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## Abstract

A multi-level procedure is described in order to develop a total quality management survey tool in the field of engineering academia. As a first step a review of available evaluation tools for universities is conducted, resulting in over 150 items used for evaluation purposes. Secondly all dimensions of educational evaluation used in previous research are summarized, resulting in 15 dimensions. In a third step, items are assigned to the dimensions, overlapping items were combined or removed, and item content and dimensions were adjusted to the specific conditions of the target faculty. Fourthly, the resulting twelve dimensions were used in first, investigative interviews in the target population. Results indicate that eleven dimensions sufficiently mapped all aspects of evaluation. After revising the items to improve understanding in a fifth step cognitive pretests were conducted. The final revision resulted in 83 items assigned to eleven dimensions.

## Steps of investigation

## Results

### 1 Review of available evaluation tools

Internet and database research (August 2004) revealed 5 evaluation programs and several single studies, which included items and questionnaire. Overall different 150 items were collected in one itempool. Identical items were only included once.

Evaluation programs:

- Evaluations-Netzwerk zur Evaluation und Qualitätsicherung (HIS)
- Zentrum für Hochschulentwicklung (CHE)
- Zwischen Hochschule und Arbeitsmarkt (HIS Projektbericht)
- Handbuch zur Lehre und Evaluation (ZeVa)
- Empfehlungen zur Evaluation von Lehre und Forschung der Fachhochschulen des Landes NRW

source: <http://evanet.his.de/evanet>  
 source: <http://www.che.de>  
 source: <http://www.his.de/Service/Publikationen/Ergebnis>  
 source: <http://www.zeva.uni-hannover.de>  
 source: [http://www.fh-ge.de/evaluation-fh-geschaeftsstelle-nrw/html/body\\_empfehlung.html](http://www.fh-ge.de/evaluation-fh-geschaeftsstelle-nrw/html/body_empfehlung.html)

Single studies (all studies were obtained via <http://evanet.his.de>):

- Bremer Absolventenstudie
- Institut für Kulturgeographie
- Magdeburger Konzept der Lehrevaluation
- Universität Basel WWZ
- Universität Hannover FB Gartenbau
- Universität Paderborn FB Maschinentechnik
- Universität Potsdam: Lehrevaluation

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150  
Items

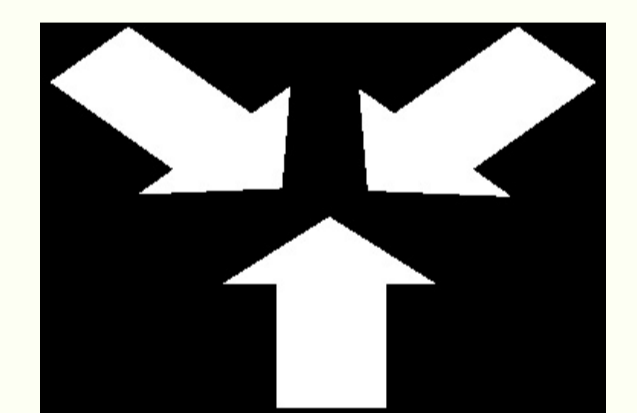


### 2 Summarizing dimensions

Former evaluation studies have already used a classification of their items based on several dimensions, overall 15 different dimensions were in use. Based on content analysis by means of four independent raters these discrepancies were summarized on basis of their content. In merging these dimensions showed high interrater agreement, discrepancies were resolved by discussion. This resulted in 12 dimensions:

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|--|--|
| <ul style="list-style-type: none"> <li>• Individual course of studies (Individueller Studienverlauf)</li> <li>• Composition of study course (Studienaufbau)</li> <li>• Exams (Prüfungen)</li> <li>• Content of teaching (Lehrinhalte)</li> <li>• Didactics (Didaktik)</li> <li>• Profile of research (Forschungsprofil)</li> </ul> | <ul style="list-style-type: none"> <li>• Quality management (Qualitätsmanagement)</li> <li>• Climate within the study (Studienklima)</li> <li>• Consultation and support (Beratung und Betreuung)</li> <li>• Resources and general conditions (Ressourcen und Rahmenbedingungen)</li> <li>• Practical orientation (Praxisbezug)</li> <li>• Assistance during job entry (Transferhilfen zum Übergang ins Beschäftigungssystem)</li> </ul> |
|--|--|

12  
dimensions



### 3 Assigning the items to the dimensions

Based on content analysis all items found were classified into these dimensions by means of four independent raters. Discrepancies were resolved by discussion. If necessary item content and wording was adjusted to the specific conditions of the target faculty and course of studies.

assigning  
items to  
dimensions

### 4 First investigative interviews in the target population

Three researchers conducted 12 investigative interviews with members of the target population and additionally with some employees of the university. Objectives were:

- Can all important aspects of scholastics be summarized within the 12 dimensions?
- Are there any additional special topics that were not included in the itempool?

Results confirmed that there were no general aspects which were not part of the dimensions. However some special aspects of the target studies were uttered, that had not been included in previous items. Hence additional items were created.

Additionally results made clear, that respondents were not able to differentiate between „Consultation and support“ and „Assistance during job entry“, hence these dimensions were pooled.

Finally there was a strong indicator that especially in this course of studies the quality was perceived differently by people who actively tried to manage and conceptualize their studies and those who just participated in the regular courses of studies. Hence a short instrument of self-efficacy was included as an important individual determinant of study evaluation.

11 dimensions  
self efficacy



### 5 Cognitive pretesting

Finally two researchers conducted 11 pretestings in order to check if items were understood correctly. As a results some items were reformulated and question format was changed in order to increase usability and comprehension.

11 dimensions  
83 items  
self efficacy