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QUESTIONNAIRES FOR STOCKTAKING AND CHANGE ANALYSIS of Quality Monitoring in Learning and Teaching and Learning Analytics

Usable for Structured Interviews, Focus Group Discussions, Online Surveys with Various Stakeholder Groups

ERASMUS+ Project 2017-20

SUSTAINABLE QUALITY ENHANCEMENT IN HIGHER EDUCATION LEARNING AND TEACHING.

Integrative Core Dataset and Performance Data Analytics

Acronym: SQELT

https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/b8a93e06-2000-4a82-9fac-90b3bcacadec

https://www.evalag.de/forschung/sqelt/the-project/

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EXPLANATORY NOTES TO THE QUESTIONNAIRES

Purpose, Goals and Structure

The main purpose of the below presented questionnaires is to serve for stocktaking and change analysis¹ of core data (CD), performance indicators (PIs) and performance capacity indicators (PCIs) and quality evaluation instruments (QEI) used for quality monitoring and improvement in learning and teaching (L&T) and Learning Analytics (LA) of the surveyed higher education institutions (HEIs). In general, the question-

¹ For example, change analysis can be based on repeated application of the questionnaires to carry out a before-after comparison impact evaluation (Leiber 2015; 2018).

naires can be used for structured interviews, focus group discussions and online surveys with various stakeholder groups (e.g. students, teaching staff (without explicit quality management obligations), quality management (QM) staff, HEI leadership members, e.g. deans, vice-rectors, rectors).

The questionnaires are utilized within the ERASMUS+ project SQELT ('Sustainable Quality Enhancement in Higher Education Learning and Teaching. Integrative Core Dataset and Performance Data Analytics'), i.e. the primary surveyed HEIs are Universidade de Aveiro, Birmingham City University, Universiteit Gent, Uniwersytet Jagiellonski Krakow, Universität für Weiterbildung Krems, Universiteit Leiden, Università degli Studi di Milano, and Universitetet i Oslo. The main goal of the SQELT project is to develop a comprehensive and integrative model of (digital) performance data management ((D)PDM) for L&T in HEIs. Comprehensive sets of core data, performance indicators and quality evaluation instruments for L&T and actionable Learning Analytics are core ingredients of such model.²

The below questionnaires rely on assumed sets of core date and/or performance indicators and/or quality evaluation instruments for L&T and/or additional quality features of Learning Analytics which all originate from a literature review including documents of comparable research projects (see list of references). In other words, in the present context these sets of core data, performance indicators and quality evaluation instruments serve as a (preliminary) benchmark which is used for the assessment and further exploration of (digital) performance data management models for L&T in HEIs, particularly the above-mentioned six sample HEIs of the SQELT project.

For ease of orientation, the sets of core data, performance indicators and quality evaluation instruments for L&T are subdivided into four main conceptual areas (L&T Environment; Teaching Competences and Processes; Learning Competences and Processes; Learning Outcomes and Learning Gain and their Assessment) which are further sub-divided into areas such as learning resources; quality of teaching staff; quality learning & student engagement; student success; etc. pp.³

According to the main goals of the questionnaires, their core questions are:

- Which core data in L&T are systematically collected by the surveyed HEI? (closed questions and open-ended questions)
- Which performance indicators are applied for quality monitoring and improvement in L&T by the surveyed HEI? (closed questions and open-ended questions)
- Which quality evaluation instruments are applied for quality monitoring and improvement in L&T by the surveyed HEI? (closed questions and open-ended questions)
- In which ways is Learning Analytics implemented in the surveyed HEI? What are the strengths, weaknesses, opportunities and threats of Learning Analytics?

To achieve meaningful survey results, these core questions, via the below questionnaires, are addressed to the selected stakeholder groups of students, teaching staff, QM staff and HEI leadership according to their assumed knowledge competences about and engagement in these rather specific issues on HEIs' performance data

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² See below for (pragmatic) definitions of core data, performance indicators, quality evaluation instruments and Learning Analytics.

³ It should be noted that these divisions and subdivisions are just pragmatic conceptual differentiations to structure the comprehensive sets of core data, performance indicators and quality evaluation instruments. This includes the insight that, as a rule, the delimitations of the various conceptual areas are fuzzy, i.e. there are elements which can belong to more than one area to a certain extent (e.g. teaching quality items cannot always be sharply separated from learning quality items etc.).

management. Furthermore and again to secure the quality of the survey results, only selected representatives of the just mentioned stakeholder groups are approached. The main selection criteria are that it can be assumed that these stakeholders have a high engagement level and are well-informed about (digital) performance data management, core data, performance indicators, quality evaluation instruments and Learning Analytics (in their HEIs).

Some Working Definitions

Core Data

Core data (CD) can be defined as quantitative measures, represented by numbers, characterizing quality performance in a performance area such as L&T in higher education. Examples of core data in L&T of HEIs are: number of book titles held in library, drop-out rates of students, ratio of student number to teaching staff number, number and duration of student interactions with course contents, etc. pp.

Performance Indicators and Performance Capacity Indicators

Performance indicators (PIs) and performance capacity indicators (PCIs) represent more complex and aggregated (i.e. conceptually constructed) magnitudes which can be quantitative or qualitative in nature and indicate levels of performance quality or performance capacity, or perspective components of these. Accordingly, PIs and PCIs can be used to monitor performance and performance capacity and aspects of these for comparative purposes, to facilitate the assessment of institutional operations, and to provide evidence for quality assurance and improvement. Examples of PIs/PCIs in L&T of HEIs are: student interactions with faculty, teaching staff methodological competences, teaching staff pedagogical knowledge and skills, student learning gain in higher-order learning, student learning gain in social competences, etc. pp. Of course core data can be subsumed under performance indicators (but not vice versa).

It should be noted that a clearer and, at the same time, widely agreed definition of PI and PCI is currently not available. However, this is not very bad, because definitions are not empirically true or false or more or less reliable, but merely fulfill pragmatic functions of conceptual clarity and facilitated communication.

Learning Analytics

According to a commonly used definition, 'Learning Analytics is the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environment in which it occurs' (Siemens 2011a; HEC 2016, 4). Or, in a slightly different way Learning Analytics (LA) can be defined as the 'collection, analysis, use, and appropriate dissemination of HEI-generated, actionable data with the purpose of creating appropriate cognitive, administrative, and effective support for learners' (Slade & Prinsloo 2013, p. 1512). Thus, Learning Analytics includes the methods of 'gathering information on how learners are interacting with learning resources, each other, and their teachers' (Lockyer et al. 2013, 1439). It captures learner-generated data 'on specific, observable behaviour in real time' (Lockyer et al. 2013, 1440) and 'combines them with an analysis model to predict student progress and performance. The acquired information is used to adapt the e-learning environment [and learning environment in general] to support and improve individual learning' (Ledermüller & Fallmann 2017, 81).

Some Practical Notes

The questionnaires contain mainly closed questions but also some open-ended (i.e. exploratory) ones. In case certain (narrow) time limits and capacity limits prevail, the questionnaires may be shortened accordingly before using them in surveys (online; telephone interview; face-to-face interview).

Complex conceptual constructs will be explained during the interviews, if necessary.

Participation in surveys and interviews is always voluntary. Collected data and information are treated completely anonymously and in accordance with the applicable data and privacy protection regulations. Particularly, information and data collected will only be used for scientific purposes in anonymized form. Participating or interviewed persons are not related to their corresponding institutions; they are neither mentioned to any third parties nor in presentations and publications.

Used Abbreviations

CD - Core data

DPDM - Digital performance data management

HEI(s) - Higher education institution(s)

LA - Learning Analytics

LMS - Learning management system

L&T - Learning and teaching

PCI(s) - Performance capacity indicator(s)

PDM - Performance data management

PDRLA - Personalized data required for Learning Analytics

PI(s) – Performance indicator(s)

QEI - Quality evaluation instruments

QMS - Quality management system

SAS - Student admission system

SECT - Student evaluations of courses and teaching

SIS - Student information system

TBD - To be determined

TBDBE - To be determined by evaluation

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Survey questionnaire primarily for QM staff & HEI leadership, including also students and teaching staff, if applicable⁴

Please name the institution	ou belona to:		

Please indicate the stakeholder group you belong to

- Students
- □ Teaching staff (full professors, associate professors, lecturers, etc.)
- QM staff
- □ HEI leadership (rectors, vice-rectors, faculty deans, study deans, etc.)

According to your knowledge, WHICH OF THE FEATURES APPLY to the listed DATA ("core data") that can be collected for QUALITY MONITORING & IMPROVEMENT in L&T (e.g. including them in mandatory or non-obligatory quality reporting requirements, target agreements, rankings etc.)?

		Indis- pen- sable	Useful	Use- less	Do not know	Regu- larly col- lected in my HEI	Occasional- ly col- lected in my HEI	Not col- lected in my HEI	Do not know
L&T Environn	ment								
	Number of book titles held in library								
	Number of periodical print subscriptions held in library								
Learning resources	Number of periodical online subscriptions held in library								
resources	Number of student workplaces held in library								
	Number & duration of student interactions with library								
	Average processing time of a library orders								
	Number of Bachelor programs offered								
	Number of Bachelor programs that are offered in a foreign language								
	Number of joint/dual degree Bachelor programs								
	Number of Master programs offered								
	Number of Master programs that are offered in a foreign language								
	Number of joint/dual degree Master programs								
	Ratio of teaching staff number to student number								
	Number of female teaching staff								
Teaching	Number of teaching staff with foreign citizenship								
resources	Number of teaching staff with verified doctorate qualifications (PhD or equivalent)								
	Number of teaching staff with verified teaching qualifications								
	Number of teaching staff participating in professional development activities								
	Number of broad educational subject fields (ISCED97/2011) in which students have graduated in the latest year (disciplinary diversity) ⁵								
	Number of beds available for teaching in univer- sity hospital & affiliated hospitals per 100 stu- dents (medicine) ⁶								
Facilities &	Number of students allowed to enrol in a sub- ject/subject field								
equipment	Total institutional expenditure (per full-time stu-								

 $^{^{4}}$ Usually, the answers to these questions should also be cross-checked/corroborated by document analysis.

⁵ Adopted from (U Multirank 2018).

⁶ Adopted from (U Multirank 2018).

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		another institution								
students another institution another institution			_							
	students	another institution					П			

TBD = To be determined
 PDRLA = Personalized data required for Learning Analytics

Teaching Cor	mpetences & Processes							
	Number of teaching staff who participated in							
	formal pedagogical training					П	Ш	Ш
	Number of teaching staff who participated in support activities for their adaptation of technolo- gy-enhanced L&T							
	Number of teaching staff who participated in peer support systems for teaching staff/teaching observation							
Quality of teaching staff	Number of teaching staff who were awarded for their outstanding engagement in teaching based							
	on a merit system Number of refereed publications during a certain period of time [TBD] per full time equivalent							
	members of teaching staff Number of papers or reports presented at academic conferences during a certain period of							
	time [TBD] per full time equivalent members of teaching staff							
Learning Con	mpetences & Processes	ı	 I	ı	ı			
Quality learning &	Number & duration of student interactions with course activities (e.g. solution of exercises, watching videos, listening to lecture, participation in working groups, etc.) (e.g. via the HEI's LMS) (PDRLA)							
student engagement	Number & duration of student interactions with course contents (e.g. via the HEI's LMS) (PDRLA)							
	Number of repetitive visits to learning contents (e.g. during online learning) (PDRLA)							
Learning Out	comes & Learning Gain & their Assessment Coursework marks (PDRLA)							
	Number of students who do not complete the							
	program modules they had started (PDRLA)							
	Number of students who do not successfully complete the first year of study (PDRLA) Number of students who do not successfully							
	complete undergraduate programs (Bachelor graduation) (PDRLA)							
	Number of students who do not successfully complete undergraduate programs within the planned program duration (Bachelor graduation on time) (PDRLA)							
	Number of students who do not successfully complete graduate programs (Master graduation) (PDRLA)							
Student	Number of students who do not successfully complete graduate programs within the planned program duration (Master graduation on time) (PDRLA)							
success	Number of students who do not successfully complete their long first degree (long first degree graduation) (PDRLA)							
	Number of students who do not successfully complete their long first degree within the planned program duration (long first degree graduation on time) (PDRLA)							
	Number of students who do not successfully complete postgraduate programs (postgraduate graduation) (PDRLA)							
	Number of students who do not successfully complete postgraduate programs within the planned program duration (postgraduate graduation on time) (PDRLA)					0		
	Number of students who exit HEI per year (PDRLA)							
	Number of students who exit HEI per year to change to another HEI (PDRLA)							

	Percentage of examinations (e.g. in medical					
	doctor training programmes) which use innova-					
	tive forms of assessment (e.g. assessment of practical work by faculty & structured clinical					
	cases) ⁹					
	Examination marks (PDRLA)					
A	Grades of students' final examinations (PDRLA) Number of Bachelor degrees awarded					
Assessment of learning	Number of Bachelor degrees awarded Number of Master degrees awarded					
outcomes	Number of Master degrees awarded Number of doctorate degrees (PhD or equiva-					
odicomes	lent) awarded					
	Number of doctorate degrees that are awarded to international doctorate candidates					
	Percentage of credits given in service-learning activities (e.g. students in community service activities & social work), in relation to total number of credits ¹⁰					
	Number of Bachelor students actually doing an internship (PDRLA)					
	Number of Master students actually doing an internship (PDRLA)					
Contact with work en-	Number of Bachelor teaching practitioners from outside the HEI departments					
vironment ¹¹	Number of Master teaching practitioners from outside the HEI departments					
	Number of Bachelor degree theses made in cooperation with industry/external organisations					
	Number of Master degree theses made in cooperation with industry/external organisations					
Gender balance in the transi- tion from students to doctorate graduates ¹²	Ratio of female to male students who complete a doctorate					
graduates	Number of Bachelor graduates who within a period of time [TBD] after graduation are unemployed					
	Number of Bachelor graduates who found their first job (after graduation) in the region where the HEI is located					
	Number of Bachelor graduates who within a period of time [TBD] after graduation are enrolled in further study					
	Number of Master graduates who within a period of time [TBD] after graduation are unemployed					
Employabili- ty	Number of Master graduates who found their first job (after graduation) in the region where the HEI is located					
•	Number of Master graduates who within a period of time [TBD] after graduation are enrolled in further study					
	Number of Master graduates who within a period of time [TBD] after their long first degree graduation are unemployed					
	Number of Master graduates who within a period of time [TBD] after their long first degree graduation are enrolled in further study		-			
	Number of doctorate graduates who within a period of time [TBD] after doctorate are unemployed					

<sup>Adopted from (U Multirank 2018).
Adopted from (U Multirank 2018).</sup>

	Number of doctorate graduates who found their first job (after doctorate) in the region where the HEI is located				
	Number of doctorate graduates who within a period of time [TBD] after doctorate are enrolled in further study				
Space for ad	ditions and comments				
	Other, namely				
	Other, namely				
	Other, namely				
	Other, namely				
	Other, namely				

Survey questionnaire for students, teaching staff, QM staff & HEI leadership 13

According to your knowledge, WHICH OF THE FEATURES APPLY to the listed PERFORMANCE ISSUES

Please name the institution y	you belong to:
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Please indicate the stakeholder group you belong to

- Students
- □ Teaching staff (full professors, associate professors, lecturers, etc.)
- QM staff

Supportive

environment

□ HEI leadership (rectors, vice-rectors, faculty deans, study deans, etc.)

(among them "performance indicators", "performance capacity indicators" and other complex quality performance-related structures, processes and activities) that can be reported for QUALITY MONITORING & IMPROVEMENT in L&T (e.g. including them in mandatory or non-obligatory reporting requirements, target agreements, rankings etc.)? Reau-Occalarly sionalmoni-Indismonitored ly Use-Do not Do not Useful monipentored in my less know know sable HEL in my tored HEI in my HEI L&T Environment Quality of library services (**TBDBE**¹⁴) Diversity of courses offered (with respect to topics, class options & sizes, time, place, lecturers, etc.) to guarantee that the study programs п П can be completed within the regular time period (TBDBE) Quality organization of study programs (e.g. transparency of entrance require-Learning ments/admission regulations, access to classes, resources average class size, completeness of courses offered compared to the study guide, transparency of the examination system)¹⁵ (**TBDBE**) Learning diversity offered with respect to course structures to do justice to different learner types & learning processes (PDRLA) Opportunity offers for studying abroad¹⁶ (TBDBE) (PDRLA) Possibility of inclusion of Bachelor study periods П п П П П П П П Teaching abroad resources Possibility of inclusion of Master study periods abroad Quality of lecture halls & seminar rooms Facilities & (TBDBE) Quality of IT services (TBDBE) equipment Quality of laboratory facilities (TBDBE) П П Provision of student support to succeed academ-ically (TBDBE)

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Quality of learning support services (e.g. tutoring services, writing centre, student exchange cen-

tre, learning management system) (TBDBE)

(PDRLA)

Measures of encouraging contact among students from different backgrounds (social, ethnic,

religious, etc.)
Provision of opportunities for students to be

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¹³ Usually, the answers to these questions should also be cross-checked/corroborated by document analysis.

¹⁴ TBDBE = to be determined by evaluation. As a rule, information sources for the required evaluations may include data and document analysis, focus groups interviews and discussions, expert interviews and (satisfaction) surveys of relevant stakeholder groups etc..

¹⁵ Adopted from (U Multirank 2018).

¹⁶ Adopted from (U Multirank 2018).

	involved socially (TBDBE)				
	Provision of student support for managing non-				
	academic responsibilities (e.g. work, family, etc.) (TBDBE)				
	Provision of student support for overall well- being (e.g. recreation, health care, sports, coun- selling, etc.) (TBDBE)				
	Quality offer of campus activities & events for students (e.g. performing arts, sports events, etc.) (TBDBE)				
	Quality offer for students to attend events that address important social, economic, sustainability, or political issues (TBDBE) (PDRLA)				
	Equity student support (TBDBE)				
	Institutional recognition of teaching (TBDBE)				
	Student interactions with students (TBDBE)				
	Student interactions with academic advisors (TBDBE)				
	Student interactions with faculty (e.g. communication, work) outside of class & coursework (TBDBE)				
Student interactions	Student interactions with student services staff (e.g. career services, student activities, housing, etc.) (TBDBE)				
	Student interactions with other administrative staff & offices (e.g. registrar, financial aid, etc.) (TBDBE)				
	Student experience in discussions with diverse others ¹⁷ (TBDBE)				
Further	Compatibility of studies & work (e.g. flexible models for adapting study times to working hours) (TBDBE)				
education & lifelong learning	Recognition of non-academic achievements (TBDBE)				
learning	Mediation of motivation for lifelong learning (TBDBE)				
	Student participation in student evaluations of courses & teaching (SECT)				
Stakeholder participation	Student participation in decision-making related to student evaluations of courses & teaching				
in L&T quality	Teaching staff participation in student evaluations of courses & teaching				
develop- ment & evaluation	Teaching staff participation in decision-making related to student evaluations of courses & teaching				
Cvaldation	Student participation in curriculum development				
	Employer participation in curriculum develop- ment				
	npetences & Processes				
Teaching staff work- load	Teaching workload of teaching staff (TBDBE)				
	Teaching quality in general (TBDBE)				
	Teaching staff subject-matter competences (TBDBE)				
Quality	Teaching staff methodological competences (TBDBE)				
teaching & teaching	Quality organization of course sessions (TBDBE)				
staff en- gagement	Teaching staff respect & interest for students (TBDBE)				
	Teaching staff encouraging students' autonomous thinking & acting (TBDBE)				
	Teaching staff pedagogical knowledge & skills (e.g. knowledge of teaching models & learning				

¹⁷ Adopted from (IUSE 2018).

	processes) (TBDBE)		1			
	Teaching staff sensitivity to class level & pro-					
	gress (TBDBE) Teaching staff social competences (e.g. team,			1		
	communication & leadership competences) (TBDBE)					
	Fostering sustainability values (social, ecological, economical) (TBDBE)					
	Teaching staff feedback to students (e.g. on					
	work in progress, test, completed assignments) (TBDBE)					
	Bedside teaching (medicine) (e.g. concerning mentoring, suitability of rooms & variety of diagnostic techniques applied) ¹⁸ (TBDBE)					
	Integration of pre-clinical/theoretical & clinical courses (medicine) ¹⁹ (TBDBE)					
	Quality skills labs & training centers (e.g. maintenance, accessibility, technical facilities, mentoring) (medicine) (TBDBE)					
	Teaching staff satisfaction with teaching quality (TBDBE)					
Learning Con	npetences & Processes					
	Student workload (TBDBE)					
	Course quality (TBDBE)					
	Activity learning offers (e.g. problem-based learning; research-based learning; internships) (TBDBE)					
	Training offers to reflect upon student learning approaches (TBDBE)					
	Student experience of learning quality in general (TBDBE)					
	Provision of training in study skills & self- regulated learning techniques (TBDBE)					
Quality	Development of student competences of self- learning (TBDBE)					
learning & student	Teaching staff assistance in organising peer learning activities (TBDBE)					
engagement	Integration of practical experience with patient contact into the study program (medicine) (TBDBE)					
	Quality flexible learning (flexibility in the requirements, time & location of study, teaching, assessment & certification) (TBDBE)					
	Quality mobile learning (learning across multiple contexts, through social & content interactions, using personal electronic devices) (TBDBE)					
	Quality personal (bespoke) learning (TBDBE) (PDRLA)					
	Student engagement in general (TBDBE)					
Learning Out	comes & Learning Gain & their Assessment	ı	ı			
Constructive	Clearly formulated intended learning outcomes (e.g. goals of study modules & courses) (TBDBE)					
alignment of programs/	Teaching staff awareness of existing intended learning outcomes (TBDBE)					
courses	Design & adjustment of teaching & assess- ments/examinations to defined intended learning outcomes (TBDBE)					
Study avea	Freshman satisfaction with study experience (TBDBE) (PDRLA)					
Study experience	Undergraduate satisfaction with study experience (TBDBE) (PDRLA)					
satisfaction	Graduate satisfaction with study experience (TBDBE) (PDRLA)					

Adopted from (U Multirank 2018).Adopted from (U Multirank 2018).

Postgraduate satisfaction with study experience (TBDBE) (PDRLA)								
Alumni satisfaction with study experi-								
Student learning gain in subject-matter competences (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Student learning gain in methodological competences (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Student learning gain in higher-order learning ²⁰ (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Student learning gain in reflective & integrative learning ²¹ (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Student learning gain in learning strategies ²² (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Student learning gain in quantitative reasoning ²³ (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Student learning gain in collaborative learning ²⁴ (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Student learning gain in interdisciplinarity (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases)								
Student learning gain in transdisciplinarity (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases)								
Student learning gain in social competences (e.g. team, communication & leadership competences; empathy; ability to cooperate; ability to solve conflicts) (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Student learning gain in self-competences (e.g. self-determination; capability of decision & learning; flexibility of action; ability to reflect; sovereignty) (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA)								
Timeliness of assessments/examinations								
Quality of assessment/examination formats (TBDBE)								
Possibility of inclusion of internships/ phases of practical experience or external projects in the Bachelor curriculum								
Possibility of inclusion of internships/ phases of practical experience or external projects in the Master curriculum								
Possibility of inclusion of work experience & elements related to work practice ²⁶ (TBDBE)								
Academic & career counselling for students								
	Alumni satisfaction with study experience/student life cycle (TBDBE) Student learning gain in subject-matter competences (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in methodological competences (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in higher-order learning²0 (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in reflective & integrative learning²¹ (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in learning strategies²² (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in quantitative reasoning²³ (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in collaborative learning²⁴ (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in interdisciplinarity (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) Student learning gain in interdisciplinarity (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) Student learning gain in ransdisciplinarity (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) Student learning gain in social competences (e.g. team, communication & leadership competences; 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empathy; ability to cooperate; ability to solve conflicts) (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) Student learning gain in self-competences (e.g. team; communication; capability of decision & learning; flexibility of action; ability to reflect; sovereignty) (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Fairness of assessments/examinations Timeliness of assessments/examinations Quality of assessment/examinations Quality of inclusion of internships/ phases of practical experience or external projects in the Bachelor curriculum Po	Alumni satisfaction with study experience/student life cycle (TBDBE) Student learning gain in subject-matter competences (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in methodological competences (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in higher-order learning phases) (PDRLA) Student learning gain in reflective & integrative learning gain in reflective & integrative learning gain in gain in learning strategies (PDRLA) Student learning gain in learning strategies (PDRLA) Student learning gain in learning strategies (PDRLA) Student learning gain in upantitative reasoning (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in in quantitative reasoning (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in in collaborative learning (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) (PDRLA) Student learning gain in interdisciplinarity (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) Student learning gain in interdisciplinarity (TBDBE) (e.g. by comparison of knowledge & skills before & after learning phases) Student learning gain in social competences (e.g. self-determination; 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<sup>Adopted from (IUSE 2018).
Adopted from (U Multirank 2018).
Adopted from (U Multirank 2018).</sup>

	Employer satisfaction with graduates (TBDBE)				
Space for ad	ditions and comments				
	Other, namely				
	Other, namely				
	Other, namely				
	Other, namely				
	Other, namely				

Survey questionnaire for students, teaching staff, QM staff & HEI leadership²⁷

Please name the institution/organization you belong to:

Please indicate the stakeholder group you belong to

- □ Students
- □ Teaching staff (full professors, associate professors, lecturers, etc.)
- □ OM staff
- □ HEI leadership (rectors, vice-rectors, faculty deans, study deans, etc.)

		Indis- pen- sable	Useful	Use- less	Do not know	Regu- larly ap- plied in my HEI	Occa- sional ly ap- plied in my HEI	Not ap- plied in my HEI	Do not know
Teaching Co	mpetences & Processes				<u> </u>				
Quality teaching &	Quality procedures of teaching staff recruitment (e.g. responsibilities; recruitment & selection process) for lecturers & associate professors								
teaching staff en-	Quality procedures of teaching staff recruitment (e.g. responsibilities; recruitment & selection process) for full professors								
gagement	Teaching staff peer review or participating observation of courses								
Learning Co	mpetences & Processes				T			ı	
	Reports generated from Learning Analytics tools such as BlackBoard, Moodle, Desire2Learn (e.g. individual user tracking, course based) (PDRLA)								
	Social network analysis generated from Learning Analytics tools such as SNAPP (Social Networks Adapting Pedagogical Practice) (e.g. visualization of student relationships established through par- ticipation in LMS discussions) (PDRLA)								
Quality learning & student engage-	Individual & group monitoring generated from Learning Analytics tools such as GLASS (Gradi- ent's Learning Analytics System) (e.g. visualiza- tion of student & group online event activity) (PDRLA)								
ment	Discourse analysis generated from Learning Analytics tools such as COHERE (e.g. visualization of social & conceptual networks & connections) (PDRLA)								
	Student self-reports on their dispositions, values & attitudes towards learning, i.e. collection of learner data & pedagogical descriptors (e.g. students' ability in deactivating negative learning emotions, students' learning strategies) (PDRLA)					0	0	0	
Learning Ou	tcomes & Learning Gain & their Assessment		T					I	
Learning Outo	Student dashboards & monitoring generated from Learning Analytics tools such as Student Activity Meter (e.g. visualization of student activity for promotion of self-regulated learning processes) (PDRLA)								
gain	Learning content interaction generated from Learning Analytics tools such as LOCO-Analyst (e.g. providing insight into individual & group interactions with the learning content) (PDRLA)								

 $^{^{27}}$ Usually, the answers to these questions should also be cross-checked/corroborated by document analysis.

Assess-	Student evaluation of assessments/examinations (peer grading)							
ment quali-	Peer review or participating observation of student assessments/examinations							
ty	Peer evaluation of assessment/examination protocols							
Prediction	Predictive models for student performance							
of student success	Predictive models for student attrition							
	Accreditation (external) of study programs							
Accredita- tion	Institutional accreditation (external) of QMS in L&T (program accreditation carried out by HEIs themselves)							
Space for additions and comments								
	Other, namely							
	Other, namely							
	Other, namely							
	Other, namely							
	Other, namely							

ADDITIONAL (PRELIMINARY) FOCUS ON LEARNING ANALYTICS

Survey questionnaire for <u>students</u>, <u>teaching staff</u>, <u>QM staff</u> & <u>HEI leadership</u>²⁸

Please name the institution/organization you belong to:

Ple	ease indicate the stakeholder group you belong to
	Students
	Teaching staff (full professors, associate professors, lecturers, etc.)
	QM staff
	HEI leadership (rectors, vice-rectors, faculty deans, study deans, etc.)
re	ecording to a commonly used definition, 'Learning Analytics is the measurement, collection, analysis and porting of data about learners and their contexts, for purposes of understanding and optimizing arning and the environment in which it occurs' (Siemens 2011a; HEC 2016, 4). ²⁹
ls	Learning Analytics put into L&T practice at your HEI?
_ `	'es
<u> </u>	No
₋ (Cannot answer, because
•	
	nly if "Yes", i.e. Learning Analytics is put into practice at your HEI, which of the following nctions are realized?
_ \$ 	Supporting concrete pedagogical decisions as actionable results, i.e. (please give some information/detail)
	Supporting the study of learning-related emotions such as enjoyment, curiosity, frustration, or anxiety, & their interactions, i.e.
	ease give some information/detail)
_ S	Supporting the quality improvement of courses, i.e. (please give some information/detail)
	Supporting the improvement of course design, i.e. (please give some information/detail)
	Supporting the verification of student workload, i.e. (please give some information/detail)
	supporting the verification of student workload, i.e. (please give softle information/detail)

 $^{^{28}}$ Usually, the answers to these questions should also be cross-checked/corroborated by document analysis.

²⁹ Siemens, G. (2011a) Call for Papers of the 1st International Conference on Learning Analytics & Knowledge (LAK 2011). Available at: https://tekri.athabascau.ca/analytics/ (access: 16 May 2018). HEC [Higher Education Commission] (2016) *From Bricks to Clicks. The Potential of Data and Analytics in Higher Education.* London: Policy Connect, p. 4.

□ Supporting the monitoring of students learning progress (stages), i.e. (please give some information/detail)
□ Supporting the prediction of student learning effectiveness/success, i.e. (please give some information/detail)
□ Supporting the identification of students failures of study, i.e. (please give some information/detail)
□ Supporting the identification of deficits in learning support for students, i.e. (please give some information/detail)
□ Supporting the identification of deficits in environment support for students, i.e. (please give some information/detail)
□ Supporting the targeted counselling of individual students, i.e. (please give some information/detail)
□ Supporting the improvement of admission & recruitment practices, i.e. (please give some information/detail)
□ Other, namely
- Other namely
□ Other, namely
Only if "Yes", i.e. Learning Analytics is put into practice at your HEI, in which ways could/can you participate in its development?
Only if "Yes", i.e. Learning Analytics is put into practice at your HEI, which ethical framework or policy for Learning Analytics is available at your HEI (e.g. referring to data privacy, data reliability, controle of data access)?

Only if "Yes", i.e. Learning Analytics is put into practice at your HEI, how are appropriate data access controls for different stakeholders ensured?
What are, in your view, strengths, weaknesses, opportunities & threats of Learning Analytics? a) Strengths
b) Weaknesses
c) Opportunities
d) Threats
What ideas do you have using the strengths to overcome the weaknesses, exploit the opportunities and avoid the threats? b) Overcome the weaknesses by/through
c) Exploit the opportunities by/through
d) Avoid the threats by/through