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Requirements for proficiency assessment procedures and their implementation

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Introduction

Job related proficiency assessments are implemented to aid in, e.g., career selection, applicant selection and career planning.

This norm outlines quality criteria and standards for job-related proficiency assessment, as well as qualification requirements for test administrators and support personnel.

Proficiency assessments and personnel decisions should be differentiated. This norm only applies to proficiency assessment. Personnel decisions remain under the control of those individuals responsible for personnel within corporations, companies, institutes and administrations.

This norm serves:

- Service organizations (internal and external contractors within an organization according to this norm) as a guide for the planning and implementation of proficiency assessments;
- Clients within organizations as a standard for the evaluation of external proficiency assessment offers;
- Individuals responsible for personnel who ensure the quality and optimization of personnel decisions and;
- To protect candidates from improper use or abuse of proficiency assessment procedures.

In this way the norm contributes:

- To the wide-spread implementation of scientifically and professionally sound proficiency assessment procedures;
- To the correct development and implementation of proficiency assessment procedures;
- To the continual improvement of proficiency assessment procedures.

Decision-making errors, as well as the resulting negative economic, social and individual effects that often accompany the use of low quality proficiency assessment procedures, can be avoided by using this norm.

1 Range of Application

This norm contains statements and guidelines for procedures and their use in job-related proficiency assessment. They refer to:

- Job-related proficiency assessment planning;
- The selection, integration, implementation and evaluation of proficiency assessment procedures;

- The interpretation of the assessment results and judgment formation;
- The requirements of the qualification of the individuals taking an active part in the assessment process.

NOTE: The statements and guidelines lead indirectly to suggestions for correct and professional development of job-related proficiency assessment procedures. The selection, application and evaluation of such procedures are dependent upon the current scientific and technical state.

The value of a proficiency assessment procedure can only be evaluated based upon its specific application. For this reason, the norm is not appropriate for the isolated evaluation of an individual assessment instrument.

This norm does not apply to medical diagnostics.

2 Normative References

This norm contains dated or undated references from other publications. These normative references are cited in the relevant text sections and the publications are indicated. Dated references refer only to this norm or future amendments to the norm, provided that they have been included in such amendments. In the case of undated references the most recent release of the referred publication is valid (including its amendments).

[1] German Civil Code (BGB)

[2] German Penal Code (StGB)

3 Terminology

The following terms as well as those found in Appendix B ensure the proper use of this norm.

3.1 Requirement Analysis

The investigation of relevant individual, psychological and psycho-physiological requirements – including those that are important for job satisfaction – regarding the position to be filled, the job scope, training, degree or career for which the proficiency of a candidate should be assessed.

NOTE: Predictable future technical, economic, social and organizational developments should be analyzed in a further step in order to estimate the possibility of a change in the job, environmental conditions or organizational characteristics.

3.2 Job Analysis

Methods of identifying the psychological, physical and social environmental conditions and organizational characteristics of a work or training location, of job-related tasks or the circumstances of their execution.

3.3 Aptitude

A person is suited for a career, task or position if the individual possesses the characteristics necessary to fulfill the specified tasks and goals .

NOTE: In determining suitability it is important that the career, task or position includes characteristics that correspond to the expectations of the individual as this is an essential aspect of job satisfaction.

Three groups of individual characteristics can be formed which when combined can be described as aptitude characteristics: educational/biographical, psychological and medical characteristics (see B.16 Aptitude Characteristics).

3.4 Proficiency Assessment

Statement of plausibility as to whether an individual on the one hand, can meet the current and future job demands or on the other hand, will be satisfied with the job.

NOTE: Job-related requirements and career characteristics are compared to individual characteristics.

3.5 Validity

The accuracy with which a procedure actually measures or predicts what it is supposed to (e.g., individuals' characteristic or behavior).

NOTE: The validity can be determined using various methods (see B.20 Validity: typical validity values of proficiency assessment procedures are reported).

Not only the numerical value of the validity coefficient should be used when comparing the validity of two or more procedures. The validity is also effected by the quality of the empirical research. Quality characteristics of validity studies are e.g.: sample size, degree to which it is representative of the target group, current relevance of the test group and, more importantly, the adequacy in which the research approach measures the desired characteristic.

3.6 Assistants

Individuals who administer or evaluate proficiency assessment procedures under the full responsibility, instruction and technical supervision of the contractor.

NOTE: Included are individuals responsible for secretarial and administrative activities required during proficiency assessment. Assistants (qualified assistants) are also subject to "privacy laws" (§203 StGB).

3.7 Norm Values

Comparison values (e.g., mean, standard deviation, percent level), derived empirically using a comparison group (reference group, e.g., applicant groups with a particular age, education level or occupation) to be compared to the current candidate results. (see B.39 Reference Group).

3.8 Objectivity

The degree to which the results obtained by proficiency assessment procedures are independent of contractor and contractor-assistant influence, as well as other irrelevant influences.

NOTE: The administration, evaluation and interpretation objectivity of the procedure should be considered individually.

3.9 Procedure

Tested in the practice and scientifically substantiated investigation methods that are administered in a standardized manner for proficiency assessment.

NOTE: Examples include suitability interviews, biographical questionnaires, job-related personality questionnaires, assessment centers, job trials as well as tests.

3.10 Approach

The sum of all steps taken in conjunction with proficiency assessment. These encompass all procedures used, from planning of proficiency assessment to the selection methods, reporting of results and decision evaluation (see B.20 Validity)

3.11 Reliability

The degree of accuracy a procedure has with regard to the characteristic to be measured.

NOTE: The probability that an individual's real characteristic deviates from the observed or measured result can be determined by using the reliability index. Appendix B contains typical reliability values for proficiency assessment procedures (see B. 52 Reliability).

Not only the numerical value of the reliability coefficient can be used to determine the quality of the procedure's results. The reliability coefficient is also affected by the quality of the empirical research. Quality characteristics of such research are e.g.: size, degree to which a characteristic is representative of the target group, current relevance of the test group and, more importantly, the results from independent repeat and comparable research.

4. Quality Characteristics and Standards for Proficiency Assessment (Selection, Construction, Administration and Evaluation)

4.1 Principles

Only those procedures that have a proven relevance to the requirements of interest are to be considered for job-related proficiency assessment (see B.1 Requirement Analysis; also see 7.1).

The following criteria are to be used in the selection process. The distinctive features of each proficiency assessment procedure should also be considered.

NOTE: Such features are e.g.: the number of positions to be filled and the number and qualification of the applicants (see B.9 Base Rate). This enables a case related cost/benefit estimation (see B.29 Cost/Benefit-Relation).

4.2 Procedure Selection and Construction

4.2.1 Procedure Instructions

There must be an explanation for the administration of every proficiency assessment procedure. The procedure instructions must enable the administrator to critically assess and correctly implement the procedure. Particular attention must be paid to clearly explain the procedure instructions pertaining to its objective administration, evaluation and interpretation.

The instructions for standardized proficiency assessment procedures must include:

- The purpose and range of application;
- A clear description of relevant empirical research;
- A clear, complete and appropriate description of the construction steps;
- Clear documentation of all test criteria and applied analysis methods.

If possible, the procedure instructions should include information regarding procedure maintenance, studies by other authors referring to the procedure as well as mention of its reviews. Further quality standards for procedure instructions are described in appendix A.

4.2.2 Objectivity

Proficiency assessment procedures must have the highest possible level of administrator, evaluation and interpretation objectivity (see B.35 Objectivity). The procedure, its materials, and the candidate instructions as well as the proficiency assessment method must be constructed to minimize the candidates' ability to falsify the results as much as possible.

4.2.3 Reliability

The procedure applied must demonstrate the highest reliability possible for its type and intended purpose.

NOTE 1: The required reliability level is based on the individual characteristics, the meaning, and the importance of the intended decision to be made as well as the particular application and research conditions.

NOTE 2: Proficiency assessment procedure reliability values are listed in appendix B for orientation purposes (see B.52 Reliability).

When the degree of a particular characteristic ascertained from verbal information or direct observation is to be estimated (e.g., team skills by way of an assessment center exercise), it is critical that a consensus is reached by different interviewers or observers under the same observation conditions. The specific reliability aspects must be documented when selecting the proficiency assessment procedure.

4.2.4 Validity

The procedures used must have the highest possible degree of validity for the question of interest. A procedure's validity is generally determined by the empirical analysis of the construct, criteria or content validity (see B.20 Validity). The type of validity must be selected to adequately suit the purpose of the procedure and the question of interest.

The results of independent comparison and repeat studies should also be considered.

NOTE: The required validity level varies according to the characteristics studied, the importance of the decision to be made, as well as the application and research conditions. B.20 Validity provides orientation with regard to the criteria validity of various procedures.

In selecting the proficiency assessment procedure there must be documentation of the specific validity aspects.

The validity of the procedure should be determined for the particular question of interest when the procedure is used repeatedly for the same type of proficiency assessment research.

4.2.5 Normative Values

When the proficiency assessment procedure is used with the intent to compare normative values, these values must correspond to the research question and the reference group (see B.39 Reference Group) of the candidates.

The appropriateness of the norm values is to be evaluated at least every eight years.

If, in the mean time, current studies present normative values that reveal previous values that do not adequately describe the reference group, new norms must be established before the deadline is reached. Actualization of normative values occurs when e.g., the average degree of an aptitude trait (e.g. IT-skills) changes within a reference group.

If the administration form of the procedure varies (e.g., paper and pencil, computer, etc.) the transfer of normative values from one to another form must be demonstrated or a separate norm must be presented.

4.3 Assessment Procedure Planning

Job-related proficiency assessment should be planned carefully and all aspects of the administration and evaluation of the procedures should be predetermined. Rules must be determined and documented which lead to the proficiency assessment results; the rules are to be tested at least every three years for repeat-selection programs.

If a procedure or procedure part is administered in an order other than the standard, the candidates should have no advantage or disadvantage.

The way in which predictable questions should be handled must be established for all procedures. For procedures designed for proficiency assessment based on verbal information or observed behavior (e.g., interviews, on-the-job training, Assessment

Centers), evaluation categories with possible candidate responses or behavior patterns must be developed in advance.

How un-attempted items will be handled for written tests should be predetermined.

In the planning stage the client should agree upon the way in which the candidates should be informed about the test results.

4.4 Administration

The contractor is responsible for insuring the objectivity of the administration procedure. Furthermore, he must take into consideration the procedural recommendations and written instruction, the recommended protocol and times as well as the way in which candidate questions will be handled. The original materials must be used to ensure objectivity.

When administering computer assessment procedures, the technical guidelines (e.g., hardware such as monitor and supplies) included in the procedure instruction must also be followed. The instruction or explanation given to the candidates must be comprehensible, clear and as standardized as possible.

Precautions should be taken to ensure that the procedure results are not falsified as a result of cheating. Deviation from the procedure instruction and administration must be recorded and taken into account in the interpretation.

4.5 Documentation

The instrument selection, combination and the evaluation method should be presented in such a way that the client can evaluate the entire procedure and the candidates' proficiency. Such a presentation includes the documentation of the instruction, the procedure elements (e.g., the questions and guidelines for the aptitude interview, objectives, information pertaining to technical installation, classification scales, evaluation sheets) as well as the classification rules for proficiency assessment.

4.6 Evaluation, Interpretation and Judgment-Making

4.6.1 Evaluation

The evaluation must conform to the predetermined rules and regulations. Deviations from the procedure instructions or planned administration caused by disturbances or cheating must be accounted for.

Only information from requirement-relevant aptitude characteristics can be evaluated. When multiple observers give a judgment the combined results as well as the distribution must be recorded.

4.6.2 Interpretation

The establishment of the guidelines for the interpretation of test results and their evaluation remain the responsibility of the contractor and cannot be delegated to collaborating parties.

The characteristic of interest is to be evaluated with regard to the reference group.

The interpretation and proficiency assessment must comply to the objectivity principles, impartiality, and independence with regard to the candidate.

The degree to which the procedure results lead to similar or contradictory interpretations must be recorded.

Interpretation of sub-test scores, measured score differences, profiles or item-level reactions from standardized assessment methods (see B.49 procedures, standardized) can only be used when their validity (see B.20 Validity) is demonstrated. This is also required when individual assessment parts (behavior exercises, sub-tests, etc.) are selected.

4.6.3 Judgment-Making

The proficiency assessment must satisfy the requirements of the commissioned task.

The presentation must include the procedure results that lead to the proficiency assessment. Useful information from other sources can be used in the assessment (e.g., application documents). All statements of fact must be substantiated by references. The presentation must be presented in a manner comprehensible for the client.

The contractor takes the responsibility for the correctness of the results when computer-aided assessment procedures with automated classification and/or text blocks are used for proficiency assessment and the interpretation of findings. The candidates must be informed of this automation.

5. Responsibilities

The contractor is responsible for the planning and administration of the entire proficiency assessment, the evaluation and interpretation of results as well as the report for the client.

Partial responsibility for the administration can be delegated to third parties. The following cannot be delegated:

- Selection and combination of proficiency assessment procedures;
- Planning of the investigation situation;
- Establishment of the assessment guidelines;
- Establishment of the interpretation guidelines.

The contractor has an active supervisory role over the activities of third parties and must demonstrate this. He must ensure that all third parties are trained and briefed for the given task to adequately qualify them for the administration of the proficiency assessment procedure.

6. Quality Requirements for the Contractor and Third Parties

6.1 Quality Requirements for the Contractor

A qualified contractor, as defined by this norm, possesses thorough knowledge of proficiency assessment and – if possible – supervised experience in the development, planning, construction and controlled administration of proficiency assessment procedures and their evaluation.

The contractor must know the assessment procedure and processes required for satisfying the question of interest as well as their quality and implementation requirements. He has to have knowledge of the constructs (see B.28 Construct) which underlie the aptitude characteristics to be assessed. He has to follow quality standards and take quality assurance measures as well as consider possible legal ramifications.

The following are prerequisites for:

a) Requirement Analysis

- Knowledge of job and requirement analysis;
- Knowledge of job requirement analysis methods;
- Knowledge of result presentation procedures in the form of requirement profiles;
- Knowledge of operationalization methods for aptitude characteristics;

b) Testing Procedures/Instruments

- Basic knowledge of proficiency assessment procedures;
- Statistical and method fundamentals;
- Test theory (classical test theory and item-response theories), measurement theories;
- Evaluation methods including cost-benefit aspects;
- Construction fundamentals;
- Application possibilities;
- Administration conditions;
- Test criteria;
- Writing an expert opinion;

c) Proficiency Assessment

- Knowledge of the implementation methods of proficiency assessment;

- Knowledge of various proficiency assessment strategies;
- Proficiency assessment procedures (instrument and process related);
- Estimation of the prognosis criteria for job-related proficiency assessment and the resulting decisions;
- Knowledge of the results of relevant evaluation studies;
- Proficiency assessment range of application.

The contractor must demonstrate to his clients that he possesses the above mentioned qualifications as well as his continual professional education.

6.2 Quality Requirements for Aptitude Interviews, Behavior Observation and Evaluation

Contractors or third parties who implement and evaluate aptitude interviews (see B.17 Aptitude Interview) or participate in behavior observation and evaluation must have knowledge of the structural conditions of verbal information extraction procedures and relevant evaluation procedures as well as over the following topic areas:

a) Behavior observation and evaluation

- “Observation”: terminology and understanding of;
- Observation systematic;
- Operationalization of the aptitude characteristics;
- Definition and differentiation of observation units;
- Observation registration and documentation;
- Observation scoring/evaluation;
- Reference standards;
- Rating/scaling methods;
- Judgment-making forms (statistical and non-statistical);
- Observation error/bias;
- Test criterion (objectivity, reliability – also rater agreement -, validity);

b) Aptitude Interviews

- Interview classification;

- Handling of interview structures;
- Interview techniques, formulation techniques;
- Interview-related assessment criteria;
- Areas of questioning and their legal permissibility.

Experts can be used in verbal information extraction procedures in order to assess candidate expertise and skills. The above mentioned quality requirements do not apply to these experts if they are working with personnel that meet the norm qualifications.

7. Guidelines for the Implementation of Job-Related Proficiency Assessment

NOTE: The quality of a proficiency assessment is dependent on its proper and professional implementation by qualified personnel. It is recommended that the following conditions and assumptions be met in order to maximize this potential quality advantage.

7.1 Requirement Reference

A job and requirement analysis should be the basis of a proficiency assessment (see B.1 Requirement Analysis; B.3 Job Analysis).

The requirement analysis should investigate the job, education, occupation or occupational task characteristics relevant for occupational success and satisfaction. All aptitude characteristics (see B.16 Aptitude Characteristics) including their degree of development, necessary for the satisfaction of the requirements should be derived from the requirement analysis.

The considerations leading to the establishment of the aptitude characteristics should clearly stem from the requirement analysis. Pre-existing documentation such as job, task or function descriptions can be used if no significant changes have been made since their release.

The results from occupational analyses should be considered in occupational guidance. The job and requirement analysis should be clearly documented by listing the involved individuals, their qualifications, the relevant sources and the implemented analysis and scoring procedures as well as their results.

7.2 Information About the Work-Place

The candidate should receive information about the work-place and the job he applied for if possible in advance. The information can be in the form of on site tours, written material or conversation with current employees; the same idea applies for proficiency assessments for vocational training and university students.

7.3 Pre-Selection

The pre-selection method and the relevant selection criteria must be established in advance and should stem from the requirement profile.

NOTE: The risk of dismissing a qualified candidate in the pre-selection by mistake can be reduced if two assessors make the pre-selection independently.

7.4 Legal Guidelines

The legal guidelines (e.g., professional secrecy, data protection regulations and collaboration law) apply to proficiency studies.

Proficiency assessment participation is in principle voluntary; the candidates must specifically state their intent to participate in advance. This also applies for the participation in the revision or new development of procedures that will not yet be used for the assessment process.

7.5 Research Situation

The candidates should be informed about the planned course of the proficiency study as well as the voluntary nature of their participation in the invitation. The candidates should be adequately informed about the following at the beginning of the study:

- The aim, course, duration and function of the study;
- Of the collaborating personnel, their education level and qualification as well as their function in the procedure;
- Possible consequences of insufficient cooperation;
- Data collection methods, data use and the data storage location, form and duration;
- Individuals who receive the results.

If a research situation also serves the further development of a procedure, this should also be explicitly stated.

The candidates should have the possibility to discuss the study with the contractor.

The candidates should only be subjected physically, psychologically or for a duration that is required for the study. Breaks, waiting times and their minimum duration should be established and related to the candidates in advance.

The research conditions should, on the one hand, enable candidates to demonstrate their requirement-related potential and on the other hand, inhibit results achieved by cheating. This also includes adequate working space and professionally equipped research environment.

Appendix A

(Normative)

Requirements for Procedure Instructions

A.1 General Information

The procedure instructions must be accessible to the user and in particular cases to third parties. It should be corrected, amended or revised when necessary to ensure that the user is up-to-date. All changes made to the original version must be stated along with an explanation for making the change. If empirical references for the power of a proficiency assessment procedure are cited from unpublished sources, these must be made available. All sources cited in the procedure instructions by the author or representatives of the proficiency assessment procedure must be made available.

All known information added to the procedure instructions after publication must be made available to the contractor upon request if this information could be useful for determining the suitability of a proficiency assessment. This applies only if the information has not already been made public.

The necessary conditions for a problem-free administration of a proficiency assessment must be described. Possible problems and their effects should also be listed as well as how and to what extent these interruptions can be compensated for. The corresponding compensation methods must be described.

In addition to external technical problems or human error, the influence of other possible factors on procedure administration and results must be stated. Some possible factors are the effects of answer strategies and training effects.

The procedure instructions must include the cheating possibilities most likely to occur. How these falsifications can be counteracted through the procedure guidelines and administration as well as the evaluation of results must be worked out in detail. Additionally, to the extent possible, steps should be taken in the sales and marketing of the procedure to ensure that no candidates profit over others by having access to test-relevant information or test items (Procedure protection).

The presentation of empirical studies such as standardization studies must include data collection dates, descriptive statistics as well as the sampling plan and the number of participants so that the procedures suitability for the current plan can be evaluated.

If the implementation of the proficiency assessment procedure has special qualification requirements they should be included in the procedure instructions.

A.2 Accurate Information

All information for procedures in full-length publications, abbreviated forms or in advertisements must be accurate and verifiable upon request. For this reason the sales and marketing personnel as well as proficiency assessment procedure users should avoid marketing claims that promise more or less than can be or was already validated by the empirical or theoretical foundations of the procedure.

A.3 Expenditure and Duration

Information affecting the expenditure (material, personnel, required space) required for the procedure administration should be included in the instructions. Additionally, the instructions should indicate the procedure duration for the participants and the administrator (e.g., preparation, administration and evaluation times).

A.4 Procedure Objective

The procedure instructions must include statements regarding the procedure objectives that aid the user in recognizing his contribution to the proficiency assessment (e.g., condition or change measurement, incremental contribution to the improvement of judgment-making).

Any obvious possible abuses of the proficiency assessment procedure should be specifically stated in the procedure instructions.

Particular procedure uses that cannot be, or are no longer justifiable, must be made public and specified upon request.

The proficiency assessment procedure authors or distributors must regularly demonstrate (at the latest every 8 years) the instrument's validity for its intended area of use (see B.20 Validity).

If a procedure's objective differs from that of a proficiency assessment procedure, for instance, as a means of testing the procedure or for research purposes, this must be explicitly stated.

A.5 Theoretical Basis of Psychometric Procedures

The theoretical basis of psychometric procedures for proficiency assessment must be described thoroughly; the basic concept must be evident in the procedure instructions with out additional information. Modifications of the theoretical idea made by the author must be made especially clear.

If the procedure instructions refer to empirical research they should be given in such detail as to enable a critical analysis of the results in regard to theoretical and methodological respects. Documentation of such research must conform to the publication guidelines.

A.6 Reliability

The method of determining the reliability must be stated. The suitability of the method selected for various types of proficiency assessment procedures must be explained in an exemplary fashion.

If it is known that the reliability quotient or the standard error is different for various (socio-) demographic groups (e.g., by age, sex, education, nationality), the values for all procedure-relevant groups must be stated.

The procedure instructions must include a description of how the test-group was arranged in order to determine the reliability.

Information regarding the reliability values drawn from a single administration (e.g., internal consistency) is not adequate if target aptitude characteristics are assumed to

be stable over time and across situations. In this case the re-test reliability should be determined or estimated by means of a suitable research design. Reasons for selecting the method must be defended.

The validity of all reliability quotients must be evaluated in regular intervals (at least every 8 years).

A.7 Validity

References to validity and the corresponding statistical analysis method used must be documented in the procedure instructions or a publication available to clients, candidates and interested professionals.

The empirical proof of the content, criterion and/or construct validity that justifies the use of a proficiency assessment procedure must be clearly indicated (see B.20 Validity). The formulation of the objective and the target group must also be taken into consideration. In addition, the reasons for using the selected validity analysis must be stated.

It must be stated as to which validity quotient for...

- Which procedure results,
- In relation to which verification criterion;
- For which reference group;
- In which situation;
- In which research study and;
- To which point-in-time should be achieved.

Any missing results for one or more participants must be clarified.

Some of the research studies sited to justify the validity must be relatively current (not older than 8 years). New research must be sited if significant changes to the proficiency assessment procedure have been made.

If statistical adjustment methods such as correction for attenuation or non-representative variability are used in determining the validity, both the original and the corrected values must be presented. All statistics having to do with the applied adjustment must also be listed. The original regression must always be presented with a statistically optimized estimation (e.g., multiple regression). Statistically optimized validity information is only permissible if these estimations could be replicated by another participant group within the scope of the proficiency assessment procedure (see B.30 Cross Validation) and if the authorized assessment rules for the statistical optimization procedures are implemented.

If the validity claim is made with reference to validity information from other studies (validity generalization) the following should be thoroughly documented and explained:

- Which results can be generalized (Presentation of the relevant studies, literature and meta-analyses);
- Why (and to what degree) the validity information used for the validity generalization can be applied to the relevant studies.

Particularly, the similarities between such studies and the study objectives must be referred to (e.g., the comparability of the research group characteristics, the proficiency assessment procedure, the criteria etc.).

If there is evidence suggesting that the procedure leads to group specific results (e.g., sex-specific), effects on possible decisions should be studied for each group. The fairness-view resulting from the analysis and the reasons for selecting the fairness model must be explained in detail. In some cases it may be necessary to state for which group the proficiency assessment procedure should not be used as a basis for decision-making. Group-specific standardization must be well founded and their effects must be described.

A.7.1 Construct Validity

The construct of interest (see B.28 Construct) must be clearly distinguishable from other constructs and embedded in a theoretical framework. The construct and the relevant psychological research results must be presented in such a manner that they can be understood without secondary literature. Procedure-relevant theoretical alternatives as well as empirical results that contradict proposed assumptions must be presented.

How the construct of interest compares to similar (convergent validity) and dissimilar constructs (discriminate validity) must be presented in regard to content-related considerations and empirical results.

A.7.2 Criterion Validity

The validity analysis of the proficiency assessment procedure must include reasoning regarding appropriateness of the criterion and its operationalization. The content and technical quality of the criterion measure must be presented in full. The appropriateness of the validity analysis design (e.g., retrograde, concurrent or predictive) as well as the demographic characteristics (e.g., education level, age, work experience etc.) of the examinees must be explained.

The criterion validity must be discussed in reference to decision-theory points of view if a study in which proficiency assessment is the basis for selection and/or classification decision is used to demonstrate the criterion validity (e.g., cut-off value recommendations, decision criteria information, reflection of the prevailing conditions).

Any known criterion validity of similar procedures for the same or similar areas of application should be included in the procedure instructions.

A.7.3 Content Validity

The content area of a procedure as well as its importance for the planned proficiency assessment must be described. It should be made clear that the defined content area characteristics represent the intended relevant determinants of the educational, job or occupational area for the desired behavior in question. How the procedure was

constructed using rules for creating the item universe and for a systematic sampling of the item set (= proficiency assessment procedure) must also be presented.

The specialized education level, experience and qualification of experts must be described if such experts are used to determine whether the procedure is representative of the defined content area. How the experts came to their estimation and to what extent they were in agreement, must also be explained. The degree of rater agreement should be reported.

Appendix B (Informative)

Glossary

B.1 Requirement Analysis

The investigation of relevant individual psychological and psycho-physical requirements relevant for the position to be filled, area of responsibility or education type for which the candidate's proficiency is to be evaluated. Included here are also characteristics important for job satisfaction.

NOTE: Predictable future technical, economic and social developments as well as internal organizational developments should be analyzed in a further step in order to estimate the possibility of position, prevailing condition or organizational characteristic changes.

B.2 Suitability

The relation between the question of interest, the procedure cost (e.g., burden for the candidate and organization, monetary costs) and the absolute and relative benefit achieved by implementing the procedure (see B.29 Cost-Benefit-Relation).

NOTE: A suitable proficiency appraisal procedure also takes into account fundamental ethical (e.g., no unauthorized invasion of an individual's privacy) and legal regulations (e.g., data protection regulations).

B.3 Job Analysis

Method of identifying the operating conditions, the psychological, physical and social environmental conditions as well as the organization characteristics required for a particular occupational position, apprenticeship or the tasks performed within a profession or activity.

B.4 Assessment Center

A systematic method of simultaneously determining the (behavior-)performance of multiple candidates in which several trained observers observe and evaluate their performance. Various proficiency assessment procedures (situation exercises, job trial, psychometric tests) with predetermined requirements are implemented.

B.5 Commission

In accordance with §§ 662-676 BGB a contract between two parties, in which the contractor is obligated to fulfill the commissioned task after acceptance of the contract.

NOTE: The contractor completes the commissioned task in compliance with the contract and negotiates the terms of agreement accordingly with the client. A commissioned task conforms to this norm if the commissioning and completion of the task take place with one and the same organization.

B.6 Contractor

An individual obligated to carry out a job related proficiency appraisal in accordance to this norm.

B.7 Selection Rate (Quota)

See B.9 Base Rate

B.8 Objective Scoring

See B.35 Objectivity

B.9 Base Rate

Proportion of potential qualified candidates (regarding the characteristic of interest) within the applicant population prior to selection; as opposed to the selection rate which refers to the proportion of accepted applicants in relation to the total applicant pool.

B.10 Job Related Proficiency Appraisal

All scientific and practical efforts engaged in the intellectual categorization of fitting occupational situations to individuals (placement) or individuals to occupational situations (selection) in order to optimize job performance and job satisfaction.

NOTE 1: An appraisal states the likelihood that an individual to be evaluated is on the one hand, capable of handling the current and future job demands and on the other hand, that he will be satisfied with the position. To determine this likelihood occupational requirements (see B.1 Requirement Analysis) and job characteristics are compared to particular personal characteristics.

NOTE 2: Career selection and personnel selection proficiency assessments must be differentiated. A career selection assessment helps the candidate in a guidance process to decide on a particular occupation or occupation type whereas a personnel selection assessment helps organizations with personnel decisions.

Other assessment types are:

- Career accompanied proficiency assessments;
- Occupational rehabilitation assessments;
- Assessment of potential for a new task or position, also for outplacement:

The peripheral conditions associated with personnel decisions are of particular importance for the assessment procedure.

These include in part:

- The number of applicants for an apprenticeship position or a position within an organization and the applicant number to job offer ratio;
- The percentage of qualified candidates for the position (see B.9 Base Rate).

B.11 Biographical Questionnaire

Questionnaire that enables the extraction of objective information (e.g., curriculum vitae) and subjective information (e.g., occupational experience, preferences and goals as well as estimation of personal abilities and attitudes toward occupational tasks) by using questions designed to address important characteristics regarding the question of interest.

B.12. Data

All information (e.g., biographical data, interview data and test scores) about an individual made available before the proficiency assessment.

B.13 Documentation

The objective (usually written) documentation of events, occurrences or developments and/or the compilation, arrangement and utilization of documents.

B.14 Administration Objectivity

See B.35 Objectivity

B.15 Aptitude

An individual is qualified for a particular occupation, task or position if he possesses the characteristics necessary for the current occupational performance level. Whether the occupation, task or position shows characteristics that are requirements for job satisfaction for the individual is also of considerable importance for the aptitude.

NOTE: The characteristics consist of existing interests, attributes, learned skills, knowledge, physical constitution and the ability to learn specific requirements within a given time frame. The degree of agreement between aptitude and the requirements is important for a successful and satisfying occupation.

B.16 Aptitude Characteristics

Three groups of characteristics can be distinguished that when combined, form what can be called aptitude characteristics: educational background characteristics, psychological and medical characteristics. Educational background characteristics are knowledge, skills and work experience.

NOTE: Examples of psychological characteristics are needs, values, interests, skills, job-oriented achievement motivation, temperament characteristics and physical stress resistance. Examples of medical characteristics are neural-autonomic stress resistance, physical health and strength.

B.17 Proficiency Assessment Interview

A verbal procedure that enables the establishment of a complete picture of the performance status, knowledge, fit and potential of a candidate.

NOTE: The proficiency assessment interview is not only limited to knowledge checks and exploratory or informative interviews. Its implementation is distinguished through systematic, rule-oriented and structured requirement-based guidelines.

B.18 Consent

The consent of the candidate to participate in a proficiency assessment procedure.

NOTE: The consent is based on the premise that candidates receive detailed information about the procedure purpose, the individuals taking part (including their credentials) as well as possible uses of, and passing on of the results.

B.19 Fairness

Equal opportunity for members of various groups (e.g., ethnic, socio-cultural, sex) participating in the proficiency assessment. Fairness will be defined by normative external criteria.

B.20 Validity

The precision with which a procedure actually measures or predicts what it was intended to (e.g., an individual's characteristic or behavior pattern); the validity can be determined by various methods (see B.20 Validity).

NOTE: Referring only to the numerical value of the validity quotient when comparing the validity of two or more procedures is not acceptable. The quality of the particular research studies supplying the validity quotients must also be evaluated. Quality characteristics of such studies are e.g.: size, representativity (of the target group) and current relevance of the research group and more importantly, the relevance of the research approach with regard to the characteristic of interest. Results from independent replications or comparable studies have to be considered, too.

B.21 Validity, Criterion

Degree of agreement between the results achieved from proficiency assessment procedure for an individual and the empirically determined criterion (see B.31 Criterion), e.g., educational and professional success.

NOTE: Experience has shown that values lie between $r = 0.30 - 0.55$ depending on the occupational field and selected success criterion.

B.22 Validity, Content

In determining the content validity it is necessary to show to what degree the individual procedure elements (items) are a representative and prototypical sample of a subject area of interest.

NOTE: A clear definition of the subject area of interest (e.g., knowledge, mind set, experience and behavior patterns) is assumed. Content valid procedures most show how the procedure elements were extracted from the total of possible elements.

B.23 Validity, Construct

Based on theoretical – logical and conceptual – considerations and with the help of corresponding empirical research, decisions will be made as to whether a procedure

portrays the construct of interest (see B.28 Construct) comprehensibly and if its operationalizations significantly differ from other constructs.

B.24 Procedure Instructions

Instructions for the user designed to explain how the proficiency assessment procedure is to be applied in order to achieve valid results; in addition, the procedure instructions deliver information about all the theoretical and empirical principles of the proficiency assessment procedure including its interpretation.

NOTE: The procedure instructions supply tips regarding the contents and suggested range of application by delivering information about the procedure administration, scoring, reference values for possible reference groups, interpretation results as well as test criteria. The foundation and the procedure development method should also be presented. – Alternative titles: procedure description, manual and handbook.

B.25 Interpretation Objectivity

See B.35 Objectivity

B.26 Item

Elementary part of a procedure (e.g., individual questions or exercise that the candidate has to respond to).

B.27 Classification

The use of relevant derived information to determine the membership of individuals to one or more groups of people, categories (e.g., work-place) and/or procedures (e.g., development procedures).

B.28 Construct

Intellectual concept derived from considerations and experience used to explain observable behavior (e.g., intelligence and fear).

B.29 Cost/Benefit Relation

Assessment of the economic viability of a proficiency assessment procedure and/or process. The required expenditure will be compared to the expected profit (e.g., financial or information).

B.30 Cross Validation

The transfer of empirically derived scoring or evaluation methods for one research group (e.g., multiple regression) to another group to determine if both methods yield similar results.

NOTE: The use of such scoring and evaluation methods is senseless without a cross validation. Just reporting multiple correlations is insufficient.

B.31 Criterion

Standard with which the characteristic of interest is routinely measured (e.g., productivity level, performance level and occupational success).

NOTE: The criterion itself cannot be trivial, unsystematic and uncontrolled information, rather it must satisfy validity and reliability requirements.

B.32 Measurement

The numerical characterization of the manifestation of a particular characteristic. The numerical relationships between the numbers reflect the empirical relationships between the individuals with this characteristic.

B.33 Assistants

Individuals who take over or assist the administration or scoring of proficiency assessment procedures or parts thereof under the supervision and responsibility of the contractor.

NOTE: This also includes individuals performing office and administrative tasks in support of the proficiency assessment procedure. The assistants have a liability according to the “breaking of privacy laws” (§203 StGB) (“qualified assistants”).

B.34 Norm Values (also referred to as “Norms”)

Comparison values; Values (e.g., median, standard deviation, percentile scales) with relation to a reference group (see ‘B.39 Reference Group) e.g., applicants from particular age, education or occupational groups which are empirically derived and compared to current candidate results.

B.35 Objectivity

Degree to which the results of a proficiency assessment procedure are free of any influences beyond those of the individual being evaluated.

NOTE: Any influence of the contractor and his assistants, situational conditions, scoring method etc. It must be distinguished between: Administration, scoring and interpretation objectivity.

B.36 Parallel Form

A test-theory-based psychometric equivalent form of a proficiency assessment procedure.

B.37 Profile

Simultaneous (often graphic) presentation of an individual’s results from one or more proficiency assessment procedures.

B.38 Psychometric

Quantification of psychological attributes (e.g., abilities, aptitude, performance, personality characteristics, skills and knowledge) by way of concise regulations and test-theoretical assumptions.

B.39 Reference Group

The group to which the candidate/couselee currently belongs, should or wants to belong to in the future with regard to the particular characteristic of interest and with which he will be compared (see B.34 Norm Values).

B.40 Reliability

Degree of accuracy or lack of measurement error of a procedure with which the measured characteristic is derived.

NOTE: The standard error of measurement can be calculated using the reliability. The real degree to which the measured characteristic of an individual deviates from the observed empirical results can be derived for each individual using the standard error of measurement with a fixed judgment error risk (probability). Reliability quotients between $r = 0.70 - 0.85$ are generally achieved for reliability studies depending on the selected procedure type and method.

B.41 Raw Score

Results from a proficiency assessment procedure not yet compared to a reference group or for which no other transformations have been applied.

NOTE: The raw score for standardized procedures is generally derived by counting the number of correct answers.

B.42 Test

See B.49 Procedure, Standardized

B.43 Test Theory

Set of intellectual assumptions based on the relationship between a particular individual characteristic and the results derived from a proficiency assessment procedure.

NOTE: A test theory is the foundation for the construction and evaluation of proficiency assessment procedures.

B.44 Intelligibility

Extent to which, though the composition of a proficiency assessment procedure, the candidates are able to clearly understand its measurement function, scoring and interpretation.

B.45 Validation

Examination of the validity (see B.20 Validity).

B.46 Variable

Quantitative amount that each value of a specific quantity can have.

B.47 Variance

Variability; the average squared deviation from the mean of the e.g., reference group (see B.39 Reference Group).

B.48 Proficiency Assessment Procedure

Practice-tested and scientifically founded discovery tools implemented in a standardized fashion as proficiency assessment procedures.

NOTE: These include particularly proficiency interviews, biographical questionnaires, occupational personality questionnaires, assessment centers, job trials and tests. The results of scientifically up-to-date and carefully constructed and evaluated proficiency assessment procedures deliver information about the knowledge, experience and behavior of candidates.

B.49 Procedure, Standardized

Collection of questions or exercises based on scientifically accepted content and test theory and, in reference to a reference group (see B.39 Reference Group), have been empirically founded and standardized.

NOTE: Standardized procedures are administered, scored and interpreted under fixed rules. They satisfy conceptually all current scientific and technical requirements that apply to proficiency assessment procedures.

B.50 Approach

Sum of all steps related to proficiency assessment procedures.

NOTE: This includes all procedures from the planning of the proficiency assessment to the selection of the implemented procedure or to the reporting of the results and the check of effects.

B.51 Reasonableness

Degree to which a test (absolute and relative to the resulting benefits of the implemented procedure) does not exceed the reasonable time, psychological (in particular the "energetic"-motivational and emotional) and physical demands of the candidate (see B.2 Suitability).

B.52 Standardized Implementation; Standardized Manner

The implementation of procedures is considered standardized when they are administered and scored under comparable conditions and with fixed rules.

B.53 Operationalizations

The labeling of observable behavior patterns and indicators that are derived from a theoretical construct. The construct and its degree can be implied from the frequency and manner of the observed behavior pattern.

NOTE: Operationalizations are necessary in order to enable the evaluation of aptitude characteristics that are not directly observable.

