

IBSC Conference: Boys as Makers
Wednesday April 8 to Friday April 10, 2015
University School, Cleveland, Ohio, USA
Keynote: David Grant: A "Maker" School? Our Story
(Wed 8th April, 5:00 p.m.)

My fellow delegates:

Please find below a few of the references I have used in preparation for my presentation at the conference. I just wanted to let you know that the presentation is not about how one starts, runs or sustains a robotics program. That is simply my starting point. There are major implications for education as a result of the emerging Maker Movement. Please feel free to contact me if you have any questions or wish to engage in conversation prior to the conference. I look forward to meeting you all, and hearing your stories.

Thanks,
David

Presentation Summary

The journey taken by Crescent School in the development of its technology program from the mid-nineties. The growth of its 16 year old robotics program which culminated in winning the FIRST Robotics World Championship in 2013. How these developments have mirrored the rise of the Maker Movement. The lessons learnt and suggestions for the future in light of the explosion of the Maker Movement and its impact on progressive educational pedagogies in our schools. Eight key points will be addressed: 1. Relationships; 2. Vision; 3. Space; 4. Institutional Structure and Teacher Collaboration; 5. Expertise and Support; 6. Money; 7. Time; 8. Refocusing.

References:

Bascomb, N. (2011). *The New Cool - a visionary teacher, his FIRST robotics team, and the ultimate battle of smarts*. New York: Crown Publishers.

Bigenho, C (2014) *Detecting the Signal in the Noise* Connection.ebscohost.com,. (2015). Retrieved 15 March 2015, from <http://connection.ebscohost.com/c/articles/100170098/detecting-signal-noise>

Boychev, P (2014) *Deconstructionism in Education - A Personal Wandering towards Constructionism*. Constructionism2014.ifs.tuwien.ac.at,. (2015). Retrieved 15 March 2015, from http://constructionism2014.ifs.tuwien.ac.at/papers/5.1_1-8469.pdf

Crawford, M. (2010). *Shop class as soulcraft : an inquiry into the value of work*. New York: Penguin Books.

Edutopia,. (2015). *Edutopia*. Retrieved 15 March 2015, from <http://www.edutopia.org/>

Fab Foundation,. (2013). *Fab Labs*. Retrieved 15 March 2015, from <http://www.fabfoundation.org/fab-labs/>

Fablearn.stanford.edu,. (2015). Retrieved 15 March 2015, from http://fablearn.stanford.edu/2014/wp-content/uploads/fl2014_submission_29.pdf "Progressive Education and The Maker Movement - Symbiosis or Mutually Assured Destruction" -Gary Stager

Fagen, M (2014) *Robotics - A Move to the Center*. Tasdestinyweb01.tas.edu.tw,. (2015). Retrieved 15 March 2015, from [http://tasdestinyweb01.tas.edu.tw/digitalresource/1423193405047_fagen_\(single\).pdf](http://tasdestinyweb01.tas.edu.tw/digitalresource/1423193405047_fagen_(single).pdf)

Firstroboticscanada.org,. (2015). *FIRST Robotics Canada | Robotics*. Retrieved 15 March 2015, from http://www.firstroboticscanada.org/main/_alumni/

Hatch, M. (2014). *The maker movement manifesto: rules for innovation in the new world of crafters, hackers, and tinkerers*. New York: McGraw-Hill Education.

Makared.org,. (2015). *Maker Education Initiative – Every Child a Maker*. Retrieved 15 March 2015, from <http://makared.org/>

Martinez, S. & Stager, G. (2013). *Invent to learn : making, tinkering, and engineering in the classroom*. Torrance, Calif: Constructing Modern Knowledge Press.

Mitadmissions.org,. (2015). Portfolios & Additional Material | MIT Admissions. Retrieved 15 March 2015, from <http://mitadmissions.org/apply/freshman/supplements>

Nais.org,. (2015). *Outside the Skinner Box* . Retrieved 15 March 2015, from <http://www.nais.org/Magazines-Newsletters/ISMagazine/Pages/OutSide-the-Skinner-Box.aspx>

Ontario Ministry of Education (2010) Growing Success <http://www.edu.gov.on.ca/eng/policyfunding/growsuccess.pdf>

Papert.org,. (2015). *Child Power: Keys to the New Learning of the Digital Century*. Retrieved 15 March 2015, from <http://www.papert.org/articles/Childpower.html>

Reichert, M. & Hawley, R. (2010). *Reaching boys, teaching boys : strategies that work and why*. San Francisco, CA: Jossey-Bass.

Sir Michael Barber Ippr.org,. (2015). *Oceans of innovation: The Atlantic, the Pacific, global leadership and the future of education* | IPPR. Retrieved 15 March 2015, from <http://www.ippr.org/publications/oceans-of-innovation-the-atlantic-the-pacific-global-leadership-and-the-future-of-education>

Sir Michael Barber TES.co.uk,. (2015). *Could this be the end of education as we know it? - news - TES* . Retrieved 15 March 2015, from <https://www.tes.co.uk/article.aspx?storycode=6454225>

Tan, M (2014) *Hacking shop class in Singapore* - Fablearn.stanford.edu,. (2015). Retrieved 15 March 2015, from http://fablearn.stanford.edu/2014/wp-content/uploads/fl2014_submission_7.pdf

Using the TOSRA to Assess High School Students' Attitudes toward Science after Competing In the FIRST Robotics Competition: An Exploratory Study Anita G. Welch
Ejmste.com,. (2015). Retrieved 15 March 2015, from http://www.ejmste.com/v6n3/eurasia_v6n3_welch.pdf

Techshop.ws,. (2015). *TechShop is America's 1st Nationwide Open-Access Public Workshop -- What Do You Want To Make at TechShop?* Retrieved 15 March 2015, from <http://www.techshop.ws/>

Usfirst.org,. (2015). *USFIRST.org*. Retrieved 15 March 2015, from <http://www.usfirst.org/> Wagner, T
<https://www.youtube.com/watch?v=hvDjh4l-VHo>

YouTube,. (2015). *Feb 3: Paulo Blikstein, The Maker Movement: Revenge of progressive education or just a fad?*. Retrieved 15 March 2015, from <https://www.youtube.com/watch?v=OnDr716tlik>

YouTube,. (2015). *The Maker Movement: Milestones and Momentum*. Retrieved 15 March 2015, from <https://www.youtube.com/watch?v=PZ1WsUpeul0>



Biography

David Grant B.Ed (hons.) Physics/Education, University of Exeter. Science and Technology Teacher, Crescent School 1992 - present. Founding Board member of FIRST Robotics Canada 2002 - 2006, Director FIRST Lego League Ontario 2003 - 2006. Interests include: The assessment of student performance in non-traditional learning environments. Organizational structures for curriculum development and implementation. Constructionist learning theory. Married, two boys, soccer fan. email: dgrant@crescentschool.org