

Bootstrap Evaluation Study

Dear teacher,

Thanks for your interest in helping us with our evaluation! We take teacher feedback and student data seriously, and your participation will help us continue to improve our lessons and materials. Please read this page carefully, as it outlines the steps for participating in the study.

1. **Sign the Teacher Consent Form** (page 2), and send it to the Program Director (address at the bottom of the page).
2. **Send home the Parental Opt-Out Form** (page 3) with each of your students. These forms allow parents to *opt out* of the study, by signing and returning the form. (Parents who consent to participate in the study do not need to return the form.)
3. Give your students both components of the **pre-test**:
 - A 15min survey about attitudes towards math (bit.ly/BootstrapAttitudePre)
 - A 45min battery of math questions:
bootstrapworld.org/materials/Spring2014/courses/bs1/resources/teachers/Pretest.pdf
4. **Teach the class**, using the lessons, software and workbooks located at BootstrapWorld.org.
5. Give your students both components of the **post-test**:
 - A 15min survey about attitudes towards math (bit.ly/bootstrapAttitudePost)
 - A 45min battery of math questions:
bootstrapworld.org/materials/Spring2014/courses/bs1/resources/teachers/Posttest.pdf
6. **Remove all pre- and post-tests for students whose parents have opted out**, match the remaining pre- and post-tests for each student, and **mail them** to:

Emmanuel Schanzer Bootstrap Program Director 140 Pasito Ter, #512 Sunnyvale, CA 94086
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The survey can be assigned for homework, or done in a flexible amount of time. *However, please be sure to keep a firm, 30min limit on the math instrument for all students.* Once we have received your consent form and pretest data, you will receive the first part of your stipend. We'll send you the second part upon the receipt of the matched pre- and post-tests.

Teacher Consent Form

Thank you for volunteering to be part of our study for Bootstrap! Your participation will help us improve and refine the curriculum, and help us learn the impact of functional programming on students' understanding of algebraic concepts.

Procedures for Teachers

Participants will teach Bootstrap as part of their normal classroom practice this year, devoting the recommended 20-25 hours of time to the material with at least a 90min of in-class instruction per week, and with class periods lasting a minimum of 45min each.

Participants must teach the same lessons and techniques covered in the curriculum and PD workshops: Circles of Evaluation, Contracts, workbooks, Design Recipes, and consistent vocabulary for key terms.

Participants will also be responsible for:

- 1) Mailing opt-out forms to the legal guardians of students, and collecting any responses
- 2) Conducting our Pre- and Post-tests and Surveys, and mailing these results to us
- 3) Participating in an exit interview, and consenting to being observed and/or videotaped during class.

Participants are free to withdraw from the study at any time.

Potential Benefits and Risks to your Students

All students will learn to program a game of their own design, but they may learn a great deal more: the choice of curriculum and pedagogy is designed explicitly to help their understanding of algebra.

We do not foresee any undue strain or harm to children who participate.

Confidentiality

Student names will be collected only to match the pre- and post-tests, but will be removed when the data is aggregated for the class. The researcher will not share *any* identifying information about you or your students.

To participate in the study, please fill out the form below with your name, date and signature, then **mail this page to the Program Director, at 140 Pasito Ter #512, Sunnyvale, CA 94086.**

The nature and purpose of this research have been satisfactorily explained to me and I agree to become a participant in the study as described above. I understand that I am free to discontinue participation at any time if I so choose, and that the investigator will gladly answer any questions that arise during the course of the research.

I will be sharing the pre- and post-test data for my class, which is taught at the

_____ (school).

(date)

(participant's signature)

(print name)

I, Emmanuel Schanzer, have discussed with the above procedures with the participant, explicitly pointing out potential risks or discomforts. I have asked whether any questions remain and have answered these questions to the best of my ability.

6/27/2014

(date)



(investigator's signature)

To Contact the Researcher, write to Emmanuel Schanzer at ets272@mail.harvard.edu or Jon Star (faculty advisor) at mailto:Jon_Star@harvard.edu.

Whom to contact about your rights in this research, for questions, concerns, suggestions, or complaints that are not being addressed by the researcher, or research-related harm: Committee on the Use of Human Subjects in Research at Harvard University, 1414 Massachusetts Avenue, Second Floor, Cambridge, MA 02138. Phone: 617-496-CUHS (2847). Email: cuhs@fas.harvard.edu.

Parental Opt-Out Form

Study Title: Algebra, Programming and Transfer
Investigator: Emmanuel Schanzer

This year, your child will learn computer programming as part of their normal math or technology class. During the programming portion of the class, s/he will design and write a videogame, as part of the Bootstrap curriculum (you can find more information at [http:// www.BootstrapWorld.org](http://www.BootstrapWorld.org)). As part of the class, each child will take a short math test at the beginning and end of the, and answer questions about how they feel about mathematics. *These test results will not affect their grade in the course!*

In addition, a researcher may visit your child's class to observe the program. During these visits, *the teacher may be recorded on videotape.*

Your child's teacher would like to share these scores and the video recording of their technique with a researcher at Harvard University who is studying the impact of the program, but you can choose to opt out of the study if you wish.

What is the purpose of this research?

The purpose of this research is to evaluate the program's ability to help students learn Algebra using a novel and engaging approach to computer programming. These results will help improve the curriculum, and may improve the delivery of the class to your child or other children.

Participation is voluntary

If you choose to share these scores, you may change your mind and submit this form at any time. Refusal to participate or stopping participation will involve no penalty. *If you elect not to share these scores with the researcher, please sign and return this form to the teacher.*

What happens to the information you collect?

The data will be used to measure the impact of the curriculum on the whole class. Your child's individual scores will *never* be used on their own, for any purpose. *Your child's name will not be attached the combined score, used in any publication, or shared with anyone.*

If I have any questions, concerns or complaints about this research study, who can I talk to?

The researcher for this study is *Emmanuel Schanzer* who can be reached at:

ets272@mail.harvard.edu

617-792-2438

140 Pasito Terrace, #512

Sunnyvale, CA 94086

If you are comfortable with the teacher sharing this information, you do not need to do anything.

Otherwise, please sign and return this form to your child's teacher.

The faculty sponsor is Jon Star, who can be reached at Jon_Star@harvard.edu.

- If you have questions, concerns, or complaints,
- If you would like to talk to the research team,
- If you think the research has harmed your child, or
- If you wish to withdraw your child from the study.

This research has been reviewed by the Committee on the Use of Human Subjects in Research at Harvard University. They can be reached at 617-496-2847, 1414 Massachusetts Avenue, Second Floor, Cambridge, MA 02138, or cuhs@fas.harvard.edu for any of the following:

- If your questions, concerns, or complaints are not being answered by the research team,
- If you cannot reach the research team,
- If you want to talk to someone besides the research team, or
- If you have questions about your or your child's rights as a research participant.

I would like to Opt-Out of this study

I have read the information in this form, and I want to withhold my child's pre- and post-tests from the research study.

SIGNATURE

Your signature below indicates you are refusing permission for your child to take part in this research.

Printed name of child

Printed name of parent/guardian

Signature of parent/guardian

Date