UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Bridging the Gap

Optimising a Feedback System for Monitoring Learner Performance

by
Elizabeth Archer
2010

Presented in partial fulfilment of the requirements for the degree

DOCTORATE OF EDUCATION

(ASSESSMENT AND QUALITY ASSURANCE)

Faculty of Education
University of Pretoria

Supervisors

Professor SJ Howie
Professor B Smit

This thesis is dedicated to my beautiful, loving wife, Catherine.

We made it, babes!

Acknowledgements

Many people directly and indirectly contributed to the process of creating this thesis. I cannot thank all of you individually, but thank you for helping me on this journey. I would however like to thank some very special people:

- All the teachers, HoDs and principals who gave so freely of their time and expertise to help build this feedback system and who contributed to this thesis. Thank you for sharing your expertise, insights and passion.

- Sarah, I really enjoyed our thinking sessions and the way you challenged me intellectually. Thank you for so generously providing me with the time and support I needed for my thesis. The opportunities you have created for me are deeply appreciated.

- Brigitte, it was your mentorship and guidance which first stimulated my interest in research nearly a decade ago. Thank you for opening this door to the world of rigorous enquiry for me.

- Vanessa, you are an amazing friend. Thank you for always listening, supporting and providing advice. You are a technical advisor *par excellence*. May God bless you richly.

- Prof Tjeerd Plomp, thank you for being a critical friend and true mentor. I was blessed to benefit from your guidance and wisdom. I hope my retirement one day will be a bit more quiet than yours ☺.

- Prof Roel Bosker, thank you for your guidance and support as well as the learning opportunities you made possible at GION at the University of Groningen.

- My fellow PhD sufferers, Kim and Lisa. Our impromptu debriefing, support, consultation and therapy sessions always nourished my emotional well-being. Thank you for being there and sharing the load.

- The South African Netherlands Research Programme on Alternatives in Development (SANPAD), who generously funded the SAMP project. Thank you also for the opportunity to attend the SANPAD Advanced Research Capacity Initiative, which stimulated my growth as a researcher. The collaboration with our Dutch partners has been invaluable.

- The National Research Foundation (NRF), thank you for providing the funding for this thesis and initial funding for the PIPSSA project. Without funders such as the NRF post-graduate studies would be out of reach for most South Africans.

- Most of all I want to say thank you Catherine. Without your love and support this would not have been possible. Thank you for believing in me, supporting me, looking after me and putting up with me. I love you always.

Abstract

Globally, a wealth of educational data has been collected on learner performance in a bid to improve and monitor the quality of education. Unfortunately, the data seem to have had only limited influence on learning and teaching in classrooms. This thesis aimed to bridge this gap between the availability of learner performance data and their use in informing planning and action in schools. A design research approach was used to optimise the feedback system for the South African Monitoring system for Primary schools (SAMP).

Design research aims to produce both an intervention to address a complex real-world challenge and to develop design guidelines to support other designers faced with similar challenges in their own context. In this research, the process of developing and improving the feedback system was also used to examine ways of facilitating the use of the feedback. Multiple cycles of design, implementation and evaluation of four different prototypes of the feedback system were conducted, employing evaluations from both experts (e.g. Dutch and South African academics, research and educational psychologists, instrument designers and teacher trainers) as well as school users (teachers, principals and HoDs).

Mixed methods were employed throughout the study, with different sub-samples of school users sampled from the population of 22 schools (English, Afrikaans and Sepedi) in the Tshwane region participating in SAMP. The various research cycles incorporated interviews, observations, journals, questionnaires, the Delphi technique and expert evaluations to examine not only data-use, but also aspects such as problem-solving, planning, data-literacy and attitudes towards evidence-based practice in the schools. Data was analysed using Rasch Modelling, descriptive statistics and computer-aided qualitative data analysis.

The study showed that an effective feedback system facilitates appropriate use through a gradual process of enlightenment, is flexible and responsive to user inputs, values collaboration and includes instrument, reporting and

support components in its design. An optimum feedback system also positively influences school feedback and monitoring culture by providing opportunities for positive experiences with feedback and increasing data-literacy. This improves the chances of feedback being used for planning, decision-making and action in the schools. An effective feedback system must also offer a comprehensive package to accommodate different users, with various levels of data sophistication, functioning in diverse contexts. The research also showed that an effective feedback system mediates thinking about educational instruction and curriculum and can therefore be a potent change agent. Use of clear, simple, intuitive data presentation in the feedback system allows for experiential learning to increase user data-literacy.

The design research approach employed in this study offers an appropriate and powerful approach to adapting, developing and optimising a feedback system. User involvement in design research ensures greater contextualisation and familiarity with the system, while engendering trust and a greater sense of ownership, all of which increase the receptiveness and responsiveness of users to feedback. Finally, the research also contributed design guidelines for other developers of feedback systems, an integrated conceptual framework for use of monitoring feedback and a functioning feedback system employed by 22 schools in the Tshwane region.

Keywords: Feedback use; Data use; Data-literacy; Statistical-literacy; Learner performance monitoring; Feedback system; School Performance Feedback System (SPFS); Evidence-based practice; Design Research; Enlightenment

TABLE OF CONTENTS

CHAPTER THREE
CONTEXTUALISATION, LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK - 54 -

CHAPTER FOUR
OVERVIEW OF THE RESEARCH DESIGN - 92 -

CHAPTER FIVE
PRELIMINARY PHASE: PROBLEM IDENTIFICATION, NEEDS AND CONTEXT ANALYSIS - 123 -

CHAPTER SIX
PROTOTYPING PHASE: ESTABLISHING CONDITIONS FOR USE (CYCLE 1-2) - 165 -

LIST OF FIGURES

TITLE **PAGE**

LIST OF TABLES

TITLE **PAGE**

LIST OF ABBREVIATIONS

450 Support	Forms to be completed when child is identified as at risk of failure and submitted to the DoE, must be accompanied by an individualised support program.
ABC+	Attitudinal/Behavioural/Cognitive Indicators, plus Context
ABEL	Assessment for Better Learning
AIDS	Acquired Immune Deficiency Syndrome
ALIS	A Level Information System
ARB	Assessment Resource Bank
ASPECTS	Assessment Profile on Entry for Children and Toddlers
asTTle	assessment Tools for Teaching and learning
AtoL	Assess to Learn
CAQDAS	Computer Aided Qualitative Data Analysis
CASS	Continuous assessment
CD	Compact Disc
CEA	Centre for Evaluation & Assessment
CEM	Centre for Evaluation and Monitoring
CREATE	Consortium for Research on Education, Access, Transitions & Equity
DIF	Differential Item Functioning
DoE	Department of Education (South Africa)
DVD	Digital Video Disc
ERO	Education Review Office
GDE	Gauteng Department of Education
GDP	Gross Domestic Product
GET	General Education and Training
HIV	Human Immune Deficiency Virus
HoD	Head of Department

HSRC	Human Science Research Council
ICT	Information and Computer Technology
InCAS	Interactive Computer Assessment System
IQMS	Integrated Quality Management System
LEAs	Local Education Authorities
LOLT	Language of Learning and Teaching
MidYIS	Middle Years Information System
MLA	Monitoring Learning Achievement
NEIMS	National Education Infrastructure Management System
NEMP	National Education Monitoring Project
NQF	National Qualifications Framework
NRF	National Research Foundation
NZ MoE	New Zealand Ministry of Education
NZ	New Zealand
OBE	Outcomes Based Education
OECD	Organization for Economic Co-operation and Development
OFSTED	Office for Standards in Education
OT	Occupational Therapist
PAT	Progressive Achievement Tests
PD	Professional Development
PIPS	Performance Indicators in Primary Schools
PIPSSA	Performance Indicators in Primary Schools in South Africa
PIRLS	Progress in International Reading Literacy Survey
PISA	Programme of International Student Assessment
RSA	Republic of South Africa

SACMEQ	Southern African Consortium for Monitoring Educational Quality
SAM	School Analysis Model
SAMP	South African Monitoring system for Primary schools
SANPAD	South African Netherlands Research Programme on Alternatives in Development
SAQA	South African Qualifications Authority
SASSIS	South African Secondary School Information System
SBST	School Based Support Team
SGB	School Governing Body
SIOP	Sheltered Instruction Observation Protocol
SITES	Second Information Technology in Education Study
SOLO	Structure of Observed Learning Outcomes
SPFS	School Performance Feedback System
STAR	Supplementary Test of Achievement in Reading
TIMSS	Third/Trends in International Mathematics and Science Study
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UP	University of Pretoria
USA	United States of America
YELLIS	Year 11 Information System
ZEBO	*Zelf Evaluatie in het Basis Onderwijs*[1]

[1] English translation: *Self-Evaluation in Primary Education*