Evaluation of competence-based teaching in higher education: From theory to practice

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ABSTRACT

Competence-based teaching in higher education institutions and its evaluation have become a prevalent topic especially in the European Union. However, evaluation instruments are often limited, for example to single student competencies or specific elements of the teaching process. The present paper provides a more comprehensive evaluation concept that contributes to sustainable improvement of competence-based teaching in higher education institutions. The evaluation concept considers competence research developments as well as the participatory evaluation approach. The evaluation concept consists of three stages. The first stage evaluates whether the competencies students are supposed to acquire within the curriculum (ideal situation) are well defined. The second stage evaluates the teaching process and the competencies students have actually acquired (real situation). The third stage evaluates concrete aspects of the teaching process. Additionally, an implementation strategy is introduced to support the transfer from the theoretical evaluation concept to practice. The evaluation concept and its implementation strategy are designed for internal evaluations in higher education and primarily address higher education institutions that have already developed and conducted a competence-based curriculum.

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1. Relevance

In the last years or even decades there has been a shift from teacher-centered education to learner-centered education (Reynolds & Miller, 2013). There has also been a shift from content-centered curricula to competence-centered curricula (Wesselink, Dekker-Groen, Biemans, & Mulder, 2010). Competence-based teaching is a highly relevant topic in educational research and practice worldwide (see, e.g., the Organisation for Economic Co-operation and Development (OECD) studies PISA, PIACC, & AHELO; Organisation for Economic Co-operation & Development, 2014). Especially in the European Union, competence-based teaching in higher education has become a highly relevant goal. The ministers responsible for higher education in the countries of the European Union created the European Higher Education Area to ensure comparable and compatible qualifications of graduates within the European Union ("Bologna-Process", European Commission, 2014). This orientation toward competence-based teaching in higher education consequently requires new evaluation concepts that overcome three limitations of existing evaluation approaches, which are described in the following.

First, existing instruments for the evaluation of competencies often focus on single student competencies (e.g. by course evaluation). In competence-based higher education, concepts and methods for the evaluation of all student competencies of a concrete curriculum at a concrete university are needed. Furthermore, if competencies are put center stage, quality criteria derived from competence research should be considered in defining the competencies students should acquire within the curriculum. Second, existing evaluation approaches often focus on specific aspects of the teaching process (i.e. the curriculum, single courses, or the context). Competence-based higher education requires a more comprehensive view of competence-based teaching in higher education that leads to systematic evaluation. Third, most evaluations in the context of teaching in higher education focus on

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status assessments without considering the needs of the stakeholders. However, a participatory evaluation approach (Cousins & Chouinard, 2012; Hansen, Alkin, & Wallace, 2013) that includes the relevant stakeholders of higher education institutions in the evaluation process should be applied to the evaluation of competence-based teaching in higher education.

The present paper introduces an evaluation concept for competence-based higher education that (1) incorporates all student competencies and that is based (2) on a comprehensive view of competence-based teaching as well as (3) on the participatory evaluation approach. The evaluation concept at hand primarily addresses universities which have already developed and implemented a competence-based curriculum and which now aim to gather evaluation expertise to evaluate and optimize their competence-based teaching. The curriculum itself and the selected competencies need to be based on the best information and evidence in the field. Hence, a thorough curriculum development is an important prerequisite for implementing the evaluation concept.

Because implementing participatory evaluation involves many challenges (Cousins & Chouinard, 2012), we additionally provide an implementation strategy derived from current implementation research. However, universities which have not yet implemented a competence-based curriculum but have started developing and implementing such a curriculum can also gain relevant information.

The evaluation concept is designed for internal evaluation at universities carried out by internal evaluators or quality managers who are not necessarily experts in competence research or scientific evaluation. Therefore, the model is rather basic and can be used as a foundation for more complex evaluation models.

The theoretical foundations for the evaluation concept are current developments in competence research and the participatory evaluation approach (see Cousins & Chouinard, 2012, for further information on participatory evaluation). Evaluation research and competence research have not been well related so far. Therefore, we provide an introduction to quality criteria derived from competence research and briefly explain a theoretical competence model as well as a competence-based teaching model before presenting the evaluation concept.

### 2. Competencies in higher education from an evaluation perspective

In educational contexts, the theoretical concept of competence has its origins in the field of linguistic development and socialization (e.g. Chomsky, 1986; Habermas, 1981), education (e.g. Roth, 1971) and psychology (McClelland, 1973; we refer the interested reader to Klieme, Hartig, & Rauch, 2008; for an overview of concepts of competence see also Weinert, 1999). Hence, competence research is a heterogeneous field in which many different definitions, models, and measurement approaches are discussed. In the following we introduce the field of competence research from an evaluation perspective. This means that we do not go into detail of complex definitions, models, and measurements of competence. On the contrary, we narrow the scope of the paper to quality criteria evaluators need in the context of participatory evaluation of competence-based teaching in higher education institutions.

#### 2.1. Definition of competence

In a very broad sense, competencies can be defined as “context-specific dispositions which are acquired and which are needed to cope successfully with domain-specific situations and tasks” (Blomeke, Zlatkin-Troitschanskaia, Kuhn, & Fege, 2013, p. 3). In a very specific sense, competencies can be formulated as concrete learning outcomes (European Commission, 2014; Kennedy, Hyland, & Ryan, 2009). Hence, the degrees of abstraction in the definitions of competence vary from very broad to very specific and there is no consensus of an appropriate degree of abstraction.

Concerning the definition of competence for evaluation purposes, the evaluation standards and specifically the utility standard provide a framework for deciding on the degree of abstraction (Joint Committee on Standards for Educational Evaluation, 2011). The utility standard means that evaluations’ results should meet the information needs of the intended users. Intended users in the context of competence-based teaching are specific to the particular higher education institutions but typically the following are identified: vice rectorate for study affairs, senate, curricular commission, quality management department, teachers, instructors, and students. Taking the utility standard into consideration for these intended users means that competencies should not be formulated on a very high degree of abstraction because the results might not lead to concrete actions for improvement. However, competencies should not be formulated on a very low degree of abstraction either as this can lead to a high amount of detailed results likely to overwhelm intended users and also violate the feasibility standards of evaluation. Hence, the first quality criterion in defining competencies is that competencies should be formulated on a medium degree of abstraction (see also Mulder, Gulikers, Biemans, & Wesselinck, 2009). For the readers’ understanding, Table 1 provides an example of different degrees of abstraction in the context of tertiary teacher education.

A further quality criterion in the definition of competence is the specification of the components which together form competence. Such components could be knowledge (e.g. declarative, procedural, or conditional knowledge), skills, strategies, attitudes, etc. Components that should be included vary between different definitions of competence (Weinert, 1999). However, many definitions imply at least two components: knowledge and skill (Koeppen, Hartig, Klieme, & Leutner, 2008; Organisation for Economic Co-operation & Development, 2014).

Hence, a competence model for higher education that is as simple as possible should at least contain the distinction between knowledge and skills. This also has a practical implication for the evaluation use. Since the development of higher education toward competence-orientation in teaching, skills (such as practical skills

<table>
<thead>
<tr>
<th>Degree of abstraction</th>
<th>Example</th>
</tr>
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<tbody>
<tr>
<td>High (not context- and domain-specific)</td>
<td>Ability to explain complex information in an understandable way.</td>
</tr>
<tr>
<td>Medium (context- and domain-specific)</td>
<td>Ability to explain mathematical contents in an understandable way which is appropriate for the students’ age.</td>
</tr>
<tr>
<td>Low (context- and domain-specific learning outcomes)</td>
<td>Ability to explain differential equations and their use in an understandable way to grade 12 students.</td>
</tr>
</tbody>
</table>

Note: Degrees of abstraction in defining competencies using the example of tertiary teacher education.
in scientific writing) – next to knowledge – have been put center stage. Hence, it might be useful for the users of evaluation to know whether skills are also fostered.

To sum up, when it comes to the evaluation of competence-based teaching in higher education institutions, we argue for considering two quality criteria in defining competencies: (1) define competencies specific to the field of study but on a more abstract level than learning outcomes and (2) differentiate between the components of knowledge and skill.

2.2. Theoretical competence model

In the history of competence research, there were efforts to develop models of competence for diverse contexts (see Weiniert, 1999, for an overview). However, recent developments in competence research have argued for specifying theoretical competence models specific to the context and domain of interest (Blömeke et al., 2013; Hartig, Klieme, & Leutner, 2008; Shavelson, 2010). A theoretical competence model ideally contains three dimensions: (a) competence areas (also called competence structure; Hartig et al., 2008), (b) competence levels, and (c) competence development (Koeppen et al., 2008). Each dimension can be viewed as a quality criterion in defining competencies and competence models, respectively. We explain the three dimensions with regard to the context of evaluating competence-based teaching in higher education institutions.

The term “competence area”, the first dimension, was derived from models of competence structure. Such models take into account performance in different contexts or domains and aim to define underlying basic competencies (Klieme et al., 2008). Competencies should be summarized to competence areas (e.g., personal competencies, professional competencies, scientific competencies, etc.).

Competence levels, the second dimension of competence models, particularize the degree of expertise, i.e., from a basic level to a more professional level. Competence levels should be defined for both components, knowledge and skill, and be described both numerically and verbally. The number of levels should be the same for all competencies and the verbal description of the levels should be general enough to fit all competencies of the theoretical model.

Competence development, the third dimension of competence models, means that competencies are not static but can be enhanced (Blömeke et al., 2013; Hartig et al., 2008). Consequently, it is expected that students holding a Master’s degree are on a higher competence level than students holding a Bachelor’s degree or freshmen. To sum up, evaluating competence-based teaching in higher education requires the specification of theoretical competence models. The model should contain three dimensions which also represent quality criteria: (a) competence areas according to the field of study; (b) competence levels which are defined for both knowledge and skill and which are described numerically and verbally; (c) competence levels for significant study cornerstones, describing the competence development (see Table 2 for a visualization of a theoretical competence model in the evaluation context).

Research on the assessment of competencies focuses on the development of reliable and valid instruments. The psychometric background of such instruments is often highly complex. The development as well as the conduction of such instruments require expert knowledge and are time-consuming (Blömeke et al., 2013; Hartig et al., 2008; Organisation for Economic Co-operation & Development, 2013). These highly accurate but complex instruments could also be of interest for the evaluation of competence-based teaching. However, apart from accuracy and propriety, three further evaluation standards have to be considered in evaluation research: utility, feasibility, and accountability (Joint Committee on Standards for Educational Evaluation, 2011). As mentioned above, utility standard means that the evaluation should serve the intended users’ information needs. This implies that the evaluation instruments should be easily adaptable to changing needs (e.g., changes in competencies); complex instruments might be difficult to adapt. The feasibility standard ensures realistic evaluations. As a consequence the evaluation instrument should be suitable for quality managers from different fields, i.e., for quality managers without high psychometric expertise; complex instruments might prohibit realistic evaluations. The accountability standard refers to the responsible use of resources to produce value; the development and use of complex instruments require many resources and hence might violate the accountability standard.

To sum up, considering not only the accuracy standard but also the utility, feasibility and accountability standard means finding alternatives to highly complex instruments. In the context of evaluating competence-based teaching in higher education institutions the users’ need is to know the strengths and the potential for improvement of a specific study at the specific institution. We suggest employing a screening instrument, which asks for self-rated perceived competencies, and applying complex instruments only if indicated by the screening. Studies have shown self-rated competencies to correlate with objective tests (e.g., Raupach, Münchscher, Beißbarth, Burckhardt, & Pukrop, 2011; Spiel, Schober, & Reimann, 2006).

3. Competence-based teaching model

A prerequisite for the evaluation concept is explaining what competence-based teaching means. We suggest a model of

<table>
<thead>
<tr>
<th>Competence area</th>
<th>Competence</th>
<th>Component</th>
<th>Developmental level: Bachelor’s degree</th>
<th>Developmental level: Master’s degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific competencies</td>
<td>Literature research</td>
<td>Knowledge</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Scientific competencies</td>
<td>Scientific writing</td>
<td>Skill</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Competence XY</td>
<td>Knowledge</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill</td>
<td></td>
<td>(Insert levels for Bachelor’s degree in this column)</td>
<td>(Insert levels for Master’s degree in this column)</td>
</tr>
</tbody>
</table>

Note: Theoretical competence model using the example of the competence area “scientific competencies”; competence levels ranging from 0 (=no knowledge, no skill) to 5 (=high level of knowledge, high level of skill).
competence-based teaching, starting with defining the goal of competence-based teaching. Then we explain the process higher education institutions run through in achieving their goal.

As in competence-based teaching the competencies are the main focus, defining the goal means defining which competencies students should acquire (i.e. defining the theoretical competence model, see previous section for more details). The competencies which students are supposed to acquire are called the ideal student competencies.

The process to achieve the goal usually begins with agreeing on a curriculum. In competence-based teaching, the curriculum should address all previously defined ideal competencies (e.g. addressing the defined ideal competence “scientific writing” by specifying a seminar on scientific writing in the curriculum). From the curriculum, teaching methods and exam formats that should be suitable to foster a competence-based learning process (e.g. a scientific writing seminar with practical exercises and enough time for feedback) are deduced. In addition, students have to apply suitable learning strategies (e.g. plan, conduct, monitor and reflect the writing process). All of this happens in a specific context (e.g. available resources like staff or rooms), which might influence the process.

Finally the teaching process results in real student competencies. Real student competencies are competencies that students actually did acquire. Certainly, there are also interrelations between the single elements of the competence-based teaching model. A lack of teaching personnel for example can lead to larger student groups. This in turn influences teaching methods in a way that individual students have fewer possibilities for practicing skills, leading to deficits in real student competencies. The middle part of Fig. 1 shows the competence-based teaching model. Evaluating competence-based teaching means considering each element of the competence-based teaching model. In the next section, we explain the three stages of the evaluation concept.

4. Concept for the evaluation of competence-based teaching

The evaluation should be carried out systematically in three stages (see Fig. 1). The three stages are: (1) Evaluation of the theoretical competence model; (2) evaluation of the teaching process and of the real student competencies through a screening; (3) detailed evaluation of concrete aspects of the teaching process.

Stages 1 and 2 of the evaluation concept are rare in the evaluation of higher education teaching. However, when it comes to the evaluation of competence-based teaching in higher education institutions, Stages 1 and 2 are crucial. Conducting these stages ensures knowing what competencies the students should ideally have (Stage 1), whether the teaching process fosters student competencies (Stage 2a) and whether students really gain the intended competencies (Stage 2b). The evaluation can stop here if the intended users need a status assessment of the teaching process and real student competencies. However, if the intended users need to know the reasons for gaps and how to (further) improve competence-based teaching, we recommend continuing with Stage 3.

In the following we explain the three stages in detail. Furthermore we present methods of the participatory evaluation approach for evaluating each stage (Cousins & Chouinard, 2012). The criteria for selecting the methods were (1) the involvement of representatives of all stakeholder groups throughout the evaluation process, and (2) the possibility of having the methods institutionalized and conducted routinely by internal evaluators at the higher education institutions.

4.1. Stage 1: evaluation of the theoretical competence model

The aim of the first stage is to evaluate whether the theoretical competence model specifying ideal student competencies meets the quality criteria which have been derived from competence research in the previous sections: first, competencies are defined specifically for the field of study on a medium abstract level. Second, in each competence both components, knowledge and skill, are represented. Third, competencies are grouped into competence areas. Fourth, competence levels are defined numerically and verbally. Fifth, competence development is defined by particularizing the competence levels for significant study cornerstones (see Table 2 for an illustration of the five quality criteria).

4.1.1. A participatory evaluation method for Stage 1 evaluation

In line with the participatory evaluation approach, the theoretical competence model should be evaluated by involving the perspectives of all relevant stakeholder groups. Relevant stakeholder groups are specific to the higher education institution but typically the following are identified: vice rectorate for study affairs, senate, curricular commission, quality management department, teachers, instructors, and students. An effective method for bringing together various perspectives is to form heterogeneous focus groups (Mertens & Wilson, 2012), i.e. the focus group should involve representatives of all stakeholder groups.

To evaluate the theoretical competence model, the focus group should discuss whether the theoretical competence model possesses the five quality criteria. The process is structured by questions to be discussed by the focus group. The questions are shown in Fig. 2.

It can be expected that most of these stakeholders are not experts in competence research. Therefore it is important to train

![Fig. 1. Competence-based teaching model and the three stages of the evaluation concept.](image-url)
them in rating the five quality criteria. If shortcomings in the theoretical competence model are identified, the focus group should work out concrete suggestions for improvement.

Evaluators may face challenges in finding an agreement concerning the quality of the curriculum, which are caused by the heterogeneous composition of the group. Furthermore, evaluators should be aware that there may be power imbalances among stakeholders with different roles in the university context. These issues make it even more important for the focus group moderators to build an atmosphere of trust and appreciation, where it is possible to build group cohesion and consequently work on an outcome that is suitable for the entire group. For more information on handling group dynamics in focus groups we refer the interested reader to Fern (2001).

4.2. Stage 2: evaluation of the teaching process and real student competencies

Evaluation at Stage 2 has two aims. The first aim is to find out whether there is a gap between the ideal level of a student competence and the level of competence the teaching process fosters (see 2a in Fig. 1). In other words, we evaluate whether the teaching process potentially leads to the intended ideal level of a student competence.

The second aim is to find out whether there is a gap between the ideal level of a student competence and the real level of a student competence (see 2b in Fig. 1). In other words, we evaluate whether the students have really developed the intended ideal levels of student competencies.

4.2.1. A participatory evaluation method for Stage 2 evaluation

For evaluating the teaching process and the real student competencies, objective as well as subjective assessments can be conducted. However, objective assessments (e.g. interdisciplinary standardized exams) might demand too many resources at this stage, but they can be applied later in the process (see Stage 3) for selected competencies.

As a subjective assessment of competencies, self-assessments for different stakeholder groups can be applied. In contrast to objective assessments, self-reports only allow for a measurement of perceived competencies. However, in the context of participatory evaluation, the stakeholders’ subjective perception is of high interest. An appropriate method for the assessment of subjective perception is a screening with an online questionnaire. A questionnaire can be conducted routinely and therefore also meets the sustainability criteria. The questionnaire should be designed for at least two stakeholder groups, students and teachers, to involve different stakeholder perspectives.

The items of the online questionnaire should be designed corresponding to the ideal student competencies defined in the theoretical competence model. In the theoretical model each competence is differentiated into two components, knowledge and skill. Furthermore, in Stage 2 we assess the subjective perception of two issues: on which level does the teaching process foster knowledge and skill, and which are the real levels of student knowledge and student skill. Hence, each competence should be asked for by four items, all of which refer to the whole study program. Table 3 shows these four items for a student questionnaire as well as for a teacher questionnaire.

By comparing the questionnaire data to the theoretical competence model, gaps between perceived real levels and ideal levels can be identified for each single competence. Fig. 3 shows an example of a graph comparing real and ideal student competencies.

The strengths (no gaps) and weaknesses (gaps) should be summarized in a general report. To inform the stakeholders in addition to a general report, also stakeholder-specific reports should be established.

4.3. Stage 3: detailed evaluation of the teaching process

While the aim of Stage 2 is to identify potential gaps between the real and the ideal situation, the aim of Stage 3 is to find out the reasons for the strengths (no gaps) and weaknesses (gaps). Hence, evaluations at Stage 3 should look closely at the teaching process. The reasons for gaps can lie in the curriculum, in the teaching methods and exam formats, in the learning process of students or in the context. In the following we explain the aims of evaluating

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### Fig. 2. Questions for the focus group at Stage 1 of the evaluation concept.

- **Competencies**: Are the competencies defined specifically for the field of study but on a more abstract level than learning outcomes?
- **Competence components**: Are both components, knowledge and skill, represented in each competence?
- **Competence areas**: Are competencies grouped into competence areas?
- **Competence levels**: Are competence levels defined for both components of each competence, knowledge and skill? Are competence levels described verbally?
- **Competence development**: Is competence development defined by particularizing the competence levels for significant study cornerstones (e.g. Bachelor’s degree and Master’s degree)?

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E. Bergmann et al. / Evaluation and Program Planning 52 (2015) 1–9
diverse aspects of the teaching process. Additionally we give an example of the competence “scientific writing”.

The evaluation of the curriculum aims to find out whether the curriculum addresses all competencies defined in the theoretical competence model. For example, if scientific writing is a competence defined in the theoretical competence model, the curriculum should provide a course that really has the potential to foster scientific writing competence (e.g. by teaching small groups of students).

The evaluation of teaching methods and exam formats aims to find out whether both knowledge and skill are fostered in such a way that the ideal competencies at the respective study cornerstone (e.g. Bachelor) can be reached. Teaching methods not fostering knowledge and skill in scientific writing in a suitable way could be, for example, theoretical lectures about scientific writing without explicit practical trainings or claiming term papers without providing differentiated feedback. Furthermore, a multiple choice test might not be an appropriate exam format, whereas a term paper would be.

The evaluation of the student learning process aims to find out whether the students use beneficial learning strategies in the acquisition of competencies. Consequently, we recommend evaluating cognitive, metacognitive and motivational aspects of learning.\(^1\) For instance, does the student know and use deep learning strategies (cognitive aspect) as well as self-regulated learning strategies (meta-cognitive aspect) and does he or she have high interest, high self-efficacy, and other beneficial motivational attitudes? The evaluation of the student learning process might be somewhat new in the evaluation of teaching in higher education. However, once students and their competencies are put center stage, this evaluation aspect is of high importance.

The evaluation of the context concerns aspects like finance or infrastructure. For example, are there enough financial resources, enough teachers, or enough rooms to provide appropriate courses for fostering student competence?

The reasons for gaps are not independent of each other; rather they interact (see also Fig. 1). For example, if the curriculum defines that there are many students in one course, teaching methods are limited to methods for large groups. Thus, in finding out reasons for gaps, the logic model suggests starting with the curriculum and the context, followed by teaching methods/exam formats, and finally looking at student learning processes.

4.3.1. A participatory evaluation method for Stage 3 evaluation

As in Stage 1, representatives of all relevant stakeholder groups should be involved. We again recommend a focus group that discusses the strengths and weaknesses identified in Stage 2 and decides on further evaluation instruments if needed. Some universities might already have some kind of advisory board which assists the vice rectorate for study affairs, the senate, or the curricular commission. Such an advisory board could provide the

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\(^1\) We refer the interested reader to Schunk, Pintrich, and Meece (2008) for motivational aspects and to Boekaerts, Pintrich, and Zeidner (2000) for cognitive and metacognitive aspects.
reference group for the focus group, where representatives of all stakeholder groups participate. In this stage, advantages of a focus group are (1) the possibility to have different perspectives interacting with each other, as well as (2) a higher acceptance of decisions on further evaluation steps taken by different stakeholder groups.

The focus group should discuss the strengths and weaknesses by following the questions presented in Fig. 4.

Similar to Stage 1, providing an atmosphere where group cohesion can evolve is an important precondition for participants to have equal possibilities to state their opinions (Fern, 2001). The process of decision-making has to be made transparent to stakeholders who are not involved in the focus group in order to foster acceptance of decisions.

Depending on the discussion results and the resources of the university, further evaluation instruments can be instruments which have already been published (e.g. Braun & Leidner, 2009; Zlatkin-Troitschanskaia, Förster, & Kuhn, 2013) or instruments which need to be newly developed (for further information on modeling and measuring competencies in higher education see Blömeke et al., 2013).

5. Introduction of the evaluation concept to institutions and implementation

In the course of the first introduction of a comprehensive teaching evaluation concept to higher education institutions, we think three main challenges should be anticipated: acceptance of the evaluation concept by stakeholders, establishing data-based decision-making, and dedicating resources to the evaluation. In the following, strategies for meeting these challenges are presented based on the framework of implementation drivers (Blase, Van Dyke, Fiksen, & Wallace Bailey, 2012; Fiksen, Blase, Naoom, & Wallace, 2009). This framework has been used for guiding implementation in a variety of contexts and it focuses on supporting leadership strategies, the stakeholders’ competence and self-efficacy as well as sustainability at the system level.

(1) Acceptance of the evaluation concept by stakeholders. The first step in applying an evaluation concept effectively implies the acceptance of the new approach by the stakeholders (compare Kirkpatrick & Kirkpatrick, 2006). This can be fostered by an effort from the very beginning to gain the decision makers’ (e.g. rectorate’s, senate’s) trust in the evaluation concept as this highly influences its acceptance by the whole organization (e.g. Elias, Zins, Graczyk, & Weissberg, 2003). Transferring the decision makers’ acceptance of the innovation to other stakeholders can involve technical and adaptive issues (Blase et al., 2012). While technical issues normally comprise a clear solution (e.g. how to announce the new approach to the whole organization), adaptive issues often involve a change in the organizational culture, such as guiding a rethinking toward an “evaluative attitude” (Atria, Reimann, & Spiel, 2006). Supporting decision makers in handling these issues (“leadership drivers”, Blase et al., 2012) can be done in preliminary talks between the evaluator and the decision makers as well as by individual consultation sessions throughout the implementation process. Concrete actions taken by decision makers fostering the acceptance of the evaluation concept by stakeholders are, for example, workshops for stakeholder group representatives or an information campaign at the university. Evaluators can directly support these actions during the implementation process.

(2) Establishing data-based decision-making. The aim of the evaluation concept is the sustainable improvement of competence-based teaching in higher education institutions. Hence, the evaluation results should be used in decision-making. For an establishment of data-based decision-making throughout the organization, representatives of all stakeholder groups have to be selected, trained, and coached (“competency drivers”, Blase et al., 2012). The selection of stakeholders in higher education institutions should include representatives from the rectorate, senate, curriculum commission, quality management unit, teachers representing all departments, students, and public relation units. The training comprises workshops for the representatives on how to collect data and how to interpret and communicate the results (e.g. concerning the screening we suggest for evaluation Stage 2). Furthermore, the goals behind the evaluation concept should be explained so that stakeholders do not create their own theories on why this approach is implemented and on how the data will be used (Van Dyke, 2013). Coaching should be offered throughout all evaluation stages, but especially in the beginning, in the form of constant supervision and guidance of the process in everyday contexts.

(3) Dedicating resources to the evaluation. Implementing a new evaluation concept requires resources that should not be underestimated. There has to be enough time for the training of
several stakeholder groups, data collection and the development of strategies to incorporate the results in the university’s policy. This should be communicated to the stakeholders in the beginning (Van Dyke, 2013), at best in line with an overview of the benefits that a comprehensive evaluation concept has in spite of its costs. “Organization drivers” described by Blase et al. (2012) support the release of resources for the implementation of complex innovations. These include system interventions (e.g. publicizing the concept by informing all stakeholder groups), facilitative administration (e.g. changing the focus of quality assurance staff from context to competencies), and a decision support data system (e.g. constant feedback from questionnaires).

The mentioned three challenges and, hence, the three implementation drivers (leadership drivers, competency drivers, and organizational drivers) are not independent but interact with each other (see Fig. 5).

In addition to facilitating the implementation process, fidelity in implementing the particular steps of the evaluation concept should be monitored by continuous performance assessments (Fixsen, Blase, Duda, Naoom, & Van Dyke, 2010). For this purpose it is necessary to determine the core components that have to be realized in order to make the evaluation concept work as intended (Fixsen & Blase, 2013). For the present evaluation concept, the core components that should be continuously monitored are:

- Before starting the evaluation process:
  - dedication of resources to the implementation of the evaluation concept (time and infrastructure to plan and conduct the evaluation)
  - selection of representatives of stakeholder groups and dedication of time for attending the focus groups
- focus groups for all stakeholder groups, targeting: (a) acceptance of the approach, (b) definition of the theoretical competence model, and (c) development of the online questionnaire (Stage 1)
- information campaign by the public relations unit (Stage 2)
- data collection by the evaluation unit (Stage 2)
- focus groups for all stakeholder groups targeting concrete actions, including their (a) definition, (b) implementation and (c) communication (Stage 3)

The results of the implementation performance assessments should also be reported to the stakeholders, which creates opportunities to discuss problems with the implementation process (e.g. a lack of resources for realizing particular components of the evaluation concept) or with the evaluation concept itself (e.g. low acceptance of the concept).

6. Conclusion

Higher education institutions are moving from content-based curricula to competence-based curricula and consequently to competence-based teaching. Existing evaluation instruments are not appropriate for evaluating competence-based teaching because they focus on single competencies or on specific aspects of the teaching process.

The intention of the paper is to suggest an evaluation concept that is based on competence research and on a comprehensive model of competence-based teaching. The concept comprises three evaluation stages. For each stage we suggest participatory evaluation methods (focus groups and an online questionnaire). Implementing a comprehensive evaluation concept in higher education institutions is an ambitious endeavor. To handle the challenges, we add strategies derived from implementation research. To put it in a nutshell, we provide a close view of evaluating competence-based teaching in higher education and the implementation of an evaluation concept.

Taking a broad view, we can see that higher education institutions which are changing their focus from teacher-centered education to learner-centered education and are shifting from content-based curricula to competence-based curricula run through an organizational development process. Considering this meta-perspective, conducting participatory evaluation of competence-based teaching is not just an evaluation but also an intervention in the organizational development process. Through the implementation process, the institution not only builds up evaluation capacity but also fosters discussion and therefore enhances common understanding of the intended student competencies.

Implementing the comprehensive evaluation concept is of specific use for diverse stakeholder groups: (1) rectorate, senate and curriculum commission can make evidence-based decisions in order to enhance the curriculum and the teaching quality respectively. Furthermore, universities in the European Union fulfill the criteria of external evaluations/audits by systematically evaluating and improving competence-based teaching (European Association for Quality Assurance in Higher Education, 2009). (2) Teachers can systematically improve their teaching based on the results of the evaluation. (3) Students can be provided with feedback about their own competence profile.

A limitation of the evaluation concept particularly concerns the necessary concessions in methodical accuracy. Applying a participatory approach, which is important for the stakeholders’ acceptance of the evaluation concept, also implies being flexible with theoretical and methodological demands. For example, doing a screening of students’ competencies instead of an objective measurement is also advisable in order to maintain a good relation between costs and benefits.

An important challenge concerning the implementation process is building the stakeholders’ trust in the evaluation concept. This requires the time and endurance of especially committed people inside the organization, who sustainably keep implementing the concept.

Higher education institutions – especially those in the European Union – currently aim to evaluate and improve competence-based teaching. Carefully implementing the participatory evaluation concept of competence-based teaching offers the chance to facilitate this difficult and complex organizational development process.

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