

## **Empowerment of students – How can we succeed?**

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When I read through a variety of old conference proceedings I realised that keynote addresses took many forms. In some cases they were punctuated by references, supported by quotes from “scholarly” publications, etc. Namely, they satisfied the traditional concept of an academic presentation. Others, while not supported with the usual literature proceeded to provide an overview of the current situation and maybe speculated on the future. But what did the presentation change in practice; a question that can be also applied to many scholarly presentations and papers. Before proceeding let me make some comments. I started this paragraph by saying that I was rereading conference proceedings. How often do we do that in our academic career? We read the conference proceedings when they first arrive, or at the conference. The circulation of conference proceedings outside the participants is very limited. I looked through a variety of references in journal articles, and most do not quote from proceedings, and when they do they are usually from specific research articles, not from keynote addresses.

I asked colleagues what is was about a specific conference keynote they remembered that had an impact on them. They focused on two points. One was that the presenter said something new, something that had not heard before and it changed their thinking on a specific issue. Often this was related to issues they were currently considering in their teaching or research. I personally can remember being introduced to LOGO many years ago and this changing by view of technology in teaching geometry – as well as the general question of the role of technology. The other “impact” keynote presentations were often related to forcing the individual to re-evaluate their thinking about an issue. Forcing them to look at themselves and their beliefs and ask themselves whether they are going in the right direction. Forcing them to ask the question of whether what they were actually saying was having an operational impact. I am sure that we can all think of keynote addresses that have had a major impact on us.

Since I am reasonably sure – I should say certain - that I will say not something that has not been said before so I will try and achieve the second type of address. I will try and do this by raising some questions about using mathematics as a means of empowerment in the primary school. My hope is to make you to reflect on your situation and ask yourself if *your actions* empower students in primary school. The paper will look at whether we do or do not empower students, and conclude by suggesting a course of action that could be followed by mathematics educators. I will argue that we are not really empowering students and without a change in the way we operate real empowerment will not occur.

Empower is defined as “giving power or authority to” or to “enable or permit” (Webster’s unabridged dictionary – my only quote). The idea of empowerment is not new, although the word itself has not always been used. The question is what does empowering primary children mean. I will discuss this under two headings; (1) Empowerment and curriculum content and (2) Empowerment and evaluation. The final part of the presentation will suggest what this might look like operationally if we really want to empower students.

### **Empowerment and curriculum content**

Who sets the curriculum; adults, educators, experts, parents, etc? Not pupils – and certainly not primary pupils. The curriculum reflects the social norms and aspiration of adult society. Whether a topic is or is not included and how it is taught depends on the overall objectives of the curriculum as perceived by those who have control the system. Those in positions of authority are not always in agreement. The current “Mathematics Wars” in the USA are an illustration of how competing groups see content very differently (I have using the word content with literary licence). So what is the role of empowerment of primary

students in this? Are we really willing to empower students in this area? Are we really willing to "give them power"? Empowerment does not imply free choice. It is not the abdication of responsibility. Rather it is allowing students real input into the curriculum. There are constraints. Skills may be needed in order to discuss specific topics. An exploration of various textbooks, resources, etc. shows there are many activities, projects and other classroom ideas, particularly in English. The choice becomes more limited in one looks for materials in many other languages. Some of these materials are used in the classroom. In spite of the choice, for many teachers the curriculum is that set down by the School Board, the Province, State, Country or other body mandated to implement the educational policy at the local level. The materials used at the local level are those that fit these policies. Students are given choices – they can do this activity or this project. Thus, in operational terms empower within the curriculum often means allowing students some freedom to select activities or projects that meet the predetermined objectives set by “adults”. This pre-determination is not necessarily bad, but it certainly is not empowerment. At the end of the paper I will suggest a course of action needed to empower students.

### **Empowerment and evaluation**

It is this area that most students have the least authority. Studies such as TIMSS provide data that is used to argue that educational systems are succeeding or failing. There is pressure to succeed – meaning to do better on the International Scene or relative to other comparative groups. There appears to be growing pressure, particularly in the West, for accountability as measured by standardised tests administered to all students at various selected ages. The results of such tests then play a pivotal role in a student's future. Students have little or no input into this system. They are not empowered. If they succeed in doing well within this structure they continue within the system, otherwise they are excluded or marginalised. They are rewarded if they have ability and “play the game”. There are obviously exceptions to the rule. There are students who are so good that the system decides the rules do not apply. Others have access to resources to continue their education. Current assessment practices do not empower students.

The above two sections paint a bleak picture of student empowerment in terms of the overall situation. This does not imply that some students are not empowered. It does not argue that students should be given total power to make decisions on what to study. Students, particularly primary students, are not in a position to design their own curriculum and assessment models without some guidelines. However, it does argue that in terms of curriculum and assessment current practice mediates against empowerment.

There are two key terms that appear in the business literature that would seem appropriate to education.

### **Mass customisation**

At first this term seems to be a contradiction. How can we mass customise? It implies that we can produce a product for the mass market while at the same time customising it for the user. There was a suggestion that the time would come (within the next decade) when one would go to the Internet, choose the features on a car you want (colours, engine, etc.) and then wait three weeks for delivery. You, the customer, select the mass product customised to your requirements. This is really empowering the consumer. Is it possible to customise education in this way? Can the student select and customise their educational experience within reasonable constraints.

### **Just in time delivery**

Many firms have found the cost of inventories expensive, so they set up a product flow so that the specific part or product arrives just when it is needed? Is this applicable to

education? Should we learn skills and concepts just in time? Why learn algebra when it has no "real" use? Why do we want to learn about congruence?

### **Statistics Education – a model for empowerment.**

Statistics provides a great opportunity to empower students. It can deal with real data of interest to students. It can empower them to make decisions about issues that concern them. I will briefly describe one activity and will expand on this and others in the address. I also suggest that we need to act differently in our professional lives if we are to have a real impact on change at a more global level.

### **Real questions**

A few years ago I was working with a class of primary students and the issue of spending money came up. Many of the students felt that they did not have enough spending money - a common complaint. This resulted in the class trying to decide how much they needed. It became clear that the students spent their money on different things, had different needs, etc. They had to customise the situation to fit their needs. In order to answer the questions the students realised that they had to collect data and this became an appropriate place to deal how to collect data, etc. I will not give the details here, but will note that one outcome was that the students contacted a local store indicating that they were charging too much and managed to get the owner to reduce his price. The students felt empowered in that their action really produced a change.

### **Political action**

Even a cursory examination of the literature shows that there are many good ideas out there. The problem is not ideas; the problem is translating those ideas into practice.

When one mentions political action to many groups, particularly academics, the response is often extremely negative or, if one is lucky, neutral. Mathematics educators do not see themselves as political animals on the global or national scene. They do have input into decision making – at different levels. They can produce documents that suggest the direction of education. However, they usually do not undertake concerned campaigns to change public opinion. We may act locally, in terms of our school board or school, but it is rare that we act globally in a concerted way to implement change. Produce documents, yes - but what next? I will leave the question of what action as part of the presentation - you just might like to think about what we should do if we want to change the reality to what we believe?

This would appear to be a very open way to end this "paper in progress".