Evidence-based steering: From Performance Indicators to ‘Big Data’

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Twds ‘evidence-informed’ steering ...

• What is quality?
  Even if we limit to learning aspect of knowledge and compencies ....
  A moving target: civic responsibility, study progress, labour market outcomes, ‘Bildung’

• What to measure and how to measure?
  Black box of student learning: e.g. rankings vs AHELO experiment
  Difficult causal links, effects not stable

• What is an effective steering model?
  State-centric
  Markets
  Professional self-regulation; institutional management
Steering by performance data

1. External accountability and steering
   • Formula-based funding (e.g. FI: study success rates, labour market)
   • Performance contracts (e.g. NL: study duration, students in Honors)
   • System-level performance: international benchmarking

2. Creating ‘markets’ (Consumer information)
   • Rankings
   • User guides: student satisfaction, but also labour market results

3. Internal accountability and learning/improvement
   • Program level accountability
   • Input for organizational learning and improvement

.... Purpose defines what indicators fit. A myriad of indicators....
PIs and management models

European Foundations of Quality Management (EFQM):
- ‘Enablers’: Leadership, People, Policy & Strategy, Partnerships & Resources, Processes; and
- Results: People results, Customer results, Society results and Key Performance results

Balanced Scorecards (e.g. UK)
- Customer perspective
- Internal perspective
- Financial perspective
- People perspective

‘Lead’ and ‘lag’ measures
Some dilemmas for good indicators

- Simplicity vs comprehensiveness
- Aggregated vs Individualized
- Actionable vs manipulable (vs dysfunctional)
Evolution in performance data:

Drivers

1. Interest in performance
   Effectiveness, efficiency
   but also governance model (autonomy)

2. Technological development to analyse data
   ICT tools to analyse data

3. Data available
   The effect of digitalisation: personnel, finances, learning systems
Evolution of Performance Data

1. Technical output measures
   - 1990s: Challenge to refocus from input measures to actual output
   - E.g. publication and citation scores, graduation rates, employment rates

2. Responsive measures and advanced output measures
   - stakeholders: student satisfaction surveys, alumni and employee surveys
   - advanced output measurement: engagement evaluations, AHELO experiment

3. Advanced analytics and ‘big data’ promise
   - ICT capacity: storage, tools to analyse complex data.
   - Data availability: digital footprint (blended classrooms, learning management systems, discussion fora/chats, swipe cards etc.)
‘Big data’ and Higher Education

• Learning Analytics
  goal: to understand a learning process, improve teaching
  focus on individual student and class performance

• Educational Data Mining
  goal: how to interact with, provide, and manage educational
  resources (e.g. performance in courses vs change of the program)
  focus: curriculum, program (institution)

• Higher Education (Business) Intelligence
  goal: institutional effectiveness
  focus: e.g. personnel, cost optimalization, study places, etc.

• Artificial Intelligence
Applications

• **Performance Prediction:**
  by analyzing student's interaction in a learning environment

• **Predicting dropouts:**
  analyzing behavioral responses to material: facial expressions of the students to predict their engagement, frustration and learning outcomes of students

• **Intelligent feedback**
  Learning systems can provide intelligent and immediate feedback to students in response to their inputs which will improve student interaction and performance.

• **Course Recommendation**
  New courses can be recommended to students based on the interests of the students identified by analyzing their activities. Advise on a field of study.

• Etc, etc.
Big data and external steering

• Risk based regulation

- Identify potential “problem” universities/programs
- Inspiration: social media feedback for restaurants and health organizations
- Currently used/considered: students’ official complaints
- Potential: social media data?
Obstacles and challenges

Privacy related problems
- ensuring privacy, consent
- ownership of big data (social media)

Capacity
- link between technical expertise and content expertise
- ability to ask a good question

Transparency and learning element
- obscuring accountability through an overly technical and incomprehensible data

Technical obstacles (declining though)
- storage
- size of the data huge, analysis of the data may consume a lot of time and resources. (scaled architectures)
- user-friendly tools ... also a danger
Concluding remarks

• Performance data requires always ‘qualitative’ decisions:

• Steering happens in various ways
  
  Incentives
  Socialization, changing norms.
  Culture

• ‘Big data’ potentially a big shift:
  - Potentially losing interest in static, slow indicators.
  - Close of real-life data. Pro-active data. Is there still a place for PI?