what you have said for philosophers the tool might look a bit too simplistic. The idea was that it could help students better prepare for discussions. So the tool has not been designed to offer final answers to what you should do or that you apply the tool and then you know what to do. Partly, it was just intended that students exercise some analytical skills to [identify] the values and also a bit the judgment skills, but- partly the tool was also designed as a preparation for discussions with others.

E.S.: China can be a new work destination for the university graduates in Europe. On the other hand, the number of Chinese students at European universities is constantly increasing. Is the content of the book on engineering ethics that you are the coauthor of and AGORA, the mentioned electronic tool, context sensitive? Are any other than European and American ethical schools taken into account in the teaching materials that you use?

I.P.: No, only to a limited degree. In the book we have paid some attention to it so, for example, we discuss the codes of ethics in an international context, we discuss very briefly some differences between Japanese culture and Western culture. But, for example, in the chapter on ethics we really focus more on what we could call Western theories rather than Eastern theories. I think if you want to adopt the book to this context, you may want to pay a little bit more attention to some Eastern values like harmony for example.

E.S.: What advice would you give to teachers who want to develop a course in engineering ethics at their universities?

I.P.: My main advice would exactly follow the issues that we have already discussed. One thing that is very important to do in cooperation with engineering faculties, is to make sure that what you do is relevant for engineers, that they recognize it as being about their work and about ethical dimension of their work. It is also important to focus on case studies and keep it concrete. Another crucial thing is to get support and recognition of engineers so that they also recognize it as something that has to do with their work and not something for a philosopher.