USL: BOEC (Back Of The Envelope) Working Paper Series 1:

Why should the various state, city, or national governments fund and run the USL 0.25 or USL 0.5 Pilot Studies this spring? (Draft 1)

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Date: January 14, 2015

Table of Contents

ABSTRACT:

The USL pilot study series were created to dispel the doubts of its too-good-to-be-true claims. The previous off-line USL pilot study results **imply that it is possible to boost the math skill average of a region (city, state, or even a country) by 1 year within a few weeks**. **If done simultaneously online, this can happen within a few days**, which most people have been in total disbelief in spite of all the evidences and video testimonials and support videos of over 700 students, teachers and principals. This paper is to propose to various city, state, or national governments to participate in a series of scaled-down version of the previous USL pilot studies. We propose the USL 1.0, 0.5, and 0.25 each of which corresponds to quickly boost the regional math – proportionally speaking as the sample sizes will be limited - by 2 years (for the national governments only), 1 year (for the national or state governments) or ½ year (for the state or city governments) respectively. At the end, we propose to create Boards of Social Enterprises together where the USL team and the participating governments share the growths of the future Social Enterprises if the governments choose to do so as the implications out of even USL 0.25 (boosting the average math skill levels by half a year) or USL 0.5 (boosting the average math skill levels by half a year) are profound because it takes usually a few decades to improve the average math skill levels of a nation by 1/2 year in the history of OECD countries and rarely they boosted 1 year of math skills.

INTRODUCTION:

The USL series are designed to trigger the colossal changes not only in mathematics education, but also the profound economic growth changes to resolve the top 5 most critical global crises within next 1-2 weeks as these will threaten the future of humanity otherwise as they collectively require massive financings that no country on earth currently can afford without too much of sacrifice. For this, please visit the website of USL (www.uslgoglobal.com)

Before we get into **our proposals to collaborate with the various governments and their Ministries or Departments of Education**, we would like to summarize the basic findings from the USL pilot studies in October 2013 and February 2014.

BASIC USL PILOT STUDY SUMMARY

Based on the strengths of the previous off-line USL pilot studies in Mexico and Guatemala, which has that the average students from the participating schools. At least from the grades 2-11 in the participating schools suddenly learned not only **10-20% of their annual** math materials, but also their math skills were boosted about 1 Standard Deviation (which is about the differences between the A students and F students).

Although this was scattered around 8 different schools in 3 different towns, if you put these patterns together and if you scale these to a state or a country, we have a striking statistical result, i.e. this is **roughly equivalent to advance the regional average math skills by 1 year with a lecture that took less than an hour to the participating students in the region**. So the average speed of learning was 10-60 times faster than usual. If you put the total time that the students spent for these pilot studies were 2-3 weeks consecutively, theoretically speaking, that is equivalent to say **that a few weeks of USL pilot studies can boost the regional math average by about 1 year (which is about 0.5 standard deviation boosts for the participating regions)**.

Some of the numeric results from the previous off-line USL pilot studies

(Although they have made most people very skeptical, but they are important for the proposals of this paper.)

The following is more or less established by the previous USL pilot studies in Mexico and Guatemala:
- From the 1,200-1,300 students from the grades 2-14, for the 8 participating schools, the USL pilot studies made the average students very quickly learn the approved and identified 1-2 months´ regular math materials (for the convenience, we´ll say 1 month) in just 30-40 minutes. This happened to most of the pilot study-participating 2-11 grade

students.

- They gained their math skills by the average of about 1 STDEV (meaning Standard Deviation) after 30-40 minutes of the pilot class when the students took the tests in 1-2 days.
- So, most of the students from the 10 different grades learned at least 10-15% of the annual math materials within 30-40 minutes. As this happened to 10 different grades, the accumulative effect of all were equivalent to raise the average math skill boosts by roughly 1 year (10-15% of 1 year math/grade x 10 grades = roughly about 1 year math advancement).
- Now, imagine that this goes to big scale. Not for 1,000 students, but for a million students in your city or state. What will be the economic impacts of your cities, states, and countries?
- Basically each pilot study needed roughly about 1 week of pilot study week for each participating school (although we had hiccups during the pilot studies due to school strikes, etc.) and if the average 1 year of math skills were possible after about 2 weeks of a set of pilot studies, this is not only quasi-impossible, but also have the profound economic impacts for the regions that experience this rapid boosts of their math skill sets.

BEFORE WE START, LET'S ESTABLISH SOME EQUIVALENT RELATIONSHIPS FOR MOST K1-12 STUDENTS FOR THEIR MATH CLASSES.

- For 1 academic year that consists of 2 semesters, 1 yr. ~ 9 months of schooling.
- For most of the international or national math or science assessments such as PISA or TIMSS, etc., 1 year of math ~ math skill differences by ½ STDEV.

BASED ON THESE TWO GENERALLY ACCEPTABLE RELATIONSHIPS, WE CAN USE THE FOLLOWING RATIO WISE EQUIVALENT RELATIONSHIPS.

- Advancing 1 month for each grade for grades 2-11 (for the total 10 grades) ~ advancing 1 yr. of math accumulatively ~ advancing math by ½ STDEV.
- Advancing 1 month for each grade from grade 2 to 6 (for the total 5 grades) ~ advancing 0.5 yr. of math accumulatively ~ advancing math by ¼ STDEV.
- Advancing 2 months for each grade for grades 2-4.5 (for the total 2.5 grades) ~ advancing 0.5 yr. of math accumulatively ~ advancing math by STDEV 1/4.

So the above relationships are simply using the same proportion. So to boost the 2 month math for about 2.5 grades or to boost 1 month math for 6 grades will have basically equivalent impacts of the average students who experience this kind of math skill boosts, be it for the average students at the city levels, state levels, the country levels, or even at the international levels if these can be calibrated properly and scaled well.

Normally after 1 month of math studies, the math knowledge of the average students in average classes may advance by about 1 STDEV compared to before, including the grades 2-4. (This is a rough estimation of the author because the difference between A to F students is roughly about 1 STDEV difference.)

OUR PROPOSALS TO THE GOVERNMENTS AND THE MINISTRIES (OR DEPARTMENTS) OF EDUCATION

So, what I am proposing specifically is as follows:

1) To run 1 or 2 week USL 0.25 pilot studies, we prefer running all with all public schools, be it national or state schools that use the same textbooks (this is just to save time and money) ... although this is not necessary not necessary. If many private schools join, to orchestrate all can be slightly trickier but this is not critical because all the previous offline USL pilot studies have been done all mixed public and private schools with varying textbooks.

2) There are 2 versions: a pilot study to cover 1 month materials in 1 week pilot study & the other one to cover 2 month materials in 2 week pilot study.

3) Although they run 1 or 2 weeks, I will give only 2 lecture classes (for each 1 month materials) with which I'll make their math boost by 1 month or 4 lectures to boost 2 months. So the pilot studies will simply consist of 2 tests in class, 2-3 lecture classes. And the rest will be just interviews with students and paper works.

4) I prefer all pilot studies running online. The lectures will be on exclusively online. The tests, surveys, and video interviews will be all online. So, the state governments can save a lot of money, time, and paperwork.

5) We strongly recommend the state governments to collaborate with the national online math assessment authorities, e.g. the NAEP in the USA. 6. If possible, we will try to collaborate with TIMSS or other influential international math assessment organizations.

We propose the following:

The following operations will roughly take 1 week only for the participating schools for USL 0.25 and no longer than 2 weeks for the USL 0.5.

- USL0.25 pilot studies each of which corresponds to quickly boost the regional math by ½ year (for the state or city governments)
- USL0.5 pilot studies each of which corresponds to quickly boost the regional math by 1 year (for the national or state governments)
- USL1 pilot studies each of which corresponds to quickly boost the regional math by 2

years (for the national governments only)

PROPOSALS for the USL pilot studies and to create Social Enterprises based on USL together

1) At first, we will run the USL 0.25 first. If the USL team gets the good collaborations and see the potential, we may run the USL 0.5. USL1 is reserved only with the governments that provide the USL some extraordinary supports.
2) We also propose to create Boards of members for the Social Enterprises of USL 0.25 or USL 0.5 to the participating governments together where the USL team and the participating governments share the growths of the future Social Enterprises if the governments choose to do so. These are great incentives because the implications out of even USL 0.25 (boosting the average math skill levels by half a year) or USL 0.5 (boosting the average math skill levels by half a year) are profound if you are aware the history of math education advancements for the past half a century. Normally, it takes usually a few decades to improve the average math skill levels of a nation by 1/2 year in the history of OECD countries if these happen. Moreover, very rarely they have boosted 1 year of math skills even after several decades of heavy investments on the national math education.

CONCLUSION

In this paper, we summarized the key results of the previous off-line USL pilot studies and their statistical implications to the regions (cities, states, or nations) if they decide to collaborate with the further USL pilot studies first and then to create Social Enterprises together – as the USL will create a branch per region from now on. Due to the profound implications on both the human capital boosts and the consequent economic growths, we firmly believe that the governments around the globe should consider the possibility of starting to run the online pilot studies first and then start building organic and holistic relationships together to trigger the global movement of USL to benefit locally and globally down the road.

REFERENCES

(for now, our website www.uslgoglobal.com)

More will appear in the second draft.