

Development of a Tool for Decision Making on Subject Placement in Secondary Schools

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KEY IMPLICATIONS

- Need for greater support for middle managers' use of data for decision making.
- School data leadership and a supporting school culture in data inquiry are important determinants for data use.

BACKGROUND

Data use has become an important component of the teachers' professional practice and the use of data and evidence can lead to increased teacher professionalism (Mandinach & Gummer, 2016). There is a need to study how middle managers can be developed to generate useful insights from data that is increasingly available in schools, specifically for subject placement. However, schools do not necessarily translate data into successful evidence-based practice, and that practice based on "experience, intuition and traditions" may go against the use of data as evidence (Demski, 2014).

FOCUS OF STUDY

This study examines the inhibitors and enablers of data use for decision making in schools, specifically in the area of subject placement. The development of the Guide for subject placement and the accompanying Excel Tool lends timely support to schools in making such decisions more informed, data influenced without being overly data driven.

KEY FINDINGS

Findings pointed to schools' over reliance on single-point data score in making decisions, an over-focused on descriptive statistics, and the differing standards in statistical competency among middle managers. The weak culture of data use and the siloed nature of school local data infrastructure were some of the inhibitors of data use for decision making. School leaders' engagement was found to be a critical factor in building the school data culture.

The Guide developed contains detailed instructions on the use of three statistical tools – a mixture of descriptive and inferential statistics – for answering specific hypotheses contextualised for subject placement. It helps to address the gap about the lack of data visualization in the results analyses. It also supplements school's decision-making policy about subject placement by providing a way to investigate plausible predictive factors, and contains data inquiry workflows, with relevant statistical templates and examples. The Excel Tool provides a means for users to efficiently input student data and to explore the relationships between subjects interactively. Based on Microsoft Excel and the underlying Power Query and Power Pivot, it is designed to perform data processing operations. The Tool affords a stand-alone application to enhance data analyses within the local school context

without encroaching into data security or confidentiality issues that similar commercial online data tools may face. The Tool can be customised for a school's specific data needs like looking into related student data to build relational databases for a more holistic student profiling to support learning and development.

SIGNIFICANCE OF FINDINGS

Implications for practice

A short elective module in Management and Leadership in Schools (MLS) will be developed from this study to introduce the Guide and Tool for the middle managers and to sensitize participants on the bigger aspects of data use beyond descriptive statistics, and into the affordances of different data platforms in schools and in MOE for data use for decision making.

Implications for policy and research

The learning from the inhibitors and enablers of data use for decision making can inform the MOE School Cockpit team on how to better improve its support for schools in data use.

Proposed follow-up activities

One possible development is to introduce the Guide and the Tool to a larger group of schools and engaging them on onsite use with real school data. Further inputs for calibrations of the Guide and the Tool can then be made.

PARTICIPANTS

A total of 12 middle managers and teacher participants from the four secondary schools (3 Government Schools and 1 Autonomous School) were involved in the study. The selection of school was based on convenience sampling.

RESEARCH DESIGN

A design-based research approach was adopted to address dual goals of theory development and product development. For each school, on-site study of local school heuristics in decision making on subject placement was done on two intact cohorts of students from 2016 to 2019 and from 2017 to 2020. On-site analyses of anonymized student performance data were also conducted for each cohort. No artefacts or data were brought out of the schools. The first phase of the project involved doing on-site studies to examine school artefacts including policy documents on subject placement and conducting interviews with the key personnel to study the process of subject placement. The second phase involved sharing with the schools the emerging Guide and the Tool to elicit feedback for further calibrations.

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