

Tablets as Educational Medicine

Dr Ian Smythe

Given the right nutrition every child will have the opportunity to succeed. And while we know all about the impact of a balanced diet in educational outcomes, what about nutrition for the mind - learning? Food supplements are not a replacement for a good diet, but they can be part of healthy living. So too, could computer tablets become not a replacement for good teaching, but an aid to healthy learning?

Politician and educators often champion the role of computers but fail to appreciate that they are no more useful than an empty box or a blank sheet of paper. It is the content that will make the change, not the conduit. So the distribution of 80,000 tablet computers in Gauteng will not have an impact beyond making a ripple of excitement. What will make the difference is the content that could be put on them, and how that content is then utilised not to improve teaching, but to improve learning. And that use should not be seen in isolation, but in collaboration with other systems including existing teaching methods and existing computer-related support. There are many ways to ensure they make a difference, and many ideas which could make micro-improvements to all parts of the curriculum. But what if we could change the whole paradigm, to make a shift in educational delivery that could unlock the potential of not only current students, but also current students as that vision that can be delivered Now?

There are two types of revolution: the noisy one and the quiet one. Everybody hears about the noisy ones. The quiet ones are those that appear to make small, logical changes, often of the type where you think you are already doing it, but maybe not. And those revolutions can often not only make a difference in the short term but also, if implemented appropriately, can create a sustainable legacy where everybody is proud to have been part of its introduction and to have contributed to its success.

It is estimated that somewhere in South Africa a new teaching methodology is introduced every 23 minutes, or so it seems. But the changes are usually about the detail of delivery. What is missing is the evaluation of learning. Teaching may be considered the product while learning is the outcome. Instead of measuring the product, we should measure the outcome. How else can one expect to respond to the scrutiny of public accountability? Would you measure the effectiveness of a new mop by its colour or the ease it glides across the floor, or by how clean the floor is? So why try to measure education by anything other than what the pupils have learned? But that then begs the question of how you do it, and where do tablets come in?

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Evaluation of learning

Traditionally the evaluation of learning is carried out at the end of the academic year as exams, which are paper-based, and collated for marking. Results are inputted into the computer, and if you are lucky, you can have results four months later. Within that there will be considerable variation due not only to the way students respond, but also to the methods that teachers employ to ensure their students are shown in the best possible light.

One part of that quiet revolution is already in place in Gauteng FETs. Thanks to innovative technology, students are now being assessed for their literacy and numeracy skills online, with results immediately available to tutors, to student support, to administrators and to policy makers as well as students themselves. In a society that increasingly seeks instant gratification, the desire to identify students' needs can now be delivered in real time.

Understanding failure

Nobody likes to fail. It is easy to produce tables that say how good pupils are at spelling relative to each other, how classes compare, and how schools and districts compare. What is more problematic is understanding why there is a problem. Just knowing that a student is poor in, say, spelling does not help you teach them. At best you can teach what has already failed them. What you need to know is what underlying skills have they failed to learn which if appropriately taught could impact upon their spelling. For example, do they need to learn how to divide words into syllables, to improve rhyming skills, to be taught the rules of spelling, or maybe just be exposed to more spoken English.

Two key terms are baseline assessment and return on investment. The baseline assessment refers to putting down markers to say the current levels, which could refer to the student, the class, the school or the region. With electronic assessment and marking, financial, time and resource implications are significantly reduced for re-testing. That means that a second test can be made relatively easily and quickly (it is not recommended to be more often than once per three months) to review the learning that has taken place.

The term sometimes used in measuring effectiveness is return on investment. That is, one can begin to see what teaching methods work or do not work, and make changes quickly to maximise learning in a given amount of time. By comparing the baseline assessment with current achievement levels it is possible to provide a metric for the return on investment.

So another part of that quiet revolution is the ability not only to know the level of academic skills of the student, such as spelling and maths, but also to know what are the blockages to understanding, what has not been learned, what should be taught next, and its effectiveness over a given time period.

Management

Teachers are busy and are set to become busier as central government looks to impose more paperwork and more prescriptive teaching in a system that struggles to maintain a credibility with the commercial sector. So whilst it would be good to know who is failing and why, the teacher does not have the time, and often not the skills, to deliver one-to-one teaching to those who have been identified as needing additional support.

However, having collected data electronically, it is a small step to aggregate individuals with similar issues in order to provide teaching in groups based on their common difficulties.

Furthermore, the data can be collected in a hierarchical manner, such that one can also identify the strengths and weaknesses not only of the individual, but also the class, the school and the district level. That allows the decision makers to identify areas where additional support is needed. This is the third part of the quiet revolution.

The role of tablets

The fourth and final part of this quiet revelation, the part that closes the square, is the availability of tablets. This provides the means to deliver this assessment direct to the student, no matter where they are.

Conclusions

So are we talking about the Next Big Thing or a passing fad? Technology is moving fast, and education is still playing catch-up. But without doubt, the paradigm has shifted not because of any one component, but because it has been demonstrated that with all the components in place, a quiet revolution that benefits all in education can take place. We have the skills, we have the technology, so now, as the advert says, just do it!

About the author

Dr Ian Smythe is an international researcher in the field of reading and writing as well as Director of Do-IT Solutions Ltd, developer of the Profiler, a web-based student profiling system. He is particularly interested in the use of artificial intelligence to help identify the strengths and weaknesses, skills, needs and learning characteristics of the individual.

Conflict of interest

The author has developed a tool that can deliver all four parts of the quiet revolution mentioned above.