

## **Teacher Enquiry Bulletin**

## Action research for teachers in Qatar



If you would like Tribal to work with you on Action Research, please contact:

Mark McCourt, Programmes Director Professional Development Solutions

T: +44 (0)7919 290 117 E: mark.mccourt@tribalgroup.com www.tribalgroup.com

## Action research for teachers in Qatar

## Introduction

Teachers are at the heart of Education for a New Era, a distinctive initiative that aims to raise the quality of teaching and learning in Qatari schools through enhancing teacher professionalism. Investigating their practice enables teachers to take responsibility for their work and raise the standards of their professionalism as they ask, 'How do I improve my practice?' (Whitehead, 1989).

This collection of stories from teachers who have attended the 2009–2010 Tribal Action Research for Teachers course represents some of the innovative and exciting work in schools. Over 150 teachers took part in the course, from schools across all sectors, working collaboratively while supported by a UK higher education facilitator. In each case, the teachers identified a research issue, explained why they wished to study it, gathered data and generated evidence to show the developing situation as they took action for improvement, and presented their accounts of practice to peers for critical response. This focus on evidence-based practice is systematically contributing to raising the quality of teaching and learning in schools, as the case studies demonstrate.

The topics in this bulletin are representative of some of the key issues in Qatari school life today. They range from motivating and encouraging young people to become more involved in their own learning to developing task groups of teachers in schools for designated curriculum areas. Each story is unique, yet all communicate the same commitments of enabling young people to engage fully in school life through differentiated and committed teaching for learning practices.

A key feature of teacher education in Qatar is the need for all teachers to demonstrate that they are achieving the National Professional Standards for Teachers. Each story shows how the author is doing so. Each story also shows the growing awareness among teachers that they are contributing to the future of their country through education. It is possible for all teachers to engage in their action research, and produce their explanations of practice. You can do so too. You also can produce your account of practice to show how you are raising standards and demonstrating your capacity as a research-active teacher. You could work with other colleagues in schools, with a specific focus such as:

- Raising standards in mathematics
- Encouraging greater involvement by students in their own learning
- Working together towards accreditation for a Masters degree
- Encouraging participation by parents and the wider community in school life
- Using ICT to encourage learning and collaboration between students, teachers and parents

We hope that this collection of stories will encourage you to get involved. Tribal Education is committed to supporting teachers' action enquiries for a new educational era in Qatar, and to developing communities of practice that will influence new forms of thinking and practice.

## It begins with teachers in classrooms: it begins with you.

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Amal Al-Yazori and Ilham Mouhssin Al-Salam Independent School for Girls



## Overview

This is a report of the first cycle of our collaborative action research project, as two teachers working in the same school. Our aim is find ways of ensuring that ours is an inclusive school where all educational partners, including parents, are involved in their own and their children's education. We are currently developing our second action reflection cycle.

## Action-reflection cycle 1: Action research with parents

Let us tell you about ourselves and our contexts.

## What was our concern? What was our research question?

We are Amal, ICT coordinator, and Ilham, an ICT teacher. Our first action enquiry, from May 2009 to June 2010, was to find ways of including parents in their children's education, and their own. We saw that many parents were not fully involved for several reasons: communication between school and parents was not especially effective; and some parents were reluctant to visit without special invitation. This was contrary to our own and the school's values. We believe that school communities involve all parties – parents, school management, teachers and students (Todd, 2007). It is also contrary to the Education for a New Era mission of developing inclusive schools (Supreme Education Council, 2010). We decided to do something about the situation.

Our research question became, 'How do we facilitate communication between parents and other school community members?' We hoped to consolidate relationships between parents, Principal, Deputy for Student Affairs, Head of Board of Trustees, our Social Worker, learning difficulties specialists and teachers. We believed we could do this through ICT.

## How could we show the situation as it was?

We first gathered baseline data to show the situation as it was. Amal interviewed the Principal to discuss levels of communication with parents. Communications appeared to work through individual meetings with parents, text and telephone messages, and letters sent home with children; but these systems, although effective, were not sufficiently far-reaching for the community-wide collaboration we hoped for.

## What did we do?

We decided to use our KNET (Knowledge-Net) facility, a schools-based portal that can be accessed by the whole community. We therefore needed to gather further data from parents, to establish the level of their KNET participation. The screen shot of the parents' page at Figures 1 and 2, in May 2010, reveals minimal interaction.

We also conducted a survey with all parents, to establish their levels of interest in using KNET and attending workshops to help them develop ICT expertise. The responses were encouraging, as Figure 3 shows.

Following this initial data gathering, Amal discussed further with the Principal and Vice Principal how to create parents' pages on the KNET. She began developing pages for discussion boards, private enquiries, Board of Trustees, volunteer work, and for posting students' pictures and file sharing. The screenshots at Figures 4, 5 and 6 (overleaf) show how parents began to participate fully in school life.

New Actions Settings			View: Subject
Subject	Created By	Replace	Last Updated
مسكاد فبره	HEHSDN ABL-SALEEM	.4	5/28/2313 7:45 PM
وعراس اغضاس بالمقط للزعا	ABDULLA AL-BUADNAIN	1	5/25/2010 10:11 PH
يحل هذا والنها	HEHSIN ABU-SALEEN		5/28/2010 7112 PM
تش وتشرقرهن	HEHSON ABU-SALEEM	-2	5/26/2010 7:00 7H
ومنها التوس الاعب	ABDULLA AL-BURDNADY		8/26/2010 6(21 794
upl elle	ABDULLA AL-BUADADY	0	5/26/2010 6118 PM
عن عداق البرسا	HEHSON ABL-SALEEM	0	5/25/2010 6:06 FM
حراعداي غبت	HEHIDIN ADL-SALEOM	2	5/23/2012 6-05 FM
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منرور لغامة طر الراطئ	MEMSON ABU-SALEEM	2	5/25/2010 6:01 FM
جماد للز ملك السمر	HEHEDS ADU SALEEN	2	5/25/2818 6-00 PH
عليه واعير للذة غراطة	HEHSIN ABU-SALEEM	2	5/25/2110 5:59 PM
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ولوائش فللد بنيا واللد مزواه	AMIN OBADI	-1	5/23/2010 8:28 PM
من متطاطح اولده لامر	AMIN OBADI	- 1	5/23/2010 0113 PM
اين خبراغي مبلافيات	ANEN OBADI	1	5/23/2018 8-06 PH
الأدغيق بنيا ونكله بع مارتها	AMERI OBADI	1	5/23/2010 6:03 PH
and in the second second second	AMIN CIRADO	1.8	5/23/2018 2:33 PM

Figure 1: Screenshot of parents' interactions on School KNET, May 2010







Figure 3: Analysis of parents' survey, March 2010



Figure 4: Screenshot of new parents' page. April 2010





Figure 5: Charts to show the increase in parents' participation through KNET, May 2009 – May 2010

ا اللاً يكد في صفحة الاستقسارات الفتحة , بالتائكة التراصل يشكل شطعني و خاص مع أي من أحضاء النبرسة الثلاثية بالشطط على المسمى القاص به في الإسكان مواجعة |





Figure 6: Screenshot of parent's private enquiry page, April 2010

## What else did we do?

We continued finding ways of involving parents. We set up fun exercises, such as a competition to find the most actively participating parent, and also the most active parent-and-child combination. Figure 7 is a picture of the invitation to the competition for mother-and-child partnership.

Translated into English, this reads:

## The best partnership competition (Mum and Daughter)

We would like to invite you to take part in a competition entitled:

## The Best Couple – Mum and Daughter

Conditions for entry: The student should encourage her mother to participate in the parents' page on the KNET.

Anyone wishing to take part should contact Miss Amal Al-Yazori or Miss Elham Mousshin for an entry card and application form.

Final date for entry: Monday, 17 May 2010

These strategies proved popular. We worked with many parents, including 27 in the workshops. It appeared we were being successful in achieving our aims.

However, a new problem arose because, while parents may have become more involved, some teachers complained that they were feeling excluded. This made us think about bringing teachers, parents, managers and students more closely together, and has led to our current action enquiry.



Figure 7: Invitation to a competition for best parent-child partnership

### Action-reflection cycle 2: Action research with teachers

Here is a brief progress report.

### Working with the Board of Trustees

In April 2010 we began workshops for the Board of Trustees to explain:

- 1. the principles and practices of action research
- 2. the reasons why we chose this issue for our action research

## Working with colleagues

We have initiated a series of workshops for colleagues: 37 primary teachers are taking part, and 30 kindergarten teachers. A further 15 parents are working with them. They are learning:

- How to design and manage KNET pages for parents
- How to deliver further workshops for parents in ICT

Teachers and parents are working together, using ICT as a site for learning, and as the content of learning. Our digitalgeneration students are bringing their analogue-generation parents into the 21st Century. We are, as a community, developing ICT as a means for educational improvement; reminiscent of Ray O'Neill's (2007) idea of 'ICT as Political Action' when he brought together students, teachers and parents from both sides of the border in Ireland (see **http://www.jeanmcniff.com/theses/oneill.html**). We feel also that our work has potentials for global influence, as we now explain.

## Significance of our action research

We believe, like Somekh (2000), that we are linking ICT and action research educationally, as shown also in the work of Margaret Farren (2005) and her webpages at **http://webpages.dcu.ie/~farrenm/**.

We also believe we are contributing to positioning Qatar's education system as equal with others globally. We will continue supporting full participation by the entire community, as an inclusive school that ensures the wellbeing of all members of its community.

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Anbarah Al-Abdallah Al-Shaqab Primary Independent School for Girls

## From skills to knowledge in basic mathematics



## Overview

This story is about how I learned to help underachieving fourth grade students (9–10 years old) in mathematics develop learning strategies for high levels of achievement.

## What did I wish to investigate? Why?

My students were not achieving satisfactory standards in simple arithmetic. Some seemed not able even to add or subtract numbers. This was affecting their attitudes towards mathematics, and they were not enjoying their learning. The situation was a denial of my educational values (Whitehead, 1989), because I believe that all children should be numerate and engaged in their learning, to realize their potentials for contributing to their own wellbeing and the future wellbeing of our country (Supreme Education Council, 2010a). This value is espoused internationally (see Riddell, 2006, in the UK, and Kinsella and Senior, 2008, in Ireland); it is also a core value of the Additional Educational Support Needs provision in Qatar (Supreme Education Council, 2010b).

I began to research ways to help the children develop computation skills, beginning with simple addition. My research question became, 'How can I help low achievers to improve their performance in addition?' This was the first action reflection cycle in an ongoing process: learning progression in mathematics depends on students' grasp of earlier basic concepts, and on their full participation in learning. Furthermore, I believe all children have a right to participate fully in teaching and learning processes, supported by relevant resources. So I decided to take action.

# From skills to knowledge in basic mathematics

## What did I decide to do about the situation?

I needed to establish what the situation was like – what Elliott (1991) calls a reconnaissance phase – so I gathered data that showed the students' initial low rates of achievement and evident lack of enjoyment. Over a week – and having also assured strict ethical conduct including securing permission for the research from parents, principal and students – I observed and monitored levels of achievement of the Grade 4 group of students I identified as my research participants (see below). I then wrote my reflections in my research journal. The most common errors were in counting, even though they were counting on their fingers; and they worked addition and subtraction sums from left to right, common in Eurocentric cultures but not in Arabic speaking cultures. Shy students also struggled to participate and were failing.

At the same time as conducting this preliminary phase of my action research, I had also enrolled for a workshop in Touch Math, a programme designed to help students improve their mathematical skills (see

http://www.touchmath.com/). This, I thought, could be a possible solution.

## **About Touch Math**

The Touch Math addition kit is used for teaching addition (Bullock, 1991). A multisensory approach, it works on the principle that raised dots stuck on numbers enable students to touch and feel the numbers as well as see them. Working with sets of cards, they can engage their visual senses (seeing the numbers), their auditory sense (saying the numbers out loud) and their tactile or kinesthetic sense (touching the points on the numbers with fingers or pencils).

These three primary modes of processing information (Dunn and Dunn, 1978) are supplemented by cues, mnemonics and organizers. Thus visual learners benefit from arrows and touch points on numbers; auditory learners verbalise the computation process, and hear the spoken word; while kinesthetic learners physically experience the information through touch. I used the Touch Math addition kit for the higher grades, and made my own numbers for my younger learners. It was these students that I worked with for a week, 26 of them, teaching a 45-minute session additional to normal school hours. I monitored the same students' progress during normal mathematics lessons.

## What kind of data did I gather to show the situation as it was and as it developed?

After this preliminary one-week phase, I embarked on a more formalized ten-week project. Again, I gathered data to show the situation as it was, using the following techniques:

#### **Diagnostic Test Scores**

I had set all Grade 4 students a diagnostic test. Thirty-five students were designated low achievers from the scores and on their attitude toward participation in mathematics classes. I had received permission from only 26 parents to involve their children in the research, and these became my research participants.

#### Pretest and post test scores

The research students took pre- and post-tests. Scores were calculated for each test (see Figure 2 overleaf).

#### Students' work

The students' work was systematically evaluated to record progress (or not).

#### **Student interviews**

Interviews with students revealed that they preferred this new multisensory way to traditional methods.

#### **Participation checklist**

I drew up a checklist to record students' levels of participation in learning and response rate to questions during mathematics classes (see Figure 1 overleaf).

#### My reflective journal

I wrote my reflections after each maths class and commented on what had gone well and what needed improvement for next time.

### **Attendance sheet**

I kept a careful record of attendance.

#### **Photographs**

I took photographs of students during lessons, to show their level of engagement (Figures 3–6).

# From skills to knowledge in basic mathematics

## What happened?

Student participation increased dramatically over the ten weeks of the research project (see Figure 1).

Student interview data indicated that most participants found counting easier than before. This appeared to inspire them with confidence about their work and themselves, and encouraged their active participation in class. Their learning experience took on the appearance of a virtuous cycle of influence.

Students' pre-test and post-test scores showed improvement in achievement (see Figure 2). The average in the pre-test was 30% while in the post-test it was 66%. The percentage of correct answers had increased by 20%– 60%: evidence of improved quality in students' learning.

My research journal also provided rich evidence. Before using Touch Math, most of my comments were about students' mistakes, whereas later they reflected students' improvement (Al-Abdallah, 2010).

I could now generate evidence from the data to show the realization of my values of engagement and participation, now acting as research criteria. These values-in-action helped low achievers to overcome obstacles and improve their addition skills. Furthermore, the skills had transformed into knowledge; the students now understood how they could improve their work, and explain how and why they had done so.

## How did I check that my conclusions were reasonably fair and accurate?

Engaging in their learning through using Touch Math seemed to have enabled my students to raise achievement and improve their confidence. To test the validity of my conclusions I asked the school coordinator whether she agreed; and how we as a mathematics department could use the programme for other grades. I also presented my research to sixteen peers on the professional education course we were attending. All agreed that I was justified in making my claims.







Figure 2: Pre-test and Post-test score

## How did I modify my thinking and practice in light of my evaluation?

I now use the Touch Math programme or an adaptation during all classes for teaching computational skills. I plan to use it in other areas. I suggested to the principal that we use this approach in lower grades, to develop good learning habits in very young children.

# From skills to knowledge in basic mathematics

## What have I learned from doing action research?

My professional learning from my action research has been significant. Students seem to participate if they have confidence in themselves and their capacity for learning; and different teaching strategies will help me reach different learners. I have changed my perceptions of students: I thought they were helpless, but I now see them as impressive learners. I appreciate the need to move beyond skills and behaviours and focus on enabling students to develop understanding and knowledge.

My task now is to use strategies such as Touch Math to help students and teachers improve their teaching for improving learning. This will be the focus of my next action enquiry.

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Lina Mahmoud Abu-Mallouh Al-Bayaan Educational Complex for Girls Primary Two School

How do I encourage students to speak English in their English lessons?



## Overview

This article reports on my action enquiry as English coordinator in a primary school within the context of Teaching English as a Second Language, using a Content and Language Integrated Learning (CLIL) approach, also widely known as immersion learning (Lasagabaster and Sierra, 2009). Here teacher and student use the target language as the language of instruction. I wanted to find ways to inspire my Arabicspeaking students to overcome their reluctance to speak English, a dilemma faced by many teachers of foreign languages (see Holliday, 2005). This is how I achieved my aims.

## **Background to the research**

I have been working as an English teacher at AI-Bayaan Primary Two School for three years, and as English coordinator for two. I have attended several action research courses, and during 2009–2010 I also attended the Action Research for Teachers workshops. I conducted an action enquiry, supported by tutors who visited me in school to help me develop my thinking and practice.

### What was my concern?

My research focused on how I could find ways to encourage students to use English instead of Arabic in English classes. Students were reluctant to use English even though they are high-ability students, and I did not know why this was the case. However, doing something about the situation was my responsibility, so my research question became, 'How can I encourage students to use English instead of Arabic in their English lessons?'

### Why was I concerned?

This issue is important for several reasons. Confidence and trust in oneself are key elements for success in learning. Also, according to the Qatari National Professional Standards for Teachers (see below), it is the teacher's responsibility to help students develop appropriate attitudes and capacities. The aim of the Qatari education reforms is to build a modern, world-class public school system (Yamami, 2006) that contributes to our international profile, and English is central to this, given that it is the language of economic globalization (Crystal, 2003).

## How could I gather data to show the situation as it was?

I gathered data to show the situation initially and as it developed. I focused on one class, which I shall call '5Z'. I attended to ethical issues, including protecting student participants' identities. Most students in the class are highly creative, participate in activities, listen carefully to instructions, and enjoy working in groups. I now needed to create an environment that to help them develop their confidence.

Here is how I gathered my data, and why I did so:

Data collection method	Type of data I would collect	Reasons for gathering this kind of data
Videotape my students	I would monitor the students' development to see whether I was influencing their learning	l needed to understand why they used Arabic in English classes.
Observe my students	I would observe and keep records of who used English more than Arabic	My observations would suggest how I could support them.
Interview my students	I would interview my students to find why they preferred to use Arabic	This would help me find ways of encouraging them to use English systematically

## What did I do?

Like Chambers (1999), I tapped into students' desire for praise, and tried out some popular strategies, as posted on websites such as http://www.teachingenglish.org. uk/talk/questions/encouraging-students-use-moreenglish-classroom. I developed these over five months.

### **Encouragement Chart**

I developed an encouragement chart, where students who spoke English had a 'happy face' note stuck near their name, while others who used Arabic had a 'sad face' stuck near theirs. Three sad faces in one day meant loss of overall marks; consistent use of English got a happy face. I was intrigued that the students put my name on the chart too.

#### Simple questions method

For students who were shy or lacked self-confidence I tried using Yes–No questions, open questions, and whatever help they needed to answer questions in English.

#### **Praise**

I developed a policy of praising students who readily used English, as well as group leaders who helped their colleagues. I wrote complimentary comments in shy students' copybooks, to show to their parents, and I asked parents to write their comments too.

#### **Developing supportive environments**

Drawing on resources such as Cohen (2001), I aimed to develop caring, supportive learning environments. Frequently students offered help to one another. After each lesson I asked the students to write on separate sticky notes (1) what they had learned during this lesson and (2) what they would like me to do in the next. This helped me adapt my teaching to their interests.

### Differentiate my teaching strategies

I focused on practising the language rather than teaching the rules, and made my teaching more interesting. I invited parents to tell their children stories and set them tasks to practise their language skills.

### **Cooperative learning strategy**

I organised the class into groups, each with leader, writer, reporter, presenter, drawer and timekeeper. Students changed roles frequently so that shy ones could be more proactive.

#### 'Ignoring' game

I pretended not to hear anyone who spoke in Arabic.

#### Sign game

I asked students to design signs with instructions such as 'Stop talking in Arabic or lose five marks'.

## How can I show whether the situation has improved?

To assess whether I had influenced students' learning, I gathered further data using the following methods:

- I held conversations with the students. They said the class atmosphere made them feel comfortable when speaking.
- More students raise their hand now than before, and more students participate in discussions (see below Figures 1–3).
- I felt they were enjoying lessons more. Almost everyone participated in discussions using English all the time and were evidently pleased with themselves.
- They read more willingly in front of the class. Previously, only 5–10 students volunteered. Now almost everyone participated, and were comfortable when friends corrected their mistakes.

My impression was that the students had become more active, self-confident, independent and responsible. To develop a solid evidence base for my research, I had recorded student activities using lesson-by-lesson checklists, so I was able to compare previous and current behaviours. I recorded and analysed frequency of interactions using this key:

- 1 = continual use of Arabic in lessons
- 2 = occasional use of Arabic in lessons
- 3 = minimal use of Arabic in lessons

The results of are shown in Figures 1–3:

Students' Name*	Month 1	Month 2	Month 3	Month 4	Month 5
S1	2	2	3	3	3
S2	2	2	2	3	3
S3	2	2	3	3	3
S4	1	2	2	2	3
S5	1	2	2	2	2
S6	1	1	2	2	3
S7	3	3	3	3	3
S8	1	1	2	2	2
S9	2	2	3	3	3
S10	1	1	2	2	3
S11	1	2	3	3	3
S12	1	1	2	2	3
S13	2	2	2	2	3
S14	3	3	3	3	3
S15	1	1	2	2	2
S16	1	1	2	2	2
S17	1	2	2	2	3
S18	1	2	2	3	3
S19	3	3	3	3	3
S20	2	3	3	3	3
S21	1	1	2	2	3
S22	1	2	3	3	3
S23	3	3	3	3	3
S24	3	3	3	3	3
S25	1	2	2	3	3
S26	2	3	3	3	3

Figure 1: Chart to show frequency of students' use of Arabic in lessons

\*Note: I have replaced students' names with numbers to maintain confidentiality

I also drew up bar charts as further analyses: Figures 2 and 3 are the comparative records for Months 1 and 5.



Figure 2: Analysis of results of frequency of spoken Arabic during Month 1



Figure 3: Analysis of results of frequency of spoken Arabic during Month 5

I now needed to check that others agreed that I had influenced students' willingness to speak English.

## How do I check that any conclusions I come to are reasonably fair and accurate?

As part of the Action Research for Teachers course I presented my research to my peer group, who agreed that I had produced appropriate evidence to support my findings. Their judgements were made using criteria created by Habermas (1976), that my communication was comprehensible, sincere and truthful, and recognized the contextualizing features of my research.

## How do I explain the significance of my action research?

A key aspect for teachers in Qatar is to show how they are meeting the National Professional Standards for Teachers. I can show how the following standards became live during my research:

- 1.2 I have incorporated information on students in the design of learning experiences.
- 1.4 I have selected innovative and flexible teaching and learning strategies to maximise student learning.
- 1.6 I have reviewed and evaluated learning experiences.
- 2.1 I have used a variety of teaching and learning strategies to engage students in effective learning.
- 2.3 I have evaluated the effectiveness of my teaching and learning strategies and resources.
- 3.2 I have determined students' language, literacy and numeracy skills to inform the planning and implementation of learning experiences.
- 3.3 I have integrated language and literacy development across all teaching/subject areas.
- 3.5 I have monitored and evaluated students' language, literacy and numeracy development.
- 4.1 I have created safe and supportive learning environments.
- 4.2 I have provided learning environments in which students have responsibility for their own learning.
- 4.3 I have provided learning experiences in which students engage in purposeful and intellectually challenging learning experiences.
- 8.1 I have used information on students to support learning.
- 8.3 I have assisted students to develop empathy with others.
- 8.5 I have provided care and support for students.
- 9.3 I have applied teaching/subject area knowledge to enhance student learning.
- 10.4 I have contributed to improving the performance of professional teams.
- 11.3 I have promoted school and Supreme Education Council education reforms.
- 12.2 I have engaged in personal and collegial professional development

Perhaps the best example of achieving my aims was when I inadvertently spoke in Arabic to a student, only to hear a loud voice saying, 'Teacher, don't speak Arabic! It is not allowed!' Hearing this meant that I was succeeding in enabling my students to exercise their capacity for learning.

## How do I modify my thinking and practices in light of my evaluation?

This is the end of my first action reflection cycle, but not the end of my enquiry. I will develop my learning in extended and different teaching areas, and encourage my colleagues to do the same. A major strength of action research is that it is for life, and I hope to develop my lifelong professionalism for the benefit of my students and myself.

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Shaikha Hamad Al-Hajri Supreme Education Council



Demonstrating educational accountability through new cultures of educational enquiry

### Overview

Following recommendations for extensive educational reforms in Qatar (RAND, 2007), I was redeployed from my position as a classroom teacher of science to the Supreme Education Council (SEC), as a curriculum coordinator in the Research and Development Skills Unit. This work entailed supporting the implementation of curriculum standards through the professional development of teachers. To enhance my understanding and skills, I enrolled in a Master Trainer course where I undertook my action enquiry. Practically, this involved developing appropriate skills and knowledge and the capacity for self-critique (Pollard, 2008); theoretically, it involved exploring the values base of practice (Whitehead and McNiff, 2006). From my commitments to the Islamic value of personal accountability, I could link values and practice as the spiritual base of action research that demands practitionerresearchers' moral accountability. I felt I could contribute to a culture that encourages people to reach out to one another. My research question became, 'How do we, as teachers and policy makers working collaboratively, demonstrate our educational accountability?'

### What form did my action research take?

My work involved giving talks and presentations for teachers and colleagues, while supporting their action enquiries. I wanted to ensure excellent communication, so I monitored my practice, gathered data and generated evidence to test whether I was doing so. I was learning about action research through doing action research. From November 2009 to May 2010 I gave three important presentations during professional education courses. Colleagues' feedback from these critical episodes enabled me to judge whether I was fulfilling my aims.

# Demonstrating educational accountability through new cultures of educational enquiry

## Presentation 1: 8 March 2010

This presentation was for the Globe Initiative, a programme that helps science teachers and coordinators develop awareness of environmental issues (see **http://classic. globe.gov/star/Qatar\_09**). I was to present the principles and practices of action research. I felt nervous and unsure about my subject matter. I prepared a lesson plan, distributed handouts and evaluation sheets, and linked everything with the National Professional Standards for Teachers.

I believe I could have done things better:

- I should have stated my objectives more clearly.
- I should have been clear that my lesson plan constituted an action enquiry.
- I should have clarified the difference between scientific research and action research.

However, I did reasonably well and analysis of feedback indicated that I scored high on items such as 'The facilitator was knowledgeable about the subject' and 'The facilitator made me feel comfortable with the learning process'. I had much to learn so I continued to study hard and practise my presentation skills.

## Presentation 2: 5 April 2010

This presentation was to colleagues in the SEC Curriculum Standards Office, about what I was doing in the Action Research for Teachers course. I had prepared intensively, so felt better organised. Julie Pearson from the Tribal core team attended the event. I spoke about the need for self-confidence, clear vision, and determination. The presentation went well, as the following feedback indicated:

- A colleague wrote: 'Your presentation was lively and engaging. Why didn't you invite all colleagues? They could have learned a great deal.'
- Julie Pearson's evaluation report included: Shaikha was engaged, enthusiastic and supportive ... Her colleagues left the room after praising her work and asking when they could learn more and how could they start their own action research projects. Shaikha demonstrates the capacity for critical reflection throughout her work.
- My line manager in the SEC asked me to do another workshop for new SEC employees. I took this as indicative of his confidence in my presentation skills and professional knowledge.

My action enquiry now moved into encouraging organisational learning, and I saw its potentials for transfer to all educational settings. I continued to study and read widely about action research. I practised my presentation skills in the company of trusted others, and listened to their critical feedback.

# Demonstrating educational accountability through new cultures of educational enquiry

## Presentation 3: 16 May 2010

This presentation was at the Professional Education day for teachers of Additional Educational Support Needs (SEC 2010), where I presented with two colleagues. I gave a presentation about action research, and encouraged participants to offer their descriptions and explanations for practice, in the form of their living educational theories (Whitehead and McNiff, 2006) to show how they hold themselves accountable for what they are doing.

Conference participants wrote positive evaluations, but my main data comes from the Additional Educational Support Needs Coordinator:

I was very impressed with the presentation and PowerPoint of the three presenters. The theoretical framework was clear and concise. The focus on action research for additional educational support needs showed the AESN coordinators what they could do. I was impressed that at the end of an intensive day, the participants were focused and concentrated on the presentation.

## My critical reflection on the significance of my action research

I have learned much from doing my action research. My evidence tells me I am justified in claiming that I have improved my practice as a presenter. My peers corroborated this claim during a later presentation at the Master Trainers workshop. All agreed that I had improved my skills and knowledge. Here are the most important things I have learnt:

## I have learned the value of professional patience and courage.

I call this 'long patience'; it sustains you during processes of lifelong learning. Being a mother of four children and a working lady, I have learned another kind of patience – 'beautiful patience' – when you live with the hope that things will be better if you remain committed to what you believe in.

## I have learned the importance of meeting the other person in their own space.

I have to earn their trust for them to allow me to learn from them, and for me to be part of their learning, so that they may come to accept me as a resource for learning.

### I have learned the importance of values, and not to underestimate the capabilities of others or myself.

Julie wrote in her evaluation:

I did at one stage feel totally involved and included within the session, even though it was being delivered in Arabic. Shaikha's gestures, nods, emphasis and drawings allowed me into her world and I understood what was being said and discussed. This is a special gift I feel.

I wish to use this gift. I believe I am contributing to the creation of cultures of educational enquiry. There may still be far to go, but we are on the road together, each will help the other, and none will turn back.

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Suleiman AI-Fugara Nasser Bin Abdullah AI-Attya Independent Secondary School for Boys



ثانوية ناصر بن عبدالله العطية المستقلة Nasser Bin Abdullah Al-Attya Independent Secondary School

Developing Inclusion in Schools: How do I integrate students with additional educational support needs into mainstream schooling?

## Overview

One of my deep values is that all people, especially young people, should feel valued and valuable. As a teacher in Qatar. my aim is to contribute to the creation of an inclusional society, through contributing to the development of my school as an inclusional school. These values inspire my work as coordinator of Additional **Educational Support Needs (AESN) in my** school, with responsibility for the wellbeing of students with additional educational support needs. Current policy in Qatar (Supreme Education Council, 2010) states that students with physical and learning disabilities should be integrated into mainstream schooling - often easier said than done (Forlin, 2010). My action research focused on this issue, as I asked. 'How do I integrate students with additional educational support needs into mainstream schooling?'

### My action research

Having identified my research concern and formulated my research question, my next step was to gather baseline data to show the situation as it was so that I could monitor the influence of any changes I introduced. I used these techniques:

- interviews with teachers of classes that include students with disabilities
- meetings and telephone calls with parents
- interviews with all students, including those with disabilities
- conversations with administrators about developing inclusional practices.

I produced a questionnaire for teachers and parents, to ascertain their attitudes and practices, and I observed the lessons of teachers of students with learning disabilities. My data revealed that inclusional practices were not widespread. This situation was contrary to my beliefs (see also Black-Hawkins et al, 2007), that there is a relationship between inclusion and achievement. I decided to take action to ensure that all students would participate in creating a caring learning community and have every chance for success. Suleiman AI-Fugara Nasser Bin Abdullah AI-Attya Independent Secondary School for Boys

## Developing Inclusion in Schools: How do I integrate students with additional educational support needs into mainstream schooling?

## What actions did I take?

I drew up an action plan and put in place a package of supports and active communication with all members of the school community as follows.

## Maintaining student records

I have compiled a database for each student, including medical reports, progress and academic reports, and contacts with parents. I have established and work closely with a support team, and provide information about students potentially at risk.

## Working with parents

The support team and I meet with parents, and maintain rigorous telephone and SMS contact. We also hold regular parents' meetings and workshops.

## Working with colleagues

I monitor teachers' work, and help them find ways of developing inclusional and differentiated practices. I conduct workshops for teachers and administrators on learning about additional educational support needs. Frequent meetings with subject coordinators enable us to develop a differentiated curriculum and ensure that for each student there is an action plan, recommendations for its implementation, a support plan, and procedures for assessing progress.

## Working with support agencies

I regularly visit the Shaflah Center for children with additional educational support needs, and have arranged for some students with visual impairment to be transferred to Alnoor Institute, a specially designated facility. I have negotiated with Rumallah Hospital to offer additional support to students with physical disabilities.

## Working with children

I ensure that students with additional educational support needs are properly accommodated within classes. I sit with them, encourage them, note their strengths and limitations, and teach integrated classes (see Figure 1 for a picture of me in action). Colleagues and I have developed a special strategy. We already award certificates to students who reach high levels of achievement (see Figure 2 overleaf), and we now award the same certificate to students with additional educational support needs who make any significant progress. We give certificates to parents who work closely with the school, and arrange for students to present the certificate to their fathers at a whole-school ceremony. Sometimes, however, bearing in mind MacBeath's (2006) cautions that integration can be stressful, we arrange for children with additional educational support needs to have their own space: for example, we arrange separate examinations areas, with teachers' support, to ensure they receive appropriate encouragement.



Figure 1: Picture of myself working with students of all abilities in class

Suleiman Al-Fugara Nasser Bin Abdullah Al-Attya Independent Secondary School for Boys

Developing Inclusion in Schools: How do I integrate students with additional educational support needs into mainstream schooling?



Figure 2: Certificate of special achievement

## How do I show that any conclusions I come to are reasonably fair and accurate?

A key aim has been to build a research base for the work, including a comprehensive database. From this I have generated evidence, in the form of advisors', teachers', parents' and students' voices. Here are some comments.

### From the English Coordinator

Suleiman AI Fugara has consistently helped with coaching, modelling, peer teaching and advising our school staff members in supporting students with additional educational support needs. ... He is capable of leading learning and teaching and advising school leaders in all aspects of supporting students with additional educational support needs.

#### From a teacher

Our school strives to help all our students. ... We really have seen a great difference in the level of those students because of the special care taken by Mr. Suleiman. ... He has helped me improve my knowledge of how to support students and how to include them in mainstream schooling.

### **From students**

Student 1: Thank you for what you have done for me during the year. You have given me the opportunity to progress and achieve. Thank you for attending classes with me to make sure I am doing well and for helping me develop good relationships with other people.

Student 2: We are at the end of the school year and I am happy that I have passed my exams. Thank you for your help and for staying in touch with my parents. I have lots of friends at my school and all my teachers help me.

I believe our school is developing as a community of practice (Wenger, 1998), with our students' wellbeing as the centre.

I presented my findings, supported by evidence, to peers on the Action Research for Teachers course. They agreed from my evidence that I am justified in claiming that students with learning disabilities are included in mainstream activities, and that our school has developed an inclusional ethic of care. Suleiman AI-Fugara Nasser Bin Abdullah AI-Attya Independent Secondary School for Boys

## Developing Inclusion in Schools: How do I integrate students with additional educational support needs into mainstream schooling?

## My reflections on the potential significance of this work

I believe that this research can contribute to new discourses about what counts as inclusional practices and inclusional schools, within global debates about how inclusion for social justice may be realised at systemic levels (Booth and Ainscow, 2000). My action research moves from the aspirational to the realisable: colleagues and I are showing what a research-based inclusional school means in practice. We are contributing also to new forms of theory, grounded in the question, 'How do I improve my practice?' (Whitehead, 1989); we extend the question as, 'How do we improve our practices?'

We hope these new discourses will regard the concept of additional educational support needs as nothing unusual. Through developing inclusional practices, schools can enable all students to appreciate the idea of 'additional educational support needs' as nothing to be ashamed of. In my view, all people are valuable and should be valued for who they are, not for an assigned label. I believe our school is setting new standards for good practice in inclusional education.

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Hayder Yahya Al Shorman Ahmed Bin Mohammed Al Thani Independent Secondary School for Boys

How do I help my students in Grade 12 Advanced Chemistry to improve their academic standards?



## Overview

Given the increased policy emphasis in Qatar on school improvement and effectiveness (Supreme Education Council, 2010), as part of international initiatives to improve learning and teaching (OECD, 2009), the senior management of my school convened a staff meeting to negotiate how to do this (see Figure 1). It was decided to implement a staff professional development plan using action research as the preferred methodology (Somekh, 2005). Topics for attention over the next two or three years were:

- Encouraging teachers' self-reflection on their teaching practices
- Encouraging student engagement in learning
- Improving examinations results

All three aspects would be linked through a focus on improving teaching for improving learning. This decision resulted in my personal action research, 2009–2010, which is ongoing today.



Figure 1: Staff meeting at Mohammed Al Thani Independent Secondary School for Boys, 23 March 2010



## How do I help my students in Grade 12 Advanced Chemistry to improve their academic standards?

## My action research, 2009–2010

I am a teacher of chemistry and science coordinator in a large school for boys. My action research focused on improving academic standards, and my specific research question was, 'How do I help my students in Grade 12 Advanced improve their academic standards in advanced chemistry?'

I chose this topic because of students' decreasing progress between examinations over the academic year. I needed to find why this was happening and what I could do about it. I grounded my reasons in my educational values of excellence in scientific enquiry. Learning and education are vital for each student's future and for the progress of our country, so a reduction in standards needs to be taken seriously (Van Driel, Beijaard and Verloop, 2001). As teachers have responsibility for ensuring student progress (National Professional Standards for Teachers: Supreme Education Council, 2007), I had to do something about the situation. Also, as science coordinator, I it was my responsibility to link with other staff to ensure consistent progression for students.

## First set of data gathering

I needed to establish what was happening, in order to take appropriate action. I identified my group of 23 students in Advanced Chemistry as research participants, secured their permission for involvement together with permission from parents and school authorities, and began to gather baseline data to show the situation as it was, as follows.

- I took the results from the first, second and third set of examinations across the year;
- I conducted a survey to see if students could offer reasons for the drop in levels of achievement;
- I conducted interviews with low-scoring and high-scoring students in the second examination;
- I made video-recordings of my students in class;
- I gathered samples of worksheets, web-links students used, and any technology programmes in use in classrooms.

My data analysis revealed:

- Most students preferred to learn Chemistry through the medium of Arabic as well as English (at the moment it is compulsory to use English in teaching and learning Science) (see Figure 2)
- Many students identified their weakness in mathematics as a factor in their low achievement in Chemistry
- Many students did not do any homework or revision for examinations



Figure 2: Graph to show preferences among students for learning science in English and Arabic

## How do I help my students in Grade 12 Advanced Chemistry to improve their academic standards?

Acting on these suggestions, I did the following:

- Added a weekly chemistry class
- Negotiated for extra chemistry classes for all Grade 12 students, and all other students
- Began linking Grade 11 Chemistry in preparation for Grade 12
- Brought in assistant teachers to provide further support
- Asked the mathematics department to provide help for students in calculator work and the IT department for additional computer work
- Encouraged teachers to use more interactive and student-centred pedagogies and resources; asked for students to be involved in peer teaching
- Provided interactive website resources with links, videos and blogs – these strategies to be extended to homework

## Second set of data gathering

I conducted a second survey to gather students' opinions about whether their academic levels in chemistry had improved, and I talked with their teachers. Students' responses included:

- I am successful when the teacher encourages me to do my homework more than three hours a week.' Teachers said they were pushing their students to do more than three hours homework a week.
- 'The lesson was interesting when the teacher varied his teaching strategies.' Teachers said they were adapting their teaching strategies to students' needs.
- 'Our teacher provides us with appropriate resources.' Teachers confirmed they were providing appropriate resources.
- 'Our teacher listens to my ideas and suggestions.' Teachers agreed they listened to students' ideas and suggestions.
- 'Our teacher helps me to improve my skills in information technology.' Teachers said they supported students in information technology.
- 'Our teacher helps me link my understanding with the local environment.' Teachers said they helped students link their learning and the local environment.

I later conducted a third survey to see which teaching practices most encouraged students' learning, and what had happened between the first and third examinations. All students consistently requested greater involvement in class. I negotiated with colleagues to invite students to co-teach along with them. This appeared to engender enormous enthusiasm (see Figure 3).

## STUDENTS SHARE IN THE TEACHING PROCESS



Figure 3: Pictures to show students co-teaching

I analysed students' performance in their examinations. The analysis revealed improvement, as Figures 4 and 5 (overleaf) show:



Figure 4: Analysis of scores across three examinations

## How do I help my students in Grade 12 Advanced Chemistry to improve their academic standards?

NAME	1 <sup>st</sup> exam	2 <sup>nd</sup> exam	3 <sup>rd</sup> exam
Α	94	96	86
В	88	84	60
С	94	74	80
D	90	68	<mark>60</mark>
E	94	86	<mark>66</mark>
F	86	76	78
G	94	78	92
Н	92	94	90
l I	92	50	74
G	96	94	80
K	94	78	58
L	88	92	<mark>68</mark>
Μ	84	92	<mark>66</mark>
N	94	92	92
0	78	56	50
Р	92	80	70
Q	92	96	92
R	92	78	80
S	86	76	64
Т	74	78	40
U	90	66	72
V	82	62	66
W	74	72	50

Figure 5: Table to show students' results in three examinations and progress in the third

## My findings

It appears that students' learning has improved significantly. However, although there is improvement in skills-based issues, knowledge-based issues still need attention. This is the focus of my next action research cycle where I have started using Facebook to discuss chemistry problems with students. I post chemistry videos and diagrams and ask them to write their comments so we discuss matters online (Figure 6). So far it appears to be successful and I will continue writing up my research for publication.

#### http://www.facebook.com/group. php?gid=120383517991322#!/group.php?gid=1203835 17991322&v=photos



Figure 6: Pictures to show interactions on Facebook

Hayder Yahya Al Shorman Ahmed Bin Mohammed Al Thani Independent Secondary School for Boys

## How do I help my students in Grade 12 Advanced Chemistry to improve their academic standards?

## My learning from my action research

I have learned the following:

- Teachers need to be prepared to change their practices to improve educational processes
- As a professional I need to evaluate my practice continually
- Accepting the need for self-improvement is key
- Collaborative working is essential for improving teaching and learning

## **Recommendations**

I believe engaging in my action research has enabled me to make recommendations for improving the quality of teaching and learning:

- All teachers should be prepared to improve their practices, and be open to processes of change;
- Action research puts teachers at the centre of their professional learning, and in control of their professional lives; teachers need to accept the challenge of taking responsibility for their practices;
- Action research can have significant influence for systemic improvement when factored into the lives of teachers through provision of additional time and opportunity.

As noted, my first action reflection cycle acts as the basis of my second, when I hope to find ways of encouraging students in other levels to improve the quality of their learning. I am still on my mission towards educational improvement throughout life.

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Hessa Wasmi Al-Shammari Alnahdah Primary Independent Girls School

## Classroom management as creating communities of practice



## Overview

It is widely recognised that teachers should be managers of their own classrooms (Wragg, 2003). My educational philosophy, however, is that teachers should be comanagers of their classrooms with their students. I agree with Wenger (1998) about developing communities of practice for knowledge creation. In my opinion, teachers and students create knowledge together; but this means first establishing appropriate relationships and conditions that enable them to do so.

This story tells how I brought this understanding to life.

## **My context**

I am a newly qualified teacher and have been working in my school for two years as a teacher of science for Grade 6 (11–12-year-old) girls. I love teaching science, and I want my students to love and enjoy science too. I want us to work together. This was not always the case, because they were noisy in my science laboratory and did not concentrate. I was not sufficiently experienced to engender the necessary discipline, and tended to shout to keep order. However, I attended a Tribal action research professional development course recently that helped me learn to research my practice and ask questions of the form, 'How do I develop strategies for managing my classroom more successfully?' This is how I did so.

## Gathering data and taking action

I needed to gather data to show what the situation was like and identify which aspects of my classroom management needed improvement. This is a first step in any action research procedure (Somekh, 2006), and involved ethical issues of securing permission for my research from parents, students and my principal. I focused on three Grade 6 classes as my research participants.

# Classroom management as creating communities of practice

I gathered data about my students' impressions of my classroom management using these techniques:

• I issued a questionnaire using SurveyMonkey with items requiring 'Yes/No' answers (see Figure 1).

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Figure 1: Screenshot of SurveyMonkey

Items included:

- I cannot focus in class because of other noisy students
- I find science classes fun
- My science teacher cannot control the noisy students in the class
- My science teacher respects all the students
- My science teacher provides a variety of activities during the class
- My teacher manages the class successfully
- And so on...
- I videoed students' classroom interactions (I cannot show the video of my students as the traditions of my culture do not allow photographs of females to be placed in the public domain)
- I kept a reflective journal.

My data, especially the videos, revealed that I shouted and became agitated when my students were restless, which was a complete denial of my educational values. So I decided to take action to improve my practice. Here is what I did.

## Taking action to improve practice

I adopted a strategy of making science classes fun, interesting and rewarding – specifically:

- I asked my students to help me rearrange the science laboratory during break time
- I rewarded the first four students arriving at class with sweets
- I changed the seating from rows into groups around tables
- I placed all students' photographs on the classroom wall but put the four highest achievers on display outside on the classroom door
- I used fun science experiments
- I encouraged free but disciplined discussions
- I negotiated order before beginning any experiment or activity
- I used a red card for misbehaviour
- I asked students to write out what they felt they could improve, and I did so too in my research journal
- I attended workshops about classroom management and teaching through fun

I learned to manage my own behaviour, to watch my responses carefully and to breathe deeply to control my emotions.

I also tried more radical techniques, especially through using ICT imaginatively (see Figure 2):

- I set up a student blog for all students but there was a reserved column for high achieving students;
- I developed a school newsletter to record achievements in sport and other fields;
- I set up an electronic guestbook for parents.



## Classroom management as creating communities of practice

For these developments my school was awarded third place by ICT Qatar in a public competition on the use of ICT in schools, judged by the Supreme Education Council, ICT Qatar, and North Atlantic College Qatar.

## How can I show that the situation improved?

The interactions in my classes improved, as follows:

- The students came to the laboratory punctually
- Students often came to the lab at break time to try out new ideas
- They were reluctant to stop lessons
- They obeyed class rules
- Most participated enthusiastically
- We had fun together

To prevent my claims being seen only as my opinion, I will now produce concrete evidence to test their validity.

## How can I test the validity of my claims that my practice has improved?

I re-issued the same questionnaire as before. The results demonstrated significant changes, as shown in Figures 3 and 4:



Figure 3: Bar chart to show percentages of students' responses to questionnaire

	Q1	<b>Q</b> 2	<b>Q</b> 3	Q4	<b>Q</b> 5	<b>Q</b> 6	Q7	<b>Q</b> 8	<b>Q</b> 9	<b>Q10</b>
Yes	6	24	18	7	24	22	2	22	3	23
No	19	1	6	16	1	2	22	1	20	1
Skipped question			1	2		1	1	2	2	1

Figure 4: Graph to show students' response to questionnaire

However, these results must be seen in light of some limitations.

## Limitations of the research

Although I issued the questionnaire to three classes (82 students), some students without a home computer did not respond, and could not always gain Internet access in school. Also some parents had not given prior permission for their children's involvement.

## Significance of my research

In spite of these limitations, I feel that the analysis is significant. I have discovered how to engage students in learning through creating dynamic classrooms; that students will not break rules if they have a hand in making them; and that I can improve my practice through critical and honest self-reflection.

My greatest learning is that classroom management is not about controlling students but about involving everyone in learning, to form a community of practice. Lave and Wenger (1991) speak about the everyday situatedness of learning. Understanding such conceptual frameworks enabled me to see my students a co-managers in knowledge creation; it was their knowledge as much as mine. We had committed to trusting one another and making our experiences educational.

## Classroom management as creating communities of practice

## Moving on

I was invited to make staff presentations about action research, and our school now is becoming an entire community of practice. It is this capacity for systemic influence that makes action research such a powerful form of professional education (McNiff 2010).

I intend to continue my action research, now with the children who come to my lab and my teacher colleagues. If this is what the first two years of my teaching career have been like, just imagine the next twenty!

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Sana Hatamleh Al Duhail Independent School for Boys

# How do I encourage Grade 4 boys to develop a passion for science?



## Overview

This report is about how I made science lessons more enjoyable for Grade 4 (aged 9¬–10) boys using an action research approach. Perhaps my most significant learning was to develop new attitudes towards the boys and their teachers.

#### Who am I?

I am a science laboratory technician. My job is to support teachers and students when they come to the science laboratories; I set up experiments, and look after resources.

I am passionate about science and science teaching. I have read the work of scientists who hold this view: Richard Feynman (2001) speaks about the pleasure of finding things out and Stephen Jay Gould writes about dinosaurs in haystacks (1995). So it is disappointing when I see students coming to class with long faces, and I wonder how I can help the teachers encourage students to learn about science.

There is a serious policy side also. Promoting science in schools is a key national aim, as shown through the existence of the Qatar Foundation for Education, Science and Community Development in Education City (see http://www.qf.org.qa/output/page3.asp). It is our mission as a progressive country to encourage young people to engage in scientific research, but first they need to love their subject.

For my action research I therefore asked, 'How do I encourage Grade 4 boys to develop a passion for science?'

# How do I encourage Grade 4 boys to develop a passion for science?

## Planning, designing and implementing my project

Having outlined my research interest, question, and reasons for undertaking my project, I now explain how I planned, designed and implemented it. I spent five weeks on my enquiry during February and March 2010, as follows:

#### Week 1

I negotiated permission with my principal to conduct my research. I explained my research intentions to different teachers during their visits to the science lab, and asked them to identify issues for investigation. This involved informally explaining the principles and practices of action research. I kept records of the teachers' responses in my archive. They expressed interest and wanted to learn more.

#### Week 2

With the teachers' permission, I informally interviewed about thirty students whenever possible during their science lessons in the lab, to find out their opinions of science lessons. I kept records in my research log. I continued speaking with the students throughout the project, to see whether their impressions changed over time. Acting on these data, I began preparing new resources and teaching aids for each curriculum unit.

#### Week 3

I ran workshops for teachers on action research, formally scheduled by the Principal during the school day. I also started transforming the laboratory into an exciting and adventurous place. Figure 1 shows photographs of the new face of the laboratory. As students and teachers came there I held brief interviews, and observed their reactions. I took photographs of the students to show their responses, and asked them whether they enjoyed it more than before. There was excitement in their interactions, and they asked more questions, became more curious about how things worked, and seemed to think more creatively.



Figure 1: The transformed laboratory

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## Week 4

I analysed and interpreted my data, and began writing up my project. I checked my provisional findings against teachers' and students' feedback. Teachers' comments included:

'Visiting the lab is most enjoyable. It gives a new meaning to learning and teaching science.'

'The students love it. They are excited about doing science.'

Comments from students were overwhelmingly enthusiastic, and included:

'Wow, this is fun!'

'How does that work? Can I have a go?'

During the short time of the research the number of visits of students to the laboratory during break times increased noticeably, and teachers appeared to become more excited about their teaching. Now, after the formal period of the research, I find that I have to ask teachers to book visits in advance because of the increased demand.

### Week 5

I presented my action research at the Master Trainer Workshop, and emphasised how I was testing the validity of my findings. I explained that my values of passion for scientific enquiry and excitement in learning stood as my living standards of judgement (Whitehead and McNiff, 2006). My colleagues agreed unanimously that I was justified in making my claims to have enabled students and teachers to develop a passion for science. Some said they would adapt my practices to their own classes.

During my presentation I showed photographs of students engaged in scientific investigation (with full permission from their parents and the school principal): see Figure 2:



Figure 2: Photographs of students engaged in scientific investigation

# How do I encourage Grade 4 boys to develop a passion for science?

## Reflections

I now ask myself, 'What have I learned? How has doing my action enquiry influenced my own learning? Am I now positioned as possibly influencing other people's learning?' Here are some key understandings.

I have learned not to underestimate the capacity of students and their teachers (and myself) to learn. I saw the students' lack of interest in the laboratory as their fault. I realised that it was not about the children so much as about us as teachers and facilitators. I tried to create an interesting, lively environment to stimulate their thinking and passions, which it appeared to do. I was also surprised at the young people's capacity to reflect on their learning. They constantly asked me questions: 'How does that work? How did you do that? Can I do something like that?' And also, 'I didn't do that right; I need to do it differently.'

Sometimes books speak about the conditions of learning, meaning to stimulate cognitive thinking. My action research has made me think that a stimulating physical environment is just as important.

I continue to find ways to make learning interesting and fun for the children and their teachers. I hope all support and technical staff can learn from my story, and reflect on how they think about learning.

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Notes		

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