World:
The Use of AI and the Internet in Education — I

A Brief Dialogue on Whether AI and the Internet are Actually Good for Education

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Contents

1 Introduction

This entry is about the utility and potential danger that the use of AI and the internet has. In particular, this entry is about the use of these tools in the context of education. When the term "AI" is used, I use it collectively to mean the current AI available (mainly through language processing), but also any future AI that is more powerful.

Everything following is done in a dialogue style, and so there are two fictional characters "Fincleah" and "Actun" who discuss this topic through questions and answers. It is primarily Fincleah that asks the questions however. Hopefully this format might be enjoyable to read more than anything, but hopefully also clearer than a typical monologue style essay.

2 The Current State of AI and the Internet

FINCLEAH: Welcome to my humble abode! It hasn't been long since you last visited though, but yeah after the lunch we had I thought it be nice to have a cup of tea or something.

ACTUN: Yeah sure — honestly thanks again.

Actun sits on one of two sofas facing each other in the living room.

FINCLEAH: No worries. Take a seat, I'll get biscuits from the kitchen next door and the tea. So, where were we?

ACTUN: Ah we were just talking about ChatGPT and that.

FINCLEAH: Riiiight yh that's it — honestly I never knew it was used so much from what you've said. Like can it really just answer pretty much any question?

ACTUN: Well yeah it basically draws from the internet as training data and then processes that info to work out the solutions to the questions you give or just interact.

FINCLEAH: Crazy, and I know that you said tonnes of people are using it?

ACTUN: Yeah, I mean loads of people at my uni have been trying it out and using it for all sorts like coursework and stuff. I mean just like everyone uses the internet anyway this is literally another powerful tool like it and better in loads of ways so it's only natural.

FINCLEAH: Right, when you say better like how do you mean?

ACTUN: Well quite simply, with Google, you only pick up what previous people have written, but with ChatGPT, first of all it can build up answers from existing info to give completely new answers. So it's literally serving you info that maybe hadn't existed before so you can get things that Google can't give. Also you can give really precise questions Google can't handle, or search for really general stuff in a constructive way that Google can't handle either. That's probably where its language processing power comes in.

I really just find it quite cool that it can just give neat answers, so I use it quite often myself.

3 The Purpose of Education

FINCLEAH: Honestly that's some pretty crazy stuff. But like going back to how all this affects your uni, I wondered, what do you see is the purpose of a university in the first place?

Fincleah places the tea and biscuits on a table betwen the two sofas, and sits on the one opposite Actun.

ACTUN: Well, I would have to say, in simple terms, university ought to educate its students in the particular field that they choose.

FINCLEAH: I don't think I can disagree with that, but what do you mean by educate?

ACTUN: Well again, in simple terms, I guess its the

process of teaching students to become capable and independent practitioners of their respective academic fields.

FINCLEAH: Nicely put, I just wanted to check. So all in all then, a university ought to teach its students to become capable and independent practitioners of their respective academic fields?

ACTUN: Yeah precisely so, I think.

4 Why Is AI Seemingly Good for Students?

FINCLEAH: I was wondering as well — you said you use ChatGPT, but like what about it do you think is so good for students particularly at university?

ACTUN: Well really, it's like with the internet but better as I said. You have any piece of information you need to draw on, and what's more with ChatGPT, you don't have to do any work to get information that didn't exist before, including the information you sought to find.

FINCLEAH: So for example, let's say there's a student that had a piece of work about solving a problem on the energy efficiency of a wind turbine with a unique blade design that's completely new.

Using the internet, this student can find out about all previous turbine design's and their related efficiencies. But using ChatGPT, the AI can process previous data and set out a method to give an answer for this new design, which the internet cannot do. And so, from what you've said, what's so good about the AI is that the student doesn't have to bother with the method behind finding the efficiency of a wind turbine at all, but can just ask it to process it through itself. Of course I'm not sure ChatGPT can do this much, but let's say it could, and so would this be right?

ACTUN: Yeah, since with the internet alone, the most a student could do is use the same method of efficiency calculation on the new turbine design

maybe even from first principles. But with ChatGPT or a more powerful AI, the AI itself can draw a method using the first principles to get the efficiency of the new design, and so the student doesn't even have to bother with that.

FINCLEAH: So what you're saying is that using AI, students can produce solutions they couldn't before, by relying on the AI to make those methods for a solution? In this way, they can solve more problems, and more efficiently?

ACTUN: Effectively yeah, I think students then are able to solve more complicated problems.

5 What Can AI Do That's So Special?

FINCLEAH: I really want to get at the core, especially when it comes to AI, of what it is that AI can offer that's so special. What would you say is this unique thing that it can do that the internet can't?

ACTUN: Creat new ideas. And by that I just mean creat new pieces of information from old pieces of information.

FINCLEAH: Right cheers, I think I've wrapped my head about everything for now. Would it be alright if I ask a few more questions? I think it would help both of us.

ACTUN: Sure no problem, if it helps my understanding of things too, sure.

6 What Is a Good Student?

FINCLEAH: The first thing I want to ask is about what it is for a student to be a good student. So, what do you think makes a student a good one?

ACTUN: Well, I guess they just have to have a good amount of knowledge and know how use it I would

say.

FINCLEAH: Okay, so for example let's say you yourself had two students, and set them both work. The work was to structurally design a house fit for a family. One student, student A, came back to you with an elaborate mansion with cinema rooms and several kitchens, and an indoor swimming pool, but all with the bare minimum of calculations. The other student, student B, however came to you with a modified stack of shipping containers with 3 bedroomss, one bathroom and one kitchen, alongside detailed calculations and a design methodology. Which student is better here?

ACTUN: Its got to be the second, Student B. All that being said I'd feel sorry for the family though since a mansion is way nicer.

FINCLEAH: Ha true, but why is Student B still better in this case? Surely the result of Student A's answer is better as you joked about?

ACTUN: Well yeah, a mansion is a nicer result, but as you said, the student didn't have as rigourous a method as Student B, and that's what counts. Like Student A's result of a mansion is far nicer, but because their method is not as clear supposedly, they haven't shown that they understand the process or method they've learnt as much as Student B.

FINCLEAH: Just to give another example, with Students A and B again. What if the problem was solving a simple algebra equation. Student A gave you a piece of paper with the right answer only on it, and furthermore couldn't tell you their method. Student B gave you another piece of paper with nearly the right answer, but all the methodology they used also. Who would you say makes the better student?

ACTUN: Again, Student B. They gave the wrong answer, but at least I can see that they used a way of reasoning and maybe even just meade a human error. If they can set out the reasoning to solve one algebra equation well, then they can most likely solve another too. But with Student

A, They just haven't shown an understanding of the process, and so is less likely to be able to solve other algebra equations.

FINCLEAH: Nice yeah I agree. From all that you've said, it seems that a good student is one who understands the methodologies behind solutions, and just to check, is this right?

ACTUN: I'd say so yeah. Since if a student knows the methodology and reasoning behind solutions, then they can create their own solutions in a capable and independent way, which is the aim of education as we said before.

FINCLEAH: Right, yeah that makes sense. On a note similar to that, I want to ask, do you think there is any other way for a student to create solutions in a capable and independent way, than understanding fully the methodology and reasoning behind solutions?

ACTUN: Hmm, to be honest I can't see any other way. There of course may be many ways to understand the methodology and reasoning behind solutions, but that's the ultimate end of education for the student I would think.

7 What Is the Point of Efficient Idea Generation Alone?

FINCLEAH: So, earlier you said that what's so good about AI is that it allows new solutions and methods to be generated. I wonder, what's so good about that as opposed to people producing those ideas?

ACTUN: Frankly it's more efficient. It might take someone years to get the same idea that AI can give in a heartbeat.

FINCLEAH: Let's assume that ideas and methods generated by AI are trustworthy, what's so good about the efficient generation of these ideas?

ACTUN: Well it means we can use more of these meth-

ods and faster too. So all in all, we can produce results faster. For example AI might propose a new method of analysis that enables structural analysis to be done quicker, now if we could have that method set out quickly by AI, then we can use it faster and get results from using that idea, ideally by producing some value, whether that be financial or other.

FINCLEAH: So then the benefit of getting AI to produce ideas efficiently, is purely that we can use them faster to get value from them more quickly, generating quicker results?

ACTUN: Well yeah. Thats basically it.

8 A Conflict of Interests Regarding AI

FINCLEAH: Nice, I think I've got the picture now, so do you mind if I put a few things to you about whether firstly AI is good or not for students?

ACTUN: Sure, no problem.

FINCLEAH: Well, first I can't help but notice we said that a good student is one who understands the reasoning and methodologies behind solutions. With this though, we also said that the prime benefit of AI would be that it precisely finds and automatically uses those methodologies and solutions, whether new or old, for you. Therefore, as a student, wouldn't using AI precisely take away the necessary component that would make you a good student, or the practice thereof?

Secondly, we said that the ultimate benefit of using AI was the fact that it would produce new ideas and methodologies more efficiently than humans, and that this leads to faster results in using those ideas in business for example. We said that for students this means that they can produce results from methods and reasoning they don't know. We also said, however, that the the aim of education at university is to produce students who are capable and independent practitioners of

their respective academic fields.

Now, the aim of business we could say is to produce more value and results from things of lesser value, yet the aim of education is precisely beside that point — more or less independent of that point. And so, taken what we've said, is there not a conflict of interests between the aim of education and the aim of business if we are to include AI. AI, from what we've said, coincides with the aim of business, but seems to be irrelevant for the purpose of education, surely?

ACTUN: You've given some good points there. I can't seem to be as enthusiastic for AI in education as I was before — but I might need some more time to think about it.

9 Can AI Be Good for Education at All?

FINCLEAH: Fair enough, but given all we've said, and what I've put back to you, can you see any uses still for AI in education?

ACTUN: Good question. I guess, if we've said that education ought to produce capable and independent practitioners of respective academic fields, to which end learning methods and types of reasoning for solutions is paramount, then there's maybe a few.

Most of all, AI can explain methods and concepts to students in a dynamic way to maximise understanding of those methods and the kinds of reasoning used. Therefore, it seems the primary benefit of AI, according to our aim of education, would be to find new methods of explaining the concepts and kinds of reasoning themselves, which students should seek to learn. That way, AI's capacity for idea generation can be used, but in the aim of strengthening a student's understanding, and not in the aim of producing the results of solutions students ought to find themselves in order to become able in using particular kinds of methods/reasoning.

FINCLEAH: That seems to me also the only way to reconcile AI with education, if we are to keep using AI in education. Then, would you say that in a sense the output of education is capable and independent students in their particular academic fields?

ACTUN: Yeah that seems right. AI in business is usually used in the aim of producing innovative ideas, methods, or solutions, in order to gain value in those ideas' implementations. But in education, using the same model, the output is capable students, through producing and implementing methods that allow students to understand methods. So in that way, as long as AI is used in the aim of producing students who understand the methods and reasoning they need, then that would be a good use of AI in education I think.

FINCLEAH: Right, but then there's the issue of teachers, surely. Our current description of the right use of AI in education specifically overlaps with the role of teachers. Teachers are also here to use and create methods which allow students to understand the methods and reasoning they need to produce solutions. So then, is there still a use for AI?

ACTUN: Well, there might be a benefit in using AI instead of an actual teacher maybe? Like if it's cheaper or more accessible to use AI?

FINCLEAH: That is true, although I'd hope that would mean we have to be doubly sure that human teachers are doing the best job, and teaching also information that AI wouldn't be able to have yet, since naturally not everything is online, even though nowadays most stuff is. But for when teachers are inaccessible, AI, being used in this way, might be able to be used as a backup, or teaching aid.

ACTUN: Right yeah, I think it would be really cool if we could use AI to aid learning at university if it helps students.

FINCLEAH: Hm, I can agree with that, but I would think then it becomes less clear as to why you'd go to university, if the tools and methods of teach-

ing can be exercised by AI outside of university. I might take back what I said, I think even as an aid for learning it should be a backup, and nothing more.

ACTUN: Why's that?

FINCLEAH: Well, if students are really going to get the pinnacle of instruction from teachers, those teachers must be able to give students intricate knowledge also using their personal experience in industry or research. This kind of knowledge is rarely documented, and is unique to the human exercise of that discipline. And so, AI wouldn't be able to teach that kind of knowledge as effectively, not least also because not all knowledge is confined to pen and paper which AI can only use currently.

ACTUN: So you mean that there are things human teachers only can teach, as opposed to AI?

FINCLEAH: Yeah basically, but more importantly, I think we have to make sure it is that way no matter what. Otherwise, human teachers would be overridden by AI. I don't know how to explain much now, but it would seem a shame if ground was to be conceded to AI on the front of human teachers. How can we say we are dedicated to the discovery, understanding, and passing on of knowledge from the intelligible universe, if that job is even partially done by anything other than us?

ACTUN: You must be over exaggerating, like AI is just a tool, not another kind of teacher surely?

FINCLEAH: Well, it doesn't seem to be used that way. It's seen as having the knowledge students want to know, and also seen as having the ability to communicate that knowledge. Is that not how we see teachers, at least in the large? Also, wouldn't tools be tools only if we knew exactly how they behave? AI is precisely there to behave in a non-static manner, and so cannot possibly be a tool that we can fully comprehend, I think, and hence not a tool as all.

ACTUN: Hmm, you give some good points.

10 Students' View of Education

FINCLEAH: I can't help but notice something else too.

ACTUN: Go on.

FINCLEAH: Well, our main concern is education at university right?

ACTUN: Yeah.

FINCLEAH: We said also that the aim of education, and particularly university, is to produce capable and independent practitioners of particular academic fields right?

ACTUN: Well yeah.

FINCLEAH: So, what is it that most people go to university for?

ACTUN: Well, to get the qualifications for a particular job.

FINCLEAH: Right, precisely, and so they mainly go to university in the aim of entering the business or industry sector right?

ACTUN: Effectively.

FINCLEAH: But here's the thing, we've said that the aim of university is to produce practitioners of *academic* fields. I think there lies a conflict of interest, even though it seems implicit. We've just said that most students aim to use university in order to become practitioners of *industrial* or *business* fields.

ACTUN: Ahh I see, so there's a possibly slight difference in a student's expectation and a university's intention.

FINCLEAH: Exactly. I mean, would you assume that industrial fields are more standards and results based more than anything?

ACTUN: It seems so yeah.

FINCLEAH: Then what about academic fields?

ACTUN: They do have a facing towards a kind of standards and results based set of outputs, but it seems mainly academic fields are understanding based, requiring rigorous reasoning.

FINCLEAH: Right, and so, although there may not be a conflict of interests, do you think at least these aims are apart from each other?

ACTUN: It really does seem so. After all, the academic and industrial fields are separate to begin with through their respective institutions.

FINCLEAH: Right, exactly. And so, I can't help but think this is why, by on large, students may like to use AI, and universities including professors, would rather AI might stay out of the picture or be controlled.

From a student's perspective, AI's unrestricted use would seem no problem, probably because their aim is to gain a job in order to produce results no matter what, and not necessarily to gain as complete an understanding of all methods and reasoning used to produce solutions.

I can't help but see many students say that there's not much point in learning many methods if computers can do them, and far better too. Of course, this is because they are more concerned in producing good results from solutions more than anything, including in their end goal as a worker in industry. And I think that this implicit tension must be addressed, because otherwise the aim of university and the expectations and aims of students might not be in alignment.

ACTUN: Ah I think I get you yeah. I guess also that this problem is quite modern possibly. After all, it was only in the last 50 or so years maybe that most of the methods and reasoning at universities was all implemented either in industry or through computers. And so, maybe universities as institutions haven't fully adjusted to this change, at least to make it clear that the point of university is not purely to implement methods and reasoning for solutions (which computers and industry can do), but in understanding them, and making it clearer to students.

FINCLEAH: With all that being said, I'd like to think even today, universities aren't that far off in that regard. Especially in engineering, since industry is so important to the field, and is observed a lot, many of the shortcomings of industrial practice is made clear, and hence the point of research at university is also made clear. But I'd say in many other fields it's less clear as to what the university's and student's overarching aims/expectations are and where they don't align.

ACTUN: Yeah I do think you have a point there too.

11 The Bigger Picture

ACTUN: So overall, what do you say is the best way for us to move forward? Is it to assess more the benefits or damage of AI and stuff?

FINCLEAH: I'm not sure, maybe it's more fundamental than that. Putting it a bit simpler, do we want a world where humanity is dependent and has everything given to it on a silver platter, or a world where humanity can forge its own platters, albeit maybe made of steel and not silver, and maybe slower. Is the ideal society one where we are given all of the solutions, or one where we are all able to make and understand our own?

ACTUN: Ah honestly now that's a question for sure. Even though we might have all the solutions, if we are just given them, it seems like in a sense we wouldn't have any because we can never be sure they are actual solutions to our problems. But at least if we figure them out for ourselves, we can trust them more as really being solutions to our problems. So all in all, I'd go with the second option — that we are all able to make and understand our own solutions. On a sidenote, that option just seems brighter, because we are in full control. But then would that mean cutting off all use of AI?

FINCLEAH: I think if we are unable to control it properly, cutting it of completely is more preferable than having improper controls. Even if we can

control it properly — in other words, to limit its use for only bettering our own understanding of concepts, then there's still reason to discard AI. Primarily so that the office of teaching can be kept as a human enterprise. This also keeps human elements of experience and knowledge as part of what is to be passed on, to give a fuller education.

12 Ease of Access to Information Through the Internet

ACTUN: Right, I think so far I can at least see where you're coming from for sure. I just want to see about one thing though. Similarly to AI, there's also the internet in general, that is as an easily accessible bank of information. Would you say that is also something to be weary of?

FINCLEAH: Well, we said earlier that the best way to produce capable practitioners of an academic field is to be sure they understand all the relevant methodologies and kinds of reasoning in that field in order to produce solutions, right?

ACTUN: Yeah.

FINCLEAH: So then, if information is easily accessible, the question is, does that hinder the process of understanding the methods and reasoning behind solutions?

ACTUN: Well, surely not. With the internet, you're able to find those methods and explanations for them too, just like with a book, but quicker.

FINCLEAH: Right. I'd agree with that too. But what if you don't understand what you read on a particular method, from the internet?

ACTUN: Well, if I'm on the internet, then I'd just search the answer to the particular problem I have in understanding the original method.

FINCLEAH: Right, and would this process continue if you didn't understand what you read further?

ACTUN: Yeah I guess.

FINCLEAH: What if you lost the use of the internet, what then?

ACTUN: Well, I'd be forced to find a book, but that'd take a while. So I'd be further forced to think about it at least whilst looking for a book, and so I'd also be trying to figure it out myself.

FINCLEAH: Which situation do you think is more effective in understanding the methodologies and reasoning behind solutions?

ACTUN: Well I'd have to say the situation without the internet. I'm just forced to spend time with the problem and to look at it from all possible angles, in trying to use the method I'd be learning.

FINCLEAH: Right. Conversely, which situation is more efficient in finding solutions in order to just implement them?

ACTUN: Probably the one where I'm using the internet, because I can just search up information and solutions with their methods quicker.

FINCLEAH: Right, but does this align with the aim of education we found?

ACTUN: Not really. It doesn't align at least, since finding information quickly on methods and solutions provides nothing to strengthen your understanding besides offering the information. I would say though, that it conflicts with the aim of education in that it becomes extremely tempting to focus on getting results from methods if all that information is available from using the internet, instead of understanding the methods and kinds of reasoning. After all, if you're given a fully working car, you don't have to care about how it works in order to use it, but if its broken, you have to care about how it works. In the same way, students would easily be less motivated by easily getting all that information from the internet.

FINCLEAH: Right exactly. I think — bloody hell is that the time! Ahh my tea's gone cold too!

ACTUN: Blimey we've been here a while haven't we. Sorry man, I didnt mean to take this much of your time.

FINCLEAH: Honestly no worries, it was really good chatting, we can hopefully continue it or talk about something else later maybe?

ACTUN: Yeah that'd be good.

Thank you for reading.

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