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## **RE-SEARCHING TEACHING : CHANGING PARADIGMS TO IMPROVE PRACTICE<sup>1</sup>.**

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*In this paper the author examines the possibilities open to a teacher who wishes to improve her own classroom practice by undertaking a programme of further study. Having explored the traditionally accepted options available through higher education and finding that nothing really meets the teacher's real needs, the author turns to the concept of Teacher as Researcher with particular reference to Reflective Practice and Action Research. Finally, having found that even these options are not entirely satisfactory, he argues that in order to do justice to the task it is necessary for the teacher to change paradigms and suggests that there is a great deal of merit in 'researching from the inside' through the Discipline of Noticing.*

### **A. Introduction.**

There are lots of useful observations in the educational literature about learners learning but not so many about teachers teaching. This must be partly because it is so difficult to give an honest account of what it is actually like to teach - most attempts to do this slide into idealised intention or pious hope. (Tahta 1995)

This paper revolves around the dilemmas facing a mythical mathematics teacher<sup>2</sup> who has been teaching for many years and yet (somewhat unusually?) still loves her teaching. She enjoys showing the students the beauty of her subject. She is passionate about what she does and cares about her learners and their relationship to learning as well as to her subject. She wants her students to be able to enjoy the sense of success which comes from understanding a particular concept and not feel the devastation of failure and shame which accompanies poor marks in tests. She is alone in her classroom and is aware of the power she wields - the power to choose activities, to shame, to praise, to shout, to abuse, or to read from the textbook. She has many choices - every single moment in every single interaction. Sometimes she feels wonderful about what she did in a particular lesson; sometimes she feels good but knows that she could have done better; and sometimes she knows that she was horrible and is glad there was no-one else present to witness her mistakes. She usually shares her good moments with her husband at home in the evening, and sometimes with colleagues, but very seldom talks about her failures to peers.

Our mathematics teacher has been in the business for a long time and feels she has reached a stage where she is starting to lose that vitality and passion for teaching as she begins merely to go through the motions and she almost runs on automatic pilot. She also knows that most of the decisions she makes each day in her classroom are based on her life experiences - whether they are conscious or not (Blanchard Lavielle 1992), but does not know what to do with this insight. She has reached a stage where all this is not good enough for her. She wants to take the necessary action so that she can be pro-active and re-look at her teaching in an effort to re-generate her old passion and at the same time improve the quality of her students' learning experience. She knows she cannot do this on her own and so she begins to look around to examine the options that are open to her options.

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<sup>2</sup> In order to avoid contestation of some of the specific options available to our teacher, we will give her the specific geographic location of teaching in Cape Town, a city at the southern end of South Africa.

## **B. Becoming More Learned**

Most of the traditional routes require the teacher to attempt to become more learned and to become involved in some way with an institute of higher education and to study further. While this usually means registering for a higher degree there are in fact several ways that this search for improvement can be offered.

### **i) Inservice.**

The most basic form of inservice training available to our teacher is for her to become involved with one of the many Non-Governmental Organisations (NGO's) which have been set up to assist teachers with their classroom practice. Here the teacher generally gets a first exposure to the work of the NGO through the attendance of regular workshops on specific topics, and if she agrees, apprentices herself to a fieldworker from the NGO (who is usually an experienced ex-teacher) and learns from him through co-planning lessons and then following this up with observation visits. The intention is usually that each teacher involved in the project then becomes a 'key teacher' whose task it is to take the message out to other teachers. One problem with this option is that the financial stability of the NGO depends on its success in developing a marketable product which is based on a particular perspective on teaching mathematics (such as the use of problem-centred methods). Inevitably, the teacher will be expected to support this 'product' with enthusiasm and commitment with a variety of resulting difficulties and problems<sup>3</sup>.

A different option for our teacher would be to register at the local university for a Further Diploma in Education which has been designed as a multi-module course. Here the teacher comes to evening classes and is exposed to experts who will give her the opportunity to learn more content knowledge of mathematics, more knowledge of teaching methodology, as well as some options such as the use of technology in the teaching of mathematics. Here experts will teach the students what they know and the students learn to see the world through the experts' eyes. The problem here is that it is highly unusual for the 'expert' to have any knowledge of the teachers' contextual imperatives, so the students learn to achieve excellent results through the development of a sort of temporary spatial amnesia - they have to put aside their knowledge of their classroom experience and try to insert themselves into the perspective being given by the experts. Resistance to the course through a claim that the ideas would never work in a real classroom (or certainly not in my classroom) do not assist in the necessary accumulation of credit-gaining knowledge.

The most successful of these inservice courses are given by experts who are familiar with the general context of their students who also maximise the possibilities for student interaction. However, in each of these forms of becoming more learned, the teacher is basically required to take on board a set curriculum which has been pre-determined and is seldom negotiable. Our teacher makes enquiries about these avenues and finds that they are being offered by people with less experience than her and who will be teaching content that she already knows. She believes her knowledge and experience will ensure that she obtains outstanding results and a great deal of status and reward, but she knows that she needs something more than this.

### **ii) Higher Degrees.**

A common route for experienced teachers is to move on to a higher degree (such a Masters degree) where the task is one of becoming familiar with the various forms of educational discourse with a view to becoming able to do research<sup>4</sup>. Since one of the most fundamental aims in this form of research is for the researcher to remain objective, it is common for the teacher wanting to learn more about classrooms to be directed to research another teacher's classroom practice. The main task of research is to test hypotheses with a view to building up a set of generalisable results which will be able to contribute to policy initiatives. Accordingly, the main challenge for the teacher in this quest to become a good researcher is to learn to use the theoretical lenses that are on offer from the lecturer(s) so that she can interpret the data collected against the background of this accepted educational discourse. The problem here for the teacher wanting to improve her own practice is that the theoretical tools are foregrounded rather than the classroom practice.

## **C. Reflections on Getting an Education.**

Gadamer (1975) describes such a paradigm of learning as one of 'getting an education', which is at its strongest in a university. In this version "knowledge takes the form of an object which is separate from the knower making it possible to have objective truth uncontaminated by contextual contingencies and personal

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<sup>3</sup> See, for example, Breen (1999)

<sup>4</sup> See, for example, Breen (1997)

biases” (Olson 1997, 15). Olson follows Clandinin and Connelly (1990, 242) in asserting that “it is a view that implies that no matter what any particular person happens to believe about it, there is a correct and true view of the world. It is a depersonalised notion of truth and meaning”. It is a search for one correct true version rather than an appreciation of different perspectives developed from an individual’s diverse experiences. There is a belief that knowledge gained by rational objectivity is superior to that gained by experience. This has led to extensive specialisation, compartmentalisation, and a hierarchical structure of knowledge. “This version provides a pervasive hegemony as the legitimate authority of technical rationalism, shaping our society and education systems and thus our experience” (Olson 1997, 16).

When getting an education is storied as the accumulation of knowledge, knowing becomes positional as objective knowledge is transmitted from those who know to those who do not. In this story university professors know more than classroom teachers; classroom teachers know more and better than their students; preservice teachers appear to know very little at all.... In this version empowerment is possible through co-operation as those who already know help those who do not know. (Olson 1997, 16)

In this version of learning from the expert, there is room for only one voice, one version. The voice of authority belongs to the one who knows the most or best. Argument and explanation become the vehicles for arriving at consensus and agreement. Telling overshadows listening as individuals compete to have their versions accepted.

The teacher might be seduced into thinking that a rich option would be to allow other researchers to use her classroom as a research site so that she can benefit from the insights gained by the researcher. In theory this sounds quite possible. In practice the author of this paper has not seen experienced any demonstrable gains from such a course of action. In three separate examples where the author has made his work or his classroom accessible to outside researchers, it has been quite clear that, despite any honest attempts at introducing an objective perspective to the research, each researcher has foregrounded their own interests and perspectives onto the research. In one example, the researcher had a political agenda that made him blind to the context and nuances in which the intervention being researched took place. In another, the researcher was driven by a set of sociological theoretical tools which meant that she asked questions that were of particular interest to her understanding of these tools and ended up taking her own path where she was unable to focus on the intentions of the teacher concerned. Conclusions about the efficacy of some of the teaching tools were being made with apparent reference to the data, but without asking appropriate questions. In the third, the researcher had a concept template of a teacher-centred lesson which he was unable to open up for discussion and consequently imposed on the teaching being observed. In all three cases, attempts to engage the researchers in a discussion about the assumptions being made fell on deaf ears.

The point being made here is that whatever the quality of the research, the most significant aspect of the research undertaken was that the researchers in fact developed their own theoretical tools and insights as a priority and this resulted in the research having limited use to the teacher concerned. The tragedy for our teacher wanting to improve her own practice and learn more about her own teaching is that the bias of the outside researcher is inevitable. In the paradigm of ‘getting an education’, the researcher is the expert and the teacher’s version is not important enough in the Grand March of the research.

#### **D. Teacher as Researcher.**

The above has surely painted a dismal picture of our teacher’s possibilities for improving her practice through involvement with experts and further study. However, there has been a strong move in recent years to value the position of Teacher as Researcher<sup>5</sup>. In general, this movement has supported the teacher working in her own classroom in one of two ways.

##### **i) Reflective Practice**

This is based on Schön’s concept of the teacher as reflective practitioner (Schön 1983). A crucial part of this reflective practice in recent years has been the writing of a journal both by the learners and by the teacher. For example, a student in one of our teacher’s classes wrote the following at the end of a particularly difficult mathematics lesson.

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<sup>5</sup> See, for example, Zack et al. (1997) which is the culmination of the efforts of a Psychology for Mathematics Education (PME) working group with this name.

We did some visualising using matches. This was fun because I could see at once that my answer was correct. I enjoyed discovering that there were other routes to get there. I surprised myself by thinking that there must be a way to state the pattern. There was! And so I realised for the first time that making rules about the process had led me to algebra, that dreaded topic.

Similarly the teacher giving the above lesson started writing comments about her teaching methods by reflecting on what she was doing in the lesson.

We'd done a fair bit of work on number patterns already. I had given them an old exam-type problem and they'd been able to handle it. I had another similar one ready to give them but then I thought that wouldn't be enough of a challenge so I decided to change my plan and talking aloud said "I think I'd rather give you a challenge". As I said challenge they started calling out as to how their anxiety ratings were going through the roof. The problem was actually quite simple - much easier than anything they had done before - the challenge was going to come later. They started working. D became increasingly agitated and panicked. What must they do? Was she right? She seemed to get very anxious that someone else next to her was working more quickly than her - and out came the tears.

The advantage of this move to keep journals and reflect on what is happening is that both learner and teacher have to attempt to stand back from the event and watch themselves in action. The problem comes when one has to take these writings further. Both student and teacher are writing about things that happened to them in the lesson as well as some of the thoughts that came up. What happens to all this writing? How does one judge which is the better piece of reflection and who has gained the most from the lesson? Which aspects of the experience contain the possibility for generalisation and how could this tie into the existing literature? Finally, are there any seeds here for better classroom practice? A journal can become addictive. I can get into the habit of writing about what happened in my classroom and it is quite possible that nothing will change. I am likely to look for data that will match what I think anyway. There is no access to others to critique my writing and, even if there was, my writing is sufficiently personal to make it difficult for anyone to enter my narrative and challenge my reading of the story.

The presence of subjectivity is clearly present in an exercise given to the "Teachers as Researchers" Working Group at PME in Lisbon in 1995. I gave the group a piece of writing from Sonya, a mathematics education fieldworker, and after dividing them into three separate mixed groups of academics and teachers, asked to consider a series of specific questions drawn from the fieldworker's writing. Specifically they were asked:

- (i) to choose a main focus for her possible research (what questions is Sonya asking, what questions isn't she asking, where is she coming from?),
- (ii) identifying the type of guidance/supervision they would recommend for Sonya (resources, appropriate body of knowledge, reading list?), and
- (iii) selecting the appropriate methodology for data collection and processing for the research (how to apprentice Sonya, what type of and how much assistance and support does she need?).

The variety of responses from the groups was interesting and reflected the range of differing thoughts on the topic of Teacher as Researcher. In particular, the responses highlighted the extraordinarily difficult task that a project worker in a situation such as this faces. Working one step away from the chalkface multiplies the number of considerations and questions that the groups were able to ask. For example: For whom is Sonya working - the project, the teachers, the students, or mathematics? To what extent has Sonya consulted with the teachers? Are they fully aware of the aims of the project? Have they been included in drafting these aims? If so, was it from the start? Has she made material on the relevant learning theories available to the teachers? Has she considered the socio-political factors involved in the situation, such as the desirability of including fractions in the syllabus? Is her focus on change or on fractions? Is she a researcher asking questions or a facilitator creating the space for teachers to ask questions? The list of such questions and comments from the three groups was extremely long and daunting, and exposed the variety of different agendas and interests in the room. They also showed the enormous problems Sonya would have if she tried to make her questions and reflections the basis of a higher degree research dissertation. Different supervisors would have foregrounded different aspects and little room would have been available for her own growth.

It was also a sobering experience when teachers working with an inservice NGO were asked to keep reflective journals. They seemed to see these journals as a place where they were supposed to initially

'confess' their existing bad teaching habits, and then write a bit about how they were going to go about making changes. Finally they would report how successful they had been in making the desired changes and were now good teachers (and usually expressed considerable thanks to the NGO for its support!)<sup>6</sup>.

## **ii) Action Research<sup>7</sup>.**

This latter form of reflective practice was often codified into higher degree study which used Action Research as the appropriate research methodology. Teachers basically had to identify something that was wrong in their classroom and then design a plan of action that would be intended to bring about a change in this defective aspect. The plan was then put into action, data collected and the success of the innovation analysed with a new plan of action being designed to further bring about changes. In this way the action cycle continued for the duration of the research. A crucial role was given to the triangulator - an outsider who would act as an outside observer in an attempt to guard against subjective bias in the data. In some cases this outsider was the one actually doing the research and the teacher's class was used as the site for research.

While the introduction of this research methodology was welcomed as a transformative opportunity for classroom practice, similar difficulties exist to those which have been previously mentioned in this paper. One problem is that the action research teacher identifies what she wants to change based on her own story of her practice. She also decides how she wants it changed and then plans how she wants to effect the change. There is very little room for alternative interpretations of her story. When the action research cycle starts the gaze of the researcher (and the triangulator) is focused on specific features that are the goal of the intended change in practice. The triangulator then either looks for what they believe is important (they bring their own spectacles along) or make a valiant effort to observe what I've asked them to observe. The latter has the difficulty that they have to try to look through my glasses and this is a strain on their eyes! And if they are a friend of the teacher they'll try really hard to see what the teacher wants them to see. When the person doing the research is someone registered for a higher degree who is looking at the practice of a friend, the situation can become even more complex. Colyn (1989) describes how her action research project ended up with her having to focus largely on the ethics of the researcher.

In summary, our teacher's desire to rekindle her enthusiasm for teaching by gaining new insights into her practice are not likely to be furthered much if she enters the getting an education paradigm. In working with an expert she will have to learn disembodied content knowledge that is also likely to be acontextual - she has to accept what is offered 'as if' it was applicable to her reality. In moving to a reflective position based on her own practice, she runs the risk of finding some passion and purpose without direction, or else again work with the often disempowering judgement of an expert. Rather than be defeatist about our teacher's quest, I would like to suggest that what is needed is a change in paradigm.

## **E. Another Route: Becoming more experienced**

'Becoming more experienced' is the alternative paradigm given by Olson (1997) which draws on the work of Gadamer (1975) and Dewey (1938) and is based on a transactional relationship between the knower and the known. "Knowledge is seen as embodied and personally and socially constructed through the continuous and interactive nature of experience" (Olson 1997,18). This means that, as individuals in the world, we are each unique and separate beings isolated in our continuity of experience with our own unique boundaries, while, at the same time, we are in an interactive relationship as part of the world. In this paradigm, our practice as teachers and researchers takes the form of stories, not the form of theories.

Because each of us constructs unique narrative knowledge based on our individual continuity of experience, infinite ways of knowing are possible. University teachers, classroom teachers, and pre-service teachers each express different versions of educative experience, focus on different issues as relevant, and are concerned with different problems of practice. Through interaction, meaning is continually reconstructed as new interactions lead to further understanding. (Olson 1997, 19).

This is not an atheoretical position however. Theories can be used to inform our stories but they should consume and/or silence the stories. Construction and reconstruction of narrative knowledge is the antithesis of certainty as individuals seek to increase their knowing. "In this version of knowledge construction, each

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<sup>6</sup> These writings of course then make excellent copy for funding proposals which further encouraged this type of journal writing.

<sup>7</sup> See, for example Flanagan et. al. (1984)

person both shapes his/her own knowledge and is shaped by the knowledge of others. Everyone is a knower whose ideas deserve to be heard, making it possible to learn from and with one another". (Olson 1997, 20).

In describing the 'becoming more experienced' paradigm, Olson asserts that, it is only in this version that collaboration becomes possible. It is clear that she is distinguishing strongly between co-operative and collaborative relationships in that she identified co-operative relationships as existing in the 'getting an education' paradigm. Co-operation seems to be used to define situations where parties come together by mutual agreement to tackle a specific task. Goals and roles are assigned from the outset with power residing within the leadership whose role is constant. Such a description would allow working relationships between university lecturers and students in the 'getting an education' paradigm to be described as co-operative, since the task is clearly one of transfer of knowledge from academic to student and the university system ensures that the power resides in the academic.

Collaboration, on the other hand, seems to contain aspects of co-operation but moves much more into a collegial and consultative framework. Collaboration assumes the development of a model of joint planning, joint implementation and joint evaluation where responsibility and authority for basic policy decision making is shared. (Hord 1986).

Two primary school mathematics field workers from a university based non governmental organisation called the Mathematics Education Project (MEP) approached the author to ask for his help in improving their practice as mathematics educators with specific reference to their running of workshops. Since the author is a lecturer at the same university, the scene was set for a variety of choices from within the 'getting an education' paradigm. For example, he could have attended one of their workshops and critiqued their practice; or he could have given them some lectures or referred them to some articles from the literature on workshops in mathematics education. He decided not to do this and instead offered them the possibility of working with him on the task of identifying incidents in the classroom that were worth talking about. In what proved on later reflection to be a crucial move he invited them to use his own teaching to primary mathematics student teachers as the site for the work. A few years later the group came together to write a paper reflecting on the experience<sup>8</sup> and they identified this as a significant move since it broke the usual power dynamic where it is the student's practice that is under inspection and the teacher is the knower. In addition it became clear in retrospect that their experience of being involved in the 'getting an education' mode had shared a common sense of frustration and disillusionment.

I was registered (for a higher degree) the previous year....During my first year of study I struggled with the courses and could never find a connection between the theory and the practice. I thought it would become more clear towards the end of the year. But this didn't happen.... Till today, I have not used anything from those courses. It took me a long while to realise that I had to play the right games with lecturers - that I had to crack the 'right' code to achieve 'good' marks. (Gabeba, March 1999)

For me the Work in Progress Sessions (WIPS) was a rather exclusive club and access to the club depended on if you could engage in the same discourse. If you could participate in the same language and from the same school of thought, you were tolerated...With low self esteem the less WIPs we did, the better for us. Anyway, we felt as if we had no voice at these WIPS. The WIPS seemed more like power struggles between individuals. (Agatha)

The two fieldworkers attended the lecturer's weekly lecture and their task was to identify any particular teaching moment that was significant for them. Since all three had attended the same lecture, the task was to identify the moment as concisely as possible so that each could recognise the moment. It soon became clear that this description had to be very brief and also had to be sanitised and fact-laden. Any attempt to follow the usual practice and layer the observation with personal insights and hypotheses changed the moment to one which could not be recognised. This task required considerable practice but skill developed rapidly.

The second aspect of the task was to then write a personal narrative as to why the incident was significant to the observer and, where appropriate, also to give alternatives ways in which the lecturer could have acted. The bare incident thus was really only there to give each participant access to the moment. The narrative that followed was each participant's first contribution to the conversation and said much more about the narrator than about the lecturer. What each noticed was inevitably a function of their life's experience. Others must

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<sup>8</sup> See Breen, Agherdien and Lebethé (n.d.)

see it differently. Each narrative was taken as an opportunity to give one's own narrative as a different reading of what had happened and then one would be forced to go back and try to give reasons why one preferred one interpretation to another. Again it is important to stress that the main aim of the activity was to explore different possibilities for interpretation of classroom moments as well as to increase the number of options that might be open to any of the participants in their own future personal teaching. Again both later responded in a positive way to their perception of the suitability of this way of working for meeting their needs.

I started realising that the environment that my development needed to take place in should be in a critical yet very supportive and nurturing atmosphere... I needed to work with someone who would be able to ask me the kind of questions that would help me to understand my own personal and professional development and recognise me as an expert with respect to my INSET reality. (Agatha)

I haven't been as excited as this for a long time - the data brings things out of the shadows and forces me to own my decisions. (Gabeba)

## **F. Discipline of Noticing**

The main point of the above example is to emphasise the enormous rewards that all parties gained from the change in paradigm. Many other issues arose which are dealt with in the paper. However it is important to stress from the outset that moving to a different paradigm is not enough to ensure that the classroom practitioner will be able to research their teaching in a satisfactory manner. It is important that the lessons learnt from the earlier 'getting an education' critique need to be heeded, particularly with respect to the lessons learned from the use of reflective practice and action research. Becoming more experienced depends to a large degree on issues of power sharing and collaboration, but it also demands a strict focus on narrative that is accessible to all participants.

A methodology that has thus far proved to be extremely promising is based on the Discipline of Noticing that was originally developed by Joy Davis and John Mason<sup>9</sup>. Crucially Mason describes The Discipline of Noticing as a form of researching from the inside<sup>10</sup>, where the main expected product of the research is the development of the researcher. He also provides a carefully structured language that forces participants to stay with the experience rather than rush to a premature interpretation so that they can develop layered interpretations and observations, which will allow for different possibilities for action in the future.

The Discipline of Noticing requires participants to select moments from their practice and to describe their moment by giving a brief-but-vivid account-of the incident. This is an extremely difficult task as we are much more inclined to account-for what happened. Gaining proficiency in giving accounts-of incidents allows us not only to delay judgement, but also allows others to enter into our story without feeling that they are acting in an attacking mode when they give differing possible interpretations. A main task is to generate multiple readings of the story and then to explore each drawing both on personal experience as well as theoretical concepts. Validity is sought through resonance from participants rather than through objectivity.

A main aim is to increase the number of possibilities for a teacher to act in the moment. This means that the teacher must become more aware of what she does in the moment. It also means becoming more aware of different possibilities, since her choices are limited by her experience of life. Allowing others to enter the story creates the possibility for different possibilities and different stories to be heard as the class works with the various narratives. However, it needs discipline and rigour to argue and determine whether a particular interpretation given and action taken can be reasonably considered to be optimal.

## **G. Concluding Remarks**

This paper has argued that a teacher wishing to improve her own practice through research is presently poorly catered for in most educational institutions. The author argues that this is inevitable given the (understandable) demands of the dominant 'getting an education' paradigm at these institutions. The only possibility for allowing the teacher to focus on her practice in a manner which remains true to her contextual imperatives seems to be foregrounded in a move to a different paradigm - that of 'becoming more experienced'. The problem is that this can only be the first step and will not be viable if it does not proceed

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<sup>9</sup> See Mason and Davis 1988, 1989

<sup>10</sup> Mason (1994, 1997)

hand in hand with the incorporation of an appropriate rigorous research methodology. It is suggested that the Discipline of Noticing is a good starting point for such an onerous venture.

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