

The primary criterion for teaching is a mastery of the subject

By [STABROEK STAFF](#) | [0 COMMENTS](#)
LETTERS | FRIDAY, MARCH 4, 2011

<http://www.stabroeknews.com/2011/opinion/letters/03/04/the-primary-criterion-for-teaching-is-a-mastery-of-the-subject/>

Dear Editor,

Having been a Maths and Science teacher for a long time at almost every level of education, and having also taught other subjects up to high school level, I feel I ought to contribute my two bits.

Healthy students are not stupid. So long as they can hear and understand, the most effective teacher for them is one who relates all the necessary facts as part of an interesting story; and the best stories are always true. The teacher does not have to know all the facts and theories like a university professor, but must be able to identify what he does not know and point the enquiring student to the next or whatever level where such knowledge can be obtained.

I have long realized that the primary criterion for teaching is mastery of the subject. The methodology of teaching can only become relevant after this. Therefore the pay scale for teacher qualifications must be, from lowest to highest:

- (I) CSEC, CSEC + (CPCE) Teaching Certificate;
- (II) A Levels/CAPE, A Levels/CAPE + (CPCE) Teaching Certificate;
- (III) Associate Degree, Associate Degree + Certificate of Education; and
- (IV) University Degree, University Degree + Diploma in Education.

Two to four increments should separate the two teaching qualifications within each scale, and each approved year of teaching at whatever level should rate an increment.

Many years ago we used to employ our best A level graduates for a year or two before they found their way to university. They were far superior to graduates of the Cyril Potter College, some of whom I am sad to say could not write English well enough for the exams they were supposed to set their students, and some could not even write arithmetical notation. There were and still are many good graduates of the CPCE, but too many are allowed to pass who evidently did not attain competence.

The present situation appears to permit low-achiever graduates to teach at high schools where the limiting entry mark attained at the Grade Six Assessment is set high. The students are certifiably smarter than such teachers, who then have to consume more of the school's, and eventually the Ministry of Education's, administrative energies to keep even a superficial order.

Maths and Science play an even more important part in the training of teachers. I like to compare problem solving sessions. Three mathematicians sit around a table discussing a problem. (It would be hard to find more than three in this country). One makes a statement. This is followed by silence. Eventually one of the others nods or poses a question. When it is satisfactorily answered, another statement is made. If it is not satisfactorily answered, the proposer retries with modification, or someone comes up with a new proposal.

Ten scientists sit around a table researching a problem. One makes a statement. The others immediately think of how an experiment can be designed to test it. The most experienced, who is often the oldest, usually has the first say. This is heard respectfully, and only seriously challenged when someone else is convinced he knows otherwise. But whether challenging or not, many feel free to say otherwise in the hope of having their uncertainties cleared up.

This latter scenario becomes problematic when government and opposition scientists, or scientists funded by business competitors or vested interests, take politically informed positions. I know of no government, opposition, or business funded mathematicians in Guyana, so if only persons trained in mathematical logic had sat down to consider the flood situation, they would have quickly put the stamp of approval on

a commonsensical solution and allowed the funds for the World Bank mission (SN editorial, Feb 28) to be used instead for the remedy.

The beauty of mathematical reasoning is that while the sensible layman could have lingering uncertainty as to whether there exists other reasoning that could lead to something else, trained practitioners know beyond the shadow of a doubt that the conclusion follows the premises.

In the case at hand the premises are the purposes of building the EDWC, viz, to store water when it is abundant and to release water when it becomes scarce. If the conservancy is silted up it cannot store as much water; the water it cannot store will flood. Therefore the conservancy must be desilted to recreate its storage and flood prevention capacity. I spell out these concerns plainly in the hope of having them corrected where necessary.

I became alarmed after the 2005 flood when I heard the government was building the walls of the conservancy higher – against the advice of some engineers who take the trouble to share their concerns in your letter columns. My contribution was on the behaviour of wet clay under pressure. The higher walls will eventually subside into the conservancy whenever the clay becomes partly saturated, thereby further contributing to the decrease in storage capacity. Higher walls could be justified in the short term, but now it seems that after 6 years hardly anything else was achieved. No doubt the ruling politicians and economists researched the problem. I only wonder if they sat around a table.

My kind of Maths and Science tells me that the highest tide of the year is due on the morning of March 20. I know this because I have worked out a spreadsheet on my computer to describe Sun and Moon gravitational influence at our latitudes every day from Jan 1, 1900 to Dec 18, 2077. And every year I compile it for every hour in the year. The tide tables you can buy should corroborate it for the given year.

These considerable efforts have drawn no remuneration, only expenses. Even if I wanted to complain there is no one to complain to. My concern is for the continued lack of appreciation for the transmission and development of mathematical thinking in this country. These are the skills on which civilizations are founded in the long term. Other countries have suitably remunerated or rewarded their own Maths and Science teachers. Why can't we?

Of immediate concern, however, is: what will we do if a large low pressure region circulates around the equator and dumps a heap of rain on us around March 20?

*Yours faithfully,
Alfred Bhulai*

Mr Bhulai graduated from St. Stanislaus College in 1972. He then graduated from UG with a B.Sc. in applied Chemistry, and from the Technical University of Berlin with a Dipl.-Ing. (=M.Eng) in Food Technology (specializing in Sugar Technology) and Wind Power Engineering.

From 1976-80 he was Head of the Science Dept. at Saints, which at that time was the largest secondary school science department in the country, including: 2 Physics, 2 Chemistry and 1 Biology laboratories.

From 1982-2003 he was a lecturer at the University of Guyana and was elected by the Faculty of Natural Sciences to be the Head of the Department of Physical Sciences, comprising the substantive departments of Physics, Chemistry, Mathematics & Statistics, and Computer Sciences.

He is self taught in Astronomy, functioning as the resource person in Guyana for this subject; and is a mathematician specializing in the Lobachevskian non-Euclidean geometry, hoping that there are still a few people out there in the world who are willing to exchange insights into its descriptions of the universe.

He writes letters to the Catholic Standard on religious matters and to mostly the Stabroek News on national matters. (Many of the more recent of the latter can be found by typing 'Alfred Bhulai' in the search engine on the Stabroek News Letter archive page.)