Quality Aspects in Postgraduate Distance Education: An Example from UNIGIS Salzburg

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Quality in (Higher) Education

According to UNESCO **Quality Education**…

- "…is based on the four pillars of Education for All – learning to know, learning to do, learning to live together and with others, and learning to be (Delors, et al., 1996);
- …
- builds knowledge, life skills, perspectives, attitudes and values…
- is **measurable**."

(UNESCO, http://portal.unesco.org/education/en/ev.php-URL_ID=27542&URL_DO=DO_TOPIC&URL_SECTION=201.html)

Why Quality Assurance (QA) for UNIGIS?

- Emphasize "**customer" (student) orientation** and satisfaction
- Aspire to **high-quality products**

- Aim at **accreditation** of current and future courses at national / international level

- Introduce **QA as a part of common denominator for UNIGIS International Association**

Quality Assurance aspects in Higher Education (HE)

- Significant efforts to define and maintain QA in HE
  - at national level, e.g.
    - Quality Assurance Agency for Higher Education in the U.K. (http://www.qaa.ac.uk/)
    - *Akkreditierungsrat* (http://www.akkreditierungsrat.at/)
  - international level, e.g.
    - European Association for Quality Assurance in Higher Education (ENQA, http://www.enqa.eu/)
  - from industry, e.g.
    - EFQM, www.efqm.org
    - ISO 9000
- Many of these efforts summarised as collections of qualitative / quantitative standards and guidelines for QA

Measuring Aspects of Quality in HE (1)

- Wissensbilanz (intelectual capital)
  - Obligatory at universites in Austria
  - Tool that aids quality management in that it allows reporting about the performance of each university in comparable manner
  - Uses a system of indicators (Kennzahlen)

II.1	**Intellektuelles Vermögen – Humankapital:**	
Kennzahl-Nr.	II.1.1	Personal
II.2	**Intellektuelles Vermögen – Strukturkapital:**	
Kennzahl-		

III.1	**Kernprozesse – Lehre und Weiterbildung:**	
Kennzahl-Nr.	III.1.3	Durchschnittliche Studiendauer in Semestern
Kennzahl-Nr.	III.1.4	Erfolgsquote ordentlicher Studierender in Bakkalaureats-, Magister und Diplomstudien
Kennzahl-Nr.	III.1.5	
Kennzahl-Nr.	III.1.6	

IV. 2	**Output und Wirkungen der Kernprozesse – Forschung und Entwicklung**:	
Kennzahl-Nr.	IV.2.1	Anzahl der Abschlüsse von Doktoratsstudien
Kennzahl-Nr.	IV.2.5	Einnahmen aus F&E-Projekten sowie Projekten der Entwicklung und Erschließung der Künste gemäß § 26 Abs. 1 und § 27 Abs. 1 Z 3 des UG 2002 in Euro

Measuring Aspects of Quality in HE (2)

(Canadian Policy Research Network, Finnie & Usher 2005)

4 approaches to quality measurement across OECD countri

1. **The minimum standards approach**
   - qualitative, process-oriented; seeks to ensure minim
     tied to an agenda of accountability to governme
2. **The "Rankings/Indicators" approach**
   - largely quantitativ and competiti
   - seeks to mark progress ov stitutions against one another (e.g. Key Per
3. **The "Learning Im**
   - based o *nts*
     (e Student Engagement (NSSE) in Canada & US,
     s Assessment in Australia)

Improvement" approach

asured is not quality *per se* but adherence to a set of procedures designed to monitor and promote quality (e.g. Japanese tradition of *kaizen*)

- Similarity to ISO 9000 and EFQM - Excellence Model

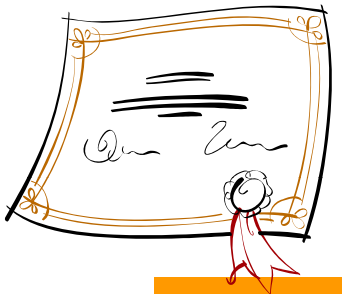
Their major conclusion: there are **no** simple measures of quality

Measuring Aspects of Quality in HE (3)– Framework

(Canadian Policy Research Network, Finnie & Usher 2005)

- ***Beginning Characteristics:***
- ***Learning Inputs:***
- ***Learning Outputs***
- ***Final Outcomes***

the more specific “ultimate ends” to which the educational system may contribute – everything from employment, income and job satisfaction, to civic participation and continued education.

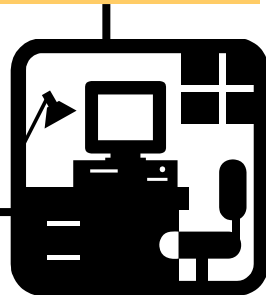


Beginning Characteristics

Final Outcomes

Learning Inputs

Learning Outputs



Quality Assurance Aspects for Online Distance Learning

- Distance Learning
  - has existed for a number of years
  - Principles, guidelines, benchmarks for QA exist
- Invention of WWW
  - Do the QA aspects developed for various types of distance learning also apply to internet-based distance education?

- Answers provided by
  - *Quality on the Line*
    (Institute for Higher Education Policy (USA), 2000)
    - identified benchmarks of processes and practices currently used by colleges and universities that are actively engaged in online education
    - 7 categories of quality measures
  - *e-Learning Maturity Model* (eMM) (Marshall 2005)
    - Applies *Quality on the Line* findigs to assess e-learning capability accross New Zealand HE institutions
    - Identified 5 processes

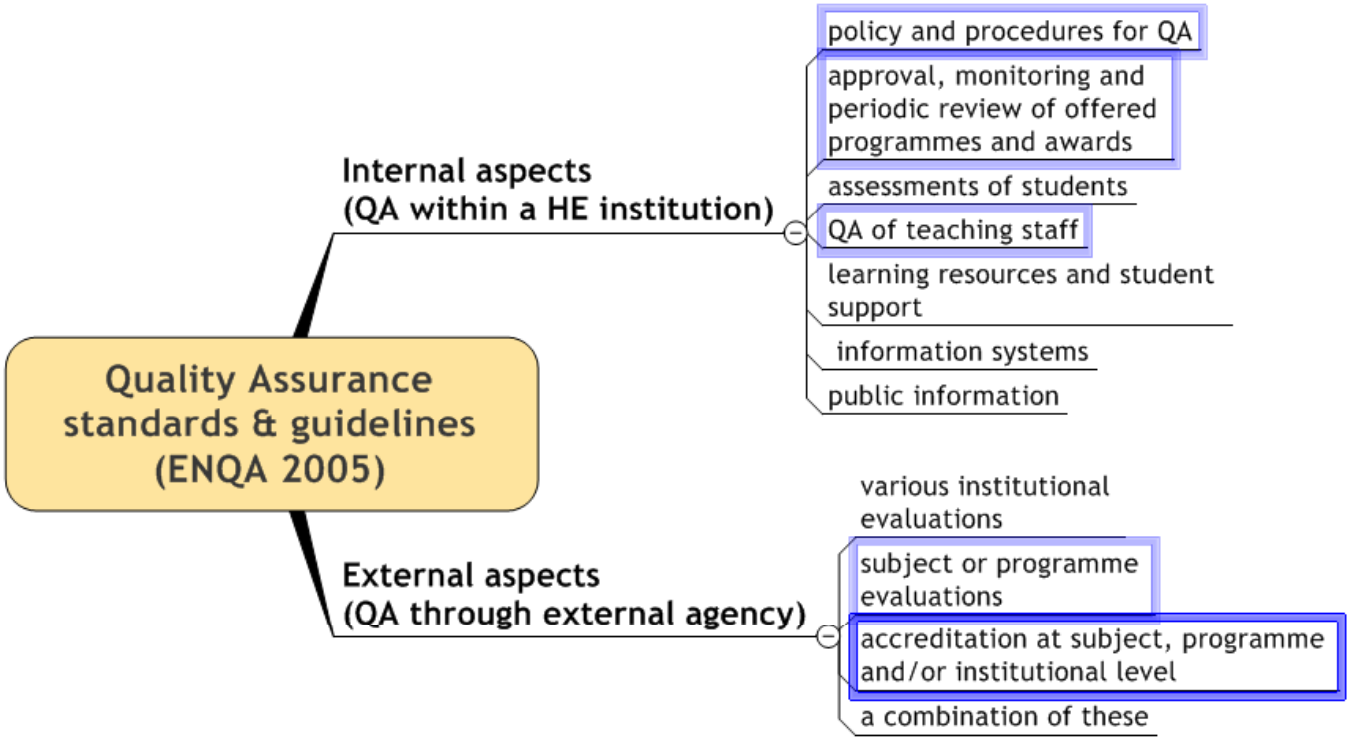
Towards a Quality Assurance Concept for UNIGIS@Salzburg

- Our motto:

  Keep it simple and make it operational.

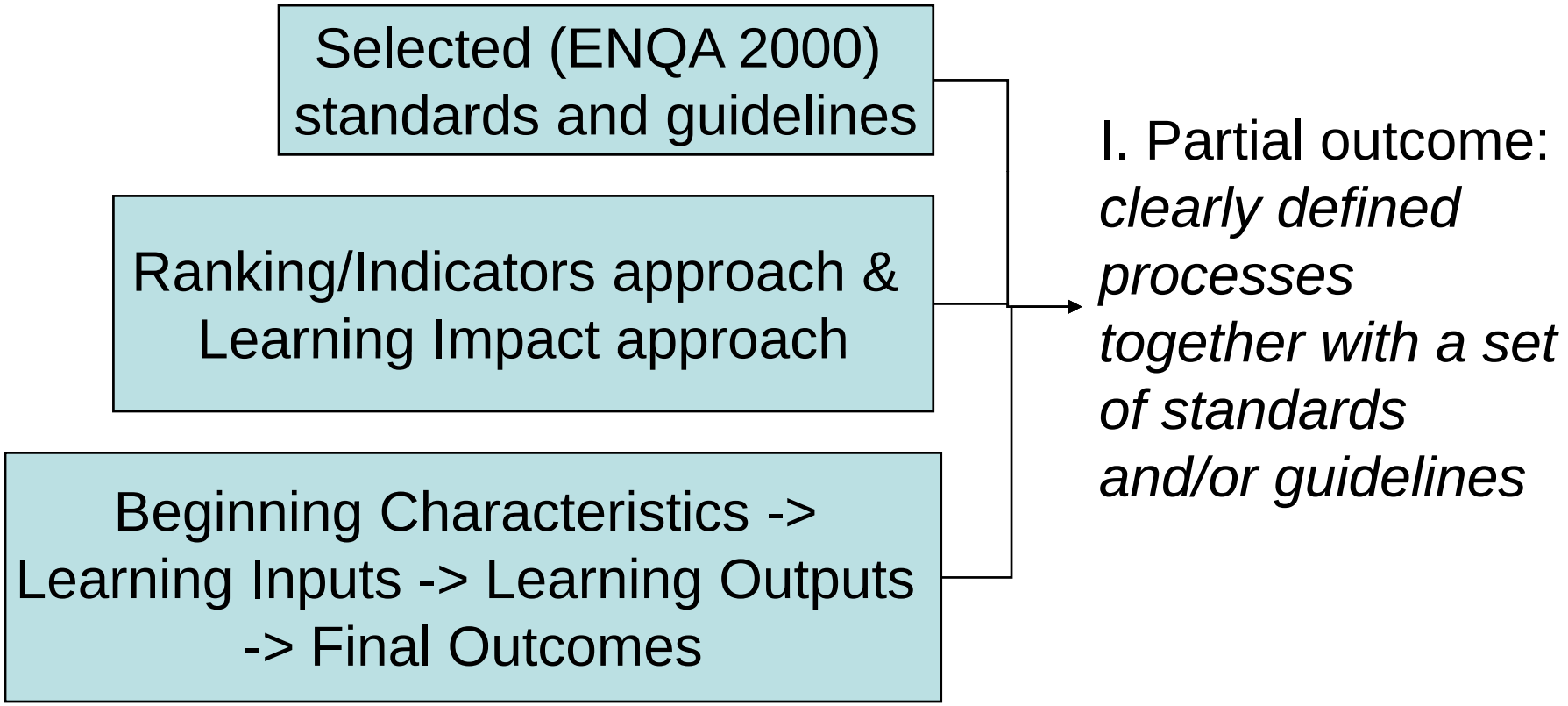
- Steps towards a QA Concept:
  - derive the appropriate *qualitative QA framework* from the existing ones
  - choose the respective *quality measures* from the proposed sets of QA measures
- We focus on Masters course curriculum (MSc in GIScience) and related emerging QA issues such as learning materials and evaluation procedures to support learning, learning platforms, and communication

Towards a UNIGIS QA Concept: Framework

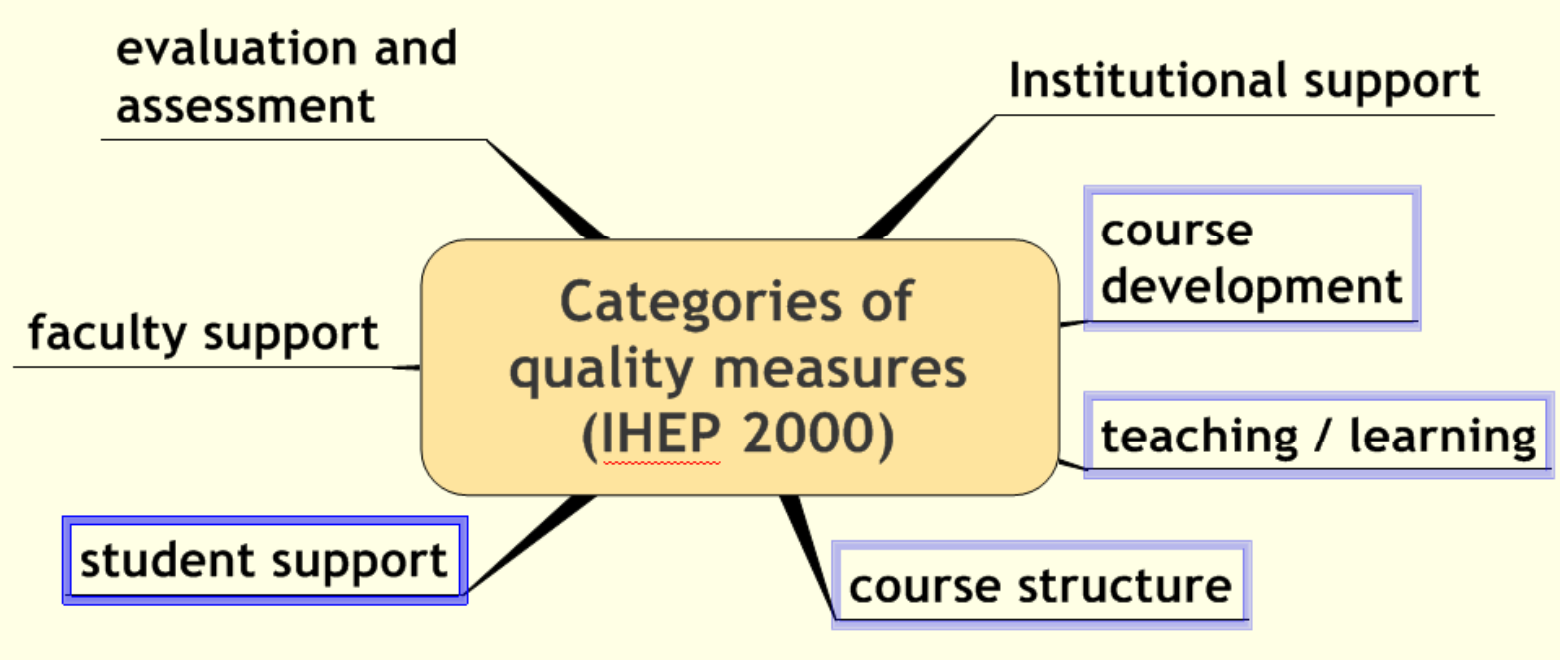


Quality Assurance standards and guidelines according to (ENQA 2005): internal and external aspects

Towards a UNIGIS QA Concept: Framework (2)



Towards a UNIGIS QA Concept: Framework (3)



II. Partial outcome:

a set of quality measures (indicators) assigned to the already defined processes, standards and guidelines

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Towards a UNIGIS QA Concept: Operational QA

- Short-term QA
  - measures rely mainly on taking advantage of the existing data and estimating what can be measured right away ("day-to-day" operational QA)
- Longer-term QA
  - we need to identify those measures that foster *continuous improvement* and therefore strategic thinking and acting

Towards a UNIGIS QA Concept: Benchmarking

- "…a means of making comparisons of performance, usually with a view to establishing 'good' - or more ambitiously 'best' - practice methods, and as such it is also used to diagnose problems in performance and to identify areas of strength." (Schofield 1998,p9)
- An aid to our judgment and decision making regarding QA rather then a substitute for solving respective problems

- In our QA project we still need to decide upon
  - the specific **aims** and **objectives**,
  - the choice of the appropriate **type** of benchmarking
    e.g. internal or implicit
  - and accompanying **methodologies**
    e.g. ideal type standards, activity based benchmarking, vertical or horizontal benchmarking, comparative performance indicators
  - a **subject** or subjects for benchmarking.

Towards a UNIGIS QA Concept: Preliminary Results What is Already at Hand

- Salzburg University has a Wissensbilanz for 2005 in place
- The current curriculum of the postgraduate university course *Geographic Information Science and Systems* (UNIGIS MSc(GIS)) was approved by the Senate of Salzburg University.
- Student evaluations of individual modules and instructors have been conducted throughout the duration of the course.
- Teaching/Learning materials are revised almost on a regular basis:
  - Minor revisions are performed generally after a module delivery and based on student evaluations
  - Major revisions are performed every 3-4 years dependent on the dynamics in respective fields
  - Occasionally external experts are asked to review specific materials and suggest changes
- Blackboard introduced as eLearning platform at university level

Towards a UNIGIS QA Concept: Preliminary Results

UNIGIS Common Core Curriculum vs UCGIS Body of Knowldege

- MSc(GIS) Common Core Curriculum (CCC)
  - is compulsory in the UNIGIS MSc course
  - implemented through a set of modules that establishes foundations of GIScience and Technology (GIS&T)
  - demonstrates a common denominator in the area of GIS&T that a UNIGIS graduate is expected to acquire regardless of the geographical location of their study

Towards a UNIGIS QA Concept: Preliminary Results (2)

UNIGIS Common Core Curriculum vs UCGIS Body of Knowldege

- General framework of conditions to be respected when revising the CCC
  - *Internally*: our existing materials need to be checked against the CCC to determine what needs to be changed and to what degree
  - *Externally*: CCC is seen as the subject for comparison to other GIS&T curricula both within the UNIGIS network and outside,
    - e.g. likewise programs or model curricula such as the NCGIA Core Curriculum or UCGIS Body of Knowledge (BoK)

Towards a UNIGIS QA Concept: Preliminary Results (3)

UNIGIS Common Core Curriculum vs UCGIS Body of Knowldege

UCGIS BoK – Knowledge Areas	CCC – compulsory modules
AM. Analytical Methods CF. Conceptual Foundations CV. Cartography and Visualisation DA. Design Aspects DM. Data Modelling DN. Data Manipulation GC. Geocomputation GD. Geospatial Data GS. GIS&T and Society OI. Organisational and Institutional Aspects	M1. GIS Introduction M2. Data Modelling and Data Structures M3. Data Sources and Data Acquisition M4. geoDBMS M5. Spatial Statistics M6. OpenGIS and Distributed GI Infrastructures M7. Geographical Analysis M8 Visualisation and Cartography M9. GIS Organisation and Project Management

Basic structure of the UCGIS BoK and CCC

Towards a UNIGIS QA Concept: Preliminary Results (4)

UNIGIS Common Core Curriculum vs UCGIS Body of Knowldege

Preliminary results from the comparison between CCC and BoK show the following:

- CCC or parts thereof that are not covered implicitly and/or explicitly in BoK
  - OpenGIS and Distributed GI Infrastructures (M6)
- BoK KA or parts thereof that are not covered implicitly and/or explicitly in CCC:
  - Geocomputation (GC1,2,4,5,7)
  - GIS&T and Society (GS2,6,7)
  - Organisational & institutional aspects (OI4)
  - Conceptual foundations (CF1, CF2.5-7)
  - Analytical methods (AM1, AM12.1-3)
  - Design Aspects (DA7 system implementation)

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Summary

- So far we have established **foundations for a framework of thinking** and in turn for a **QA concept** and in a way sketched a respective **workflow**
- Parallel to these activities, an exploratory investigation has already been conducted to find out what already exists and can be used in our QA project

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Future Work

- If successful, the emerging QA concept is expected to become a *QA policy for UNGIS@Salzburg*
- Furthermore we expect it to become *interesting to other UNIGIS partners* so they will support its development and introduction at their own site.
- The success of it certainly requires mutual respect for multicultural HE environments, and we strive for the least common denominator.

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Best practice – QA and BM (1)

- UK
  - external examiners, 1 from academia and 1 from industry
  - student feedback forms per module, evaluated at the university level
  - diploma exam: 1 examiner from the home institute and 1 from another academic institution;
    the supervisor is not an examiner
  - Research & Teaching Assessment Exercise
- USA
  - student feedback forms per module, evaluated at the university level
  - diploma exam: the supervisor is not an examiner
  - HE rankings
- Austria
  - Wissensblianz (Knowledge Management) – strategic approach to the ressource Knowledgment in an enterprise
  - obligatory to universities (http://www.bmbwk.gv.at/universitaeten/recht/gesetze/wbv/wbv05_entw.xml)

Best practice – QA and BM (2)

- Well written document on academic dishonesty
  http://teaching.berkeley.edu/bgd/prevent.html

- Example of a Code of rights and responsibilities for students:

  http://dsa.indiana.edu/Code

  http://www.indiana.edu/~wts/pamphlets.shtml

  http://www.indiana.edu/~wts/pamphlets/plagiarism.shtml

Canada http://www.cprn.com/en/doc.cfm?doc=1208

Table 5 – Data Elements and Potential Sources of Aggregate Data for Institutions, p.31

Beginning Characteristics	Aggregate Data for Institutions
Age	Admin data, CUSC, CCSC
Gender	Admin data, CUSC, CCSC
Ethnicity/Aboriginal Status	CUSC, CCSC
Immigration Status	*New Survey Required*
Mother Tongue/Ethnicity	*New Survey Required*
Primary Language	Admin data
Family Type	*New Survey Required*
Family Size	Admin data, CUSC, CCSC
Location of High School (Urban/Rural)	CUSC, CCSC
Disability Indicator	CUSC, CCSC
Aboriginal Indicator	CUSC, CCSC
Presence of children	CUSC, CCSC
Financial Savings	CUSC. CCSC
Student Income	CUSC, CCSC
Secondary School Marks	Admin data
Secondary School Literacy Scores	*New Survey Required*
Skill test scores at university entrance	*New survey required* (e.g., CLA)
Emotional Quotient scores at entrance	*New survey required*
Purpose for attending PSE	*New Survey required*

Inputs	Aggregate Data for Institutions
$/student	SFIUC + Admin
$/student in salaries	SFIUC + Admin
$/student in libraries	SFIUC + Admin
$/student in IT	SFIUC + Admin
$/student in student services	SFIUC + Admin data
$/student in student aid	SFIUC, OSAP + Admin data
Governance indicators	*New Metric Required*
Physical infrastructure indicators	*New Metric Required*
"Learning Environment" indicators	*New Metric Required, possibly NSSE*
Student-staff ratio	SFIUC + Admin data

Admin = Institutional administrative date;
CUSC = Canadian Undergraduate Survey Consortium;
CCSC = Canadian College Survey Consortium;
SFIUC – Survey of Financial Information of Universities and Colleges;
OSAP = Ontario Student Assistance Program;
NGS = National Graduates Survey; CLA = Collegiate Learning Assessment

Learning Outputs	Aggregate Data for Institutions
Degree/diploma	Admin data
Time-to-completion	CUSC
Generic work skills	*New Metric Required, possibly NSSE or CLA*
Quantitative Literacy	*New Metric Required, possibly NSSE or CLA*
Prose Literacy	*New Metric Required, possibly NSSE or CLA*
Problem solving	*New Metric Required, possibly NSSE or CLA*
Writing/communication skills	*New Metric Required, possibly NSSE or CLA*
Works in a team	*New Metric Required, possibly NSSE*
Appreciation for art/ creativity?	*New Metric Required, possibly NSSE*

Potential Final Outcomes	Aggregate Data for Institutions
Employment	Institutional Surveys/NGS
Earnings	Institutional Surveys/NGS
Satisfaction with Education	Institutional Surveys/NGS
Civic Engagement indicators	*New Metric Required*
"Happiness"/Life satisfaction indicators	*New Metric Required*
Lifelong learning	*New Metric Required*