

# Chapter 9

## Quality Cultures in Higher Education Institutions—Development of the Quality Culture Inventory



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### Theoretical Background

The implementation of quality tools and procedures of quality management represents one of the major challenges of today's globally operating universities. Higher education institutions face an increasingly competitive environment, leading to elevated demands for quality in teaching and research as well as in service and administration. Quality assurance and quality development have therefore been central issues of policy discussions in higher education for many years now, especially since the beginning of the Bologna Process in 1999. The main objective of the Bologna Process is to create a European higher education area by improving mobility, instituting comparable university degrees and credit point systems, and developing comparable criteria and methods for quality assurance (Bologna Declaration, 1999). Framed in that context, the design and implementation of measures to ensure quality constitute key aspects of the Bologna Process.

Extensive debates on quality assurance have served as a starting point for introducing the concept of quality culture, which expands on classical approaches of quality assurance by drawing on organizational psychology, adding that field's perspective to the structural-formal side of quality management. It is no longer only a question of assessing quality by means of hard facts, such as the number of publications or the amount of third-party funding, but also of discerning the extent to which quality is actually subscribed to and lived by members of a higher education institution. Whereas academics disagree on the comparability of quality criteria (e.g., bibliometric indicators), quality culture could well become a concept with which they can all identify, regardless of their discipline.

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The quality culture approach is closely related to the well-known concept of organizational culture. According to Schein (2010), organizational culture comprises three distinct levels:

- Artifacts: tangible elements of culture (e.g., furniture, dress code), which are visible to nonmembers of an organization
- Espoused values of an organization (e.g., customer orientation)
- Shared basic assumptions: unconscious beliefs that guide the behavior of organizational members and that are difficult to decipher

Schein's conceptualization of organizational culture provides valuable information about different levels that need consideration when cultural aspects of an organization are being operationalized. To assess quality culture, it is essential not only to take account of visible quality artifacts within an organization (e.g., quality assessment tools) but also to analyze its quality values and shared basic assumptions (e.g., commitment) pertaining to quality. The quality culture approach thereby goes far beyond classic ranking procedures, which are limited primarily to the assessment of artifacts that distinguish quality.

The first comprehensive definition of quality culture relating to the construct of organizational culture was given by the European University Association (2006):

Quality culture refers to an organizational culture that intends to enhance quality permanently and is characterized by two distinct elements: on the one hand, a cultural/psychological element of shared values, beliefs, expectations and commitment towards quality and, on the other hand, a structural/managerial element with defined processes that enhance quality and aim at coordinating individual efforts. (p. 10)

In this definition quality culture consists of two distinct levels. First, it is objectively tangible in terms of the tools and procedures (artifacts) of quality management. Second, quality culture encompasses organizational-psychological aspects (e.g., espoused values, expectations, and commitment to quality, that is, shared basic assumptions), which are rather difficult to capture.

Despite the increasing number of qualitative research papers on quality culture (e.g., European University Association, 2005a, 2005b; Loukkola & Zhang, 2010), empirical approaches operationalizing this phenomenon have not been developed sufficiently. This chapter summarizes selected results from the project entitled "*heiQUALITY Cultures*," which aimed to create an empirical instrument for the organizational diagnosis of quality culture within the context of higher education (Sonntag, Stegmaier, & Schaper, 2016).

## **The *heiQUALITY Cultures* Project**

The *heiQUALITY Cultures* Project ("Development and Testing of an Instrument for the Description and Assessment of Quality Cultures at Higher Education Institutions") was carried out between April 2012 and May 2015. The foremost objectives of the research project were to:

1. develop a comprehensive definition and assessment model that considers structural-formal and organizational-psychological aspects of quality culture;
2. develop a Quality Culture Inventory (QCI) that enables higher education institutions to analyze their current state of quality culture autonomously and empirically;
3. analyze strengths and developmental potential of current quality cultures within the higher education context; and
4. derive target-oriented recommendations for quality development and improvement.

The following section offers a detailed overview of the methodology used in the heiQUALITY Cultures Project in order to achieve these objectives.

## Methods

The heiQUALITY Cultures Project represents the first empirical approach operationalizing quality culture within the higher education context. Milestones of the project are presented in Figure 9.1.

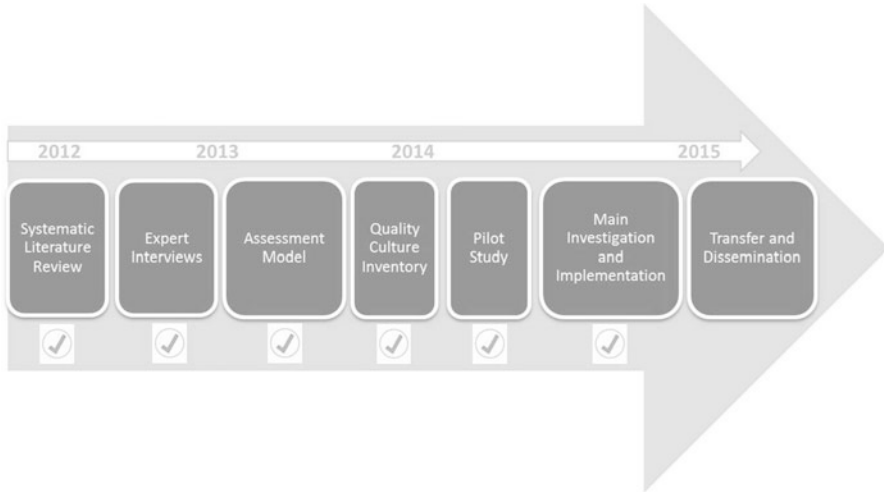
In the first step a comprehensive literature review was conducted to identify previous qualitative and empirical studies focusing on quality culture and its operationalization. The literature review included one interdisciplinary and two disciplinary databases—with a focus on organizational psychology and other branches of that field—including publications up to December 2012. Strikingly, only 3 out of 786 publications focused on the operationalization of quality culture directly (Ali & Musah, 2012; Trivellas & Dargenidou, 2009; Zeitz, Johannesson, & Ritchie, 1997). These studies applied very heterogeneous methodological approaches, underscoring the relevance of our research objective of promoting additional empirical research in this field (for a detailed review of additional literature, see Sattler et al., 2016).

The literature review served as a sound basis for developing a previous assessment model of quality culture, which was subsequently challenged and discussed in 41 international expert interviews. In order to qualify for an expert interview, prospective partners had to meet at least one of the following criteria:

- Practical experience working for an accredited quality assurance agency (e.g., evalag<sup>1</sup>)
- Practical experience working for an independent organization of higher education (e.g., the European University Association, the European Students Union)

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<sup>1</sup>Evaluationsagentur Baden-Württemberg.



**Fig. 9.1** Milestones of the heiQUALITY Cultures Project. Source: Adapted from Sattler, Sonntag, and Götzen (2016, p. 46).

**Table 9.1** Sample topics and corresponding questions of the semistructured interview guideline

Sample topics	Sample questions
Professional background	Could you please elaborate on current core areas of your work? In which regard do you deal with the topic of quality in your occupation?
Quality culture: Theoretical considerations	What do you associate with the term <i>quality culture</i> ? What constitutes a quality culture at higher education institutions in your opinion?
Quality culture in practice	From your point of view, how can a quality culture be furthered sustainably? What hindrances or resistance can you think of when trying to further quality culture?

Source: Design by authors.

- Practical experience concerning quality assurance, quality management, or both within higher education institutions (e.g., quality managers)
- Research publications addressing quality culture within the context of higher education

Most of the interviews were face-to-face ( $n = 35$ ). For practical reasons (e.g., travel time) the remaining expert interviews ( $n = 6$ ) were conducted by telephone. Women accounted for 37% of the sample ( $n = 15$ ); international interview partners, for 17% ( $n = 7$ ). Almost all the interviews ( $n = 40$ ) were audiotaped and professionally transcribed for further systematic analyses. The interview length averaged 60 minutes, resulting in approximately 41 hours of material.

All interviews followed a semistructured guideline based on an approach that had been used in the “learning culture” project by Sonntag, Stegmaier, Schaper, and



**Fig. 9.2** Final model for assessing quality culture. Source: Adapted from Sattler et al. (2016, p. 49).

Friebe (2004) and Sonntag, Schaper, and Friebe (2005). Table 9.1 shows sample topics and corresponding questions of the interview guideline.

When asked to elaborate on relevant dimensions of quality culture, 39 experts (95.1%) referred to quality-oriented leadership and communication. More than 70% of the experts emphasized the importance of commitment, participation, and the development of quality objectives. Quality values, mutual trust, individual responsibility, recognition, and information ranked among the ten most frequently mentioned elements of quality culture, with an agreement rate of more than 65% (for details on additional results of the expert interviews, see Sattler et al., 2016).

Experts’ suggestions led to minor revisions in the initial model of quality culture, resulting in the final model for assessing quality culture (Fig. 9.2). According to this model, quality culture can be described on a structural-formal and an organizational-psychological level. The structural-formal level comprises normative, strategic, and operative elements, which represent heterogeneous aspects of quality assurance and quality management. In the model by Bleicher (2011), normative aspects of quality management are expressed by an organization’s quality goals, its mission statements, or both. Responsibilities for quality assurance are defined at the strategic level (e.g., a quality assurance unit). Specific quality tools and measures (e.g., student evaluation, controlling) are located at the operative level. It is assumed that all these

structural-formal aspects are important in order to adopt approaches to quality assurance and quality management successfully.

The organizational-psychological level is made up of collective and individual elements. The individual level is characterized by commitment to, responsibility for, and engagement in quality. At the collective level it is hypothesized that trust and shared values function as a mutual basis for quality-oriented leadership, communication, and participation. The latter three elements are illustrated as an arrow, representing a dynamic connection between the structural-formal and individual levels. For example, participation in the development of quality assurance measures is likely to enhance individual commitment to these measures. The final model for assessing quality culture served as an empirical basis for the development of the QCI, which is presented in detail in the following section.

## Operationalization of Quality Culture

The QCI consists of two questionnaires, one for the structural-formal level of quality culture; the other, for the organizational-psychological level. Both questionnaires are based on comprehensive literature reviews focusing on previous questionnaires that operationalized the proposed dimensions of quality culture.

### *Structural-Formal Questionnaire*

The structural-formal questionnaire focuses on the operationalization of structural-formal aspects of quality culture. The questionnaire is used as a guideline for structured interviews with subject-matter experts on quality assurance within higher education institutions. Seventy-three items were constructed on the basis of a sound literature review focusing on normative, strategic, and operative aspects of quality assurance. The chief objective of the structural-formal questionnaire is to describe the status quo of quality assurance within higher education institutions. It covers six core areas: general information, institutional structures, teaching and learning, research, young scientists, and administration and service.

**Table 9.2** Design of the structural-formal questionnaire on quality culture assessment

Core areas	Sample dimensions	No. of items
General information	Significance of QA	13
Institutional structures	QA responsibility	17
Teaching and learning	Quality goals	14
Research	QA concept	9
Young scientists	QA instruments	9
Administration and service	Evaluation	11
<b>Total</b>		<b>73</b>

Source: Design by authors. *Note.* QA = Quality Assurance.

research, young scientists, and administration and service (see Table 9.2). The structural-formal survey was piloted and positively evaluated by four quality assurance experts within the higher education context.

### ***Organizational-Psychological Questionnaire***

Unlike the structural-formal questionnaire, the organizational-psychological questionnaire is addressed to *all* members of higher education institutions (HEI members): the university leaders, academic staff (professors, academic assistants), and nonacademic staff (administrators, secretaries, and service personnel). The questionnaire contains a set of 53 items about various aspects of quality culture. The individual dimensions (commitment, engagement, and responsibility) are represented by 4 items each. So are participation, shared values, and trust, which represent collective elements of quality culture. Leadership is assessed by 12 items; communication, by 9. We also developed 8 items assessing “global aspects” of quality culture, which require the respondent to evaluate aspects of quality culture that pertain to the entire institution of higher education. Using a 6-point Likert scale ranging from 1 (*does not apply at all*) to 6 (*fully applies*), respondents indicated their level of agreement with the statements about quality culture. Table 9.3 presents sample items of the organizational-psychological questionnaire.

To answer relevant scientific and practical questions related to the construct of quality culture, the survey additionally includes several demographic characteristics (e.g., age, gender) along with potentially moderating and dependent variables (e.g., conscientiousness, satisfaction with quality culture). The online questionnaire contains 97 items (duration: approximately 15 minutes).

### **Data Collection and Sample Characteristics**

The QCI was piloted and conducted at three institutions of higher education in Germany, each representing a different type: (a) universities, (b) universities of applied sciences, and (c) cooperative or dual universities.<sup>2</sup> These higher education institutions differ considerably, with their educational tasks allowing for differentiated analyses of institution-specific quality cultures.

Participants were contacted via email distribution lists. In the first step the QCI was administered to participants in a pilot sample ( $N = 93$  HEI members) and

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<sup>2</sup>Dual universities offer students the opportunity to combine their academic studies with professional work (dual studies).

**Table 9.3** Design and sample questions of the organizational-psychological questionnaire on quality culture assessment

Dimension	Sample item	Source	Item	$\alpha^a$
Individual level				
Commitment	“I am particularly intent on supporting the quality development of [name of HEI <sup>b</sup> ].”	Adapted from Jackson (2004) (affective subscale)	4	.603
Engagement	“I am willing to make additional effort to meet the quality demands of my work.”	Adapted from Jackson (2004) (behavioral subscale)	4	.696
Responsibility	“I feel that I am jointly responsible for the quality development of [name of HEI].”	Adapted from Jackson (2004) (cognitive subscale)	4	.358
Collective level				
Leadership	“It is important to me to appreciate good working results adequately.”	Adapted from Heinitz & Rowold (2007)	12	.935
Communication	“Ideas concerning quality improvement are openly discussed in our department.”	Adapted from Brodbeck, Anderson, & West (2000)	9	.871
Participation	“I keep myself up to date concerning new developments at [name of HEI].”	Adapted from Staufenbiel and Hartz (2000)	4	.716
Shared values	“Quality values of [name of HEI] are actually put into practice.”	Own development	4	.772
Trust	“I have full confidence in my employee’s skills.”	Adapted from Zeitz et al. (1997)	4	.734
Global aspects	“[Name of HEI] is characterized by high quality awareness.”	Own development	8	.889
Total			53	

Source: Design by authors. <sup>a</sup>Cronbach’s Alpha. <sup>b</sup>Higher education institution.

**Table 9.4** Sample sizes of the pilot study and main investigation on quality culture assessment

Group	Pilot study		Main investigation	
	<i>N</i>	%	<i>N</i>	%
University leaders	2	2.2	3	0.4
Professors	23	24.7	138	17.5
Academic assistants	46	49.5	289	36.6
Administrators	6	6.5	162	20.5
Secretaries	12	12.9	84	10.6
Service personnel	4	4.3	113	14.3
Total	93	100	789	100

Source: Design by authors.

slightly modified after evaluation. The main investigation was completed by 789 HEI members (see Table 9.4).

As expected, academic staff represented the largest participating target group (17.5% professors, 36.6% academic assistants), followed by administrators (20.5%), service personnel (14.3%), and secretaries (10.6%). The sample was characterized by a significantly higher share of female participants (59.4%;  $\chi^2$  (1,  $N = 727$ ) =



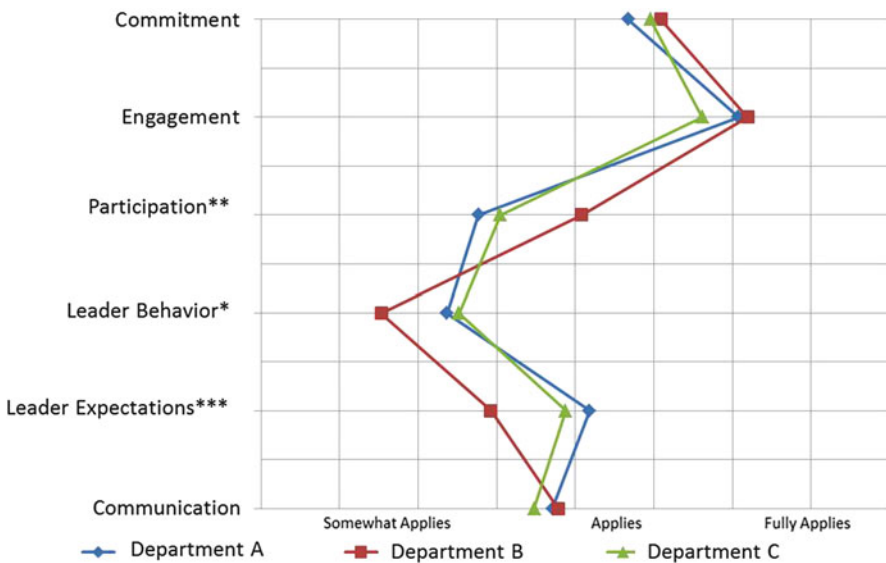
25.817,  $p < .001$ ) than male. In total, 37.1% of the respondents held a temporary employment contract. The duration of employment varied from less than one year (5.8%) to 1–4 years (26.8%), 5–9 years (27.8%), 10–19 years (23.1%), and more than 20 years (16.4%), representing heterogeneous knowledge and experience with the quality culture of the participating institutions.

## Selected Results: Evaluation Options

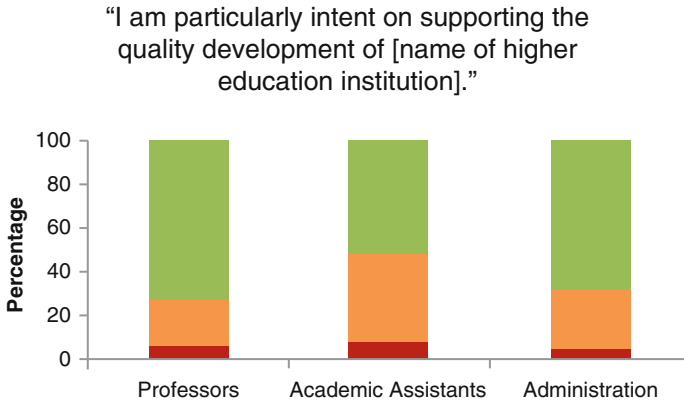
### *Organizational-Psychological Questionnaire*

Data from the organizational-psychological survey offer the opportunity to create differentiated profiles of individual (e.g., commitment, engagement) and collective (e.g., leadership, communication) elements of quality culture. These profiles of quality culture allow for institution-specific analyses of strengths and developmental potentials. Figure 9.3 illustrates the profiles of quality culture in different departments within a higher education institution.

In this example profiles of quality culture differed significantly from one department to the next. Whereas department B reported the highest level of participation, it scored lowest in quality-oriented leader behavior and leader expectations. These results indicate that heterogeneous characteristics of quality culture may exist even within one institution. Creating awareness about the existence of such differences



**Fig. 9.3** Example of quality culture profiles ( $*p \leq .05$ ;  $**p \leq .01$ ;  $***p \leq .001$ ). Source: Design by authors.



**Fig. 9.4** Quality Commitment: Group Comparison. Level of high (green), middle (yellow), and low (red) agreement, whereby  $\chi^2(4) = 26.591, p < .001$ . Source: Design by authors.

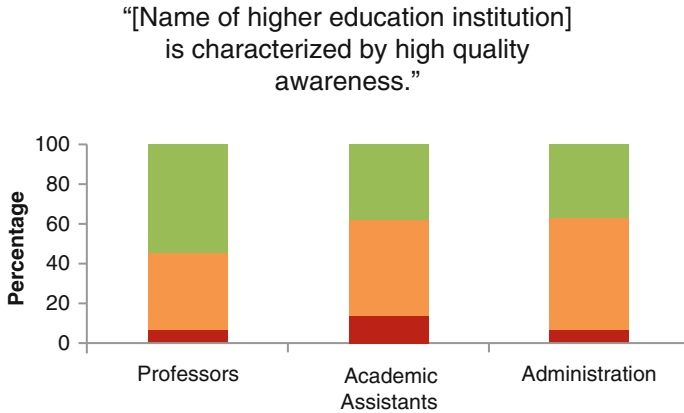
may lead to the development of department-specific interventions addressing heterogeneous developmental needs and potential. In our example the quality culture of department B is likely to benefit from leadership-oriented interventions, whereas interventions focusing on participation may be more beneficial within departments A and C.

Another interesting option of evaluation is to find out the extent to which our groups differed in their scores on individual items (e.g., commitment). Figure 9.4 shows a sample analysis of an item operationalizing quality commitment.

The comparison between professors, academic assistants, and administrators shows significant differences between their levels of agreement. Whereas professors and administrators indicated a similarly high level of agreement, academic assistants were more likely to show an intermediate level of agreement. This result may be due to a relatively high share of temporary employment contracts across the members of this staff group (66.5%).

Whereas the level of commitment to quality tended to be very high among all HEI members, the rates of agreement with statements assessing the overall quality of an institution’s culture (“global aspects”) turned out to be considerably lower (see Fig. 9.5). Again, academic assistants showed significantly lower levels of agreement than did the other two groups.

Data of the organizational-psychological questionnaire may be used for various further analyses, too. Demographic characteristics allow for the creation of differentiated profiles of quality culture for gender, age, or duration of affiliation, for instance. The questionnaire also provides valuable information about the level of satisfaction with quality culture. These results serve as an empirical foundation on which to base target-oriented recommendations for improving quality.



**Fig. 9.5** Global aspects of quality culture. Level of high (green), middle (yellow), and low (red) agreement, whereby  $\chi^2(4) = 12.706, p < .05$ . Source: Design by authors.

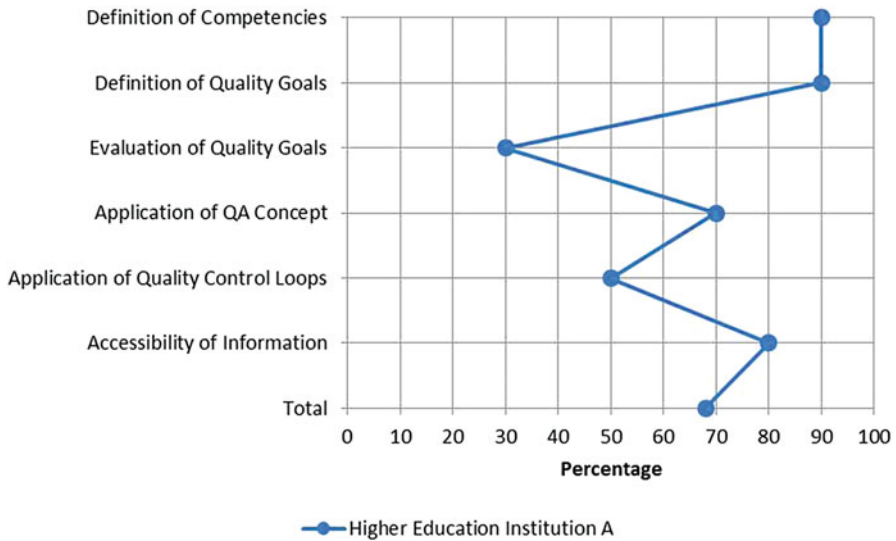
### *Structural-Formal Questionnaire*

The structural-formal questionnaire of the quality culture inventory allows for a systematic assessment of quality-oriented structures within an institution of higher education. The questionnaire differentiates between core areas of these institutions: the institutional level, teaching and learning, research, young scientists, and administration and service. It contains items about the definition of competencies and quality goals, for instance. The questionnaire also assesses the existence of quality assurance concepts and quality control loops. As with the organizational-psychological questionnaire, results of the structural-formal questionnaire make it possible to create structural-formal profiles for specific institutions (see Fig. 9.6).

In this example competencies in assuring quality are defined at almost all levels of the higher education institution. At the same time, information about quality assurance and for the definition of quality goals is available at almost all levels of the higher educational institution. Potential for structural-formal development can be identified for applying concepts of quality assurance and using quality-control loops. A regular evaluation of quality goals might represent a useful strategy for improvement at the structural-formal level.

Data of the structural-formal questionnaire may also be used for numerous other analyses. For example, the questionnaire gives a systematic overview of quality assurance measures that are applied within a higher education institution (see Table 9.5).

The questionnaire also allows for a differentiated insight into options that different status groups have to contribute to measures for developing quality. Furthermore, it is possible to assess quality-oriented communication structures. The results of the structural-formal questionnaire offer a sound foundation for analyses of strengths, weaknesses, opportunities, and threats (SWOT) followed by an optimization of structural-formal aspects of quality culture.



**Fig. 9.6** Example of structural-formal profiles. Source: Design by authors. *Note.* QA = Quality Assurance.

## Discussion and Future Prospects

The QCI represents a sound, economic tool with which to describe the current state of quality culture within institutions of higher education. The results lay an empirical foundation for discussions about strengths, weaknesses, and potential measures for improving quality. So far, three institutions of higher education have taken part in the QCI, bringing about intense exploration of quality culture. Within a relatively short time, the instrument has generated valuable data on this subject, contributing to a focused discourse about enhancing quality at the participating institutions. Using the QCI requires the openness of all participants and the willingness to debate controversially, but fairly, about the institution's quality culture. It is therefore critically important to promote acceptance of the QCI by addressing both the institution's leaders and staff before administering the questionnaire. The leaders need to be convinced of the great gains possible through the QCI, and it is essential that staff members know their answers will be taken seriously and can make a difference. Fortunately, the motivation to meet both of these requisites can grow from the distinctly practical benefits that the QCI offers. It facilitates the analysis of the status quo of quality culture and quality-oriented leadership as well as the analysis of strengths and weaknesses of quality culture profiles. It can effectively guide the formulation of recommendations for quality improvement and can thereby shape quality assurance and quality development.

None of these advantages will come of their own, however. Continued effort is needed to reap them. The number of higher education institutions included in future

**Table 9.5** Quality assurance measures: Which quality assurance measures are applied in the following core areas of higher education? (Multiple responses possible, √ = yes)

Measures	Teaching & Learning	Research	Young Scientists	Administration/Service	Total
Procedures & process descriptions	√		√		2
Compliance management					
Controlling					
Monitoring	√	√	√		3
Performance review					
Target agreement		√	√		2
Performance-related resource allocation	√	√	√		3
Standardized appointment of professors		√	√		2
SWOT <sup>a</sup> analysis	√	√	√		3
Benchmarking		√	√		2
Evaluation system	√				1
Self-evaluation					
Peer-evaluation	√	√	√		3
Student evaluation	√				1
Satisfaction survey	√			√	2
Improvement management	√			√	2
Key performance indicators	√	√	√		3
Meta-evaluation	√				1
Other instruments					
Total	11	8	9	2	30

Source: Design by authors. <sup>a</sup>Strengths, weaknesses, opportunities, and threats.

studies of the kind presented in this chapter must increase if the QCI is to provide a valid benchmarking option. Moreover, the QCI needs to be professionally translated into English in order to broaden the range of international institutions of higher education and for-profit organizations that assessments of quality culture can reach. Lastly, longitudinal investigations are desirable in order to identify antecedents and consequences of quality culture. With this clear agenda for further conceptual and empirical work on the QCI, the prospects for this instrument’s future—and that of the people and institutions it may serve—look dynamic indeed.

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