

## CHAPTER 5

### A Snapshot Survey:

#### **What Mathematical Literacy teachers claim about the new curriculum.**

##### **5.1 Introduction**

The initial design of this research included two in depth case studies. However over the past two years I was privileged with the opportunity to meet and talk to fifty-four mathematical literacy educators during workshops, conferences and cluster meetings<sup>12</sup> that I attended for Mathematical Literacy. I was also privy to a discussion forum set up on the Internet to deal with issues and questions pertaining to the FET curriculum in Mathematics, which was then extended to include Mathematical Literacy.

I have taken the decision to include some of the revelations of both the informal discussions and also the questions raised and points made on the Internet forum, for not only is the design of this study an explorative one, but many of the findings resonated with those of the two case studies. The numbers of educators 'interviewed' do not represent a significant statistic and nor do the number of users of the Internet forum, and as such the revelations go towards being the embedded units of analysis in this research.

The emerging data might also point the way to future studies in mathematical literacy. In particular, as a field, and how it pertains to educational change in emerging democracies.

The findings have been grouped into categories that capture the emerging themes of the two case studies. They are given in point form, followed by a numerical representative statistic and are then given evidential depth by the most direct quotes, and/or electronic discussions on the Internet forum.

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<sup>12</sup> Professional learning communities designated by educational authorities.

Emphasis has been added on the codes that communicated similar themes in the two case studies.

## 5.2 Emerging Themes

### 5.2.1 Threat to 'status-identity'

1) Qualified mathematics educators are hesitant to identify themselves as mathematical literacy educators, always ensuring that they make it known that they also teach mathematics (46 of 54 teachers).

*"I teach one class of mathematical literacy but I am a Mathematics teacher. All my other classes are maths, Higher Grade Maths!"*

*"I am not a mathematical literacy teacher. I saw the opportunity to get into a private school and took it. Now, I am not sure that I have done the right thing. People must not think that I am not a Mathematics teacher".*

*"We will rotate the teaching of mathematical literacy in our department each year, because we do not have a mathematical literacy teacher. We are all Mathematics teacher".*

*"I was told I would be taking over the mathematical literacy last week. I have resigned, because I have no idea why I have been demoted".*

2) Educators of mathematical literacy in private schools are either new educators to the school, mainly from government schools, or are the teachers in the department that previously taught standard grade mathematics. This is because experienced higher-grade mathematics teachers do not want to teach mathematical literacy (11 of 12 'private' schools).

*"This is my first year at St. George. They had my CV for three years before they appointed me. I was phoned at the end of last year (2006) and asked if I wanted to come and teach mathematical literacy. I took the job so that I could get out of the government school I was teaching in. Nobody in the department wanted to teach mathematical literacy.*

*Now I see why, the mathematics teachers are treated differently, everything revolves around them".*

*"I was given mathematical literacy to teach because I have always taught standard grade mathematics. None of the higher grade teachers would do it; they think they are too clever to teach this subject".*

*"Maths teachers think that they are too good to teach mathematical literacy. It is like you either teach mathematics or you do not. But now at least I am in a private school, with time I will prove myself and ask to be given mathematics which is what I am qualified to teach."*

### 5.2.2 Lack of Leadership: Absence of Collaboration and Reflection

3) There is a lack of leadership, discussion and reflection in the teaching of mathematical literacy. This is due to the fact that Heads of Departments do not teach mathematical literacy, nor do they engage with the teachers on how the implementation is taking place with any significant depth (23 of 24 schools).

*"I appointed someone new, from a government school. My staff refused to teach maths literacy. The new teacher is fine, she keeps telling me that it is going well, I can see this because the pupils are happy", (H.O.D - Private School).*

*"I teach the Mathematics. I have given the Mathematical Literacy to the teachers who would never be given Matric Higher Grade Mathematics to teach. It seems to be going alright, you know how it is, in private schools if there is a problem the parents will tell us", (H.O.D.-Public School).*

*"I asked at the conference if mathematical literacy user groups would be set up. They told me it was a good question, but they have done nothing about it. At the maths user groups nobody discusses the mathematical literacy, you feel stupid, because the maths teachers are thinking who cares, you try teach the new core Mathematics".*

➤ **Sent: 6October 2006 7:18 AM**

To: ...@yahoogroups.com

Subject: RE Maths Literacy-an online chat

Spoke to my HOD regarding doing both Math and Math Lit. She is unaware that a pupil may not do both. Please could you clarify?

### 5.2.3 Thin and Disconnected levels of Understanding: teaching 'mathematics in context'

4) In private schools, content is often taught first with the application of contexts following (11 of 12 schools).

*"I teach all the maths first. It is important to establish the basics first. Once they have acquired these mathematical skills I introduce them to contexts".*

*"I focus on teaching the mathematics first. If they can do the maths, the application is easier".*

➤ **Sent: 10 October 2006 02:05 PM**

To: ...@yahoogroups.com

Subject: RE Maths Literacy-an online chat

Some of the concepts are involved and starting in Grade 10 gives me the time to go through many basic concepts, which these kids invariably never got previously. E.g. rounding off, percentage, working with simple formulae, basic graphs etc. My method of teaching has been to teach skills first, then give them scenarios we would use that skill in. I found in many of the textbooks that they have huge scenarios with many, many different skills needed to answer all the questions-which would mean I have to stop start all the time.

5) The teaching of content and context as a process manifests itself more readily in schools where the teachers were not previously teaching senior higher-grade mathematics (11 of 17 schools).

*"I use to teach Grade Eight and Nine mathematics only. I am pleased that I have been given the opportunity to teach the seniors now. I take contexts that are rich in mathematics and are also enjoyable to the pupils. We explore these and without even realizing it, the pupils are learning mathematics".*

*"My other teaching subject is Biology. Now I teach Mathematical Literacy and Biology. I choose themes that have maths in them, and through these broad contexts allow the pupils to understand how maths is found nearly in all that is known and that they do".*

#### 5.2.4 Value of Mathematical Literacy

6) Private school teachers believe that the students are enjoying mathematical literacy and are coping well with the curriculum. Furthermore they believe that their students find that they are doing a subject that benefits their everyday lives (9 of 11).

*"The pupils love coming to my class. They keep telling me how much they are enjoying maths literacy. For some of them it is the first time that they are passing mathematics with a decent mark. I think they are enjoying it so much because they can finally see how mathematics is relevant to their lives".*

*"My girls keep telling me how happy they are that they no longer have to be scared of attending a maths class. They are enjoying doing something that they can see the relevance of".*

➤ **Sent: 29 September 2006 03: 33 AM**  
To: ...@yahoogroups.com  
Subject: RE Maths Literacy-an online chat

I am finding ML a wonderful subject to teach and really experience the feeling of empowering students.

➤ **Sent: 29 September 2006 07:33 AM**  
To: ...@yahoogroups.com  
Subject: RE Maths Literacy-an online chat

Maths Lit seems to be going well with us at *School K*. It has given students who really struggled in Grade 8 and 9 a new lease of mathematical life-and they are really enjoying it, and experiencing some success at last.

➤ **Sent: 05 October 2006 07:05 PM**  
To: ...@yahoogroups.com  
Subject: RE Maths Literacy-an online chat

Thoroughly enjoyed teaching ML this year, particularly with my Geography background. The pupils have also loved the subject.

➤ **Sent: 10 October 2006 02:05 PM**  
To: ...@yahoogroups.com  
Subject: RE Maths Literacy-an online chat

I have taught Maths Literacy in Grade 10, from the beginning of the year. I have found it beneficial in every way. Not only have I been able to

consolidate a lot of the "basic" concepts but also more importantly I have seen such a change in the learners in my class. They really are not scared of Maths any more. They tell me they no longer dread it as they actually now realize they CAN "DO" MATHS. Their self-esteem has improved and their confidence has grown to the extent that they readily say they don't understand or they ask tons of questions and because our class is small, they don't feel inferior because they don't know. I have thoroughly enjoyed teaching Maths Lit this year. I am excited for its future and believe that soon children and teachers will see the benefit of this awesome subject!

7) Public school educators believe that the curriculum is too difficult for the cohort of student doing the subject, and furthermore that it has no real value (19 of 21).

*"It is too difficult for these pupils. They are struggling with all the reading. They are already the weaker pupils now they must do mathematics in questions that are long and require a lot of reading. And for what, it closes so many important doors at university".*

*"We are wasting our time. It is too difficult for the learners. They need to learn basic mathematics that is what is important when they leave school. At least with standard grade mathematics, they were exposed to real maths. This is lower than lower grade maths. What is the point"?*

*"The pupils hate mathematical literacy. They feel that they cannot use it to study further. They want to do careers that require proper mathematics. At least with standard grade mathematics they could still get into some of these careers. Telling them it helps in everyday life is pointless, if what they want to do is change the life they find themselves in".*

### 5.3 Synthesis

The emerging themes bring to the fore several considerations for official policy makers, and mathematical literacy stakeholders.

Firstly, the threat to 'status identity' is considerably affecting the way teachers relate to and with the mathematical literacy curriculum. As qualified mathematics teachers they have a strong subject identity. Their perception that this identity is lessened when teaching mathematical literacy, instead of mathematics, is being "felt as a threat to [their]

identity" and is being "experienced as a pollution endangering the sacred" (Bernstein, 1971:56).

Secondly, in the absence of leadership, collaboration and reflection, mathematical literacy teachers are not only feeling isolated from their mathematics department but are implementing the subject mostly based on personal interpretations. This isolation not only feeds the threat to the status identity but also contributes towards the third theme, that of thin and disconnected levels of understanding the nature of teaching of 'mathematics in context'. Teachers, value mathematics as an absolute truth and their philosophy on what mathematics instructional practice should be is based on many years of teaching experience both as pupils themselves and as educators. Any deviance from presenting mathematics in a way different from tradition is not deeply understood as it questions and challenges what they hold as the superiority of naked and abstract mathematics.

Lastly, the value held for mathematical literacy differs along socio-economic lines. Teachers at private schools believe that the subject is valuable for their pupils in that it empowers them with knowledge and skills that have real-life benefits. Their counterparts in government schools hold opposing views. Here, mathematical literacy is viewed as a subject that closes doors to tertiary studies, and as a subject that is not 'real' mathematics.

These findings will not be analyzed explicitly any further as they do not form part of the case studies. They are however used as previously mentioned as embedded units of analysis in recognizing and further authenticating some of the emerging themes from the case studies. In addition this short chapter ensures that this data is not lost, as it may allow for further more comprehensive studies.

In the next chapter I make available a report on Norman Mhuka, the first case study respondent of this research.