HSRC RESEARCH SEMINAR

The challenges that complex longitudinal projects pose for data management and analysis: The case of the QLP (Quality Learning Project)

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Purpose of the presentation

- To share information on work in progress, and create opportunity for debate, especially with regard to two dimensions:
  - Awareness of the extraordinary complexities and challenges arising from this type of project (interventions of R150+ million, with a 10% evaluation budget)
  - The implications of such complexities for data management and analysis, with the objective of reducing unnecessary effort and project delays
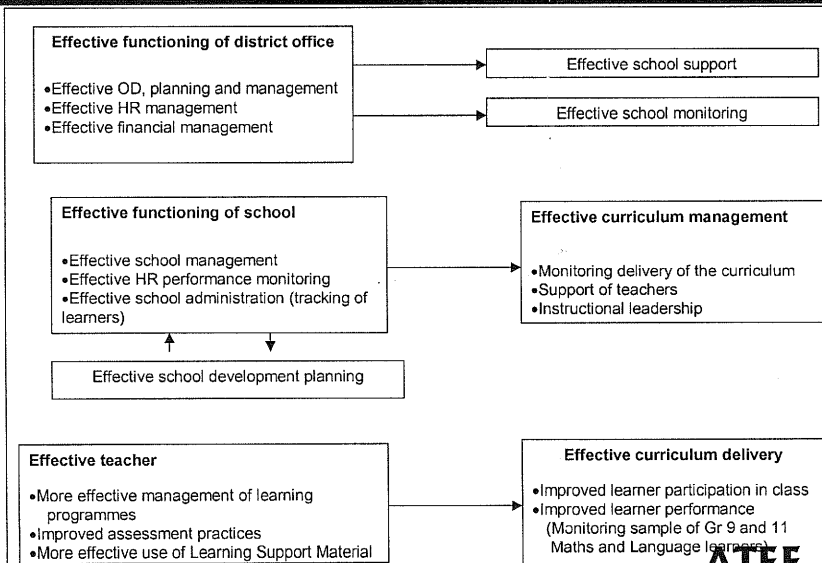
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Brief background to the QLP

- <u>Project content and scope</u>: evaluation of the impact of a unique, 1st of its kind, national, 5-year, 500+ school(s) and district improvement programme
- <u>Multi-institutional</u>: funded by the Business Trust, conceptualised in conjunction with the DoE, managed by JET Education Services, interventions by 10+ service providers, independent evaluation by HSRC (with its own data-collection, -capture and other sub-contractors)
- <u>Design</u>:
  - Longitudinal (3 phases) – 2000, 2002, 2004
  - Quantitative and qualitative data - self-report contextual questionnaires, observation, structured interviews, document review, performance tests
  - Hierarchical (imbedded levels – 8 000 learners, with 400 teachers, in 70 schools, in 17 districts)

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Background to QLP (continued): Project Model

Effective functioning of district office

- Effective OD, planning and management
- Effective HR management
- Effective financial management

Effective school support

Effective school monitoring

Effective functioning of school

- Effective school management
- Effective HR performance monitoring
- Effective school administration (tracking of learners)

Effective school development planning

Effective curriculum management

- Monitoring delivery of the curriculum
- Support of teachers
- Instructional leadership

Effective teacher

- More effective management of learning programmes
- Improved assessment practices
- More effective use of Learning Support Material

Effective curriculum delivery

- Improved learner participation in class
- Improved learner performance (Monitoring sample of Gr 9 and 11 Maths and Language learners)

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I. Complex array of roleplayers

- Many parties have access to, policies about, and practices regarding project aspects such as the research approach, data and information, findings, and reports, including:
  - Funder (Business Trust)
  - Department of Education (DoE)
  - Project management team (steering committee)
  - Its contracted service providers working in different domains and parts of the system
  - The HSRC
  - Teachers and school management
  - Parents/caregivers, and learners

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II. Complex methodology

- In addition to (at the outset) covering:
  - Qualitative and quantitative approaches,
  - Over many hierarchical / imbedded levels,
  - Over three moments of observation (time-series data)
- Many changes were also effected between the baseline and formative assessments.
  HAVOC !!

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III. Multiple instruments

- In addition to (at the outset) including a pre-determined array of:
  - Learner performance testing
  - Contextual surveys through self-report questionnaires
  - Site visits comprising interviews, observations and document review
- Changes were effected since the baseline at both item and instrument level:
  - Maths test items added, items changed
  - Instruments added, and changed

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IV. Data volume, complexity & modelling

As a result of the previous three sets of complexities, other aspects are/have become very involved too:

- Test scoring, data coding and capture
- Data cleaning (certification as ready)
- Recoding and index construction
- Analysis – descriptive reporting and modelling of causal pathways (item analysis, equating, weighting, structural equation or hierarchical linear modeling, i.e. SEM, HLM)
- Data management (merging, records)

  [e.g., question of (dis)aggregation]

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V. Report writing

- Wide readership range requires many approaches w.r.t. presentation level and choice of material:
  - technical report for academics, researchers, experts and professionals
  - executive summary for managers / policy makers
  - user-friendly, focused booklets for practitioners
- Different authors, each specialising in selected project aspects or data involvement, have to deliver integrated product with homogenous feel
- Release of findings/reports is also embargoed pending the approval of the patrons.

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Conclusions / recommendations

- Project framework has to be tied down early and in sufficient detail (causal or logic model, etc)
- Don't entertain methodological changes midway
- Build strong relationships with and trust among all significant stakeholders (funders, project steering committee and management team, policy makers, eventual users for credibility and reality check)
- Secure, if at all possible, full-time project manager and administrator, allowing very little distraction
- Data manager and programmer too (continuity!)
- Plan creatively around peak and quiet years (off-years for consolidation, preparation in advance, publication)

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Recommendations (continued)

- Design / follow solid system of progress meetings and management and administration records
- Design must drive project's ability to answer research questions (e.g., instruments → data → reports)
- Build in enough quality control measures:
  - Handle / attend all (intensive) training sessions
  - Monitor all fieldwork and administration activities
  - Demand 100% verification in all data capture
  - Maintain sound data cleaning/coding processes & checks
  - Moderate all scoring and coding activities
  - Cross-check all analyses
  - Record and control data sets and analyses
  - Secure expert consultation on methodology and analysis, to cover all item analysis, equating, weighting, modelling
  - Select experienced / qualified staff / contract workers

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Thank you!

Discussion?

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