

Liberia's Experiment with Privatizing Education

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Abstract

To experiment with the possible privatization of its primary education system, Liberia initiated the Partnership Schools of Liberia (PSL), which turned over the management of 93 public schools to eight private contractors. A randomized controlled trial (RCT) study was set up comparing the PSL schools with matched public schools. A report on the first-year results of the RCT was recently published by the Center for Global Development. This paper is a critical analysis of the report and draws three main conclusions. First, increases in test score were more likely on the order of 35 percent to 45 percent instead of the reported 60 percent. Second, the increase in test scores had little, if anything, to do with the private management of schools. Test score gains likely resulted from policy changes that could be easily enacted in regular public schools. Third, the PSL is an extraordinarily expensive experiment, costing upwards of \$25 million, and is very unlikely to be worth the investment.

I would like to thank the authors of the RCT study who were generous with their time in explaining aspects of the study and who provided me with additional data. I would also like to thank David Archer, Susanne Clawson, Brent Edwards, Angelo Gavrielatos, Sarah Guile, and Nelly Stromquist for their comments on a draft of this paper. The views expressed herein are, of course, mine alone.

Introduction

Liberia has had a very difficult recent history. A devastating 14-year civil war from 1989 to 2003 killed 150,000 people, sent one-third of the population as refugees to other countries, and internally displaced another third (USAID, n.d.). The war destroyed nearly 80 percent of Liberia's schools (Stromquist, et al. 2017). An Ebola virus outbreak in 2014 and 2015 killed thousands and upended daily life. Schools were closed for seven months (UNICEF, n.d.). Liberia is still recovering from both crises. Liberia is one of the poorest countries in Africa. Less than half the population is literate, and its net primary school enrollment ratio of 38 percent is one of the lowest in the world (Romero, Sandefur, and Sandholtz, 2017).

It is within this context that Liberia is considering privatizing its primary school system.¹ The privatization of education is a very controversial global phenomenon (Verger, Fontdevila, and Zancanjo, 2016). To experiment with privatization, Liberia's Ministry of Education initiated the Partnership Schools for Liberia (PSL) in September 2016. The management of 93 government primary schools was given over to eight private organizations. The government still paid teacher salaries, schools were still supposed to be free,² and private contractors could not select students for admission. Contractors received a \$50 per-student subsidy to supplement the approximately \$50 that the government was already spending per student on primary schooling. They could also add any resources that they were able to raise privately. While contractors ostensibly had to follow the primary school curriculum, they were given free rein to emphasize what they liked. Class sizes for seven of the contractors were capped at 65, but, for the largest contractor (with 25 schools), Bridge International Academies, it was capped at 45. Bridge, when the project first began, also was allowed "to push excess pupils and under-performing teachers onto other government schools" (Romero, Sandefur, and Sandholtz, 2017, p. 2).

In order to assess the impact of PSL, a three-year randomized controlled trial (RCT) was set up by a U.S. organization, Innovations for Poverty Action (IPA), which specializes in running RCTs. A list of eligible schools agreed upon by the Ministry and private contractors was generated. The schools were divided into matched pairs, and contractors were randomly assigned to one of two matched schools, thus creating a treatment group and a matched control

¹ Primary schools often include three grades of preschool.

² Some fees were reportedly paid at both PSL and control schools, less so at PSL schools. The question is complicated by fees being charged at government preschools, but these fees were not allowed at PSL schools.

group. Prior to this assignment, IPA randomly selected 20 students from each of the schools to be the sample that was analyzed. In a study issued in September 2017 by the Center for Global Development entitled “Can Outsourcing Improve Liberia’s Schools,” Romero, Sandefur, and Sandholtz analyzed the first-year findings. This paper is a critical analysis of that study, henceforth referred to as RSS.³

Did Test Scores Increase by 60 Percent?

This is the most disseminated finding of the RCT study, especially by proponents of the intervention. But is it valid? The 60 percent figure represents an approximation to the main finding that RSS describe as follows:

The effect on test scores of being randomly assigned to the PSL program after one academic year of treatment is .18SD for English ... and .18SD for math.⁴ To put these effect sizes in context, the average increase in test scores ... in the control group is .31SD in English and .28SD in math. Thus the treatment effect is equivalent to roughly 0.56 additional years of schooling for English (.18SD/.31SD) and 0.66 additional years of schooling for math (.18SD/.28SD). [p. 8]

That is, English scores go up by about 56 percent and math scores by 66 percent. However, this is based on a regression analysis of post-test scores on whether students are in the PSL schools⁵ and a few control variables.⁶ Notably absent was any control for a student’s pretest score. This is an extremely unusual procedure. In almost all RCTs, the impact of the treatment is measured by the gain in the post-test score over the pre-test score. It turns out that the pre-test score in the PSL schools was significantly higher than in the government schools. RSS argue that this was due to late pre-testing, and that the higher score reflects that the PSL schools were already doing better due to the intervention. But this is speculation based on very little evidence. When they do control for pre-test, the effect of the PSL is considerably reduced to 42 percent for English and to 50 percent for math—that is, on average, approximately 46 percent. I believe most researchers would say these are the figures that should be used.

³ I found the study to be very competently and carefully done. Nonetheless, I have some disagreements with their analyses and interpretations of findings.

⁴ I substituted “SD” to stand for standard deviations instead of RSS use of the symbol for sigma.

⁵ To be clear, the PSL schools are the 93 experimental schools. The control schools are part of the RCT but not part of the PSL.

⁶ It is possible that different control variables would yield different results. The authors did not have enough data to control for the household variables they list in their Table A11.

Another way to look at the impact of the PSL on test scores is to look directly at the raw test data. The test data in the analyses above does not use the raw test data but weights it according to item response theory. If we examine the impact of the PSL on the raw test data, we find that the impact of the PSL is even lower – 28 percent for English and 41 percent for math, on average about 35 percent.

The raw test data also provides a little context for better understanding the practical significance of the PSL impact. While 35 percent to 60 percent sounds large, what practical difference did the PSL schools make? For English, the average percent of correct answers on the post-test was 59.3 percent with an SD of 25.5 percent, a wide variation. The PSL increased the percent of correct post-test answers by only 2.2 percent, which may not be of much practical significance. For math, the average percent of correct answers correct was 43.3 percent with an SD of 26.5 percent, with the PSL schools gaining only 3.0 percent.⁷ It seems likely that students in both the PSL schools and the government control schools are not progressing very well. True practical significance, however, depends on understanding the educational substance of the test questions, which are not reported in RSS.⁸

In addition to alternative interpretations of the estimates of the impact on test scores discussed above, experiments like this always have some threats to internal validity—that is, threats to the belief that the learning gains are actually caused by the PSL. Careful attention to randomization by the RCT eliminates most of the standard ones, but other threats may be at work. One is experimental mortality. While only about 4 percent of students in treatment and control schools did not participate in the post-test, if there were substantial differences between the two groups in terms of who dropped out of the study, it could mean that not all of the impact on learning was due to the treatment.

Two other common threats to internal validity are interrelated. One is “compensatory equalization of treatments,” whereby “members of a control group become disgruntled if they think the experimental group is receiving extra resources” – the latter in the PSL is true and considerable (Mertens, 2015, p. 133). The other is “resentful demoralization of the control group,” whereby “the control group may feel demoralized because they are not part of the

⁷ Data supplied by the authors of the study.

⁸ In the PSL RCT, the *same* test was given to all eight grades – including the three grades of preschool and five of the six grades of primary school. I find this very unusual as, in most studies, impact is studied separately grade-by-grade.

‘chosen’ group” (Mertens, 2015, p. 133). In both cases, the performance of the control group may be lower than normal, and thus, if these threats are applicable, the gain in test scores, in part or in total, is not the result of the PSL program.

I also wish to mention two additional common threats that are usually considered for external validity (that is, generalizability) but I think are more applicable here in that they also raise questions as to whether the learning gains are really due to the PSL program. They are the “Hawthorne Effect” and the “Novelty Effect.” The former is when simply being singled out for special attention is the cause of part or all of the impact, and the second is that an impact may be due simply to the experimental treatment being something new. Both are plausible explanations of part or all of the impact of the PSL on first-year test scores.

What are the Reasons for the Gains in Test Scores? Part I

If we are willing to believe that test scores did go up some 35 percent to 60 percent, why did they? RCTs are really not designed to answer this question, since they only have experimental controls for one variable – in this case, the outsourcing of control of schools to eight private contractors. Most RCTs are therefore black boxes; at best, they can tell you there was some impact, but why is an unknown, subject to speculation, not scientific analysis.

However, some RCT studies use a statistical procedure called “causal mediation analysis” to unpack the mechanisms underlying the impact found, as did RSS. Their findings are that about “half of the overall increase ... in learning” is due to teacher’s age (with the younger teachers in the PSL schools having greater impact than the older teachers in the control schools), and about a quarter of the impact is due to greater teacher attendance in PSL schools (pp. 39-40).

I believe that these findings are completely invalid for at least three reasons. First, their selection of which potential mediators to examine is ad hoc. There are many possibilities they don’t examine as I discuss in the next section. Second, they essentially use statistical correlations to determine which ones to report and to select a few control variables. To the contrary, to get a valid estimate of the unbiased impact of a mediator, you need a conceptual model that includes all relevant variables in the two equations they estimate; for example, what are all the factors that affect teacher attendance – not just the treatment and a few ad hoc controls? And then in the equation with test scores as the dependent variable, you can’t just control for a few mediators and an ad hoc set of control variables; again, when you don’t have

experimental controls, you need a conceptual model that includes all relevant variables that affect test score (Klees, 2016). This rampant misspecification of both the equations RSS estimates violates all the assumptions on which causal mediation analysis is based. Accordingly, the results are arbitrary and should not be given any credence. The desire to go beyond the black box finding of the impact of the treatment is understandable, but this is simply impossible to do scientifically.

What are the Reasons for the Gains in Test Scores? Part II

There are many differences between the PSL schools and the government control schools. It is eminently reasonable to think logically about what factors might underlie any impact that the PSL has on test scores. In advance of the specifics of my argument in this section, I want to give my overall, rather startling conclusion: *I think it likely that any gain in test scores has little, if anything, to do with the private management of schools. Instead, the gains in test scores are most likely the result of changes that could easily be implemented in government schools without any need for outsourcing to the private sector.*

First, PSL schools were allowed to add more hours to the school day, on average, equal to 3.9 more hours per week. Government (control) schools typically operate from 8:00 – 12:30. So, the addition of 3.9 hours per week at the PSL schools represents a 22 percent increase in school contact hours. This factor alone could explain a large portion of any gain in test scores, and it does not require private contractors to implement this. The Ministry could require a longer school day. For some contractors, contact hours increased by a lot more. Bridge increased contact hours by over 70 percent; as we will see, Bridge was one of the most successful contractors in terms of increasing test scores. All of its effect can simply be due to a longer school day, and its weight in the aggregate impact of PSL schools makes it possible that its gains are driving the overall gains for PSL. Of course, contact hours are not necessarily time spent on instruction, as we shall discuss below, but more contact hours makes possible more instructional time, and it is reasonable to believe that this increase in contact hours accounts for a large portion of test score improvements.

Second, it is very likely that the private contractors emphasized English and math instruction much more than did the government control schools, thus, in effect, teaching to the test. Government schools have to cover the whole primary school curriculum. PSL schools

were ostensibly told to use the primary school curriculum, but they were explicitly allowed to emphasize whatever they thought best. These contractors likely knew or suspected that they would be judged by tests on English and math – and therefore that the renewal of their contracts and a lot of money depended on such success. This gives them a huge incentive to focus instructional time on those two subjects. A famous early meta-analysis of the literature on curriculum came to two unsurprising conclusions – that subjects included in the curriculum were better learned than those not included and those that were emphasized were learned even more (Walker and Schaffarzick, 1974). The learning gains of PSL schools can easily be explained by more time devoted to the subjects that were tested. Moreover, this does not depend at all on implementation by private contractors. The government can easily change the curriculum to have teachers in regular government schools spend more instructional hours on English and math.

Third, the PSL schools likely had smaller classes than the government control schools. Class size data is not reported, but the average pupil-teacher ratio (PTR) for PSL schools was 33 and 40 for government schools. However, PTRs are often different than class size, and it is likely that these figures mask greater differences in class size. Class sizes were allowed to be capped at PSL schools at 65 (45 for Bridge) but not for government schools. Some government schools were still teaching multiple grades in the same classroom. It is thus possible that test score gains resulted from smaller class sizes, a policy that the Ministry could implement in government schools, having nothing to do with privatizing the education system.

There was a disturbing report about a Bridge PSL school that promised the community a school lunch program but never offered it (Mukpo, 2017). With a seven-hour school day, many of the poorest students simply dropped out of school, unable to go that long without food. Class sizes with the remaining students were very small. If this was true in other Bridge schools or elsewhere, it implies that class sizes in PSL schools could have been very small, containing more advantaged children in the community, giving these schools an unfair advantage in doing well on the post-test.⁹

Fourth, while many of the teachers in the PSL schools were younger and less experienced than those in government schools, they were also much better trained. Moreover, PSL schools

⁹ For unspecified reasons, in that same community, Bridge shut down their kindergarten and first grade classrooms, which might also allow them to do better on the post-tests.

were allowed to interview and choose new graduates who best fit what they were looking for, whether it was English fluency or ability to follow directions. New graduates were also on a different salary scale and received more than many experienced teachers, increasing motivation and reducing absenteeism.¹⁰

Recent teacher training institute graduates may have had better training in English and math assessments like the tests used in the RCT. There have been a number of interventions in teacher training in Liberia (through RTI and USAID); some have had a remarkable impact on early grade reading – with impacts much larger than the PSL (Piper and Korda, 2010). Those improvements in training have been applied to Liberia's teacher training institutes, and, therefore, it is possible that some or all of PSL gains in test scores are simply due to the improved training of the new teachers. This, once again, has nothing to do with contracting out to private organizations.

Finally, the private contractors were able to afford to supply more of basic inputs like textbooks, chalk, and pens and pencils: 36 percent of PSL students had textbooks, compared to 17 percent in government schools; 88 percent of students had pens and pencils compared to 78 percent; and 96 percent of classrooms had chalk compared to 78 percent. More access to crucial inputs could be the cause of test score gains, which, again, has nothing to do with the privatization of the system.

To sum up, it is reasonable to assume that the gain in test scores had nothing to do with the privatization model of the PSL. Rather, longer hours, focusing teaching on English and math, smaller class sizes, better teacher training, and more access to basic inputs are all more than reasonable explanations of why PSL students scored higher – all factors that have nothing to do with privatization and could easily be implemented in government schools throughout the nation.

Did the PSL Contribute in Any Way to Gains in Test Scores?

The preponderance of evidence above argues that the privatization model of the PSL was not a contributor to the observed increases in test scores. I see really only one argument that PSL advocates can use and that is the increase in teacher presence in schools, in the classroom, and

¹⁰ On average, salaries in PSL schools were about US\$120 per month compared to US\$100 per month in government schools, a 20 percent difference. The differential in favor of new graduates may be even greater.

engaged in instruction. Ignoring new teacher training institute graduates whose higher salaries and motivation may make them more likely to be present, RSS reports the following: a spot check found that 68 percent of PSL teachers were at school compared with 54 percent of government school teachers, and 51 percent of the them were in the classroom compared to 41 percent. Classroom observation further revealed that 75 percent of PSL teachers were “on task” compared to 53 percent of government school teachers. Clearly, the problem of not having teachers in the classroom is common to both groups, but PSL schools do better. Since the PSL schools cannot fire teachers, it is not clear how they are able to get such results. It would be interesting and useful to find out what types of controls and incentives they exercise and whether such approaches could be applied in government schools.

Perhaps the most depressing finding of the RSS study is buried in a footnote: “Combining the effective teaching time with student attendance, the average student in PSL schools got 4.8 ... hours per week of instructional time ... compared to 1.9 in traditional public schools...” (p. 9). While one may dispute some of the data that went into that calculation (e.g., the meaning of “on task”), if it is even roughly accurate, it says that neither PSL schools nor regular government schools are doing a very good job. And again, if improvement in test scores is due mostly to teachers spending two or three more hours a week on teaching English and math, this and much more could be done without resorting to privatization.

Many international reports and agencies have been blaming teachers for being absent too often from the classroom.¹¹ This has been explained by the bureaucratic requirements that force teachers to often travel in order to get paid and complete routine administrative tasks. The other major explanation is that teacher salaries have gotten so low that teachers are forced to work two or more jobs just to make ends meet (Stromquist et al., 2017). Raising salaries would go a long way towards reducing absenteeism as would streamlining bureaucratic procedures. Again, this could be done without turning a school system over to the private sector.

A final point here is that there were major differences in the financial resources available to private contractors compared to government schools. To start with, private contractors

¹¹ Blaming teachers is ubiquitous in almost all international reports. One of the most egregious was the 2010 World Bank publication that featured on its cover a teacher asleep in the classroom (Bruns, Filmer, and Patrinos, 2011).

received \$50 for each student they enrolled.¹² Moreover, they were free to spend as much additional money as they wanted to and could raise. Data on expenditures are all self-reported and thus not very trustworthy. They range from \$57 per pupil for one contractor to Bridge's estimate of between \$660 and \$1000 per pupil. What this money is spent on is unclear, as is how much was appropriated as profits by a contractor, but certainly these extra resources can be part of the reason for any test score improvement.

The Impact of Individual Contractors

The principal question RSS address above is: "What can the Liberian government achieve by contracting out management of public schools to a variety of private organizations?" (p. 40). However, RSS also estimate contractor-specific treatment effects. Since assignment of contractors to schools was not random, the statistical approach used by RSS differs from looking at general effects. Among other things, school average data is used so the sample sizes are small, especially for some contractors.

Only two of the eight contractors showed a statistically significant impact: Bridge and Street Child.¹³ All of the contractors but two were selected through a competitive bidding process. Bridge negotiated a sweetheart deal with the Ministry, giving it significant advantages over the other contractors. It was allowed to release almost three-quarters of the teachers in the schools it was given and was allowed to have first pick, before the other contractors, in the selection of new teachers. It also was allowed to cap class sizes at 45 while for the other contractors they were capped at 65.

I believe Bridge's impact on test scores has little, if anything, to do with private management. It was allowed to increase the hours devoted to schooling each week by over 70 percent; this factor alone could explain its impact. In addition, all the other factors discussed above come into play: it probably taught to the test by emphasizing English and math instruction; had an almost entirely new teaching force that passed a test Bridge conducted and were likely selected for their English abilities among other things; the new teacher graduates were likely more familiar with assessing English and math instruction than current teachers; they had a lower

¹² This was in addition to the estimated \$50 per student the Liberian government spends on primary schooling (the extra resources came from private sources, not the Liberian government). Bridge did not receive the extra \$50 per student because it was not part of the competitive bidding process.

¹³ RSS also include Rising Academies, but it used a non-standard .10 significance cutoff, so I don't include it.

class size; had more textbooks and other basic inputs; and spent a literal fortune on the experimental schools. Again, all but the latter could be done by Liberian government schools without resorting to private contractors.¹⁴

Are the PSL Results Generalizable and Sustainable?

RSS are careful to say that the results of the PSL are far from generalizable to all schools in Liberia. The schools in the PSL were not at all a random sample of schools in Liberia. Both experimental and control schools were purposefully selected to be closer to the capital, Monrovia, close to paved roads, have more students and classrooms, as well as access to better infrastructure like water and latrines or toilets.

Moreover, the design of the PSL yielded many more differences from average Liberian schools. Both the experimental and control schools had many more teachers per school and consequently lower class sizes. Teachers in the experimental schools were better educated and better paid, and more basic inputs were available, like books, chalk, and pens and pencils. There were also a lot fewer classrooms that were multigrade, which is quite common in Liberian schools.¹⁵ Expenditures were at least double the \$50 per student spent on your average primary school – and, as above, most contractors supplemented this funding substantially.

Therefore, it is unlikely that the results of the PSL are applicable to Liberian schools in general. Neither are they sustainable nor can they be replicated in other Liberian schools without massive outlays of resources. This makes the value of the PSL and this RCT study for Liberian policy-makers very questionable, a question I return to in conclusion.

Is the PSL cost-effective?

The very unreliable self-reported expenditure data provided by contractors is basically useless for conducting a cost-effectiveness analysis. Instead, RSS use the extra \$50 per student spent on the experimental schools as a minimum and conclude that, compared to other interventions elsewhere, the “PSL is not a cost-effective program for raising learning outcomes” (p. 49), ranking 11th of 14 interventions looked at in a study by Kremer, Brannen, and Glennerster

¹⁴ Bridge and the other contractors are only spending this extra money in order to compete for expansion to all of Liberia. If eventually they were to be awarded such a contract, those extra resources would dry up.

¹⁵ It is unclear to what extent PSL schools or control schools were still being taught multigrade and whether any differences between the two affected test score gains.

(2013). Of course, the situation is much worse than that because, regardless of the quality of contractor expenditure data, most PSL schools spent a lot more than an extra \$50 per student.¹⁶

Conclusions

The PSL and its RCT are very expensive. With perhaps 30,000 students in PSL schools, the \$50 per student supplement comes to about \$1.5 million per year.¹⁷ Because teachers in PSL schools receive higher average salaries, it is estimated that the Liberian government is spending an extra \$20 per student (over their estimate of \$50 per student level) adding another \$600,000 per year. Running the RCT itself comes to about \$900,000 over its three-year life, which doesn't include the costs of the analysis. Then there are the expenditures that are added by the contractors. Bridge alone spent over \$6 million in the first year. The other contractors likely put in another \$3 million. Thus, in total, the PSL is likely to have cost over \$25 million for the three-year period!¹⁸ This is a very expensive experiment and this does not include the substantial additional costs that will be incurred with the planned expansion of the PSL.¹⁹

Is it worth it? My conclusion is that the PSL is a waste of resources. There is a huge international literature that clearly answers the question of whether private schools are better than public schools (Verger, Fontdevila, and Zancajo, 2016). They are not. With similar students, private and public schools show similar achievement levels.²⁰ Moreover, as this paper

¹⁶ It should be noted that RSS' inference is unfounded that since \$50 yielded an .18SD test score increase, a \$100 per student would yield a .38SD increase. We have no idea what impact an expenditure of \$100 per student would have. I also question RSS' reliance (p. 50) on J-PAL data for comparing interventions -- see <https://www.povertyactionlab.org/policy-lessons/education/increasing-test-score-performance>. Each effectiveness result relies only on one RCT. Multiple RCTs will likely yield disagreement about effectiveness levels. It is unclear whether the cost calculations are based on the needed ingredients approach (Levin et al. 2018). I particularly dislike RSS and J-PAL promoting "streaming" as by far the most cost-effective intervention. In many countries, streaming – that is tracking or ability grouping – has been criticized for decades, and now it is being marketed to developing country policy-makers.

¹⁷ Total enrollment in PSL schools is unavailable. Estimate range between 20,000 and 40,000 students.

¹⁸ I assume that 50 percent of contractor costs are start-up. This doesn't include the costs of the planned expansion of the PSL.

¹⁹ Liberia is only covering a part of the expenses; the RCT expenses and the \$50 per student supplement are paid by external sources.

²⁰ Throughout this paper, I intentionally do not use the word "learning" to describe the impact on test scores. To say that "student learning increased by 60 percent" (p. 2) reifies two very partial measures of student achievement. Internationally, testing in math and language has been substituted for the much broader view of learning that should concern educators. To the extent that PSL schools focused almost exclusively on math and English instruction, it would be important to find out what other learning outcomes are given short shrift.

shows, the test score gains of the PSL schools are very likely due to changes that could easily be made in regular public schools.

The PSL seems to have been initiated more for ideological reasons than for its potential effectiveness or cost-effectiveness. Early into the experiment, Minister of Education Werner said to PSL's critics:

While I believe it holds great potential, my team and I are clear that the program will not be scaled significantly until the data shows it works.... Judge us on the data – data on whether PSL schools deliver better learning outcomes for children. [Werner, 2017]

Yet halfway through the RCT, without any data available, Minister Werner announced that he was going to expand the project. That decision stimulated controversy within and outside Liberia, and the Minister was forced to recant. But then, in June of this year, he reiterated his plans to go ahead with more than doubling the number of PSL schools, again before any of the RCT study results were available.²¹ The Minister seems to have little interest in data. Early into the PSL, the University of Wisconsin was commissioned by Education International and Action Aid to undertake a qualitative study to complement the RCT and get inside the black box of the RCT to find out more about how and why it was working – but the Minister refused to allow the study to be conducted. Minister Werner has indicated that Liberia has the potential in the medium term to double primary school expenditures per pupil from \$50 to \$100 (p. 2). These additional resources could go a long way towards improving government schools and student learning without the need to privatize Liberia's educational system.²²

²¹ This included the expansion of contractors who were ineffective in raising test scores.

²² Teacher salaries in Liberia, as in many African nations, are abysmally low and part of the additional money should go there (Stromquist, et al. 2017).

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