



EdQual

A Research Programme Consortium on
Implementing Education Quality in Low Income Countries

**Research Project:
Implementing Curriculum Change to Reduce
Poverty and Increase Gender Equity**

**WORKSHOP REPORT No.7
INTRODUCTORY TEACHERS WORKSHOP**

March 2007

University of the Witwatersrand, Johannesburg, South Africa





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A Research Programme Consortium on
Implementing Education Quality in Low Income Countries

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This Paper has been published by EdQual RPC and funded by the UK Department for International Development, although the views expressed are those of the Author[s].

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Abbreviations

HG	Higher Grade
ICC	Implementing Curriculum Change
LO	Learning Outcomes
RNCS	Revised National Curriculum Strategy
SG	Standard Grade

1. Introduction

The convener, Dr Kakoma Luneta, welcomed the participants and introductions were made from the convener's team and the workshop participants.

The convener presented the abridged version of the ICC project so that the participants could familiarize themselves with the overall aims and objectives of this project. The presentation also assisted the educators to see how and where they fitted into this large scale project and what role the researchers were expecting them to play.

Because the proceedings of the whole workshop were recorded on video, this Report is just a summary of some of the issues that were addressed. The 3 hour video is available to view the complete workshop proceedings from Dr. Kakoma Luneta (kluneta@uj.ac.za).

2. Objectives of the Workshop

The objectives of the workshop were:

1. To introduce participants to the ICC project, its aims and objectives.
2. To share with the participants the team's concerns about the Revised National Curriculum Statements for Mathematics and Science.
3. To establish how best the researchers and the educators could work collaboratively to address some of the concerns
4. To introduce teachers to designing professional development programmes that address effective mathematics and science instructional approaches
5. To identify schools that might be interested in taking part in this project.

3. Questions for Discussion Groups

The following four questions were posed to the participants and they were divided into groups each tackling one of the questions:

- Write down a list of 10 advantages of the New Mathematics and Science Curriculum
- What concerns you about the New Mathematics and Science Curriculum?
- How can teachers improve the New Mathematics and Science Curriculum?
- What are the indicators of an effective instructional approach in the New Curriculum?

3.1 Ten advantages of the New Mathematics and Science Curriculum

Group one saw these as;

1. An introduction to real career skills – teachers felt that the RNCS prepares learners for the mainstream economy. Sections of both the Mathematics and Science curriculum are directly relevant to the current and foreseeable future economic needs of the country.
2. It is learner-centred. It allows the needs of the learner to be addressed more readily both in the planning process and in the classroom.
3. Develops leadership skills in the learner; group work, whole class discussions and research tasks demand both leadership and following skills. It promotes team work
4. Develops critical thinking skills. This is an essential skill for science and mathematics practitioners serving communities in a transitional socio-economic environment such as exists currently in South Africa.

5. Develops problem-solving and analytic skills. Mathematically and scientifically literate learners are better equipped to participate in the economic development of the country as well as address issues arising from the democratization process.
6. Curriculum allows all learners to start at the same level. The abolition of Standard (SG) and Higher Grade (HG) categories allows learners to engage in education from the same level as it does away with perceptions of superiority and inferiority or ability and inability from the outset.
7. Integration with other learning areas. This is closely linked with no. 1 above. It allows learners to relate mathematical and scientific knowledge to other learning areas and to appreciate the applicability of this knowledge elsewhere in their world.
8. No discrimination according to colour, creed, gender, i.e. equal opportunities for both the boy learner and girl learner.
9. Links high school education to tertiary education. The phased presentation of the content areas especially in Grade 10 – 12 allows for a smoother transition from high school to tertiary education.
10. Promotes responsibility in learners as citizens of the nation. The RNCS is based on principles derived from the fundamental values of the Constitution of South Africa.

3.2 What concerns you about the New Mathematics and Science Curriculum?

Group two's concerns were;

1. Curriculum does away with Standard and Higher Grade categories. While some members (Group1) viewed this as an advantage, others were uncomfortable with the decision. Learners who do not necessarily need science and/or mathematics (at former HG level) in order to proceed to tertiary education but wish to do them at high school, would have to compete at the same level and handle the same amount and depth of work as the their counterparts who do.
2. Just implemented drastically. Teachers argue that there was not sufficient dialogue and preparation of all stakeholders (especially educators) before the introduction of the new curriculum. The transformation is too sudden and has taken some by surprise in terms of its demands on educators and school administrators as well as the learners.
3. Importing of Grade 12 topics to Grade 10; some content areas that were covered in Grade 12 have been moved to Grade 10. In many instances it is proving difficult for learners to deal with this content without acquiring certain basic concepts and competencies. Examples include Gravitation and some aspects of Newton's Laws of Motion in Physics.
4. Insufficient resources – both material and human resources. The curriculum reform demands certain competencies in educators and specific instructional strategies which many educators do not possess. Moreover, there is a general shortage of science and mathematics educators and this places undue pressure on the few that are available. Further, the RNCS emphasizes learner participation and development of practical skills and this demands availability of specialized laboratory apparatus for science. Many schools do not have the necessary resources.
5. Less time, too much work. In addition to the need to cover the prescribed content in both mathematics and science, the RNCS incorporates skills development. There is no match between the amount of content to be covered and the time available to do it. Some educators are unable to faithfully complete their work schedules; otherwise they have to complete the work quickly but not to their satisfaction.
6. There are not enough Curriculum Implementers. This is closely linked to the general shortage of human resources in mathematics and science education.
7. They are not experts in designing assessment tasks. Educators are required from the onset to designed specialized assessment tasks to meet the demands of the RNCS. However, the educators are not sufficiently proficient – they are themselves still under going the transition to the relevant methods and strategies demanded by the curriculum reform.
8. Too expensive to run. The budgetary demands of the RNCS do not seem to have been carefully considered when the decision on the timing of implementation of the new curriculum was considered. The RNCS requires specialized material resources, large

amounts of photocopying, frequent attendance at meetings etc and school budgets are not sufficient to meet these demands.

3.3 How can teachers improve the curriculum?

Group three's answers were;

1. In Mathematics, the curriculum is divided into four Learning Outcomes (LOs) and these can be dealt with one per term. This helps the educator keep track of time requirements.
2. Give a research activity before the presentation of the lesson. This is especially useful for science lessons on content area that is directly linked to industry, economic issues, societal beliefs and practices, indigenous knowledge systems. The learners are then familiar with the work before it is covered in class. This enhances the effectiveness of group work and class discussions.
3. By attending workshops, cluster meetings etc. educators can interact with each other and with curriculum implementers, not only for transmission of information but also to share ideas on how best to approach the RNCS.
4. Collaboration with other schools – both at the level of science and mathematics educators on their own and for school administrators. Schools could share ideas as well as material and human resources.
5. Peer coaching. Some districts have initiated programmes for educators to support each other. One district has what they call the "How I do it in my class" initiative where educators come together and share ideas on how they handle specific content areas and instructional strategies. Educators may invite others who are more competent in certain content areas to their classes to actually teach those areas or to observe them teach and offer constructive criticism.

3.4 What are the indicators of an effective instructional approach in the new Curriculum?

Group four's answers were;

1. Learner involvement; it was felt that in general, learner participation in a lesson can be a useful indicator of effective teaching and learning. Learner participation can be enhanced by assigning tasks such as projects and investigations to be done individually or in groups.
2. Learner performance; it is expected that effective instructional strategies will result in enhanced learner performance in both formative and summative assessment.
3. Integration; learner ability to integrate different learning areas and discern the links between them is also an indication of conceptual understanding.
4. Proper planning; planning is an integral part of teaching and learning. Teacher- learner interaction probably begins at the planning stage as the teacher anticipates learner thought processes and diversity in conceptual understanding. It is envisaged that well planned lessons will usually lead to effective instruction. Educators are encouraged to follow the structured planning process for a Learning Programme, that is; subject framework, work schedule, lesson plans.
5. Inclusivity; an effective instructional approach must of necessity be inclusive – consider differences in learners' academic, social and cultural backgrounds; learners' abilities; the physical states of learners, etc. Consider and plan for possible barriers to learning.

3.5 Other observations during the course of the seminar were:

1. Class size is often a hindrance to the implementation of the new curriculum. The tasks and activities need careful monitoring and sometimes specific teacher input which cannot be done with large classes (hence large groups for group work). This also affects the feedback process.
2. Too much paperwork for teachers. The RNCS has introduced a new demand on the educator in terms of administrative work. Some of the paperwork is specialized and calls for the use of modern IT technique that educators are not necessarily equipped with.

3. For Science subject educators there are no laboratory assistants. Planning time for the educator must include laboratory preparation before and after classes. This is one of the biggest demands on the educator's time. Schools need to hire laboratory technicians/assistants.

4. List of schools interested in taking part in this project

The following schools showed a keen interest in taking part in the ICC project.

1. Meadowlands High
 2. Tulip Secondary School
 3. Thutolore High School
 4. Forte High School
 5. Bhukulani High School
 6. Mncube Secondary School
 7. George Khosa Secondary School
 8. Letsibogo Girls High School
 9. Noordgesig High School
- These are the Dinaledi Schools or schools of excellence.*

5. Workshop Evaluation

Participants asked to write a few words saying how they felt they benefited from this workshop and how the workshop could have been improved. The written comments from the teachers show that the workshop was really worthwhile to them as most of them were calling for more of such workshops especially during the holidays.

Some of the teachers' concerns however, were that there seems to be some kind of silence about Mathematics Literacy and how best they should go about teaching this subject. Questions raised during the workshop about Mathematics Literacy show that institutions of higher learning like universities and technical colleges need to address the issue of designing courses specifically meant for learners with Mathematics Literacy as one of their subjects from high school. Currently it would appear there is no future for such learners. Another 'misconception' was that Mathematics Literacy was for those not-so-gifted learners. Yet practically it places more demands on both the educators and the learners as it calls for application of Mathematics rather than mere calculations which the policy seemingly portrays on paper.

Another observation made by some teachers was that in future participants should be divided into two groups, one for Mathematics and another one for Science, so that subject-specific curriculum problems/challenges within those two separate areas would be tackled in a more focused manner.

APPENDIX

Participants' Profiles

Name of Educator	School	Subject taught
1.Mabitsi Tryphosa	George Khosa	Maths Life Science
2.Masoko Louisa	George Khosa	Maths Physical Science
3.MashaBella	Noordgesig	Maths
4.Maluleke Charles	Forte Secondary	Maths Physical Science
5.Mafokeng Gavin	Forte Secondary	Maths
6.Modise Khymo	Forte Secondary	Maths
7.Tshabalala. ' . Khosi	Mncube Secondary	Natural Science
8. Dlamini T.S.	Mncube Secondary	Natural Science
9. Sithole P. P.	Mncube Secondary	Natural Science
10.Nhlapo Samuel M.	Mncube Secondary	Physical Science
11.Gabaza Lovemore	Meadowlands High	Maths Pysical Science
12.Mabandla Nkosi	Thutolore Secondar	Physical Science
13.Mohlala Dennies	Thutolore Secondar	Maths
14.Segobodi T.L.	Letsibogo Girls High	Maths
15. Maedi Daniel	Letsibogo Girls High	Maths Physical Science
16.Phukwane Angela	Bhukulani Secondar	Maths
17.Tshuma Albert	Tulip High	Maths Physics
18.Hungwa Shupikai	Tulip High	Maths Science

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