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– Dr Sonny Magana
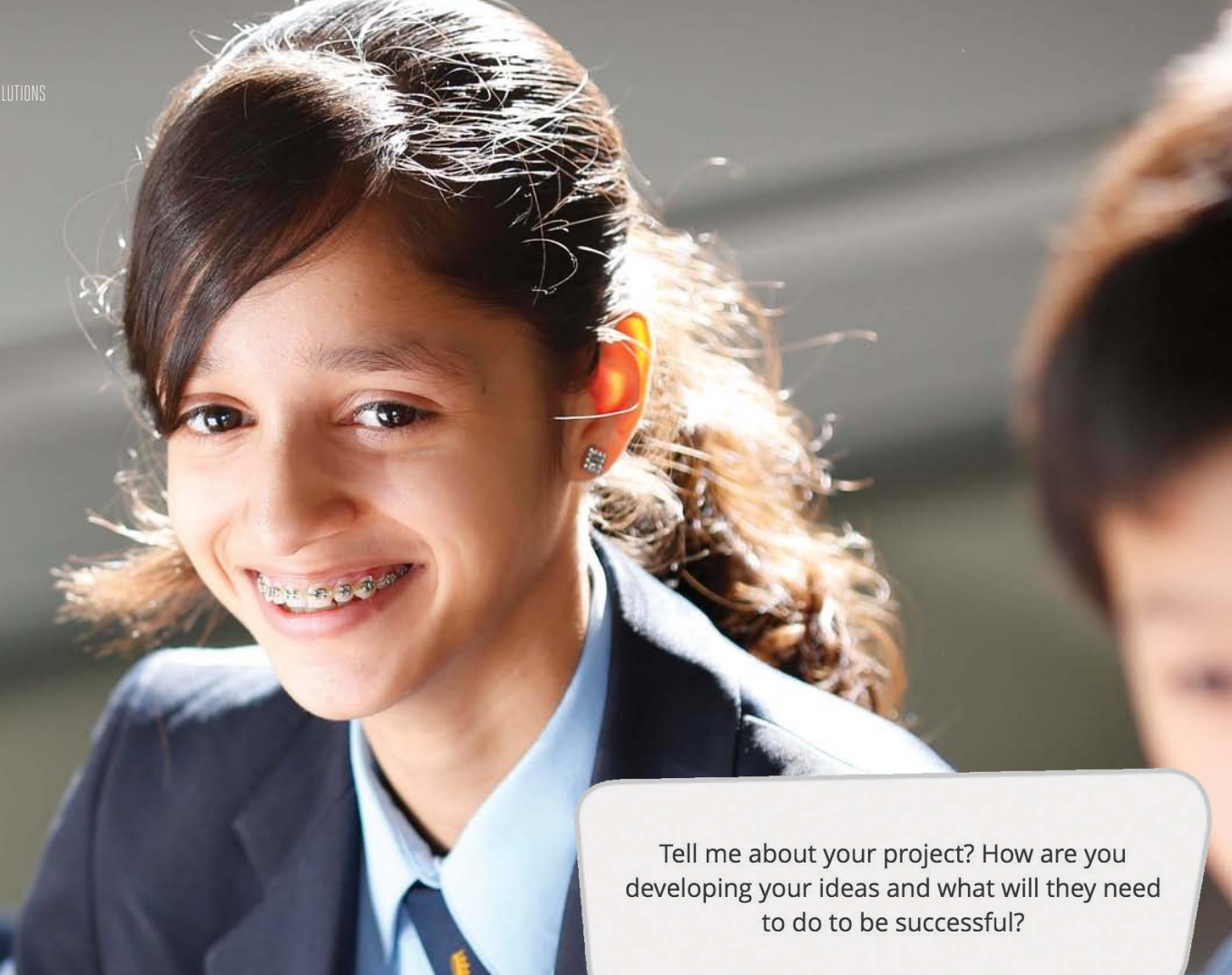
Tell me about your project? How are you developing your ideas and what will they need to do to be successful?

"A VIRTUAL DUCK HELPED MAKE US BETTER TEACHERS"

Gurpal Thiara explains how a trial with AI technology has completely changed D&T teaching and learning at Seven Kings School, Ilford

Design and Technology by nature is a subject that needs a reflective approach. It requires opportunities to broaden thinking by analysing what you have done well and how to improve. It consistently evolves. We have always been interested in cutting-edge technology and new strategies that will enhance and improve the learning experience for our D&T students.

So, when we were approached about a Government-backed trial to realise the benefits of Artificial Intelligence in the classroom, we were keen to take part. The technology, FormativeAssess, is a web application that uses machine learning to provide live feedback to students, in the form of an avatar. In our case, the avatar was a duck.

It began with a meeting with tech company Digital Assess, Goldsmiths, University of London, and the academics behind the technology. We discussed the questions that the technology would ask the pupils, and how we would implement it. FormativeAssess was then set up on our existing computer hardware, and from there it was straightforward to access over the internet.

Immediate positive response

It had an immediate positive response from the students across different year groups. They are so tech-savvy that it was instinctive for them to understand and take to it immediately. The open questions it asked them as they engaged with it made them think of the brief in a broader context. By challenging their perception of what the problem was, they thought harder about the solutions.

Another observation was that it helped the students become more independent, as they realised that they held the answers themselves. The technology helped to shake up their thought processes, but the ideas actually came from them. The psychology behind the questions meant that students were focused, rather than just opting to stay in their comfort zone – they started to become more adventurous and trusted themselves to come up with the right answer.

This type of independence is so important because of the way that the current education system focuses on academia – seeming only to care about the outcome, not the journey. It stifles creativity rather than empowering it. Most "education technology" that we've seen over the years only enables to regurgitate knowledge.

Teachers need to become a beacon for the empowerment of students by taking up these tools and pushing for change.

More time to teach

Time is so precious in the classroom, but teachers need to have discussions to inspire and challenge. This is especially true at the start of an open-briefed project, where the kind of questions asked are designed to give a much broader perspective. However, it can also be just as important in the middle or end, and one of the things the avatar asked was "where are you in the project?" It then differentiated the follow-up questions based on the answers it received. From a teacher's perspective, the technology gave me more time to spend with pupils that really needed it.

We hear a lot of talk about robots replacing jobs, but this example of AI in the classroom achieves the opposite. It's a tool to help teachers scale good practice, and if used correctly will make the teacher a better practitioner. We should be embracing technology that aids us to enhance the learning process, rather than fearing it.

The overall outcome was that the AI changed the thinking of the students. Most of those taking part produced work that was more creative, explorative and experimental. The students were empowered through FormativeAssess and the focus on the process, rather than a grade at the end. Attitudes changed, and they believed that they could succeed. Breaking through that psychological barrier really opened up the learning.

In summary: 5 things our experience taught us about AI

1. It encourages independence
In a subject like design and technology, which places huge importance on continuous improvement, it's key that students are encouraged to think imaginatively and autonomously. The technology doesn't give them the answers, but helps them develop a solution themselves.

2. Creative questioning is key
The key to success lies in the open questioning the machine learning uses. My suggestion would be to make the "what stage are you at in your project?" question more focused, to challenge pupils right at the start so they can begin to think more creatively. For example, the question that asks pupils to "imagine your product was made out of custard", empowers them to think completely differently – more laterally – throughout the task.

3. There's nothing to fear
Teachers don't need to be afraid of the onset of this new technology. It cannot replace teaching, but if used properly it can be a useful resource. The students are already so technologically savvy that they can pick it up and run with it, and we should be embracing the benefits rather than avoiding it.

4. It's not complicated
This technology is easy to implement provided the school already has the IT infrastructure. At Seven Kings School, we have laptop trolleys and internet access, so it was very straightforward for the pupils to log on and access the programme online. Apart from a few minor issues at the start of turning on the machine learning, which were quickly resolved by the company, the trial ran smoothly.

5. It frees teachers to teach
Artificial intelligence can lead to a valuable increase in differentiation time for teachers. Whilst the technology gives each student a form of tutoring, helping them to generate solutions to the tasks given them, teachers can focus on the pupils that are struggling or need extra assistance face-to-face.

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If this type of AI technology could be integrated into classrooms on a wider scale, I believe it would have a massive impact. Students and schools would really benefit, especially for project-based tasks. Ultimately, if it adds to the whole student learning experience, then why not?

ABOUT THE AUTHOR

Gurpal Thiara is learning leader of design technology at Seven Kings School.