

## **Book Review: Stratosphere – Integrating Technology, Pedagogy, and Change Knowledge**

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### **Introduction**

Michael Fullan, in his book entitled *Stratosphere: Integrating Technology, Pedagogy, and Change Knowledge* (2013; Don Mills, Ontario; Pearson Canada; ISBN-13: 978-0132483148; 100 pages), examines the world of technology and its role in the educational system as well as its effect on teaching and learning. Fullan is a Professor Emeritus at the Ontario Institute for Studies in Education of the University of Toronto. He is recognized worldwide as an authority on educational reform and has consulted to school districts, teacher groups, research institutes, as well as governments.

While the clear message throughout Fullan's optimistic book is that the primary driver of education reform is pedagogy, he states, "The solution lies in the concentration of the three forces of pedagogy, technology, and change knowledge. If you want to head off destruction, we need to make it all about learning (the pedagogy part), let technology permeate (the technology part), and engage the whole system (the change part)" (Fullan, 2013, p. 74). The path to achieve this is by integrating technology, pedagogy and change knowledge.

According to Fullan (2013), there are four criteria that must be present in order to integrate technology and pedagogy to "produce exciting, innovative learning experiences for all students - something desperately needed to bring education into the 21<sup>st</sup> century". They are: (a) Irresistibly engaging for students and teachers; (b) Elegantly efficient and easy to use; (c) Technologically ubiquitous; (d) Steeped in real-life problem-solving.

### **Critique**

Fullan also speaks to the doom and gloom that critics verbalize about integrating technology into education. According to critics, the increased presence of technology in our lives enables people to be easily distracted: Technology is affecting our brains in such a way that we are losing our ability to concentrate and thus constantly looking for a quick "fix" and something else to do. They also thought that companies such as Facebook and Google are in essence using us to group us according to our interests, likes, and dislikes leading us to believe that technology in and of itself is dangerous.

If that is the case, Fullan believes that in a stratosphere world our focus and immersion can be for worthwhile endeavors especially in an educational setting. This is where pedagogy comes into play. As educators we should not discount technology, but beware of its dangerous side and maximize its extraordinary side. We must use technology to fight boredom in the classroom and engage our students.

To fight boredom and engage students, Fullan refers to the term “the skinny”. In other words, according to Fullan, what is the essence of the problem and solution in order to achieve success? Leaders who apply themselves will continually get better at discovering “the skinny” through deliberate practice, reflection and learning. As educators seek out “the skinny” by integrating pedagogy, technology, and change knowledge the results for both teachers and students is high yield learning experiences. The result is increased engagement and efficiency in classrooms and schools.

In order to achieve these results change must be made by both the student and the teacher. Furthermore, when a teacher actively demonstrates a desire to get to know their student, the student will respond positively thus creating an effective learning environment. This can be accomplished by spending as little as twenty minutes per day with a troubled student and will foster a supportive learning relationship between the student and the teacher. This attention can change the mood of an entire classroom and the teacher can begin to act as a change agent.

Another theme throughout the book is the necessity to flip the roles of the teacher and the student. As teachers become the change agents, students will take charge of their own and each other’s learning while the teacher facilitates the learning environment. According to Fullan (2013), “Teachers in small groups become leaders, designers, and active guides to learning” (p.47). In other words, the teacher is the manager and the students are the team. Fullan believes that this can be done even in large class sizes if teachers look at their students as a team. Even now pedagogy is all about students taking ownership of their own learning, either in a group or on their own as the teacher as the guide.

However, we must not forget about technology’s role in education. Fullan reminds us, “Never think of technology without worrying about teachers and mentors. It is teachers with technology who will make the difference. Students are the third partners. All these are co-essential”. If we incorporate pedagogy and technology to increase to student engagement we will inevitably create high yield enriching classrooms and both teachers and students win.

An excellent example of integrating pedagogy, technology, and change knowledge in school is Park Manor Senior High School located in the town of Elmira, just west of Toronto. Park Manor is one of the few examples of an ordinary school becoming technologically dynamic in a short period of time. In 2009, the school began to integrate technology in all the classrooms in order to create a digitally rich learning environment. To understand the success of Park Manor one must examine their focus, “Park Manor’s Accelerated Learning Framework”. Their goal was to develop “global critical thinkers collaborating to change the world” surrounded by “digitally rich learning tasks without limits” by integrating technology, pedagogy, and 21<sup>st</sup> century learning skills (Fullan, 2013, p. 51).

Park Manor's success is built on three key factors. They made pedagogy the driver, the student became the center of learning and technology became the engine that enabled the student to achieve success. Their scores on Ontario's assessments evidence the success of Park Manor. For example, from 2007-2011, grade six writing scores have gone from a 44% to 77% success rate. However, the increase in scores cannot be totally attributed to the use of technology. It was a result of the teachers' concentrated attention on the success criteria set by the Park Manor's Accelerated Learning Framework and exemplary pedagogy. Technology just accelerated and deepened the learning.

Fullan tells us that technology and pedagogy must be integrated around the roles of both students and teachers because this is the essence of focus for the future of education. The solution he says is really about 3 things: (a) Make it all about learning; (b) Let technology permeate; (c) Engage the whole system.

### Conclusion

As an educator schooled when calculators in the classroom were considered technology I have to admit that I have felt adverse feelings toward the use of technology in the classroom but I found the content in Michael Fullan's book to be current, persuasive, and encouraging. The concept of pedagogy+technology+change knowledge must be embraced by all educators in order for our students to achieve success in the 21<sup>st</sup> century. *Stratosphere* by Michael Fullan is a great read and a great length and I have recommended this book to many colleagues. However, as with all change there are still questions that remain unanswered in his book. What about poor school districts? What about students that do not have devices or Internet access? This is the situation in my school. Yes, educators must embrace technology but until it is available to all students equally and 24/7 change will be slow to arrive.

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