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The Vision of Future Education

With an office in Tel Aviv, Weird Science Lab (WSL), a University of Oxford EdTech company, is set to revolutionize STEM education through VR. Their chairman, Gary Pickholz, explains why Israeli technology and VR are the future of education | **Joel Tsafir**

The most talked about educational technology is without doubt Virtual Reality (VR). Far from a futuristic pipe dream, VR is already showing up in classrooms around the world, albeit slowly and selectively. Meanwhile, tech giants such as Google continue to invest billions of dollars in further developing education applications for VR technology, while niche VR firms are popping up worldwide.

One such firm is Weird Science Lab (WSL), a University of Oxford EdTech company which opened its Tel Aviv office in 2015. WSL's mandate is to free the 21st-century intellectual property of Oxford University from the 15th-century shackles of the Gutenberg printing press. Its first project is to adapt commercial VR technologies to revolutionize Oxford's traditional STEM (Science, Technology, Engineering and Mathematics) curriculum for secondary and higher education in the developed and emerging regions.

Dramatic Improvement

We met with WSL's chairman, Gary Pickholz, to discuss the worldwide potential of VR in STEM. **WSL actually delayed its launch, which is quite rare for any entrepreneurial endeavor. Can you tell us why?**

"We had the luxury of only one seed funder, Oxford University, and therefore had the capacity to await new technologies. From an end perspective, it was brilliant because so many of our technologies did not exist even a year ago.

"VR has gone through at least two technological generations since 2015. Most important from a STEM perspective has been the dramatic improvement in nonvisual VR. We found out that the California pornography industry as well as the simulated games industry are at the vanguard of multisensory virtual experience and have devoted vast sums of R&D to take VR far beyond the mere visual. For example, as of next year the touch technology of surgeon students will be as delicate and precise as true human touch and pressure".

WSL is headquartered at Oxford and has facilities at Harvard. Why did you decide to open an office in Israel?

"We want to incorporate some marvelous Israeli technology in our products, which was the purpose of opening our Tel Aviv office across from the new Technion campus. Our office is the first affiliate office of any global top ten university in Israel. I hope our Tel Aviv office can contribute collaborations and R&D to further strengthen the relationships between British and Israeli tech companies".

What have you found unique about EdTech versus other markets?

"EdTech is a world apart from almost any other market. First, EdTech is a particularly poor soil for planting stand alone apps to be sold to parents for \$50 at Christmas. That works in many other markets, but has a dreadfully poor track record in EdTech. Second, if one is seeking the mainstream larger education and scholastic markets,

very few schools or even school districts are willing to take responsibility for incorporating new technologies into the curriculum. They prefer employing the Oxford curriculum in their school, and accept whatever the experts at the given academic publisher have decided should be the lesson plan or laboratory experiment. That is why we decided to embed our products into the larger curriculum purchased for a given course".

Why is WSL focusing on STEM education?

"We started in STEM, having argued that if Sir Isaac Newton arose from the dead there were almost no experiments in the current curriculum that would not be perfectly familiar to him. We therefore embarked on developing capabilities for experiments in zero gravity, zero oxygen, or altering time to permit experiments that should take years to be completed in one academic term.

Furthermore, the resource-intensive STEM subjects are often the most expensive courses for colleges and universities to produce, particularly when you take into account that there is a limit on the cohort size due to health and safety legislation and/or the limited availability of space and equipment. VR can negate this issue completely".

Bringing Oxford's STEM curriculum to the emerging markets

What are you currently working on?

"Our first project focuses on technologies that permit medical surgeon students the ability to practice operations on living, pumping, bleeding hearts and brains via VR, rather than learn on cadavers. The new technology is not only far more realistic, but dramatically increases the number of 'reps' and practices a student performs relative to prior generations of surgeons.

"Our secondary initial focus is on revolutionising the science curriculum for secondary school students. Significantly more students for whom STEM concepts were previously both quite difficult and quite boring now 'get it' via the lessons and experiments that could not have been offered technologically even last year".

Are there plans to bring Oxford's VR enhanced STEM curriculum to the emerging markets?

"Absolutely. For a significant part of the emerging world, a simple classroom with a blackboard is within budget, but serious science laboratories are beyond the capabilities of almost all secondary schools and universities. Additionally, many experiments fail in different climates. We stumbled upon the fact that via VR we could transport an entire Oxford lab to a classroom in Cambodia or Nigeria, at more than 65% less than the cost per pupil of actually building them a lab. This promises to open Oxford and its curriculum to millions of students in the emerging markets".

www.weirdsciencelab.com