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COOPERATIVE CAPACITY BUILDING FOR QUALITY ENHANCEMENT IN HIGHER EDUCATION

A COMPREHENSIVE SET OF PERFORMANCE INDICATORS FOR LEARNING AND TEACHING

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Knowledge Society, HE and the Indispensability of PIs

- **Knowledge societies**: **quality of HE** is recognised as **crucial social**, **economical**, **ecological**, i.e. sustainability dimension (Leiber 2016a); thus, **L&T** probably **most important** achievement area of HEIs

- However, **L&T quality** most **difficult to assess and improve** (complicatedness of L&T processes)

- Necessity to approach L&T QA from various modelling perspectives

- One of these: **performance models based on PIs** (which represent qualitative and quantitative information and data which indicate functional qualities (performances) of institutional, organisational or individual performance providers)

Knowledge Society, HE and the Indispensability of PIs

- **PI-based performance modelling indispensable for systematic QA in HEIs** because

  – **PIs reflect quality goals** (targeted performances) of institutions and programs

  – **PIs open the way to objectify** communication and operationalisation of quality relevant features, and measure them

  – **PIs can be used in various performance models** such as quality audit, accreditation and performance reporting, i.e., **PIs can be used** by HEIs to provide information **for internal QA** (e.g., monitor performance for comparative purposes; facilitate assessment of institutional operations), **external QA** (such as accreditations, audits, evaluations), **accountability needs** and **reporting purposes** and **rankings/ratings**

- 'PIs [in L&T] are not about rating individual staff; they are about the **performance of the units** in which they work' (Ramsden 1991, p. 131), because **L&T is a joint task**, privacy policy is to be respected, PIs could support academic self-organisation of cooperative groups

- PIs will usually '**depict trends** and **uncover interesting questions**', but 'they do not objectively provide explanations which reflect the complexity of higher education or permit conclusions to be drawn' (Chalmers 2008, p. 17)

- Instead, '**multiple sources of both quantitative and qualitative information** **are needed** and it is 'imperative that **indicators** should only be interpreted in light of **contextual information** concerning institutional operation and with the assumption and purpose for which the information is being used made explicit' (ibid.)

A More Integrative Approach to L&T

- Integrative approach to L&T which takes seriously the competence and learning outcomes orientation AND does not overlook other L&T domains
    - **L&T environment** (i.e., framework conditions and inputs to L&T in institutional and organisational matters, staff and students)
    - **Teaching processes**
    - **Learning processes**
    - **Learning outcomes and their assessment**

- Required: capacity building for quality enhancement in HE L&T **by cooperation of**
    - **HE didactics**
    - **HE quality management**
    - **HE organisational development**

- **Features of this integrative approach** (also displayed by ESG) which set the enabling conditions for optimised L&T processes
    - **Optimising L&T environment** (also cf. ENQA 2015, standard 1.6)
    - **Implementing 'Shift from Teaching to Learning'** (Schneider et al. 2009; Wildt 2004) providing more active roles for learners and participatory approaches
        - Student-centred approach, i.e., students and their learning are adequately considered as core target of improving L&T quality (also cf. ENQA 2015, standard 1.3)
        - Changed roles for teachers (also cf. ENQA 2015, standard 1.5): de-emphasizing (but not extinguishing) instruction, more emphasis on proper arrangement of learning environments, design of learning situations, learning advice, teaching competences
        - Constructive alignment of L&T to learning objectives and outcomes and their effective assessment (also cf. ENQA 2015, standard 1.2), also including some alignment of academia (i.e., objectives of academic and artistic qualifications) to society (e.g., objectives of employability, citizenship and personality development)
        - Promotion of self-organised and active learning (e.g., problem-based learning; research-oriented learning; lifelong learning)
        - Conjunction of knowledge acquisition and acquisition of learning strategies
        - Consideration of motivational, volitional and social aspects of learning

- **How could a comprehensive set of PIs for L&T look like which comprises the four L&T domains?**

- What can be learned from AHELO (OECD-AHELO 2012a-2013b), program accreditation (Accreditation Council 2013) and Creative Classroom Research Model (CCRM; cf. Bocconi et al. 2012)**?** Which recommendations, if any, could be given for each of these performance models?

- **How important do informed HEI stakeholders assess PIs of the various L&T domains in general? How do they assess the actual application of these PIs in their own HEIs?**

- **Comprehensive set of 93 PIs**
  - Is developed from a study of **contemporary literature** in the field (Chalmers 2008; Keshavarz 2011; Krämer & Müller-Naevecke 2014; Lodge & Bonsanquet 2014; Ramsden 1991; Yarkova & Cherp 2013; Zlatkin-Troitschanskaia et al. 2016) and **methodological, operational and consulting experience** with some dozens of program and institutional accreditations in L&T of HEIs
  - Is **not strongly theory-driven** (future task!)
  - Consists of **qualitative and quantitative PIs**
  - Is **in accordance with ESG**
  - For many PIs **deeper analysis is required**, **theoretical foundation** (e.g., learning theories; teaching theories; organizational theories) and **operational interpretations** (such as looking more deeply into pedagogical characteristics and technological options of relevant learning processes) are necessary as well as **feasibility checks**

- Generally not easy to decide whether a certain PI is considered in AHELO, program accreditation and CCRM because of much semantic variance and context-dependence in the formulation of PIs and their different operational versions

- Whether certain PIs are applied in program accreditation may differ according to the type of the program (e.g., Bachelor or Master)

- It is tricky to directly compare CCRM to a set of PIs, because CCRM is not structured along PIs but along 28 reference parameters or building blocks which are subsumed under a total of eight key dimensions (Bocconi et al. 2012, pp. 8ff.); here, these 28 building blocks are used as substitutes of Pis

- Quality items and PIs which are not explicitly considered in CCRM in principle always seem to be subsumable under the building block 'monitoring quality' of CCRM

Table 1. *Performance types and PIs of L&T environment (C; NC = considered or could be considered; not considered; HEIs' assessments of PI importance: 1; 2; 3; 4 = very important; important; unimportant; completely unimportant; HEIs' assessments of PI application: Re; Oc; No = yes, regularly; yes, occasionally; no or no answer)*

Performance types	Performance indicators (PI0a-PI21)	Program Accreditation	Creative Classroom Research Model	Assessments of surveyed HEIs			
				Importance of PI (average all HEIs; ordinal scale: 1-4)	Application of PI (nominal scale; n out of 8)		
					Re	Oc	No
Quality of incoming students	Student entrance score/secondary school grades (PI0a)	NC	NC	Not in survey questionnaire			
	University entrance tests (PI0b)	NC	NC				
Learning resources	Number of book titles, periodical & website subscriptions held in library (PI1)	C	NC	2,1	4	8	3
	Expert assessment of quality of book titles, periodical & website subscriptions (PI2)	C	NC	2,2	3	0	5
	Student assessment of library services (PI3)	C	NC	1,5	5	3	0
	Course capacities and diversity (with respect to topics, class options, time, place, lecturers) (PI4)	C	C	1,5	6	1	1
Teaching resources	Ratio of students to teaching staff (PI5)	C	NC	1,4	6	1	1
	Proportion of teaching staff with verified doctoral qualifications (PI6)	C	NC	2,3	2	2	4
	Proportion of teaching staff participating in professional development activities (PI7)	C	NC	1,9	4	4	0
Facilities & equipment	Provision of student places (PI7a)	C	NC	Not in survey questionnaire			
	Expenditure on IT (PI8)	C	NC	1,8	5	1	2
	Number of accessible computer terminals (PI9)	C	NC	2,1	4	1	3
	Teaching staff assessment of adequacy of facilities & equipment (PI10)	C	NC	1,6	2	3	3
	Internet bandwidth per user (PI11)	C	NC	1,8	3	1	4
	Expenditure on laboratory resources (PI12)	C	NC	1,6	3	4	1

Results: L&T Environment

Financial management	Total operating expenditure for students (other than accommodation & student allowance) (PI13)	NC	NC	1,8	2	1	5
	Proportion of total operating funds (other than accommodation & student allowance) allocated to provision of student services (PI14)	NC	NC	2,0	3	1	4
Student composition, student administration & support services	Social origin of students (PI14a)	NC	NC				
	Student gender (PI14b)	NC	NC				
	Percentage of full-time students (PI14c)	NC	NC	Not in survey questionnaire			
	Percentage of international students (PI14d)	NC	NC				
	Percentage of postgraduate students (PI14e)	NC	NC				
	Ratio of students to administrative staff (PI15)	NC	NC	2,6	4	1	3
	(Final year) Student assessment of academic & career counselling (PI16)	NC	NC	1,7	5	2	1
	Student assessment of student services (e.g., health, housing, food & sport facilities) (PI17)	NC	NC	1,9	4	4	0
	Minority/equity student support (PI17a)	C	C				
Staff compo-sition	Special access provision (PI17b)	C	NC	Not in survey questionnaire			
	Percentage of international teaching staff (PI17c)	NC	NC				
Social context	Opportunities for students to find networks that meet their social, cultural, study interests (PI18)	C	C	1,8	3	2	3
	Opportunities for students to contact teachers (PI19)	C	C	1,2	6	0	2
	Opportunities for linking to communi-ty/collaborating with business and industry (PI19a)	NC	NC	Not in survey questionnaire			
Stakeholders' participation	Facilities & spaces for stakeholders participation in curriculum development (PI20)	C	NC	1,2	5	0	3
	Facilities & spaces for stakeholders participation in decision-making bodies (PI21)	C	C	1,6	4	2	2

- **PIs of L&T environment** which are **regularly or occasionally applied** by all sample HEIs or a great majority of them
  - Student assessment of library services (PI3)
  - Capacities and diversity of courses (PI4)
  - Ratio of students to teaching staff (PI5)
  - Proportion of teaching staff participating in professional development activities (PI7)
  - Expenditure on IT (PI8) and laboratory resources (PI12)
  - Student assessment of academic and career counselling (PI16) and student services (PI17)
  - Opportunities for students to contact teachers (PI19)
- **All** of these can be considered **student-centred** and are assessed by the sample HEIs between **'very important'** and **'important'** on average
- The performance type **'financial management'** in L&T (PI13 and PI14) seems to be **underrepresented**

Results: L&T Environment

- **Suggestions for adding PIs of L&T environment to program accreditation**
  - Student entrance score/secondary school grades (PI0a)
  - University entrance tests (PI0b)
  - Total operating expenditure for students (PI13)
  - Proportion of total operating funds allocated to provision of student services (PI14)
  - Social origin of students (PI14a)
  - Student gender (PI14b)
  - Percentage of full-time (PI14c), international (PI14d) and postgraduate students (PI14e)
  - Ratio of students to administrative staff (PI15)
  - Student assessment of academic and career counselling (PI16) and student services (PI17)
  - Percentage of international teaching staff (PI17c)
  - Opportunities for linking to community/collaborating with business and industry (PI19a)

- **Cautious suggestions!**
  - **Not easy to make a general decision which PIs are more important than others**, because relative importance of certain PIs may vary from one HEI to another and, probably more important, from one HEI type (e.g., university; university of applied science; pedagogical university; university of music and arts) and HEI system (e.g., the British vertically differentiated system or the German horizontally differentiated HEI system) to another

  - **Not in general a meaningful goal to equally upgrade each performance model** (such as CCRM; program accreditation; quality audit etc.) by the same comprehensive set of PIs because in practice it would usually result in an overload to monitor and assess all of these PIs in one single performance model procedure. Instead, it seems to be preferable to follow the principle of division of labour and **apply different performance models with different PI sets which can be adapted to different quality (development) purposes of different HEIs**. This would also ensure that **any HEI could choose its adequate profile-specific subset from the comprehensive set of PIs** (instead of being forced to use a PI set which is too extensive and therefore overly standardised, bureaucratic and non-flexible).

- **Representation of PIs of L&T environment in CCRM**
  - Some PIs are neither represented in CCRM nor in program accreditation, PI13-PI16
  - Others are not represented in CCRM but considered in program accreditation: PI1-PI3, PI5-PI12, PI20
  - Therefore, it could be an option to supplement CCRM with one or the other of these PIs. However, such supplementing is not necessary since the PIs in question are usually represented in other performance models and they are considered important by the sample HEIs and they are anyway applied in a greater or lesser extent independently from certain established performance models

- **Importance assessments of HEIs in accordance with application level of PIs in L&T environment**: worthwhile to mention that PI15 (ratio of students to administrative staff) is not as prominent as other PIs, while PI19 (**opportunities for students to contact teachers**) and PI20 (**facilities and spaces for stakeholder participation in curriculum development**) are those which are considered the most important PIs on average; reflects student centredness and aspects of the move from teaching to learning

- On the basis of the above-presented data and analysis, five performance models of L&T can be compared with respect to their covering the different L&T domains
  - Surveyed set of 66 PIs
  - Program accreditation
  - CCRM
  - AHELO
  - Extended PI set which contains 66 plus 27 additional PIs which were not contained in the interview survey, because they were introduced later as a result of critical reflection of the interviews and further literature study (Chalmers 2008; Yorke 1991; Yorke 1998)

Figure 2. *Profiles of HEI performance models: number of considered PIs in the four L&T domains*
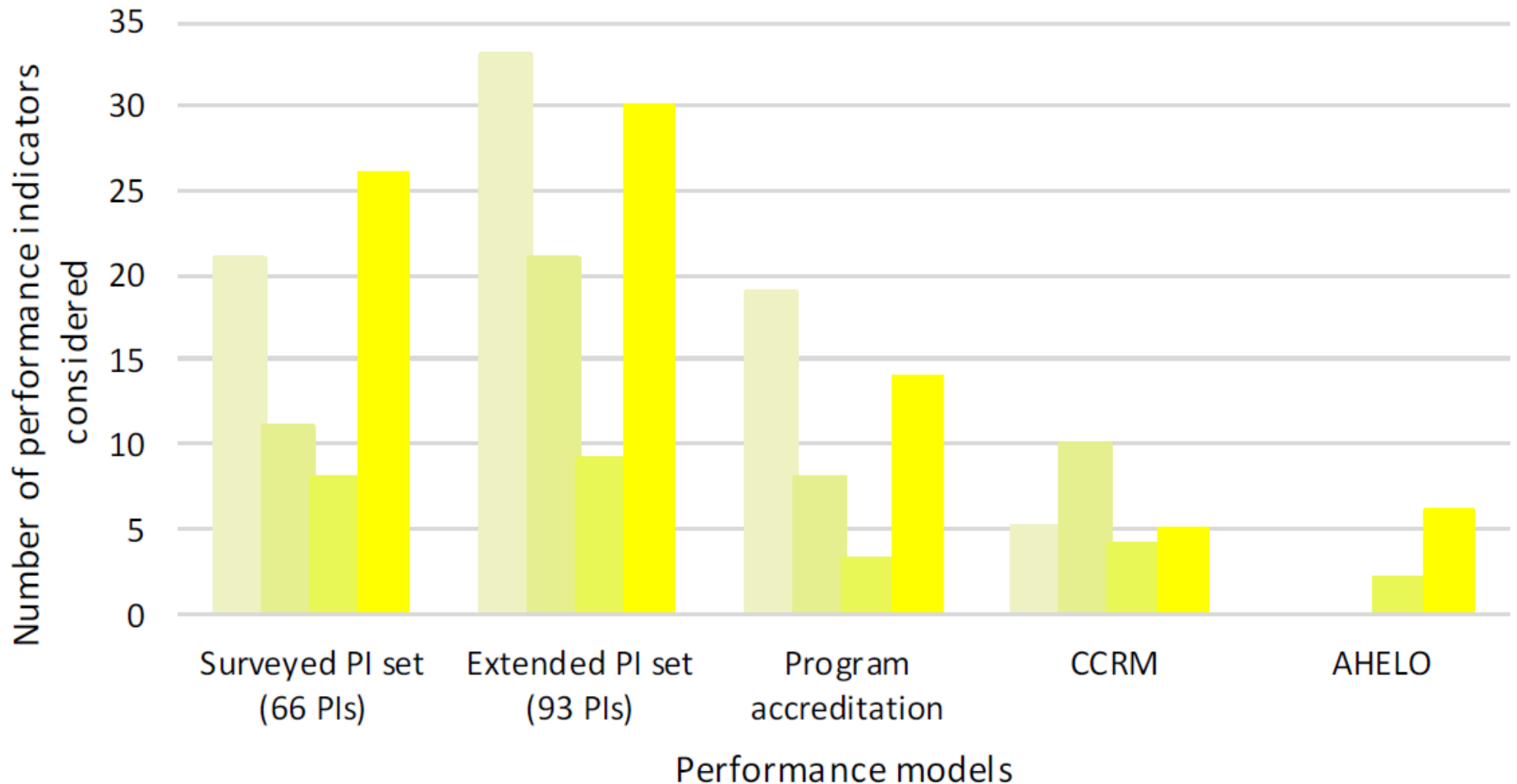
- **Comparison of the performance models of program accreditation, CCRM and AHELO with the extended PI set shows**
  - Program accreditation considers 19 out of 33 PIs of L&T environment, eight out of 21 PIs of teaching processes, three out of nine PIs of learning processes and 14 out of 30 PIs of learning outcomes and their assessment
  - CCRM considers five PIs of L&T environment, ten PIs of teaching processes, four PIs of learning processes and five PIs of learning outcomes and their assessment
  - In accordance with its general intention, AHELO does not mention PIs in the domains of L&T environment and teaching, while it considers two out of nine PIs of learning processes and six out of 30 PIs of learning outcomes and their assessment
  - An interesting, albeit probably minor result is that the absolute numbers of PIs in L&T processes are both larger in CCRM as compared to program accreditation (see Figure 2 and Tables 1-4)

- In general, data indicate that **surveyed and extended PI sets are more integrative and more comprehensive** (see Figure 2)
  - In comparison with AHELO they cover more L&T domains
  - In comparison to program accreditation, CCRM and AHELO they cover all L&T domains in a more extensive way, i.e., they suggest more PIs in all domains

- All performance models show **lowest numbers of PIs for learning processes** as compared to the other three L&T domains (justifiable or indication of underrepresentation?)

- PI profile over the four L&T domains is rather similar for extended PI set and program accreditation, while absolute number of PIs in the four domains is about 2.4 times higher on average in the extended PI set

- While interpreting these data keep in mind: there is **still room and necessity for refining and extending** the PIs of the **extended PI set**

- Data also show that
  - **Surveyed sample HEIs apply more PIs than usually requested by program accreditation** (at least they say/think so …)
  - **Program accreditation appears more oriented at L&T environment and input** as compared to L&T processes and learning outcomes
  - Represented in program accreditation are
    o Six out of 21 surveyed PIs and 19 out of 34 surveyed and non-surveyed PIs of L&T environment
    o Four out of 11 surveyed PIs and eight out of 21 surveyed and non-surveyed PIs of teaching processes
    o Three out of eight surveyed PIs and three out of nine surveyed and non-surveyed PIs of learning processes
    o Eleven out of 26 surveyed PIs and 14 out of 30 surveyed and non-surveyed PIs of learning outcomes and their assessment

Conclusions and Outlook

- Study examined how **comprehensive set of L&T PIs** could look like, and **whether it is present** in selected sample HEIs

- This is important insofar as **such a set of indicators should allow** measuring and systematically improving L&T and thus demonstrating achievements in L&T, i.e., **to show that a HEI is 'ready' for ESG**, part 1 (cf. Gover et al. 2015)

- Comparison of **AHELO and (German) study program accreditation** exhibits that both approaches **could be improved by integrative** consideration of the required dimensions (inputs, processes, outcomes) of performance governance in L&T (see Figure 2)

- Some further insights
  - All sample HEIs apply all of the 66 surveyed PIs
  - According to interviews, sample **HEIs are applying more PIs in L&T than are required** by program accreditation, CCRM and AHELO
  - For 24 PIs only some HEIs (in most cases only one) cannot answer the question whether they apply the PI or not
  - PI55 (observation of students using ICT) is the only one which is not applied by any of the sample HEIs

- Primary reason **why HEIs should use PIs in L&T** (as well as in other areas): **improve abilities of comprehensive self-governance** and HEI autonomy in this important performance domain (comprising, e.g., profile building and development; QA and quality enhancement; fulfilment of accountability needs to the government)

- Still a **desideratum** – for teachers and students, HEI strategies, QA agencies, employers, HE research, and HE politics – **to look deeper into the 'big black box' of competence-oriented quality and quality enhancement in L&T**

References

Accreditation Council, 2013, Rules for the Accreditation of Study Programs and for System Accreditation [in German]. Decision of the Accreditation Council of 08 December 2009, last modified on 20 February 2013, Drs 20/2013 (Bonn, Accreditation Council). Available at http://www.akkreditierungsrat.de/fileadmin/Seiteninhalte/AR/Beschluesse/AR_Regeln_Studiengaenge_aktuell.pdf (accessed 04 April 2016).

Adam, S., 2013, The central role of learning outcomes in the completion of the European higher education area 2013-2020, *Journal of the European Higher Education Area*, 2013-2, pp. 1-35.

Blömeke, S., Zlatkin-Troitschanskaia, O., Kuhn; C. & Fege, J., 2013, Modelling and measuring competencies in higher education: Tasks and challenges. In: S. Blömeke, O. Zlatkin-Troitschanskaia, C. Kuhn, C. & J. Fege (eds.) *Modeling and Measuring Competencies in Higher Education. Tasks and Challenges,* pp. 1-10 (Rotterdam, Sense Publishers).

Bocconi, S., Kampylis, P. & Punie, Y., 2012, *Innovative Learning: Key Elements for Developing Creative Classrooms in Europe* (Luxembourg, Publications Office of the European Union).

Chalmers, D., 2008, *Indicators of University Teaching and Learning Quality* (Strawberry Hills, Australian Learning and Teaching Council). Available at https://www.researchgate.net/publication/265248222_INDICATORS_OF_UNIVERSITY_TEACHING_AND_LEARNING_QUALITY (accessed 29 April 2016).

Entwistle, N., Karagiannopulou, E., Ólafsdóttir, A. & Walker, P., 2016, Research into student learning and university teaching. Changing perspectives. In: J. M. Case & J. Huisman (eds.) *Researching Higher Education: International Perspectives on Theory, Policy and Practice*, pp. 190-208 (Oxon, Routledge).

German Constitution, 2014, *Constitution for the Federal Republic of Germany* [in German]. Available at http://www.gesetze-im-internet.de/bundesrecht/gg/gesamt.pdf (accessed 19 April 2016).

German Qualifications Framework [in German] [GQF], 2013, *German Qualifications Framework for Lifelong Learning* [in German] (Berlin, Federal Ministry for Education and Research). Available at http://www.dqr.de/content/2315.php (accessed 21 April 2016).

European Association for Quality Assurance in Higher Education [ENQA], 2015, *Standards and Guidelines for Quality Assurance in the European Higher Education Area* (Brussels, European Association for Quality Assurance in Higher Education).

Gover, A., Loukkola, T. & Sursock, A., 2015, *ESG Part 1: Are Universities Ready?* (Brussels, European University Association).

Keshavarz, M., 2011, Measuring course learning outcomes, *Journal of Learning Design*, 4(4), pp. 1-9.

References

Krämer, J. & Müller-Naevecke, C., 2014, *Compendium Competences – Formulate Competence Goals for Higher Education* [in German]. Series 'Werkstattberichte des Wandelwerks', Vol. 1 (Münster, University of Applied Sciences Münster).

Leiber, T., 2016a, Impact evaluation of quality management in higher education. A contribution to sustainable quality development of the knowledge and learning society, *Qualität in der Wissenschaft. Zeitschrift für Qualitätsentwicklung in Forschung, Studium und Administration*, 10(1), pp. 3-12.

Leiber, T., 2016b, Mission statements and strategic positioning of higher education institutions. A case study of 29 German universities. In: R. Pritchard, A. Pausits & J. Williams (eds.) *From Here to There: Positioning Higher Education Institutions* (in press) (Amsterdam, Sense Publishers), pp. 99-124.

Leiber, T., 2016c, Personality development as elemental educational goal. Methodological options of implementation and evaluation in higher education [in German], *die hochschullehre. Interdisziplinäre Zeitschrift für Studium und Lehre*, (in press). Available at www.hochschullehre.org.

Lenzen, D., 2014, University – business or academic Republic? [in German], *Zeitschrift für Erziehungswissenschaft*, 17, pp. 11-24.

Lodge, J. M. & Bonsanquet, A., 2014, Evaluating quality learning in higher education: Re-examining the evidence, *Quality in Higher Education*, 20(1), pp. 3-23.

McGonigal, K., 2005, Teaching for transformation: From learning theory to teaching strategies, *Newsletter on Teaching of the Center for Teaching and Learning of Stanford University*, 14 (2), 4 pages. Available at http://web.stanford.edu/dept/CTL/Newsletter/transformation.pdf (accessed 04 April 2016).

OECD-AHELO, 2012a, *Newsletter*. July 2012, pp. 1-7. Available at https://www.oecd.org/edu/skills-beyond-school/AHELO%20newsletter%20-%20July%202012.pdf (accessed 04 April 2016).

OECD-AHELO, 2012b/2013a/2013b, *AHELO – Feasibility Study Report,* 3 vols (Paris, OECD). Available at https://www.oecd.org/education/skills-beyond-school/AHELOFSReportVolume1.pdf / ...Volume2.pdf / …Volume3.pdf (accessed 04 April 2016).

Ramsden, P., 1991, A performance indicator of teaching quality in higher education: The course experience questionnaire, *Studies in Higher Education*, 16(2), pp. 129-150.

Schneider, R., Szczyrba, B., Welbers, U. & Wildt, J., 2009, *Change of Teaching and Learning Cultures* [in German] (Bielefeld, Bertelsmann).

References

Wächter, B., Kelo, M., Lam, Q. K. H., Effertz, P., Jost, C. & Kottowski, S., 2015, *University Quality Indicators: A Critical Assessment* (Brussels, Directorate General for International Policies, Policy Department B: Structural and Cohesion Policies, Culture and Education).

Wildt, J., 2004, 'The shift from teaching to learning' – Theses on the change of learning culture in modular study structures [in German]. In: H. Ehlert & U. Welbers (Eds.) *Quality Assurance and Study Reform* [in German], pp. 168-178 (Düsseldorf, Grupello).

Yarkova, T. & Cherp, A., 2013, Managing the sacred? Perspectives on teaching excellence and learning outcomes from an international postgraduate university, *European Journal of Higher Education*, 3 (1), pp. 24-39.

Yorke, M., 1991, Performance indicators: Towards a synoptic framework, *Higher Education*, 21, pp. 235-248.

Yorke, M., 1998, Performance indicators relating to student development: Can they be trusted?, *Quality in Higher Education*, 4(1), pp. 45-61.

Yorke, M., 2016, 'Student experience' surveys. Political, theoretical and empirical dimensions. In: J. M. Case & J. Huisman (eds.) *Researching Higher Education: International Perspectives on Theory, Policy and Practice*, pp. 209-226 (Oxon, Routledge).

Zlatkin-Troitschanskaia, O., Pant, H. A., Kuhn, C., Toepper, M. & Lautenbach, C., 2016, *Measurement of Academically Mediated Competencies of Students and Graduates. An Overview of the National and International Research Status* [in German] (Wiesbaden, Springer VS).