



IBSC

International Boys'
Schools Coalition

2014-2015 IBSC ACTION RESEARCH IN BOYS' SCHOOLS

Boys as Makers

CALL FOR APPLICATIONS

We are pleased to announce that the research topic for the IBSC Action Research Program in 2014-2015 is *Boys as Makers*.

In recent years the "Maker Movement" has garnered huge interest and excitement. In the educational context, Maker Learning is a technology-based extension of hands-on, project-based learning that allows traditional "making" to be extended and reshaped and new forms to be pursued.

While "making" has an obvious concern for product, its value for education is in the learning that happens around the making. Makers, according to Dale Dougherty (Editor of *Make Magazine*), enjoy "playing to discover what technology can do, and what they can do"; they are driven by the questions, "How does it work?" and "Can it be done?" In the process of seeking answers, makers are encouraged to develop and engage the skills required of effective 21st century learners: curiosity, intellectual courage, imagination, exploration, commitment, critical thinking, problem-solving, adaptability, resilience, and collaboration.

A great article in *Edutopia* about Maker Learning is attached at the end of this Information Sheet.

In their recent book [*Invent to learn: Making, tinkering and engineering in the classroom*](#), Martinez and Stager (2013) highlight the strong connection between the process of making and the constructivist learning theories of Dewey, Vygotsky, Montessori and Piaget, wherein a child's learning is achieved through internal construction of meaning, not external instruction. In the 1970s, Seymour Papert, the "Godfather" of the modern Maker Movement, extended these theories into the [*Theory of Constructionism*](#). Central to Papert's theory is the notion that learning is most effective when the learning experience involves construction of a personally meaningful product--- be it functional or aesthetic.

Maker Learning is a form of learning that encourages in students what Dweck (2006) describes as a growth-mindset; a state of mind wherein students believe it is possible to develop their abilities through hard work and persistence. The role of the teacher in this

learning process, notes Papert, is to create an environment of invention, rather than one of instruction.

The potential value of Maker Learning for boys' schools is obvious; its practical, hands-on, technology focus is a natural fit with the learning styles of many boys, and it has the potential to fire up their engagement and motivation.

Who should apply?

The IBSC is seeking applications from individual or teams¹ of educators across the primary, middle and senior school levels who are interested in conducting action research projects in their schools based on *Boys as Makers*.

Although Maker Learning transcends subject boundaries, applications to participate are sought in particular from teachers in the disciplines of Science, Design & Technology, Mathematics and the Arts. Possible projects might involve, but are not be limited to, activities that focus on 3D printers, microcontrollers, and robotics; fabrication of wearable technology; computer-aided design and the ability to control machines with computers, tablets and smartphones; and the production of digital multimedia projects (e.g. game, app and website design, video production). Above all, applicants should be enthused by the vision and excitement of Maker Learning, in whatever discipline and media they work.

The research project may be conducted as a curricular or co-curricular activity (e.g. robotics club held after school), and must focus on the implementation and evaluation of either a new classroom strategy or a planned change to an existent strategy.

While no formal knowledge or experience in action research is required, applicants should be eager, thoughtful, well organised, and prepared to collaborate online via digital technologies such as Google Hangout and Google Sites. In addition to time spent undertaking the action research process in their schools, program participants will be expected to spend, on average, 2 hours per week participating in activities such as professional reading, participating in online discussions with fellow researchers, and preparing their research report.

Requirements

Financial Terms: The school must fund all travel, accommodation and conference registration costs associated with the teacher's participation in the Action Research project. The IBSC will underwrite all other expenses, including compensation of the Action Research Coordinator, team leaders and specialist consultants working with

¹ Note: Teams will submit a joint report and be allocated the same amount of time as individuals for the presentation of their project at the 2015 IBSC Annual Conference.

action research teams, and costs associated with the production and posting of materials and reports.

Financial Support: To ensure that the Action Research program is open to member schools with limited professional development funds and to state/public schools, the sponsoring Head of School may request financial support from the IBSC. A request for this financial support must be made on the *Statement of Support* submitted by the Head of School.

Expectations

It is a requirement that all successful applicants attend both the 2014 IBSC Annual Conference in Nashville, TN, USA and the 2015 IBSC Annual Conference in Cape Town, South Africa. In Nashville, Action Researchers must be available for orientation and training beginning at 12:00 noon on Friday, 27 June and continuing through the weekend. They must also be available in 2015 on the day prior to the conference opening, and on the morning of the conference opening.

From February 2014 onwards, it is expected that they will be actively involved in the following:

- **February – June 2014:** Researchers will participate in regular guided online discussions. These discussions will focus on selected readings regarding the action research process and the research topic. Researchers will be required to complete a number of short activities based on these readings, which will guide the development of their final research proposal.
- **27-29 June, 2014:** Researchers will attend a two-day training workshop in Nashville, TN. The training workshop begins at 12:00 pm on Friday, June 27, continues on Saturday, June 28, and ends by 2:00 pm on Sunday, June 29 (followed by the opening of the annual conference).
- **29 June-2 July 2014:** Following this orientation and training, Researchers will attend the IBSC Conference in Nashville, TN.
- **July/August, 2014 – May, 2015:** Researchers will undertake an action research project in their school, and will be supported online through the stages of the project by a team advisor and fellow researchers. They will actively participate in regular online discussions during the project period, and will meet the deadlines that will be laid out for completing the stages of research and writing.
- **May, 2015:** Researchers will submit their final action research reports. The final report will be 3000-5000 words. The IBSC reserves the right to edit the final report in preparation for posting. The reports will be posted by the IBSC later in 2015. Participants seeking to publish or present their projects elsewhere will be encouraged to do so, but will be required to give appropriate acknowledgement to the IBSC as the sponsoring organisation.

- **May – June, 2015:** Researchers will produce a multimedia product or poster of their action research project for display and presentation at the IBSC Annual Conference. The poster will also be posted with the report on the IBSC website as a resource to educators.
- **Week of 6 July, 2015:** Researchers will meet with their research team the day before the 2015 IBSC annual conference opens in Cape Town, South Africa. The precise date for the conference will be determined.
- **Week of 6 July, 2015:** They will attend the annual conference in order to present their research findings. They will participate in poster sessions and galleries, and report in teams in workshops. The precise date for the conference will be determined.

The on-line [Application](#) should be submitted by 1 December. Applicants should ensure that their Head of School or his/her designate has submitted the [Statement of Support](#) by 1 December.

If you have any questions about the research topic or requirements for participants in the Action Research Program, we encourage you to contact us.

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WHAT WORKS IN EDUCATION
THE GEORGE LUCAS EDUCATIONAL FOUNDATION

EDUCATION TRENDS

ReMaking Education: Designing Classroom Makerspaces for Transformative Learning

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Photo credit: steevithak via flickr (CC BY-SA 2.0)

The Maker movement is poised to transform learning in our schools. To counteract educational standards, testing and uniformity, this fresh approach emphasizes creation and creativity -- products and processes born from tinkering, playing, experimenting, expressing, iterating and collaborating -- and exploits new digital tools to make, share and learn across space and time, do-it-yourself (DIY) style. Museums, libraries, community centers and after-school programs have designed physical and virtual "makerspaces" to host communities of supportive peers and mentors invested in creating everything from nail polish design and webpages to jewelry and robots . . . and now, even school curriculum.

Inventing Production-Centered Schools

Makers, using grounded research on how students learn outside of class, are rethinking schools. The MacArthur framework for [Connected Learning](#) (CL) provides a flexible model for exploring

how schools could better cultivate the interplay between student interests, peer culture, digital tools and academic success -- in other words, reconceiving schools as maker-centered environments. CL's framework for production-centered learning starts with students instead of standards, and operates on the assumption that everyone is a maker. The ultimate objective is that, with the right tools and connections, young people can develop the literacies to remake our world into a more democratic, equitable and humane place.

Rethinking Your Classroom

Are you ready to transform your classroom into a vibrant makerspace where students actively make content-specific products, invent processes, and forward new ideas? If so, start by reflecting on your own experiences as a maker. How have your interests, motivations and social connections helped you develop knowledge, expertise and the moxie to make and do the things you love?

Like you, students need to find nurturing places in real life and on the web to geek out with others who share their passion. They'll thrive in spaces that perpetually rekindle their desire to make meaningful contributions toward personally relevant issues, ideas, people and interests. Unapologetically flaunting the maker-centered ethos in your classroom and school is the first step to starting a maker revolution in your community.



Danielle Lewis' 8th grade students at Wendell Middle School make plans and plant supports for their interdisciplinary garden project. Credit: Danielle Lewis

Integrating Maker Culture into Your Curriculum

Don't let a prescribed curriculum stop you from integrating engaging maker experiences into your classroom. Find the intersections between young peoples' interests and your curriculum. In

her webinar, [What Does "Interest-Driven" Look Like?](#), CL researcher Mimi Ito described how students develop academic pursuits when classroom content connects to their passions. She shared a story about a group of girls who were fanatical about anime. Capitalizing on that passion, they developed an interest in Japanese language and culture, and then in written Japanese after realizing that they could deepen their anime expertise by communicating with other fans in the beloved genre.

If students reveal in an [interest inventory](#) that they enjoy working with digital media, leverage that interest in a science class by using new media to build content literacy -- for example, what about Einstein's greatest hits playlist, a digital story about nuclear fusion, a video game that simulates a chemical reaction, or a web page that illustrates the formation of the earth? If science students are sports or martial arts fans, collaborate to figure out how they might design experiments or text-based inquiry projects that deepen expertise around health and human performance while employing core concepts, literacies and procedures in the sciences. If your students like constructing objects with their hands, have them use Legos to build ancient city-states or manipulate them to explore mathematical concepts such as fractions and data sets. Because making, producing, experimenting, designing and building are ever-present -- physically and online, in and outside of the classroom -- resources for making should be distributed throughout the school, home and community settings. To support young makers, teachers should:

1. Regularly engage students in making, sharing, collaborating and reflecting.
2. Give feedback often to help students remake and reiterate content-specific products, processes and knowledge.
3. Encourage students to better the lives of their peers, school and community.
4. Play multiple roles: engaged co-creator, mentor, problem-solver, activist or networker who brings the right people and tools together.

According to [Elyse Aidman-Adahal](#), Director of National Programs and Site Development at the National Writing Project, makerspaces feature low barriers to content access and high ceilings of opportunity and achievement. We are all makers, and when we share, engage, reflect and remake, we become masters.

Let the Making Begin

Following are some resources and projects to get you started.

Maker Resources

- [Why the Maker Movement is Popular in Schools](#)
- [Maker Education Initiative](#)
- [National Writing Project's Educator Innovator Initiative](#)
- [Make to Learn](#)
- [Institute of Play](#)
- [MakeZine](#)
- [DIY](#) (Do It Yourself)
- [Instructables](#): Share What You Make

Classroom Maker Projects By Grade Level

- **Early Elementary:** [Digitally Interfaced Book](#) - Paper, Graphite, Makey Makey, Scratch, and Imagination
- **Late Elementary:** [SD4S](#) - Students Design for School
- **Middle School:** [How Does Our Garden Grow?](#)
- **High School:** [Piner High School Makerspace](#)