VIENNA TEST SYSTEM
Psychological assessment
Get in touch!

For queries and catalog orders
Mon. – Thurs.: 8 a.m. – 5 p.m.
Fri.: 8 a.m. – 2 p.m.

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Your own personal online demonstration of the Vienna Test System

Fast, efficient, personal: Upon request a member of the SCHUHFRIED team will – in the same way as at a webinar – take you through the Vienna Test System online and answer your questions on computerized psychological assessment. All that you need for this personal consultation is a telephone, a computer with internet access and a little time.

Email
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For the sake of readability the masculine form has been used throughout to designate both genders.

SCHUHFRIED
passion for psychology

VIENNA TEST SYSTEM
Psychological assessment

COGNIPLUS
Cognitive training

BIOFEEDBACK 2000
Multimedia system

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The path to your Vienna Test System

Questions to ask:

- How many times a year will I test?
- Will I test regularly or sporadically?
- Will I test locally or at different locations?
- Do I want testing to be supervised or not?
- Do I want to use a desktop PC, a laptop or a tablet computer for testing?
- Do respondents need to be tested online?

HOW DO I WANT TO TEST?

- Setting/implementation

WHAT DO I WANT TO TEST?

- Content

START

Questions to ask:

- What abilities/trails/possible deficits do I want to identify?
- What distinguishes a “successful” colleague or athlete from an “unsuccessful” one?
- What distinguishes a “suitable” driver/plat/police officer/engineer etc. from an “unsuitable” one?

WHAT DO I WANT TO TEST?

- You need: Administration software incl. dongle
- Choose the: Vienna Test System
  - Vienna Test System HR
  - Vienna Test System NEURO
  - Vienna Test System TRAFFIC
  - Vienna Test System SPORT
- = Web Direct Testing in the SCHUHFRIED webshop

TESTS

- Unidimensional issue
  - Accessories required in some cases
- Complex issue
  - Test sets
- Content

TEST BATTERIES

- Compiled by you from individual tests
- Accessories required in some cases

TEST SETS

- Combination of test dimensions
  - 16 test sets for HR, Neuro, Traffic and Sport
  - With manual, report and profile evaluation
  - Compiled by experts, based on validation studies or legislation-related
  - Accessories required in some cases

Pricing models

- Unlimited testing
  - Annual flat rate
- Charging by test administrations
  - 50 test administrations
  - 1 test administration

Included at no extra cost:

- Variety of norms and language versions
  - Administration software in 14 languages
  - Test presentation in up to 27 languages
  - Scoring of results in up to 14 languages
  - During translation tests are adapted if necessary to different cultural environments

WHO CAN HELP ME?

- Test (battery) creation
- Test administration
- Scoring of test batteries
- Validation studies
- Norming
- Reports

FREE SERVICES

- Demo version
- Online presentation
- Help desk

CONSULTING

- Find via:
  - A-Z
  - Test type
  - Dimensions lists for specialist areas
  - Free advice from your advisor

I’ve still got questions!

I need advice.

GET TESTING!

OR

I want to know more!

4. VIENNA TEST SYSTEM
Implementing the Vienna Test System

The Vienna Test System can be implemented either through installation on a single local workstation (the classical method), or via the internet or intranet.

Single workstation solution

The test administrator and the candidate both work at the same workstation. The test administrator carries out the administration. The candidate then works the tests.

Local installation

The Vienna Test System (VTS) is installed locally on a computer and is not connected to a network (internet or intranet). To enable you to carry out the installation, you receive a VTS DVD and a license dongle. You are not restricted to using the VTS on one computer: you can install it on several computers (e.g. on a desktop PC and a laptop) and start testing on a particular computer by inserting the license dongle.

Hosting at SCHUHFRIED

You rent server space at SCHUHFRIED and buy licenses for the administration software and the required tests. Your local PC is linked as a client to the SCHUHFRIED server, where your Vienna Test System database is saved. From your computer you can access all the features of the VTS administration software and present all the tests in the Vienna Test System. The Vienna Test System database is saved centrally and securely on the server.

Server solution

If a large number of people need to be tested, it is worth setting up a server solution. The server solution in the Vienna Test System is based on the client-server model. You can use the “client” (a test administrator PC and/or test presentation PC) to access the features of the VTS administration software or present tests. All data (e.g. candidate details, test batteries, test results) is saved in a central database on the server. The test administrator’s computer and the candidates’ computers are connected to the server via the internet or intranet. You can rent server space at SCHUHFRIED or install the VTS server solution on your in-house server.

Three types of floating license are issued separately for a server solution

In addition to the license for the VTS server solution, licenses must be obtained for the required number of parallel accesses (floating licenses) to the administration software, the test presentation and the tests (see the table on the right). The use of floating licenses enables the VTS software to be used at multiple locations all over the world without the need to purchase a separate license for each workstation. The only condition is that the number of simultaneous users must not exceed the number of floating licenses purchased.

Testing without administration software: Web Direct Testing

Web Direct Testing is the technological solution for testing without needing to purchase the VTS administration software. It is organized via the SCHUHFRIED webshop. How it works: The customer receives the URL of the test together with a code. The code and URL can be emailed to the candidate or sent by other means. The candidate uses this code to start the test online via a browser. When testing has finished, the test results are sent to you in a PDF in the form of a standardized report.

The advantages of floating licenses

- More precise planning in accordance with your usage pattern
- Lower software and license costs
- Minimization of the data volumes involved during installation
- Efficient company-wide use of Vienna Test System licenses

Parallel access of candidates to the test presentation interface

<table>
<thead>
<tr>
<th>What is the maximum number of people to be tested simultaneously (worldwide, across all sites)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>= the number of VTS Test Player floating licenses</td>
</tr>
</tbody>
</table>

Parallel access of test administrators to the administration software

<table>
<thead>
<tr>
<th>What is the maximum number of people who will access the administration software simultaneously (worldwide, across all sites)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>= the number of VTS floating licenses</td>
</tr>
</tbody>
</table>

Tests

<table>
<thead>
<tr>
<th>What is the maximum number of people who will take the same test simultaneously (worldwide, across all sites)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>= the number of floating licenses for a test</td>
</tr>
</tbody>
</table>

We shall be happy to advise you on the many options available through the server solution.

The advantages of Web Direct Testing

- More precise planning in accordance with your usage pattern
- Lower software and license costs
- Minimization of the data volumes involved during installation
- Efficient company-wide use of Vienna Test System licenses

Integrating the tests into existing management systems

The Vienna Test System Integration Service (VIS) provides the Vienna Test System with an interface that enables it to be integrated easily into other software systems, thus facilitating the exchange of data. For example, core candidate data, selections of tests or test results can be transferred via the VIS. Typical application scenarios include applicant management systems and clinic administration systems.

The advantages of the Integration Service

- You start the tests from an administration interface with which you are familiar – this makes the system easy to use and boosts efficiency.
- Many different scenarios and workflows can be represented and implemented using the VIS.
- The VIS enables you to incorporate VTS functionality into your software system.

For all online presentation options please note the following: Tests can be presented online in the browser, the VTS Test Player Lite or the VTS Test Player. The options available depend on the type of test. Unlike the VTS Test Player Lite, the VTS Test Player requires a Windows user with local administrator rights. Details of the type of installation required (if any) can be found in the relevant test description or the VTS system requirements.
The Vienna Test System’s content options

There are four special versions of the Vienna Test System (VTS) produced for the application areas of HR, Neuro, Traffic and Sport. Each of these specialized Vienna Test Systems includes a dimensions list and test directory specifically tailored to the particular field of use. They also contain a number of “test sets” – combinations of test dimensions useful for exploring particular complex issues.

Included in the purchase price of a specialized Vienna Test System are ten uses of all the tests it contains and five uses of each test set.

The four versions of the Vienna Test System

Refinements with added value

- Dimensions list relevant to the application area
- All the tests relating to the application area incl. 10 uses of each test
- All the test sets relating to the application area incl. 5 uses of each test set
- Profile Evaluation
- Manual

Worth knowing

All tests and test sets can be licensed in all versions of the Vienna Test System. Should you wish to extend the range of tests supplied with your specialized Vienna Test System, you can do this at any time.

The number of tests and test sets may vary from that quoted. Updated: October 2013. Please ask your advisor for up-to-date information or visit www.schuhfried.com.

Vienna Test System HR
- Developed for personnel selection, personnel development and career counselling
- Also covers occupations in which safety is an issue (e.g. professional drivers, train drivers, pilots, police and military, mine workers and other industrial job types)
- Contains 28 tests.
- Includes the following six test sets:
  - KEYHR Key Factors HR
  - SFCALL Success Factors Call Center
  - SARGAD Safety Assessment Road
  - SARAIL Safety Assessment Rail
  - SAAIR Safety Assessment Aviation
  - SAMINE Safety Assessment Mines

Vienna Test System NEURO
- Developed for neuropsychological and clinical investigations
- Contains 36 tests.
- Includes the following three test sets:
  - COGBAT Cognitive Basic Assessment
  - CFADHD Cognitive Functions ADHD – Adults
  - DRIVE3C Fitness to Drive Screening

Vienna Test System TRAFFIC
- Developed for the psychological assessment of fitness to drive
- Contains 21 tests.
- Includes the following three test sets:
  - DRIVESTA Fitness to Drive Standard
  - DRIVEPLS Fitness to Drive Plus
  - PERSROAD Driver Personality Factors Road

Vienna Test System SPORT
- Developed for sport psychology investigations
- For competitive sportsmen and -women in team and individual sports
- A useful aid to finding and promoting sporting talent
- Contains 54 tests.
- Includes the following four test sets:
  - SFMOTOR Success Factors Motorsport
  - SETEAM Success Factors Teambuilding
  - TAKIDS Talent Assessment Sport Kids
  - TATEENS Talent Assessment Sport Teens
Test Sets

Combinations of tests for complex assessment issues

Test sets are specially developed test batteries. They consist of several tests or test dimensions designed to answer a complex query that cannot be resolved by administering just one test. The choice of dimensions and tests for the test sets is based on validation studies or legal requirements and has been carefully carried out by experts with a thorough grounding in both theory and practice.

The tests selected by the experts have then been adapted or if necessary redeveloped for use in the context of the specific assessment query. The criteria used in selecting suitable tests were testing time, appropriateness of the test material to the assessment query, appropriateness of the test material to the client group being tested, and appropriateness for international use. Tests have been adapted by developing parallel forms, altering the item material or adjusting the length of the test. Some test sets have been normed on a cross-test basis.

For each test set there is a manual, a profile evaluation (if appropriate) and a report in which the results in all the dimensions are summarized in verbal and graphic form. There are 16 test sets for use in the fields of HR, Neuro, Traffic and Sport available.

KEYHR Key Factors HR
The KEYHR test set assesses the most important personality and ability factors of relevance to a successful career path. Because these key factors apply irrespective of the area in which the person works, KEYHR provides a good overview of an individual’s skills without the need to specify a concrete job profile. This test set focuses on the key work-related characteristics; it can be used either for pre-selection or—in combination with other tests and/or a structured interview—for final selection. The validity of the tests contained in the test set has been demonstrated in validation studies.

SFCALL Success Factors Call Center
The SFCALL test set is used in the selection of call center staff. It tests cognitive abilities relevant to this occupational group (such as multi-tasking and verbal abilities) and personality characteristics (such as frustration tolerance and conscientiousness). SFCALL has been validated in a large German call center using criteria such as decision-maker contacts, productivity, orders and cancellation rate: it has good predictive validity for these call center success factors. For each candidate the scoring system provides not only the overall test results but also an overall score that takes account of all the tests and indicates the degree of fit to the ideal profile (the “fit score”) for both inbound and outbound activities. In addition, on the basis of the fit scores a ranking of all the candidates can be drawn up.

SAMINE Safety Assessment Mines
In just 36 minutes, and using non-verbal items, the SAMINE test set tests the cognitive and psychomotor abilities of two occupational groups in the mining industry. These groups are 1) transport drivers who drive locomotives in mines and 2) machine operators who use a variety of machinery and equipment. SAMINE, which has been validated in South African mines over several years, can be used both in recruitment and to test existing staff. The clearly set-out test results indicate whether the respondent has the aptitude to work safely or whether—in the case of existing staff—there is a need for further training. The fit score, which is reported as a percentage, shows how closely the candidate matches the ideal profile. The purpose of SAMINE is to reduce accident rates and prevent physical damage to expensive machinery.

SAROAD Safety Assessment Road
The SAROAD test set assesses whether potential professional drivers (e.g. in local public transport, long-haul transport or freight transport) possess the necessary driving-related skills. It combines a number of ability dimensions that have been shown in various validation studies to be the most relevant. Considerable skill has been exercised in selecting from a wide range of ability dimensions studies those that provide the best mix of information gain and testing time. Test administration is simple and efficient. SAROAD makes it possible to create a ranking to provide a rapid overview of the best candidates. The test set can also be used to identify the training needs of experienced professional drivers—for example after an accident or critical incident. SAROAD is used worldwide and is a classic among the test sets.

SARAIL Safety Assessment Rail
The SARAIL test set is a sophisticated and flexible tool for assessing train drivers’ fitness to drive. It identifies whether train drivers meet the requirements of the European Train Driver’s License. Fourteen cognitive abilities (e.g. attention, perception speed), psychomotor abilities (e.g. reaction time, eye-hand coordination) and behavioral and personality characteristics (e.g. emotionality, conscientiousness) are measured. The test dimensions have been selected in accordance with EU directive 2007/59/EC. As an example after an accident or critical incident. SARAIL can also be used to select drivers of other rail vehicles (e.g. rapid transit train, metro, tram) and applicants for safety-related jobs in the rail sector.

COGBAT Cognitive Basic Assessment
The COGBAT test set is used to clarify the cognitive status of patients with neurological and/or mental disorders. The aim is to measure cognitive status both as broadly and as time economically as possible. Using carefully selected and in some cases specially adapted tests, the test set measures subdimensions in the areas of attention, memory, executive functions and processing speed. COGBAT thus identifies cognitive areas in which a deficit may be present. These areas can then be investigated in depth with specific tests. COGBAT has been normed on a cross-test basis—i.e. as an overall package—and has been validated on various patient groups. An easily understood evaluation provides a rapid overview of impaired and unimpaired dimensions.

CFADHD Cognitive Functions ADHD – Adults
The test set CFADHD Cognitive Functions ADHD – Adults is a test battery for assessing the performance profile of adult patients with Attention Deficit Hyperactivity Disorder. It tests 15 neuropsychological dimensions in the areas of attention, memory, executive functions and processing speed as well as subjective ability, since the performance of adult ADHD patients in these areas is often impaired. CFADHD has been designed to provide a nuanced and accurate picture of all the cognitive functions relevant to ADHD in as short a time as possible. The test set can be used with respondents aged 16 and over.

DRIVESC Fitness to Drive Screening
The DRIVESC test set assesses the three main factors of driving ability: resilience, reaction time and obtaining an overview. It provides an efficient means of screening people with neurological and/or mental disorders for fitness to drive. The validity of the DRIVESC test set has been repeatedly proven in multi-center studies of healthy drivers and individuals with brain injuries. The test set is simple to use and the instructions are easy to understand.

Read more … about COGBAT

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Page 39
Test Sets for use in Traffic

DRIVESTA Fitness to Drive Standard
The DRIVESTA test set assesses driving ability on the basis of the dimensions of obtaining an overview, logical reasoning, concentration, stress tolerance and reaction time. In addition to the results of the individual tests, a highly valid overall assessment of the respondent’s driving-specific ability is provided. DRIVESTA is based on a model – which has been validated in a number of independent studies – of the correlation between the test results and the assessment of driving behavior in a standardized driving test. The overall judgment takes into account any opportunities for compensating for individual deficits that may be present and is an aid to deciding whether someone is fit to drive.

PERSROAD Driver Personality Factors Road
The PERSROAD test set ideally complements the information on driving ability obtained using the DRIVESTA and DRIVEPLS test sets. Using tests that have been validated in the field of traffic psychology, it assesses the most important personality factors that contribute to willingness to adapt to traffic conditions. In various multi-center validation studies it has been shown that these driving-related personality traits play a significant part in the prediction of safe driving behavior.

Worth knowing

DRIVEPLS Fitness to Drive Plus
The DRIVEPLS test set is based on the DRIVESTA test set. In addition to the five dimensions of the DRIVESTA test set, peripheral perception is also tested. Peripheral vision is necessary for estimating speed, controlling a vehicle and monitoring the driving environment. Adding the dimension of peripheral perception increases the time and effort involved in testing, but also enhances the validity of the result. As with the DRIVESTA test set, a highly valid overall assessment of the respondent’s ability is provided in addition to the individual test results.

Worth knowing
The DRIVEPLS test set corresponds to the Plus test battery in the Expert System Traffic.

Test Sets for use in Sport

SFMOTOR Success Factors Motorsport
The SFMOTOR test set is used to help identify suitable drivers in the field of motor sport (e.g. motor racing, karting, motorcycle racing, motorboat racing, truck racing). The respondent’s cognitive abilities are assessed. SFMOTOR is based on a test battery that was completed by 125 motor sport drivers in a validation study conducted between 2000 and 2006. This study was used to define a target range for the ability profile of motor sport drivers. The extent to which a respondent is in the target range can be calculated and displayed in comparison to other drivers in the form of a ranking.

TATEENS Talent Assessment Sport Teens
The TATEENS test set measures sport-related ability in young people. It is derived from a test battery that was used and validated for the basic performance assessment of young people aged 11-14 in the period 2001-2007. With TATEENS it is possible to identify the structure pattern of the factors stress tolerance, reaction time, memory, visual perception and focused attention. During validation an ideal range for performance in each area was also defined. Whether the young athlete matches this ideal range can be calculated and displayed and used to make inter-individual and intra-individual comparisons.

Detailed descriptions of all the test sets can be found starting on page 31 or in the relevant specialist catalogs.
The user interface of the Vienna Test System

The user interface of the Vienna Test System contains the following tabs.

**SETTINGS tab**
- Here you can adjust the default settings of your Vienna Test System.
- Define access authorizations.* One Vienna Test System can be used by several people: each person has a separate login and can save their favorite settings.
- Install new tests and test sets or activate license extensions.
- Define accessories or special input devices.

*Data protection
For purposes of data protection the Vienna Test System includes functions that prevent unauthorized use of the system and the data – especially personal data – collected by it. Access can be authorized at four different levels and is controlled by passwords.

**PERSON tab**
- Enter new respondents/clients or edit the data of those already in the system. You can enter the information manually or import it from other databases.
- As well as using the standard entry fields, you can add other fields of your choice.
- Use the “Visible/Invisible” option to conceal personal information and maintain greater anonymity.
- Assign each person a language in which testing will be carried out by default.

**TEST tab**
- Here you will find all the functions needed to start a test session.
- Choose between dimensions, tests, test sets and test batteries.

**RESULT tab**
- View all the results of a test session in various formats (e.g. table, profile).
- As scoring methods you can choose between individual scoring, test battery scoring, cross-dimension scoring, test set scoring and profile comparison of test repetitions.
- Import or export raw and/or norm scores on the test variables.

*Data protection
For purposes of data protection the Vienna Test System includes functions that prevent unauthorized use of the system and the data – especially personal data – collected by it. Access can be authorized at four different levels and is controlled by passwords.
**Test selection and administration**

**Test selection**

Select a respondent and decide whether you want to administer a test, a test set or a test battery.

Selecting and administering a test

From the test list, select the test to be administered. Alternatively, use the "Dimensions" menu option. Click on the trait that is to be tested. The Vienna Test System then suggests the most suitable test or test form.

Selecting and administering a test set

The 16 test sets in the Vienna Test System are fixed combinations of test dimensions with an overall scoring system that takes account of all the tests; they also contain a manual and a report. A test set is used to investigate a complex issue (e.g. fitness to drive). Call up the test set of your choice via the "Test Sets" menu option, add it to the test sequence list and start testing by clicking on the "Start Testing" button.

**Worth knowing**

Many tests have different test forms that vary in length or difficulty. They are designed for use with specific groups (e.g. children, gifted individuals) or for particular measurement purposes (e.g. screening). This enables one and the same test to be used in different contexts.

**Note on the test lists and test set lists**

The classic version of the Vienna Test System lists the licensed tests under the "Tests" menu option. The test lists in the four specialized versions of the Vienna Test System contain all the tests and test sets in the relevant area of application. Ten uses of each test and five uses of each test set are included in the purchase of a specialized Vienna Test System.

Selecting and administering a test battery

As well as individual tests, a test battery can be administered. A test battery is a fixed sequence of individual tests. The test administrator (if necessary with help from the SCHUHFRIED consulting team) decides which tests a test battery should contain and in what order they will be presented. Completing the last item of one test leads automatically to the start of the next test. A test battery can be saved in advance: when it is needed the test administrator can then call up the test battery and administer it.

Other options on the TEST tab

- Manual: Opens the manual for the particular test or test set. The manual contains detailed information on all the psychometric properties of the test together with guidelines on interpretation.
- Norms: Summarizes the comparison samples that can be selected for this test.
- Language: Select the language in which the test is to be administered. Tested can be presented in up to 27 languages, regardless of the language of the main window.
- Advanced options: For many tests specific options can be set. For example, this is the case with adaptive tests. For decision-oriented and efficient assessment, a termination criterion can be set for these tests. The criterion can be defined under "Advanced options". Testing continues only until you have all the information you need for your decision.
- Save: Saves the test sequence you have defined as a test battery. You can choose any name for the test battery.
- Assign: Once you have defined a test sequence, you can assign it in advance to a respondent.
- Profiling: Using the additional Profiling module you can define target percentile ranks or cut-off scores. You receive an overall score – the fit score – that specifies the ratio of the ideal score (on the basis of the target percentile ranks) to the actual score.

**Testing**

Simply click the "Start Testing" button. Testing begins and proceeds as follows:

**Instructions**

Each test begins with instructions, in which the task is described.

**Practice phase**

A practice phase then follows to check whether the respondent has understood the task. If he has not, the test administrator can intervene. The instructions and the practice phase are often linked and contain a series of stages based on the principles of programmed learning.

**Test phase**

The respondent now works the test items. There is no involvement of the test administrator at this stage; this ensures a high level of objectivity.
Test results and test scoring

The results are available as soon as testing has finished. You can choose between different views.

Table
The results table lists the test variables, the raw scores obtained and the corresponding norm scores. The norm score comparisons relate either to an overall sample or, where appropriate, to subsamples based on age, gender, educational level or other criteria. In addition to percentile ranks, T-scores and/or Z-scores are usually displayed. If reliabilities exist, confidence intervals are also given.

Profile
In the colored profile diagram the normal range is shaded grey, making deviations visible at a glance. In some tests additional explanations of the test variables are also displayed.

Profile comparison: It may be appropriate for a respondent to repeat a test after an intervention (e.g. treatment, training). You can use the profile comparison to compare the results of up to seven test sessions. The profiles of the individual test sessions are superimposed. The different profile curves are shown in different colors and/or different types of line, enabling changes to be quickly identified.

Test protocol
The test protocol shows the respondent’s reactions, the working time for each item and any corrections that were made to answers. For many questionnaires an item analysis protocol is available, showing the questions posed and the answers given. If the client’s responses are implausible or incomplete, warnings on interpretation of the test are given.

Worth knowing
When you purchase an update you also receive all the updated norms.

The test results can be displayed in different ways. The choice is yours: at the touch of a button you can decide whether the display should include the table, the profile, the chart or the test protocol. The administration software also provides access to all the samples available for the test, enabling you to display the results alongside different comparison scores.
Example of a test scoring

Freely adaptable title line
Respondent's details

John Doe
born 01.01.1990, male, 22.3 years, Education level 3

Brief description of the test
Attitude towards Work (AWA)
Short test battery for investigating the cognitive style “Impulsivity/Reflexivity” and the motivation psychology constructs of “Aspiration level”, “Performance level” and “Frustration tolerance”.
Test administration: 12.04.2012 - 15:51
Duration: 0 min.

Raw score

Comparing surfaces
Target discrepancy
Performance level
Performance motivation
Performance evaluation
Frustration tolerance
Coding symbols

Norm score comparison with choice of sample
Confidence intervals

Test results - Comparison sample, representative

Test results - Comparison sample, representative

Confidence intervals: given in parentheses next to the comparison scores have a 5% probability of error.

Working time 04:40

Exactly understood colored profile diagram

Explanations of the test variables

Test variables

Test protocol and item analysis for detailed information on the course of the test

Scale for the Assessment of Subjective Occupational Stress and Distress (SSUSD)

Notes on test interpretation

Cogitators (CG):

Agreement: 2nd nearest to the mean value (± 0.4) - (± 0.4)

Additional options on the RESULT tab

Detailed search: Search for test results via test date, client code, respondent’s date of birth, tests used, etc.

Scoring Type: Choose between individual scoring, test battery scoring or test set scoring. In contrast to the standard scoring system, in which the results of each test in a test battery are shown separately, the test battery scoring presents the test results one below the other. All the display options (table, profile etc.) are available.

Word Report: A report template is provided for all test sets and tests. Clicking on “Word Report” incorporates the test results into this report template. This report can be edited (e.g. to add a logo), printed and saved using Microsoft Word. The report explains the dimensions tested and describes how the respondent scored on each one. Examples illustrate the significance of the dimensions. For some tests transfer of the test results into the report template is automatic; in these cases, too the report template can be adapted individually in Microsoft Word.

Ranking: You can use the additional Ranking module to compare a number of respondents. The ranking is based on the extent to which the respondents meet the requirements profile (previously defined by you via the “Profiling” option). You can immediately see which candidate is most suitable. In practice ranking is frequently used to pre-select applicants.

Data export to VTS, CSV, SPSS: All test results can be exported into standard statistical programs such as Microsoft Excel (using the CSV data format) and SPSS for further statistical processing. Test results can also be exchanged between two Vienna Test Systems (VTS).

Import: Enables you to import test results from another Vienna Test System.
Worth knowing
The Response Panels can also be used as input devices for Cogni-Plus.

Hardware

Motor performance series
Needed for the test: MLS Motor Performance Series
Read more ...about MLS on page 98

The Motor Performance Series is a highly reliable test that has been developed from Fleishman’s factor analysis of fine motor skills. Both dynamic and static dimensions of finger/hand/arm movement are measured.

The MLS Work Panel features:
- holes of different diameters for steadiness, one- and two-handed
- a groove with several bends and angles for line tracking, one-handed
- 2 x 20 contact points for aiming, one- and two-handed
- 25 small holes on both left and right sides for inserting pins, one- and two-handed
- two small metal plates for tapping, one- and two-handed
- USB connection

Flicker tube
Needed for the test: FLIM Flicker/fusion Frequency
Read more ...about FLIM on page 92

The flicker frequency analysis measures CNS activation (arousal). Stimulation light from 10.0 to 80.0 Hertz in steps of 0.1 Hertz, minimal influence of extraneous physiological and physical variables

Peripheral perception
Needed for the test: PP Peripheral Perception
Read more ...about PP on page 105

The Peripheral Perception test measures the ability to perceive and process peripheral stimuli. The respondent’s attention is held in the center of the field of view by asking him to carry out a tracking task. At the same time peripheral light stimuli are presented and the respondent is required to react selectively to these.

Hardware programs

Hardware test
The Hardware Test can be used to test the functioning of the individual components of the Test System. Upon completion of the test a report appears on the screen and can be printed out if necessary.

Calibration Module
The time-critical tests of the Vienna Test System are designed to identify and compensate for delays in stimulus output that arise for technical reasons. This enables reliability to be guaranteed to within about three percentile rank points. In areas in which even greater reliability is needed, use of the Calibration Module is recommended. This enables measurement to be accurate to the nearest percentile rank, irrespective of the computer system used.
Our service to you

Don’t throw in the towel – reach for the telephone!

Free services

Demo version
Take a look inside the Vienna Test System online. We shall be happy to send you the link you need to do that – please contact us.

Online presentation
A SCHUHFRIED colleague will be happy to take you through the Vienna Test System online and answer your questions on computerized psychological assessment. In technical terms this resembles a webinar: you need a telephone and a computer with internet connection.

Help desk
Our Help Desk is happy to assist with installation and technical queries. Telephone +43 2236 42315-60 or email support@schuhfried.at.

The Research Letter
At regular intervals SCHUHFRIED publishes a special newsletter, the Research Letter, which covers a wide range of issues relating to personnel assessment, clinical psychology, neuropsychology, traffic psychology and sport psychology. As well as product details the Research Letter provides background information on issues relevant to the sector, facts on relevant legislation and standards, and tips on using psychological tests.

Articles that have appeared in past issues of the Research Letter include:

- **NEURO: The Manual of Mental Disorders - DSM 5:** its past, present and future
- **NEURO: Comprehensive testing of patients with depression and schizophrenia confirms the presence of cognitive impairments**
- **SPORT: Burnout in elite sport:** Using psychological assessment for prevention
- **BIOFEEDBACK: Tracking down good tone:** Musicologist at Vienna’s University of Music uses biofeedback in research

Download the Research Letter: www.schuhfried.com > Service & Consulting
Subscribe to the Research Letter: write to info@schuhfried.at and keep up to date.

Updates and service contracts

The Vienna Test System is the outcome of many years’ development and constant updating. It is continuously refined in response to input from our research departments (psychology, software, hardware), findings from the test and research laboratory and customers’ experience. Software updates enable you to benefit from improvements such as:

- New test forms
- New norms
- New languages
- Updated test items
- New auxiliary functions
- Compatibility with updated operating systems and PC hardware.

**Single update**
Single update for the administration software and all tests.

**Update contract**
With an Update Contract your Vienna Test System is always fully up to date. Updates are provided twice a year.

**Update and service contract - Standard**
As well as twice-yearly updates to your test system, this contract includes additional services, such as:
- On-site installation and training
- Low-cost equipment loan in the event of capacity shortages or repairs

**Update and service contract - Premium**
The Premium contract guarantees you full support for all aspects of the psychological process. For example, in addition to the twice-yearly software update it includes:
- Quota of consulting services
- Replacement of all SCHUHFRIED hardware every five years
- Free equipment loan

Consulting

Are you short of manpower for testing? Do you need a test that doesn’t yet exist? Or perhaps you need advice on identifying appropriate personnel development measures from test results? The following services are available to help you:

**Psychological services**
- Advice on all aspects of psychological assessment
  - e.g. advice on ways of using tests, drawing up requirements profiles, defining dimensions for particular disorders.
- Test-specific advice
  - e.g. test selection to fit the requirements profile, creating tailor-made tests, defining cut-off scores.
- Training in test use and scoring and contract testing
  - e.g. instruction in use of the test system, advice on interpretation guidelines, carrying out testing.
- Planning ways of improving test results
  - Help with planning training programs and intervention schemes on the basis of test results (in cooperation with external professional partners). Advice on Cogni-Plus, the cognitive training program that is coordinated with the Vienna Test System.
- Adaptation of test batteries through evaluation
  - Professional help with norming and validation studies, so that you can tailor your test battery (or batteries) even more precisely to the needs of your business. Technical implementation, e.g. incorporating individual norms into your Vienna Test System.
- Technical services
  - Integrating the Vienna Test System into other systems
    - Help with integrating the Vienna Test System into existing workflows or software programs
  - Integrating external information and data into the Vienna Test System
    - Importing data and information into your test system – e.g. results of surveys, interviews, anamnesis / history taking, training and study grades. Integrating this additional information into the results display and/or the ranking.

Detailed descriptions of all consulting services and support contracts can be found in the SERVICE & CONSULTING catalog.
Your virtual shopping mall
www.schuhfried.com

Buy and extend licenses, tailor your test portfolio to your immediate needs by buying single-use licenses and use the Web Direct Testing system to test without administration software – you can do all this in the SCHUHFRIED webshop!

Online testing without administration software
> Web Direct Testing

Some tests can now be presented without administration software. This Web Direct Testing is carried out via the SCHUHFRIED webshop; it enables you to use tests flexibly without needing to buy or install the administration software. Web Direct Testing is particularly suitable for decentral testing – that is, when the test administrator and the testee are in different places.

Here’s how it works:
1) Log on to the SCHUHFRIED webshop with your user details.
2) Select the tests, then go to the checkout and pay.
3) You will receive a link and a code that can be used to start the test. Send both to your testee. The testee uses this code to start the test online via a browser.
4) When the testee has completed the test, you will receive a PDF with the results (standardized report).

Worth knowing
To purchase and extend licenses in the webshop you need a new Vienna Test System (Version 7.00 or higher).

Single-use licenses and small order quantities are particularly worthwhile if you need to extend your portfolio from time to time. For example, a traffic psychologist who specializes in road transport may occasionally need to test an engine driver. Or a sport psychologist who specializes in team sports may want to test a tennis player or take part in a research project.

With its clear organization and easy-to-use functions the SCHUHFRIED webshop provides the perfect opportunity to shop around the clock. You can extend licenses and purchase tests or test sets. A comprehensive product range from the application areas of HR, Neuro, Traffic and Sport awaits you. And online shopping has all these advantages:

Instant delivery
As soon as you have placed your order you will receive an email containing all the files needed to install or extend your licenses. Import these into your Vienna Test System. You can now start testing right away.

Minimum order quantity: 1 test administration
In addition to the ordering options “annual flat rate” and “50 test administrations” the webshop includes a feature that enables you to buy test administrations on a sliding scale. The minimum order quantity is one test administration.

24-hour shopping basket
All the items you put in your shopping basket will stay there for 24 hours.

 Worth knowing
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Introducing SCHUHFRIEND

The Vienna Test System & SCHUHFRIEND at a glance

Flexible

- More than 120 broad-spectrum psychological tests for measuring many different aspects of ability
- Well-known tests included in the portfolio
- Tests based on modern test theory such as Item Response Theory (Rasch model); adaptive tests
- Tests in up to 27 languages, with a wide range of test forms and norms

Unique

- Inventor of the test system: tests combined in one interface
- Individual tests combined into predefined test batteries (test sets)
- Pioneering role in tests of psychomotor functions, tests that can measure times in milliseconds and tests with auxiliary devices
- Unique: The theory-led text – training – evaluation concept

Competent

- Cooperation with well-known test authors and prominent universities
- Test & Research Center for studies and data collection
- Psychology, hardware/electronics and software all handled by the same company
- Certified under several quality schemes

Experienced

- More than 65 years’ experience in the field
- More than 5,600 customers worldwide
- The worldwide leader with more than 13 million tests conducted annually
- Used in 67 countries

7 reasons for SCHUHFRIEND

1. SCHUHFRIEND combines tradition and innovation

The SCHUHFRIEND company, founded as a family business in 1947, has more than 65 years’ experience behind it. Today the company leads the world in computer-based psychological assessment. Each year SCHUHFRIEND’s Vienna Test System is used to conduct some 13 million test sessions.

2. SCHUHFRIEND operates globally

41 international distributors and the SCHUHFRIEND headquarters (in Vienna, Austria) support customers all over the world. The Vienna Test System is currently used in 67 countries and is available in 27 languages.

3. SCHUHFRIEND wins awards for excellence

‘Quality by competence’ has been SCHUHFRIEND’s motto for many years. That is why the company has had ISO 9001 certification since 2003 and has been awarded the Austrian coat of arms. This is the highest award granted in Austria and is only awarded to businesses that can demonstrate a high level of exports, a first-class credit rating, innovative ability, good quality management and significant investment in research and development.

4. SCHUHFRIEND has good contacts

SCHUHFRIEND works with experienced experts – scientists, computer specialists and marketing gurus. At congresses, symposiums and specialist events SCHUHFRIEND networks with the other major players in the sector, so that it is always in touch with the latest trends. Or setting the trend itself.

5. SCHUHFRIEND specializes in computer-based psychology

The success of SCHUHFRIEND products is built on the unique interplay between the three strands of psychology, hardware and software. All its products are developed in-house, produced in Vienna, closely coordinated and continuously improved. Each year SCHUHFRIEND invests 25 percent of its turnover in research and development.

6. SCHUHFRIEND systems are simple and user-friendly

Using new technology can be a daunting prospect. Why not continue with the old familiar methods, such as paper-and-pencil tests? SCHUHFRIEND makes new ventures simple. The systems are easy to use and have many advantages. For example, the results of tests and training programs are available immediately – they are generated automatically and hence bound to be accurate. Because time is money!

7. SCHUHFRIEND is a strong partner

SCHUHFRIEND goes the extra mile for its clients. The sales team is the first point of contact and can turn many questions asked into questions answered. The Help Desk assists with technical issues. Psychologists advise on all matters in their field. This is appreciated by the users of systems in many businesses and organizations, including:

- 2,600 clinics, hospitals and rehabilitation centers
- 2,250 systems in use with private companies and recruitment agencies
- 1,600 self-employed users
- 1,350 systems at traffic examination centers
- 650 systems used by railway customers
- 530 universities
- 250 systems in airlines and flight training centers
- 110 users in the field of sport psychology
- 13 military institutions

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- 1,350 systems at traffic examination centers
- 650 systems used by railway customers
- 530 universities
- 250 systems in airlines and flight training centers
- 110 users in the field of sport psychology
- 13 military institutions
Quality management

SCHUHFRIED has a quality management system that meets the requirements of EN ISO 13485:2003, which is a version of EN ISO 9001:2000 adapted to medical products.

Products of SCHUHFRIED GmbH are developed and produced in accordance with EU Directive 93/42/EEG. They comply with the Medical Products Act and therefore carry the CE mark. This confirms that products comply with technical safety regulations and EMC guidelines for medical electrical appliances (EN 60601), bio-compatibility guidelines (EN 30993) and other product-specific requirements.

The development and production guidelines which have been drawn up as part of our quality management system ensure that SCHUHFRIED products are durable, highly reliable and fault-free.

In addition, DIN 33430 stipulates that the norms of tests used in suitability assessment must be checked every eight years to ensure that they are still appropriate. All tests sold by SCHUHFRIED meet this requirement.

Test & Research Center

The Test & Research Center has 13 test stations, supervised by up to five psychologists and psychologists in training. Here norming and validation studies are carried out on representative samples. In addition, mobile test systems are available for research projects involving children, older people or people with disabilities.
TEST SETS

32 › CFADHD Cognitive Functions ADHD – Adults
33 › COGBAT Cognitive Basic Assessment
34 › DRIVESTA Fitness to Drive Standard &
     DRIVEPLS Fitness to Drive Plus
36 › DRIVESC Fitness to Drive Screening
37 › KEYHR Key Factors HR
38 › PERSROAD Driver Personality Factors Road
39 › SAAIR Safety Assessment Aviation
40 › SAMINE Safety Assessment Mines
41 › SARAIL Safety Assessment Rail
42 › SAROAD Safety Assessment Road
43 › SFCALL Success Factors Call Center
44 › SFMOTOR Success Factors Motorsport
45 › SFTEAM Success Factors Teamsport
46 › TAKIDS Talent Assessment Sport Kids
47 › TATEENS Talent Assessment Sport Teens
The test set COGBAT Cognitive Functions ADHD – Adults is a test battery for measuring the performance profile of adult patients with attention deficit hyperactivity disorder (ADHD). It tests 15 neuropsychological dimensions in the areas of attention, memory, executive functions and processing speed as well as subjective ability, because the performance of adult ADHD patients in these areas is often impaired. COGBAT has been designed to provide a nuanced and accurate picture of all the cognitive functions relevant to ADHD in as short a time as possible. The test can be used with respondents aged 16 and upwards.

**Theoretical background**

Neuropsychological testing of adults with ADHD is useful, because many adults with this disorder cognitive impairments are often more marked than behavioral abnormalities. Neuropsychological tests can be used (1) to describe an individual’s impairments, (2) to objectively assess psychological dimensions in the areas of attention, memory, executive functions and processing speed as well as subjective ability, (3) to produce an overview of clinically impaired and unimpaired dimensions. The test can be used to create a useful part in (5) evaluating treatment methods and (6) charting the course of the disorder.

**Administration**

Administration of the test set is flexible and can be adapted to specific situational requirements. Dimensions can be removed from the test set and breaks can be inserted. The test takes between 80 and 120 minutes to complete, depending on test form.

**Scoring**

The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank and in a profile. A written report containing a profile diagram, the fit scores and a verbal description of the test results can also be created for each candidate.

**Dimensions**

The COGBAT test set comprises the following dimensions and tests:

- **Attention**
  - Selective attention
  - Vigilance

- **Memory**
  - Verbal working memory
  - Executive functions
    - Figural fluency
    - Interference
    - Cognitive flexibility
    - Response inhibition
    - Task switching

- **Processing speed**
  - Processing speed
  - Information processing speed

The following table is used to test other functions if required:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figural long-term memory: Learning ability</td>
<td>FGT</td>
<td>S1</td>
<td>0.9</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Figural long-term memory: short-term</td>
<td>FGT</td>
<td>S1</td>
<td>0.7</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Figural long-term memory: long-term</td>
<td>FGT</td>
<td>S1</td>
<td>0.7</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Figural long-term memory: Recognition</td>
<td>FGT</td>
<td>S1</td>
<td>0.68</td>
<td>approx. 16</td>
</tr>
<tr>
<td>Planning ability</td>
<td>TOL-F</td>
<td>S1</td>
<td>0.7</td>
<td>approx. 16</td>
</tr>
<tr>
<td>Subjectively experienced mental ability</td>
<td>FLEI</td>
<td>S1</td>
<td>0.96</td>
<td>approx. 5</td>
</tr>
<tr>
<td>Mouse use</td>
<td>MOUSE</td>
<td>S1</td>
<td>*</td>
<td>approx. 2</td>
</tr>
</tbody>
</table>

**Total length if all dimensions are presented**: approx. 78 minutes

**Application**

The test set COGBAT Cognitive Functions ADHD – Adults is a test battery for measuring the performance profile of adult patients with attention deficit hyperactivity disorder (ADHD). It tests 15 neuropsychological dimensions in the areas of attention, memory, executive functions and processing speed as well as subjective ability, because the performance of adult ADHD patients in these areas is often impaired. COGBAT has been designed to provide a nuanced and accurate picture of all the cognitive functions relevant to ADHD in as short a time as possible. The test can be used with respondents aged 16 and upwards.

**Theoretical background**

Neuropsychological testing of adults with ADHD is useful, because many adults with this disorder cognitive impairments are often more marked than behavioral abnormalities. Neuropsychological tests can be used (1) to describe an individual’s impairments, (2) to objectively assess psychological dimensions in the areas of attention, memory, executive functions and processing speed as well as subjective ability, (3) to produce an overview of clinically impaired and unimpaired dimensions. The test can be used to create a useful part in (5) evaluating treatment methods and (6) charting the course of the disorder.

**Administration**

Administration of the test set is flexible and can be adapted to specific situational requirements. Dimensions can be removed from the test set and breaks can be inserted. The test takes between 80 and 120 minutes to complete, depending on test form.

**Scoring**

The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank and in a profile. A written report containing a profile diagram, the fit scores and a verbal description of the test results can also be created for each candidate.

**Dimensions**

The COGBAT test set comprises the following dimensions and tests:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>WAFS</td>
<td>S1 (visual)</td>
<td>0.95</td>
<td>approx. 8</td>
</tr>
<tr>
<td>Vigilance</td>
<td>WAFV</td>
<td>S1</td>
<td>0.7-0.93</td>
<td>approx. 20</td>
</tr>
<tr>
<td>Memory</td>
<td>NBV</td>
<td>S1</td>
<td>0.84</td>
<td>approx. 8</td>
</tr>
<tr>
<td>Executive functions</td>
<td>SPOINT</td>
<td>S1</td>
<td>0.88</td>
<td>approx. 5</td>
</tr>
<tr>
<td>STROOP</td>
<td>S7</td>
<td>0.98-0.99</td>
<td>approx. 16</td>
<td></td>
</tr>
<tr>
<td>TMT-L Part B</td>
<td>S1</td>
<td>0.9</td>
<td>approx. 1</td>
<td></td>
</tr>
<tr>
<td>INHIB</td>
<td>S3</td>
<td>0.83</td>
<td>approx. 7</td>
<td></td>
</tr>
<tr>
<td>SWITCH</td>
<td>S1</td>
<td>0.81-0.98</td>
<td>approx. 12</td>
<td></td>
</tr>
<tr>
<td>TMT-L Part A</td>
<td>S1</td>
<td>0.92</td>
<td>approx. 1</td>
<td></td>
</tr>
</tbody>
</table>

**Total length if all dimensions are presented**: approx. 78 minutes

**Application**

The test set COGAB Cognitive Basic Assessment contains a compilation of important neuropsychological dimensions for clarifying the cognitive status of patients suffering from neurological and/or mental disorders. The test can be used with respondents aged 16 and over.

**Theoretical background**

Many patients suffering from a neurological or mental disorder report cognitive impairments – in other words, they experience difficulties in areas such as attention, memory and action planning. There is now extensive evidence that these limitations have a major impact on sufferers’ everyday life and represent an obstacle when attempting to hold down a job. COGAB has therefore been developed to provide practitioners with a tool that can be used quickly and across a wide range of disorders to assess those cognitive dimensions that are frequently impaired and that are of significant relevance in everyday life. The results can be used to identify the need for further dimension- or disorder-specific investigation or further training.

**Dimensions**

The COGAB test set comprises the following dimensions and tests:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>WAFA</td>
<td>S2 Intrinsic (visual)</td>
<td>0.86</td>
<td>approx. 4</td>
</tr>
<tr>
<td>WAFF</td>
<td>S2 (crossmodal)</td>
<td>0.89</td>
<td>approx. 6</td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>FGT</td>
<td>S11</td>
<td>0.9</td>
<td>approx. 16</td>
</tr>
<tr>
<td>Figural long-term memory: learning ability</td>
<td>FGT</td>
<td>S11</td>
<td>0.71</td>
<td>approx. 16</td>
</tr>
<tr>
<td>Figural long-term memory: short-term</td>
<td>FGT</td>
<td>S11</td>
<td>0.7</td>
<td>approx. 16</td>
</tr>
<tr>
<td>Figural long-term memory: long-term</td>
<td>FGT</td>
<td>S11</td>
<td>0.68</td>
<td>approx. 16</td>
</tr>
<tr>
<td>Working memory, verbal</td>
<td>NBV</td>
<td>S1</td>
<td>0.84</td>
<td>approx. 8</td>
</tr>
<tr>
<td>Executive functions</td>
<td>TMT-L Part B</td>
<td>S1</td>
<td>0.81</td>
<td>approx. 1</td>
</tr>
<tr>
<td>TOL-F</td>
<td>S1</td>
<td>0.64</td>
<td>approx. 16</td>
<td></td>
</tr>
<tr>
<td>INHIB</td>
<td>S3</td>
<td>0.71</td>
<td>approx. 7</td>
<td></td>
</tr>
<tr>
<td>TMT-L Part A</td>
<td>S1</td>
<td>0.92</td>
<td>approx. 1</td>
<td></td>
</tr>
</tbody>
</table>

**Total length if all dimensions are presented**: approx. 59 minutes

**Administration**

In the COGAB test set a defined sequence of tests is suggested. This takes account of the administration conditions of individual tests (e.g. incorporating test repetitions when testing memory).

**Scoring**

The main variables of the tests are reported both in a table showing the raw score and percentile rank score and in a profile. In addition, the table uses a simple color scheme to provide a rapid overview of clinically impaired and unimpaired dimensions. Option- ally, recommendations for further testing or cognitive training can be provided on the basis of the results.

**Special features**

A special feature of the COGAB test set is the fact that it is normed as an overall package. All the tests in the COGAB test set are normed on a special sample in the SCHUHFRIED Test & Research Center. This has the advantage of enabling test results to be compared with a sample that is consistent in terms of size, quality and culture. In addition, norming the test battery in the designated test order means that possible sequence and fatigue effects are taken into account when test results are compared with the norm sample.

**The COGAB test set comprises the following dimensions and tests:**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAFA</td>
<td>S2 Intrinsic (visual)</td>
<td>0.86</td>
<td>approx. 4</td>
<td></td>
</tr>
<tr>
<td>WAFF</td>
<td>S2 (crossmodal)</td>
<td>0.89</td>
<td>approx. 6</td>
<td></td>
</tr>
<tr>
<td>FGT</td>
<td>S11</td>
<td>0.9</td>
<td>approx. 16</td>
<td></td>
</tr>
<tr>
<td>TMT-L Part B</td>
<td>S1</td>
<td>0.81</td>
<td>approx. 1</td>
<td></td>
</tr>
<tr>
<td>TOL-F</td>
<td>S1</td>
<td>0.64</td>
<td>approx. 16</td>
<td></td>
</tr>
<tr>
<td>INHIB</td>
<td>S3</td>
<td>0.71</td>
<td>approx. 7</td>
<td></td>
</tr>
<tr>
<td>TMT-L Part A</td>
<td>S1</td>
<td>0.92</td>
<td>approx. 1</td>
<td></td>
</tr>
</tbody>
</table>

**Total length if all dimensions are presented**: approx. 59 minutes

In addition, the following additional tests are available for optional use to investigate the respondent’s ability to use the computer mouse, the subjectively experienced mental ability and possible impairments of the visual field (neglect):

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAFR</td>
<td>S5</td>
<td>0.92</td>
<td>approx. 6</td>
<td></td>
</tr>
<tr>
<td>MOUSE</td>
<td>MOUSE</td>
<td>S1</td>
<td>*</td>
<td>approx. 2</td>
</tr>
<tr>
<td>FLEI</td>
<td>S1</td>
<td>0.96</td>
<td>approx. 5</td>
<td></td>
</tr>
</tbody>
</table>
The DRIVEPLS test set comprises the following dimensions and tests:

- Personal History
- Medical History
- Psychosocial History
- Psychometric Tests
- Driving Behavior
- Observation Sheet

The DRIVEPLS test set is based on the action theory model of driving behavior, which is divided into three main dimensions: Personal History, Medical History, and Psychosocial History. Each dimension includes specific tests and sub-tests designed to assess various aspects of an individual's driving ability.

- Personal History: This section includes questions about the individual's personal background, such as past driving experience, medical history, and psychological characteristics.
- Medical History: This part focuses on health conditions that may affect driving ability, including current and past medical issues.
- Psychosocial History: This dimension assesses factors such as personal habits, family history, and social influences on driving behavior.

The Psychometric Tests include a battery of standardized tests to further evaluate cognitive abilities and driving-related skills. The Driving Behavior section consists of observation sheets and rating scales to evaluate driving performance in real-world scenarios.

Validation:
DRIVEPLS has been validated through various studies and has demonstrated high reliability and validity. The test results are consistent with other validated driving tests and have been shown to accurately predict driving performance.

Conclusion:
The DRIVEPLS test set is a comprehensive tool for assessing driving ability, taking into account personal, medical, and psychosocial factors. Its multidimensional approach allows for a more accurate and comprehensive evaluation of an individual's suitability to drive. The test set is widely used in various countries and is considered a valuable resource for professionals in the field of driving assessment.
The test set DRIVESC Fitness to Drive Screening assesses the most important ability dimensions that have a bearing on an individual’s ability to drive safely. It is designed to be used for screening purposes in a clinical context. The test set can be used with respondents aged 16 and over.

Theoretical background

Many patients suffering from a neurological or mental disorder report cognitive impairments that may in some circumstances affect their fitness to drive. The DRIVESC test set covers three key determinants of driving ability. It is a quick and efficient tool for testing for possible driving-related performance deficits in individuals affected by neurological or mental disorders. In studies it was found that the tests for measuring reactive stress tolerance, reaction time and skill in obtaining an overview were good predictors of fitness to drive as assessed by means of a standardized driving test: they were therefore combined into a screening battery. The validity of the DRIVESC test set has been demonstrated in multi-center studies involving healthy drivers and patients with brain damage. In the sample of healthy older drivers a validity coefficient of 0.41 was obtained by means of additive test variables. In the sample of patients with brain damage. In the sample of healthy older drivers a validity coefficient of 0.41 was obtained by means of additive test variables. In the sample of patients with brain damage.

Scoring

The test variables are reported both in a table showing the raw score and a percentile rank norm score and in a profile. The profile view enables the individual’s impaired and unimpaired dimensions of fitness to drive to be taken in at a glance, thereby providing a rapid overview of the patient’s possible performance deficits.

Administration

The definition of the ability factors of KEYHR is based on the hierarchical intelligence model of Cattell-Horn-Carroll (the CHC model). Three key factors of the CHC model were selected that are of particular interest for practical applications in the field of HR. To define the personality dimensions, the Big Five model was used. This is a psychological personality model that postulates five principal dimensions of personality that have been found to be key non-job-specific factors of occupational success. The predictive power of the tests in the test set with regard to occupational success has been demonstrated in validation studies. The predictive power of the tests in the test set with regard to occupational success has been demonstrated in validation studies.

Application

The test set KEYHR Key Factors HR assesses the most important ability and personality factors of relevance to a successful career path. Because these key factors apply irrespective of the area in which the person works, the KEYHR test set provides a good overview of an individual’s basic skills without the need to specify a concrete job profile. Since the test set focuses on key work-related characteristics, it can be used either for pre-selection or – in combination with other tests and/or a structured interview – for final selection. The test set can be used with respondents aged 14 and over.

Theoretical background

The definition of the ability factors of KEYHR is based on the hierarchical intelligence model of Cattell-Horn-Carroll (the CHC model). Three key factors of the CHC model were selected that are of particular interest for practical applications in the field of HR. To define the personality dimensions, the Big Five model was used. This is a psychological personality model that postulates five principal dimensions of personality that have been found to be key non-job-specific factors of occupational success. The predictive power of the tests in the test set with regard to occupational success has been demonstrated in validation studies.

Application

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Theoretical background

The definition of the ability factors of KEYHR is based on the hierarchical intelligence model of Cattell-Horn-Carroll (the CHC model). Three key factors of the CHC model were selected that are of particular interest for practical applications in the field of HR. To define the personality dimensions, the Big Five model was used. This is a psychological personality model that postulates five principal dimensions of personality that have been found to be key non-job-specific factors of occupational success. The predictive power of the tests in the test set with regard to occupational success has been demonstrated in validation studies.

Dimensions

The DRIVESC test set comprises the following dimensions and tests for verifying an individual’s ability to drive safely:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Subdimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress tolerance, reactive</td>
<td>DT</td>
<td>S1</td>
<td></td>
<td>0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Ability to react</td>
<td>Simple, reaction speed</td>
<td>RT</td>
<td>S3</td>
<td>0.94</td>
<td>approx. 6</td>
</tr>
<tr>
<td></td>
<td>Simple, motor speed</td>
<td>RT</td>
<td>S3</td>
<td>0.98</td>
<td>approx. 6</td>
</tr>
<tr>
<td></td>
<td>Obtaining an overview – traffic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>right-hand traffic</td>
<td>ATAV</td>
<td>S1</td>
<td>0.8*</td>
<td>approx. 14</td>
</tr>
<tr>
<td></td>
<td>left-hand traffic</td>
<td></td>
<td>S2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total length if all dimensions are presented</strong></td>
<td></td>
<td></td>
<td></td>
<td>approx. 26</td>
</tr>
</tbody>
</table>

*The quotient value is the minimum reliability specified for the adaptive algorithm; the test is continued until this limit value is exceeded.

Dimensions

The KEYHR test set comprises the following dimensions and tests:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Logical reasoning</td>
<td>INSSV</td>
<td>S2</td>
<td>0.74</td>
<td>approx. 15</td>
</tr>
<tr>
<td>Numerical ability</td>
<td>INSSV</td>
<td>S2</td>
<td>0.8</td>
<td>approx. 15</td>
</tr>
<tr>
<td>Verbal ability</td>
<td>INSSV</td>
<td>S2</td>
<td>0.74</td>
<td>approx. 7</td>
</tr>
<tr>
<td>Personality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional stability</td>
<td>BFSI</td>
<td>Social confidence, Emotional robustness</td>
<td>0.83</td>
<td>approx. 2</td>
</tr>
<tr>
<td>Extraversion</td>
<td>BFSI</td>
<td>Sociability, Assertiveness</td>
<td>0.83</td>
<td>approx. 2</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>BFSI</td>
<td>Sense of duty, Ambition</td>
<td>0.93</td>
<td>approx. 2</td>
</tr>
<tr>
<td>Openness</td>
<td>BFSI</td>
<td>Openness to actions, Openness to ideas</td>
<td>0.9</td>
<td>approx. 2</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>BFSI</td>
<td>Genuineness, Willingness to help</td>
<td>0.83</td>
<td>approx. 2</td>
</tr>
<tr>
<td><strong>Total length if all dimensions are presented</strong></td>
<td></td>
<td></td>
<td></td>
<td>approx. 47</td>
</tr>
</tbody>
</table>
The PERSROAD test set comprises the following dimensions and tests for verifying the personality aspects of an individual’s ability to drive safely:

**Dimensions**

- **Aggression**
- **Non-normal behavior**
- **Mental stability**
- **Readiness to take risks in traffic**
- **Self-control**
- **Sense of responsibility**

**Test Set Components**

- **Test**
- **Test form/subtest**
- **Reliability**
- **Length in minutes**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression</td>
<td>VIP</td>
<td>AI</td>
<td>0.62</td>
<td>approx. 2</td>
</tr>
<tr>
<td>Non-normal behavior</td>
<td>VIP</td>
<td>SE</td>
<td>0.64</td>
<td>approx. 2</td>
</tr>
<tr>
<td>Mental stability</td>
<td>IVPE</td>
<td>PS</td>
<td>0.75</td>
<td>approx. 2</td>
</tr>
<tr>
<td>Readiness to take risks in traffic</td>
<td>WRBTV</td>
<td>-</td>
<td>0.92</td>
<td>approx. 18</td>
</tr>
<tr>
<td>Self-control</td>
<td>IVPE</td>
<td>SK</td>
<td>0.69</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Sense of responsibility</td>
<td>IVPE</td>
<td>VB</td>
<td>0.76</td>
<td>approx. 2</td>
</tr>
</tbody>
</table>

**Total length if all dimensions are presented**: approx. 27 minutes

**Scoring**

The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank norm score and in a profile. A report containing a written description of the test results can be created if required.

**Administration**

Administration of the test set is flexible and can be adapted to the requirements of the specific setting. Dimensions can be removed from the test set and breaks can be inserted.

**Theoretical background**

Since the 1920s it has been acknowledged that personality dimensions as well as ability characteristics are relevant to driver safety. Development of the PERSROAD test set has drawn heavily on recent studies that demonstrate the importance of personality characteristics for driving behavior. The personality dimensions selected for this test set are ones that have been found in scientific studies to have a significant bearing on fitness to drive.

---

The SAAIR Safety Assessment Aviation test set comprises the following tests and dimensions for assessing ability factors relevant in the field of aviation psychology:

**Dimensions**

- **Attention**
- **Vigilance Air**
- **Cognitive abilities**
- **Logical reasoning**
- **Numerical ability**
- **Spatial ability Air**
- **Memory**
- **Reactive behavior & visual functions**
- **Stress tolerance, reactive**
- **Sensomotor functions**
- **Eye-hand coordination**

**Test Set Components**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>SIGNAL</td>
<td>S3</td>
<td>0.88–0.91</td>
<td>approx. 25</td>
</tr>
<tr>
<td>Vigilance Air</td>
<td>VIGIL</td>
<td>S1</td>
<td>0.74–0.88</td>
<td>approx. 32</td>
</tr>
<tr>
<td>Cognitive abilities</td>
<td>INSBAT</td>
<td>S2</td>
<td>0.8</td>
<td>approx. 31</td>
</tr>
<tr>
<td>Logical reasoning</td>
<td>INSBAT</td>
<td>S2</td>
<td>0.8</td>
<td>approx. 40</td>
</tr>
<tr>
<td>Numerical ability</td>
<td>PST</td>
<td>-</td>
<td>0.83</td>
<td>approx. 30</td>
</tr>
<tr>
<td>Spatial ability Air</td>
<td>VISGED</td>
<td>S11</td>
<td>0.73</td>
<td>approx. 13</td>
</tr>
<tr>
<td>Memory</td>
<td>DT</td>
<td>S1</td>
<td>0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Reactive behavior &amp; visual functions</td>
<td>SMK</td>
<td>S1</td>
<td>0.96</td>
<td>approx. 10</td>
</tr>
</tbody>
</table>

**Total length if all dimensions are presented**: approx. 187 minutes

**Scoring**

The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank norm score and in a profile. A report containing a written description of the test results can be created if required.

**Administration**

Administration of the test set is flexible and can be adapted to the requirements of the specific setting. Dimensions can be removed from the test set and breaks can be inserted.
### SAMINE Safety Assessment Mines

**Dimensions**

The SAMINE test set assesses the following cognitive and psychomotor ability dimensions:

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Tests</th>
<th>Test form/subtest</th>
<th>Reliabilities</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactive behavior</td>
<td>RT, DT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to react, simple</td>
<td>RT S3</td>
<td></td>
<td>0.94-0.96</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Stress tolerance, reactive</td>
<td>DT S5</td>
<td></td>
<td>0.98</td>
<td>approx. 15</td>
</tr>
<tr>
<td>Sensomotor functions</td>
<td>2HAND S1</td>
<td></td>
<td>0.96</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Eye-hand coordination</td>
<td>ZBA S3</td>
<td></td>
<td>0.93</td>
<td>approx. 9</td>
</tr>
</tbody>
</table>

**Profile Evaluation**

- **Profile Form**
- **Profile Norming**
- **Overall Validity**
- **Based on legal requirements**
- **Test(s) specifically adapted for the test set**
- **Additional device required**

**Application**

The SAMINE Safety Assessment Mines test set is an economic and effective tool for assessing the cognitive and psychomotor abilities that are fundamental to safe and productive work in the mining industry. The test set can be used to assess the suitability of mine workers in two groups within the industry: a) transport drivers and machine operators in the mining sector. The test set was validated in various South African mines and is a sophisticated psychometric assessment. Dimensions can be removed from the test set and breaks can be inserted. The fit score can only be reported if the complete test set has been administered.

**Scoring**

- The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank and in a profile. In addition, separate fit scores are calculated for transport drivers and machine operators. The fit scores, expressed out of a thousand, indicate the extent to which the candidate fits the ideal profile. The closer the fit score is to 1,000, the greater the candidate’s suitability as a transport driver or machine operator. A written report containing a profile diagram, the fit scores and a verbal description of the test results can also be created for each candidate.

**Theoretical background**

Selection of the dimensions used in SAMINE is based on theoretical considerations and partly on analysis of the tasks performed by transport drivers and machine operators in the mining sector. The test set was validated in various South African mines by testing workers and then recording their accident rates over the next five years. The study showed that the test results make a significant contribution to the prediction of accident rates among transport drivers and machine operators. The validity of the test set is 0.42 for transport drivers and 0.30 for machine operators.

**Administration**

- Administration of the test set is flexible and can be adapted to specific situational requirements. Dimensions can be removed from the test set and breaks can be inserted. The fit score can only be reported if the complete test set has been administered.

**Scoring**

- The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank norm score and in a profile. A report containing a written description of the test results can be created if required.

**Theoretical background**

Selection of the ability and personality tests included in the SARAIL test set was based on EU directive EU/2007/59/EC, which requires not only ability dimensions but also personality dimensions to be assessed. In methodological terms the tests used meet the highest standards of modern psychological and psychometric assessment.

**Dimensions**

The SARAIL test set comprises the following tests and dimensions for assessing ability and personality factors relevant in the field of rail psychology:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>COG</td>
<td>S1</td>
<td>0.95</td>
<td>approx. 5</td>
</tr>
<tr>
<td>Vigilance</td>
<td>WAFV</td>
<td>S2</td>
<td>0.96</td>
<td>approx. 32</td>
</tr>
<tr>
<td>Cognitive abilities</td>
<td>VISSG</td>
<td>S1</td>
<td>0.73</td>
<td>approx. 13</td>
</tr>
<tr>
<td>Logical reasoning</td>
<td>INSSV</td>
<td>S2</td>
<td>0.74</td>
<td>approx. 15</td>
</tr>
<tr>
<td>Verbal ability</td>
<td>INSSV</td>
<td>S2</td>
<td>0.74</td>
<td>approx. 7</td>
</tr>
<tr>
<td>Reactor behavior &amp; visual functions</td>
<td>DT S1</td>
<td></td>
<td>0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Stress tolerance, reactive</td>
<td>DT S3</td>
<td></td>
<td>0.94</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Visual perception</td>
<td>LVT S2</td>
<td></td>
<td>0.92</td>
<td>approx. 13</td>
</tr>
<tr>
<td>Sensomotor functions</td>
<td>2HAND S3</td>
<td></td>
<td>0.96</td>
<td>approx. 4</td>
</tr>
<tr>
<td>Eye-hand coordination</td>
<td>2HAND S3</td>
<td></td>
<td>0.96</td>
<td>approx. 111</td>
</tr>
</tbody>
</table>

**Work-related aspects of personality**

- Emotional stability      | BFSI       | Social confidence, Emotional robustness | 0.83        | approx. 2         |
- Extraversiveness          | BFSI       | Sociability, Assertiveness             | 0.83        | approx. 2         |
- Conscientiousness         | BFSI       | Sense of duty, Ambition                | 0.93        | approx. 2         |
- Openness                  | BFSI       | Openness to actions, Openness to ideas | 0.9         | approx. 2         |
- Agreeableness             | BFSI       | Genuineness, Willingness to help        | 0.83        | approx. 2         |

**Total length if all dimensions are presented**

- approx. 111 minutes
The SAROAD test set comprises the following dimensions and tests for verifying an individual’s ability to drive safely:

**Dimensions**
- Action planning
- Logical reasoning
- Implementation
- Concentration
- Dealing with goal interruptions and conflicts
- Stress tolerance, reactive
- Reaction time
- Obtaining an overview - traffic

**Tests**
- AMT
- COG
- DT
- RT
- ATAVT

**Test Form/Subtest**
- S11

**Reliability**
- 0.7
- 0.95
- 0.99
- 0.84–0.98
- 0.8

**Length in minutes**
- approx. 24
- approx. 5
- approx. 6
- approx. 6
- approx. 14

**Total length if all dimensions are presented**
- approx. 55

**Additional Device Required**
- Yes

**Application**
The test set SAROAD Safety Assessment Road assesses whether potential professional drivers (e.g. in local public transport, long-haul transport or freight transport) possess the necessary driving-related skills. It can be used as part of the selection process for professional drivers in EU driving license classes I and II. The test set can also be used to identify the training needs of experienced professional drivers – for example after an accident or critical incident. SAROAD is used worldwide and is a classic test set even among the test sets. The test set can be used with respondents aged 16 and over.

**Theoretical background**
Development of SAROAD is based in scientific terms on the action theory model of driving behavior of Groeger (2000): the dimensions selected are particularly relevant. The validities obtained in these studies amount to 0.68 (e.g. Rissler, Sommer, Grunder, Chaloupek & Kaufmann, 2008).

**Administration**
Administration of the test set is flexible and can be adapted to the requirements of the specific setting. Dimensions can be removed from the test set and breaks can be inserted. The Fit score can only be reported if the complete test set has been administered.

**Scoring**
The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank norm score and in a profile. In addition, a Fit score is calculated which indicates the extent to which the respondent meets the criteria. The closer the Fit score is to 1000, the more suitable is the individual. A report containing a written description of the test results can be created if required.

---

The SFCALL test set comprises the following dimensions and tests, which the validation study has shown to be relevant predictors of success of inbound and outbound call center staff:

**Dimensions**
- Striving for social acceptance
- Empathy in customer contact
- Good-naturedness
- Striving for social acceptance

**Tests**
- AHA Coding symbols
- BFSI
- SKASUK

**Test Form/Subtest**
- OPT'

**Reliability**
- 0.94
- 0.74
- 0.8

**Length in minutes**
- approx. 10
- approx. 7
- approx. 14

**Total length if all dimensions are presented**
- approx. 37

**Additional Device Required**
- No

**Application**
The test set SFCALL Success Factors Call Center is used to select inbound and outbound call center agents; it tests cognitive abilities and personality traits known to be relevant to work in this field. Candidate suitability can be assessed separately for inbound and outbound work. The test set can be used with respondents aged 15 and over.

**Theoretical background**
Selection of the dimensions and tests in SFCALL is based on a number of validation studies. Most weight was attached to the most recent such study, which was conducted jointly with a large number of validation studies. Most weight was attached to the most recent such study, which was conducted jointly with a large number of validation studies. Most weight was attached to the most recent such study, which was conducted jointly with a large number of validation studies. Most weight was attached to the most recent such study, which was conducted jointly with a large number of validation studies.

**Administration**
Administration of the test set is flexible and can be adapted to the requirements of the specific setting. Dimensions can be removed from the test set and breaks can be inserted. The Fit score can only be reported if the complete test set has been administered.

**Scoring**
The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank norm score and in a profile. In addition, Fit scores are calculated separately for inbound and outbound work. The Fit score can be calculated for each candidate; this describes the person’s results on the individual dimensions and includes the inbound and outbound Fit scores.
The SFMOTOR test set comprises the following dimensions and tests: Dimensions

- Theoretical background
  The SFMOTOR test set was developed and validated in sport psychology studies conducted at the psychology faculty of the University of Vienna and on behalf of sporting bodies. In these validation studies the test battery was administered to 125 racing drivers. The findings of the studies led to the development of the SFMOTOR test set and definition of a target range for the ability profile of elite racing drivers.

- Scoring
  The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank score and in a profile. The profile view enables the individual’s limitations and talents to be taken in at a glance. A written report containing a verbal description of the test results can also be created for each candidate.

- Administration
  Administration of the test set is flexible and can be adapted to the requirements of the specific setting. Dimensions can be removed from the test set and breaks can be inserted. The Fit score can only be reported if all the tests in the test set have been administered.

- Dimensions
  The SFMOTOR test set comprises the following dimensions and tests:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>WAFV</td>
<td>S6</td>
<td>0.99</td>
<td>approx. 32</td>
</tr>
<tr>
<td>Cognitive abilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticipation of movement</td>
<td>ZBA</td>
<td>S1</td>
<td>0.78–0.99</td>
<td>approx. 25</td>
</tr>
<tr>
<td>Memory</td>
<td>VISGED</td>
<td>S11</td>
<td>0.73*</td>
<td>approx. 13</td>
</tr>
<tr>
<td>Information processing speed</td>
<td>TMT-L</td>
<td>S1</td>
<td>0.96–0.99</td>
<td>approx. 15</td>
</tr>
<tr>
<td>Interference</td>
<td>STROOP</td>
<td>S7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reactive behavior &amp; visual functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress tolerance, reactive</td>
<td>DT</td>
<td>S1</td>
<td>0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Visual field</td>
<td>PP</td>
<td></td>
<td>0.94–0.98</td>
<td>approx. 15</td>
</tr>
<tr>
<td>Visual perception</td>
<td>LVT</td>
<td>S2</td>
<td>0.93</td>
<td>approx. 13</td>
</tr>
<tr>
<td>Sensor motor functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye-hand coordination</td>
<td>SMK</td>
<td>S1</td>
<td>0.95</td>
<td>approx. 10</td>
</tr>
<tr>
<td>Sport-related aspects of personality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Readiness to take risks</td>
<td>RISIKO</td>
<td>S1</td>
<td>0.7</td>
<td>approx. 20</td>
</tr>
</tbody>
</table>

Total length if all dimensions are presented approx. 159

* The quoted value is the minimum reliability specified for the adaptive algorithm; the test is continued until this limit value is exceeded.

The SFTEAM test set comprises the following dimensions and tests: Dimensions

- Theoretical background
  The test set SFTEAM Success Factors Teamsport helps to identify team-sport players, especially for ball sports such as football, basketball, hockey and handball. It contains a compilation of sport-related ability and personality dimensions useful for assessing the aptitude of team-sport players. The test set can be used with respondents aged 18 and over.

- Scoring
  The candidate’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank norm score and in a profile. The profile view enables the individual’s limitations and talents to be taken in at a glance. A Fit score can only be reported if all the tests in the test set have been administered.

- Administration
  Administration of the test set is flexible and can be adapted to the requirements of the specific setting. Dimensions can be removed from the test set and breaks can be inserted. The Fit score can only be reported if all the tests in the test set have been administered.

- Dimensions
  The SFTEAM test set comprises the following dimensions and tests:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>SIGNAL</td>
<td>S3</td>
<td>0.88</td>
<td>approx. 25</td>
</tr>
<tr>
<td>Cognitive abilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticipation of movement</td>
<td>ZBA</td>
<td>S1</td>
<td>0.79–0.99</td>
<td>approx. 25</td>
</tr>
<tr>
<td>Memory</td>
<td>VISGED</td>
<td>S11</td>
<td>0.73*</td>
<td>approx. 13</td>
</tr>
<tr>
<td>Information processing speed</td>
<td>TMT-L</td>
<td>S1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interference</td>
<td>STROOP</td>
<td>S7</td>
<td>0.98–0.99</td>
<td>approx. 15</td>
</tr>
<tr>
<td>Reactive behavior &amp; visual functions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress tolerance, reactive</td>
<td>DT</td>
<td>S1</td>
<td>0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Reaction time</td>
<td>RT</td>
<td>S3</td>
<td>0.94–0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Visual perception</td>
<td>LVT</td>
<td>S2</td>
<td>0.93</td>
<td>approx. 13</td>
</tr>
<tr>
<td>Sport-related aspects of personality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modesty</td>
<td>BFSI</td>
<td>S1</td>
<td>0.81</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Discipline</td>
<td>BFSI</td>
<td>S1</td>
<td>0.87</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>BFSI</td>
<td>S1</td>
<td>0.87</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Ambition</td>
<td>BFSI</td>
<td>S1</td>
<td>0.9</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Emotional robustness</td>
<td>BFSI</td>
<td>S1</td>
<td>0.85</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Composure</td>
<td>BFSI</td>
<td>S1</td>
<td>0.81</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Willingness to help</td>
<td>BFSI</td>
<td>S1</td>
<td>0.83</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Openness of the value and norm system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness to feelings</td>
<td>BFSI</td>
<td>S1</td>
<td>0.77</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>BFSI</td>
<td>S1</td>
<td>0.85</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Social confidence</td>
<td>BFSI</td>
<td>S1</td>
<td>0.82</td>
<td>approx. 1</td>
</tr>
<tr>
<td>Dynamism</td>
<td>BFSI</td>
<td>S1</td>
<td>0.88</td>
<td>approx. 1</td>
</tr>
</tbody>
</table>

Total length if all dimensions are presented approx. 125

* The quoted value is the minimum reliability specified for the adaptive algorithm; the test is continued until this limit value is exceeded.
The TAKIDS test set comprises the following dimensions and tests:

- Memory (CORSI)
- Stress tolerance, reactive (DTKI)

Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reaction time</td>
<td>RT</td>
<td>S3</td>
<td>0.94–0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Memory</td>
<td>CORSI</td>
<td>S2</td>
<td>0.76</td>
<td>approx. 10</td>
</tr>
<tr>
<td>Stress tolerance, reactive</td>
<td>DTKI</td>
<td>S1</td>
<td>0.94</td>
<td>approx. 6</td>
</tr>
</tbody>
</table>

Total length if all dimensions are presented: approx. 22

Administration

The test set TAKIDS Talent Assessment Sport Kids contains a compilation of important performance-related dimensions for assessing sporting talent in children between the ages of 7 and 10. Objective verification of sporting-related ability parameters plays a key part in the identification of sporting talent. In just 22 minutes the test set measures three aspects of sporting-related ability in children from the age of 7.

Scoring

The child’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank norm score and in a profile. The profile view enables the individual’s limitations and talents to be taken in at a glance. A Fit score is also reported; this shows how closely the child matches an ideal profile. The higher this score, the more closely the individual’s profile resembles the ideal profile. A written report containing a verbal description of the test results can also be created for each respondent.

Theoretical background

Any method of identifying sporting talent in children must be reasonable for them and as far as possible be created with children in mind. The TAKIDS test set comprises three tests designed for use with children. It provides a quick and efficient means of testing three basic ability dimensions that are relevant for children in mind. The TAKIDS test set comprises three tests for performance assessment of junior athletes.

The TATEENS test set comprises the following dimensions and tests:

- Stress tolerance, reactive (DT)
- Focused attention (SIGNAL)
- Memory (CORSI)
- Reaction time (RT)
- Visual perception (LVT)

Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Test</th>
<th>Test form/subtest</th>
<th>Reliability</th>
<th>Length in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress tolerance, reactive</td>
<td>DT</td>
<td>S1</td>
<td>0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Focused attention</td>
<td>SIGNAL</td>
<td>S3</td>
<td>0.88</td>
<td>approx. 25</td>
</tr>
<tr>
<td>Memory</td>
<td>CORSI</td>
<td>S2</td>
<td>0.76</td>
<td>approx. 10</td>
</tr>
<tr>
<td>Reaction time</td>
<td>RT</td>
<td>S3</td>
<td>0.94–0.99</td>
<td>approx. 6</td>
</tr>
<tr>
<td>Visual perception</td>
<td>LVT</td>
<td>S2</td>
<td>0.93</td>
<td>approx. 13</td>
</tr>
</tbody>
</table>

Total length if all dimensions are presented: approx. 60

Administration

The test set TATEENS Talent Assessment Sport Teens contains a compilation of important performance-related dimensions for assessing sporting talent in young people. Objective verification of sporting-related ability parameters plays a key part in identifying sporting talent and planning training programs. The TATEENS test set is a version of the test set TAKIDS Talent Assessment Sport Kids that has been expanded to be appropriate for this age group and hence covers additional areas of sporting ability. The test set can be used with respondents aged 11 and over.

Scoring

The young person’s results on the individual dimensions are displayed both in a table showing the raw score and percentile rank norm score and in a profile. The profile view enables the individual’s limitations and talents to be taken in at a glance. A Fit score is also reported; this shows how closely the young person matches an ideal profile. The higher this score, the more closely the individual’s profile resembles the ideal profile. For each respondent a written report containing a verbal description of the test results can also be created.
main areas of application

- PERSONNEL
- NEURO & CLINICAL
- TRAFFIC
- SPORT
**Special Ability Tests**

**VIENNA TEST SYSTEM**

**CORSI CODING**

**CORSI VISP**

**Test:**
- Corsi Block-Tapping Test

**Description:**
The Corsi Block-Tapping Test is used to measure the capacity of spatial short-term memory and of learning in spatial working memory.

**Theoretical background:**
Any factor of working memory includes the short-term storage of the task-relevant information. The block tapping test is used to measure the immediate block span (short-term memory). The number of blocks correctly reproduced is determined. The number of correctly reproduced blocks is increased until the respondent reproduces the target sequence incorrectly. The test is continued until the respondent answers three successive items incorrectly. The test is terminated if the respondent answers three successive items incorrectly.

**Scoring:**
- Immediate block span forwards
- Immediate block span backwards
- Spatial supra-span
- Immediate block span backwards
- Spatial supra-span

**Norms:**
- Wide norm spectrum

**Links with CogniPlus:**
There is a CogniPlus training program that specifically trains the skill measured by the test.

**Additional device required:**
An accessory or special input device (e.g. Response Panel) is needed for the test.

**Resistant to faking:**
The design of the test makes it difficult for respondents to fake the results (e.g. objective personality tests).

**Wide norm spectrum:**
The norms cover a wide age range (at least 16 – 85).

**Can be administered online:**
Online tests can be administered and for at least one subtest or test form the setting can be unsupervised.

**Can be administered offline:**
Tests can be administered in the browser, with no installation needed; the test setting must be supervised.

**Administered in:**
- with the VTS Test Player lite
- with the VTS Test Player

**FACT SHEET CONTAINING KEY INFORMATION:**
For a detailed description simply request the test manual from the SCHÜLLERID team. Literature references relate to the references in the test manual.

---

**SPECIAL FEATURES**

**Adaptive:**
In at least one subtest or test form the number of items is variable, because the respondent’s ability is estimated continuously and the difficulty of the items is adjusted accordingly.

**Parallel test form:**
There are at least two test forms that use different item material but are interchangeable for testing purposes.

**Conforms to Rasch Model:**
This test fits the Rasch model or comparable models of probabilistic test theory.

**Test design:**
This means that all the items are proven to measure the intended dimension and there is no systematic discrimination of particular demographic groups (e.g. on the basis of age, gender, education).

**Links with CogniPlus:**
There is a CogniPlus training program that specifically trains the skill measured by the test.

**Resistance to faking:**
The design of the test makes it difficult for respondents to fake the results (e.g. objective personality tests).

**Wide norm spectrum:**
The norms cover a wide age range (at least 16 – 85).

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**AUTHOR(S):**

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**REFERENCES:**

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**KEY INFORMATION:**
For a detailed description simply request the test manual from the SCHÜLLERID team. Literature references relate to the references in the test manual.

---

**LANGUAGES:**
- English
- Dutch
- Czech
- Chinese (simplified)
- Bulgarian
- Italian
- Hungarian
- German
- Finnish
- Icelandic
- Turkish
- Swedish
- Slovakian
- Romanian
- Portuguese
- Serbian

**NAME AND TEST LABEL:**
Cost Block-Tapping Test

**TEST TYPE:**
- Corsi Block-Tapping Test

**SCREENSHOT:**

**MAIN AREAS OF APPLICATION:**
- Neuro
- Sport
- Road
- Personnel
- Social

**Corresponding training in CogniPlus:**
- CORSI CODING
- CORSI VISP
- UBS forwards
- UBS backwards
- Spatial memory span forwards
- Spatial memory span backwards
- Immediate block span
- Spatial supra-span (+ spatial memory span forwards)
- Immediate block span backwards
- Spatial memory span backwards

**Corresponding software:**
- CORSI CODING
- CORSI VISP
- UBS forwards
- UBS backwards
- Spatial memory span forwards
- Spatial memory span backwards

**Scoring:**
- Immediate block span forwards
- Immediate block span backwards
- Spatial supra-span
- Immediate block span backwards
- Spatial memory span backwards

**Reliability:**
- The reliability for the immediate block span is consistently high; internal consistency on the basis of the norm sample amounted to r = .96.

**Validity:**
- The block-tapping test is regarded as the gold standard (Pantev, 2001; Fuchs et al., 2004) in measurement of the spatial memory span. For more than three decades the validity of this test has been repeatedly confirmed in neuropsychological literature and it has been widely used in clinical contexts.

**Norms:**
- A norm sample of N=300 healthy respondents is available. The sample repaired gender corret for age and educational background. No significant gender differences have been found.

---

**TIME REQUIRED FOR THE TEST:**
- Time required for the test
## All tests from A–Z

### Category

<table>
<thead>
<tr>
<th>Main dimensions</th>
<th>Subdimensionen</th>
<th>Test</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intelligence test batteries</strong></td>
<td>Linear test batteries</td>
<td>IB</td>
<td>59</td>
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<tr>
<td></td>
<td>Adaptive test batteries</td>
<td>INSBAT</td>
<td>60</td>
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<td></td>
<td></td>
<td>INSSV</td>
<td>62</td>
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<tr>
<td><strong>Special ability tests</strong></td>
<td>Attention</td>
<td>WAFW</td>
<td>115</td>
</tr>
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<td>Intensity of attention</td>
<td>WAFA</td>
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<td>Sustained attention &amp; vigilance</td>
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<td>Selectivity of attention</td>
<td>WAFF</td>
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<td>WAFG</td>
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<td>COG</td>
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<td></td>
<td></td>
<td>Figural &amp; verbal</td>
</tr>
<tr>
<td></td>
<td>Executive functions</td>
<td>Interference</td>
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### Find it fast

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## All tests by dimensions

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### Category
- Special ability tests
- Spatial visualization
- Reaction behavior
- Logical reasoning
- Miscellaneous
- Personality structure inventories
- Special personality tests
- Resilience and stress processing
- Motivation
- Readiness to take risks
- Driving-related personality characteristics
- Attitude and interest tests
- Clinical tests
Tests by test type

59  INTELLIGENCE TEST BATTERIES
59   IBF Basic Intelligence Functions
60   INSSBAT Intelligence Structure Battery
62   INSSSV Intelligence Structure Battery – short form
64  SPECIAL INTELLIGENCE TESTS
64   2D Visualization
65   3D Spatial Orientation
66   A3DW Adaptive Spatial Ability Test
67   AMT Adaptive Matrices Test
68   ANF Adaptive Numerical Flexibility Test
69   APR Raven’s Advanced Progressive Matrices
70   CPN Raven’s Coloured Progressive Matrices
71   FOLO Inductive Reasoning
72   FRM Free Response Matrices
73   HCTA Halpern Critical Thinking Assessment
74   MIP Mathematics in Practice
75   PST Pilot’s Spatial Test
76   RPM Raven’s Standard Progressive Matrices
77   SPMPLS Raven’s Standard Progressive Matrices Plus
78   VISGED Visual Memory Test
79  SPECIAL ABILITY TESTS
79   2HAND Two-Hand Coordination
80   5POINT 5-Point Test – Langensteinbach Version
81   ALS Work Performance Series
82   ATAVT Adaptive Tachistoscopic Traffic Perception Test
83   B19 Double Labyrinth Test
84   COG Cognitrone
85   CORIS Corsi Block-Tapping-Test
86   DAKT Differential Attention Test
87   DAUF Sustained Attention
88   DET Determination Test
89   DTFK Determination Test for Children
90   ELS English Language Skills Test
91   FG1 Figural Memory Test
92   FLIM Flicker/Fusion Frequency
93   FVW Continuous Visual Recognition Task
94   GESTA Gestalt Perception Test
95   INHIB Response Inhibition
96   LVT Visual Pursuit Test
97   MDT Movement Detection Test
98   MFS Motor Performance Series
99   MOUSE Mouse Ability Test
100  MTA Mechanical/Technical Comprehension
101  NBN Nback nonverbal
102  NBN Nback verbal
103  NVLT Non-verbal Learning Test
104  PSEDEV Perseveration Test
105  PP Peripheral Perception
106  RT Reaction Test
107  SIGNAL Signal Detection
108  SIMKAP Simultaneous Capacity/Multi-Tasking
109  SMK Sensomotor Coordination
110  STROOP Stroop Interference Test
111  SWITCH Task Switching
112  TMT-L Trail Making Test – Langensteinbach Version
113  TOL-F Tower of London – Freiburg Version
114  VIGIL Vigilance
115  WAF Perception and Attention Functions
117  ZBA Time/Movement Anticipation

Tests by test type

118  PERSONALITY STRUCTURE INVENTORIES
118   BFSI Big Five Structure Inventory
119   EPIS Eysenck Personality Profiler V6
120   IPS Inventory for Personality Assessment in Situations
121   MAP Management Potential Analysis
122   TCI Temperament and Character Inventory
123  SPECIAL PERSONALITY TESTS
123   AGDIA Aggression Assessment Method
124   AVEM Work-related Behaviour and Experience Patterns
125   AVM Aggressive Driving Behaviour
126   DSI Differential Stress Inventory
127   DSIHR Differential Stress Inventory HR
128   EBP Recovery-Stress Questionnaire
129   IVPE Inventory of Driving-related Personality Traits
130   MMG Multi Motive Grid
131   SBUSS Scales for the Assessment of Subjective Occupational Stress and Dissatisfaction
132   SKASUK Customer Service and Orientation Scales
133   VIP Driving-specific Item Pool
134  OBJECTIVE PERSONALITY TESTS
134   AHA Attitudes to Work
135   BACO Resilience Assessment
136   OLMT Objective Achievement Motivation Test
137   RISIKO Risk Choice
138   WRTTV Vienna Risk-Taking Test Traffic
139  ATTITUDE AND INTEREST TESTS
139   AISTR General Interest Structure Test
140   MOI Multi-method Objective Interests Test Battery
141  CLINICAL TESTS
141   ATV Identification of Alcohol Risk
142   EQ Empathy Quotient
143   FBS Suicide Risk Evaluation Questionnaire
144   FFT Questionnaire Functional Drinking
145   FLEI Mental Ability Questionnaire
146   FSV Questionnaire on Reaction to Pain
Application

Assessment of intelligence level and intelligence structure; suitable for respondents aged 13 and upwards in all relevant contexts. The IBF is particularly useful as a screening test when a quick global overview of intelligence level is required. In addition the intelligence profile can be used to provide initial information before a more detailed investigation of particular ability areas.

Theoretical background

The test aims to provide a differentiated assessment of the main areas of ability which are hierarchically structured at a level of medium abstraction. Building on Thurstone’s primary factors of intelligence (1938), this tool for analysing the intelligence structure covers the following four ability dimensions: Verbal Intelligence (35 items), Numerical Intelligence (40 items), Visualisation (17 items) and Memory (20 items).

Administration

There is a time limit for the completion of each group of items. Standardised instructions and practice items are presented before each group is worked. The respondent chooses the right answer from a multiple-choice selection. Amendments can be made to individual answers within an item group, repeatedly if necessary. Within the permissible time limits it is possible to go back to any item in the group in order to change the answer.

Test forms

Two test forms are available:
- Form S1 (Standard form)
- Form S2 (Easy short form)

Scoring

The results of the IBF are given in the form of z-transformed factor scores for the ability areas of Verbal Intelligence, Numerical Intelligence, Visualisation and Memory. An overall intelligence score is also provided, based on a hierarchical linear structural equation model. All test scores are compared with the norms and percentile ranks, T-scores and an optional IQ score are reported. The test protocol indicates how the individual items were answered (correct, incorrect, amended, omitted) and how much time was required for the test.

Reliability

The internal consistency (Cronbach’s Alpha) of the individual ability areas lies between r=0.84 (Visualisation) and r=0.94 (Numerical Intelligence). For the test as a whole a value of r=0.95 was obtained. The internal consistency (Cronbach’s Alpha) of the individual ability areas in the short form lies between r=0.74 and r=0.92. For the test as a whole the value is r=0.93. The test has been optimised to combine an economical test length with a very high degree of reliability.

Validity

Studies show correlations with Raven’s matrix tests APM (Raven, Raven & Court, 1998) and SPM (Raven, Raven & Court, 1979) of r=0.30 to r=0.41 (APM, N=237) and r=0.42 to r=0.52 (SPM, N= 256) for the item groups and r=0.52 and r=0.66 for the overall test score. Correlations with INKA (Heyde, 1995) are between r=0.36 and r=0.47, or r=0.54 for the test as a whole (N=320).

Norms

For Form S1 computer norms are available for 4771 individuals; these norms have also been separated according to age, education and gender for individuals aged 14 and upwards. In addition for Form S2 norms for 5581 individuals aged 13 and over are available.

Time required for the test

Form S1: approx. 45-65 minutes (actual test time).
Form S2: approx. 30-45 minutes (actual test time).
As a decision-oriented psychological assessment tool the INSBAT is constructed modularly. This means that only those subtests that are maximally informative for the purpose of the investigation need be presented.

The INSBAT is based on the hierarchical intelligence model of Cattell-Horn-Carroll (Carroll, 1993; Horn, 1989; Horn & Noll, 1997). The model assumes that the intercorrelations between the subtests for measuring the primary factors can be explained by eight secondary factors that are broader in content than the subtests for measuring the primary factors. The intercorrelations between the secondary factors are explained by a general factor of intelligence, which forms the peak of the hierarchy of intelligence model. The validity of this factor structure has been replicated in many studies from different countries (e.g. Arendasy, Herigovich & Sommer, 2005; Brickley, Keith & Wolfe, 1999; Carroll, 1989; Gustafsson, 1994; Horn & Stankov, 1982; Unsdheim & Gustafson, 1987). For the construction of the INSBAT the following secondary factors were selected as being relevant to practical areas of application such as work psychology, commercial/industrial and organizational psychology and educational psychology:

- Fluid intelligence: The ability to recognize relationships between stimuli, understand implications and valid logical conclusions (subtests: Numerical Inductive Reasoning, Figural Inductive Reasoning, Verbal Deductive Reasoning).
- Crystallized intelligence: The breadth and depth of acquired cultural knowledge such as word fluency and the understanding of words (subtests: Lexical Knowledge, Verbal Fluency, Word Meaning).
- Short-term memory: The ability to retain visual and verbal information in the short term and to reproduce it accurately (subtests: Visual Short-term Memory, Verbal Short-term Memory).
- Long-term memory: The ability to retain information in the longer term, integrate it into one's own knowledge base and recall it (subtests: Visual Recognition Memory, Verbal Recognition Memory).
- Inductive Reasoning: The ability to imagine how objects will look after they have been mentally rotated or transformed (subtest: Visual Processing).
- Deductive Reasoning: The ability to analyze logical arguments, comprehend implications and draw valid logical conclusions (subtest: Inductive Reasoning).
- Lexical Knowledge: The breadth of vocabulary and word knowledge.
- Spatial Perception: The ability to understand and apply mathematical skills and concepts (subtests: Computational Algebra, Geometric Competence, Arithmetic Flexibility, Algebraic Reasoning).

In all there are therefore 14 subtests available. The items of these subtests were devised with the aid of various methods: automatic item generation (AIG: Arendasy & Sommer, 2002; Irvine & Kytonen, 2002), taking account of the findings of current research in the cognitive sciences, differential psychology and applied psychometrics. The items were constructed either by human item writers or completely automatically using item generators. With regard to the psychometric properties of the item material it was considered important that: (1) the items of the individual subtests should be scalable in accordance with a 1-FL Rasch model and (2) the theoretical model on which the items are based should be able to explain at least 50% of the variance in the item difficulty parameters. This has the advantages for the practitioner of (1) scaling fairness and (2) unambiguity of interpretation of the individual subtest results.

Administration

The INSBAT has been designed as a modular intelligence test battery, so that only those subtests that are relevant to the purpose of the particular assessment need be presented. The INSBAT can be administered online (without installation) using the VTS Test Player and in line with the requirements of the test situation. The global form of the INSBAT subtests has been demonstrated in studies in which the correlation of the individual subtests is now available. A study by Sommer and Arendasy (1995) in which the tasks selected for each of the six secondary factors Fluid Intelligence (Gf), Crystallized Intelligence (Gc), Visual Processing (Gv), Quantitative Reasoning (Gq), Short-term Memory (Gstm) and Long-term Memory (Gltm). Alongside the provision of the ability parameters and factor scores a norm comparison (percentile ranks and IQ; confidence intervals) is automatically carried out. At the conclusion of testing the results are displayed both in tabular form and as a profile, and those can be printed out. In addition, a profile analysis based on the method of psychometric single-case assessment indicates the respondent's particular distributionally verified strengths and weaknesses. The INSBAT also includes provision for transferring the test results automatically into a report template. Details of the course of each subtest can be viewed in the test protocols.

Reliability

The INSBAT has been demonstrated in studies in which both reliability and validity of the individual task groups lie between r=0.70 and r=0.95; in the variable form S2 it can be set by the assessor himself within these limits. The intercorrelations of the subtests after around 15 months fluctuations between r=0.63 and r=0.87.

Validity

The construct representation (Embtros, 1983) of the individual INSBAT subtests has been demonstrated in studies in which the item difficulties were predicted from task characteristics derived from the theoretical models for the solving of the different tasks. The multiple correlations between the item difficulty parameters of the Rasch model (Rasch, 1980) and the item characteristics thus obtained fluctuate for individual subtests between r=0.70 and r=0.97. This means that between 50% and 94% of the difference in the difficulties of the individual items can be explained by the theoretical models on which construction of the test items is based. In addition, a number of studies of the nomothetic span (Embtros, 1983) of the individual subtests are now available. A study by Sommer and Arendasy (2005) provided evidence of construct validity for the test battery as a whole and for the global form and short form of the test. In a confirmatory factor analysis the authors were able to confirm the theory-led assignment of the individual subtests to the secondary factors of the Cattell-Horn-Carroll model. The internal consistency gained without the test results were supplemented by studies carried out by Arendasy and Sommer (2007) and Arendasy and Herigovich (2008) and Horn and Noll (1997). The time required for completing the variable form (S2) depends on the subtests selected and the chosen reliability. The length of the individual subtests varies between 3 and 40 minutes. In the case of forms S3, which consist of a fixed sequence of subtests, the time required for the tests is 2 hours 52 minutes.
Background

The Intelligence Structure Battery – Short Form was created using a variety of approaches to automatic item generation (AIG: Arendasy & Sommer, 2001; Irvine & Kyllonen, 2002), taking account of recent research findings in the cognitive sciences and applied psychometrics. In the fixed short form (screening), each of the secondary factors fluid intelligence, crystallized intelligence, quantitative reasoning, visual processing and long-term memory, each of the selected secondary factors is measured by two subtests. The subtest with the highest loading onto the factor in question and an additional subtest that helps to depict the breadth of content of the secondary factory. The eight subtests of the Intelligence Structure Battery – Short Form were created using a variety of approaches to automatic item generation. The standard form S1 has been normed on 904 adults aged between 16 and 73. The total norm has also been partitioned according to age, gender and education. Form S2 has been normed on 340 adults aged between 16 and 84. In addition to the total norm, norms separated according to age, gender and education are also available. Time required for the test Form S1: approx. 97 minutes. Form S2: approx. 37-52 minutes.

Test forms

There are two test forms, which differ in their reliability, the mode of presentation of their subtests and their level of test security. The first form is the adaptive standard form (S1), while the second is the short form (screening: S2), which uses a linear test presentation mode with a time limit. The screening form is useful for obtaining a quick overview when the test results have no far-reaching consequences for the person being tested (low-stakes assessment). Where there are far-reaching consequences (high-stakes assessment), the standard form (S1) should be used; this is mainly for reasons of test security.

Administration

With the standard form (S1) of the Intelligence Structure Battery - Short Form only entire secondary factors can be omitted. It is not possible to omit individual subtests or to adjust their reliability to specific assessment needs. Each subtest is provided with standardized instructions and practice examples based on the principles of “mastery learning”. Depending on the subtest, the respondent’s answers are given either in multiple-choice format or as automated free responses. The items in the individual primary factors or subtests. The correlations between the secondary factors are in turn explained by a general factor of intelligence, which is the peak or tip of the hierarchical intelligence model. The validity of this factor structure has been replicated in many studies from different countries (e.g. Arendasy & Sommer, 2001; Arendasy, Hergovich & Sommer, 2008; Arendasy, Hergovich & Sommer, 2008; Sommer & Arendasy, 2005; Sommer, Arendasy & Häusler, 2005). Evidence of criterion validity (prognostic validity) has come from the fields of aviation psychology (selection of trainee pilots) and educational counseling (prediction of student success at universities of applied sciences).

Reliability

In the standard form S1 the reliability of the five secondary factors is between 0.70 and 0.84. The reliability of the general factor is 0.91. For Form S2 (fixed short form: screening) the reliability of the four subtests is between 0.74 and 0.89. The reliability of the general factor of intelligence is 0.94.

Validity

The construct representation (Embretson, 1983) of the individual subtests has been demonstrated in studies in which the item difficulties were predicted from task characteristics derived from the theoretical models for the solving of these types of task. The multiple correlations between the item difficulty parameters of the Rasch model (Rasch, 1960) and the item characteristics thus obtained vary for the individual subtests between R=0.70 and R=0.97. This means that between 50% and 94% of the difference in the difficulties of the individual items can be explained by the theoretical models on which construction of the items in the individual subtests is based. Many other studies of construct validity are now available that confirm the theory-led assignment of the individual subtests to the secondary factors of the Cattell-Horn-Carroll model (Arendasy & Sommer, 2007; Arendasy, Hergovich & Sommer, 2008; Sommer & Arendasy, 2005; Sommer, Arendasy & Häusler, 2005).

NORMS

Form S1 has been normed on 904 adults aged between 16 and 73. The total norm has also been partitioned according to age, gender and education. Form S2 has been normed on 340 adults aged between 16 and 84. In addition to the total norm, norms separated according to age, gender and education are also available.

INSSV

The INSSV Intelligence Structure Battery – Short Form is a standard short form developed as an adaptation of the INSSV Intelligence Structure Battery – Long Form, which is the most comprehensive intelligence test in the INSSV battery.

Field

The INSSV Intelligence Structure Battery – Short Form is designed for respondents aged 14 and over.

Validity

The INSSV Intelligence Structure Battery – Short Form can be administered online: unsupervised, with installation, without installation, with the Test Player lite, and with the Test Player.
Reliability

The split-half reliability coefficients vary between 0.83 and 0.86 for respondents of different educational level. Measures of internal consistency were also calculated from the data of the Austrian norm sample. For this sample Cronbach’s Alpha was 0.79 and the greatest lower bound was 0.87.

Validity

The test’s psychological validity is evident – respondents immediately associate the test with “understanding of shapes” and “doing a jigsaw puzzle”.

Logical validity arises from the operational definition of what is measured. Construct validity has been demonstrated by correlation analysis. The content of the 2D is similar to that of other tests that measure spatial ability and that have good predictive validity for a variety of occupations. It can therefore be assumed that 2D also has predictive validity.

Norms

Standardization was performed on a representative sample of normal individuals (N=351) who were tested at the SCHUHFRIED company’s Test & Research Center. These norms are available partitioned according to education level, gender and age. Norms for a sample of 1,253 Swedish adults are also available. The norms are also available separated according to education level, gender and age.

Time required for the test

The test itself takes 6 minutes to complete. A further 2 – 3 minutes are required for the instructions and practice examples.

Scoring

The number of correctly worked items is taken as the measure of spatial visualization ability.
Reliability

1 Because of the validity of the Rasch model, internal consistency is given. The reliability coefficients obtained with various samples and using different methods (split half, Cronbach’s alpha) lie between r=0.82 and r=0.91.

Validity

Numerous results of statistical correlation analyses and inter-group comparisons (involving other tests and various external criteria) provide evidence of the test’s convergent and discriminant validity and enable differentiated assessment of various validity aspects of the 3DW. For example, technology students have significantly higher test scores than students of other subjects.

Norms

Arrer (1992) showed that the norms of the paper-and-pencil form, the 3DW, are also valid for the computerized version of the test. The A3DW thus provides representative gender-specific and non-gender-specific school norms for Austria (n=4064), categorized according to specific school types and grades (=age-equivalent); students: n=432; adults: n=161.

Time required for the test

Between 29 and 52 minutes (including instruction and practice phase), depending on test form.

Application

This A3DW is a non-verbal test for assessing general intelligence as revealed in the ability to think inductively. It is suitable for subjects aged 13 and over.

Theoretical background

The Rasch-homogeneous and adaptive test assesses the (non-verbal) ability to form mental representations of spatial elements and transform them (spatial ability) in young people aged 13 years and over and adults.

Reliability

Because of the validity of the Rasch model, reliability in the sense of internal consistency is given. For the four test forms it has been set at a standard measurement error (SME) of 0.3, 0.44, 0.39 and 0.63, corresponding to reliabilities of 0.70, 0.83, 0.86 and 0.7.

Validity

The AMT is a non-verbal test for assessing general intelligence as revealed in the ability to think inductively. It is suitable for subjects aged 13 and over.

Theoretical background

There are three test forms that vary in the precision of their measurement. This AMT is a non-verbal test for assessing general intelligence as revealed in the ability to think inductively. It is suitable for subjects aged 13 and over.

Scoring

The test yields an estimate of the respondent’s general intelligence. The estimate is produced on the basis of the Rasch model according to the maximum likelihood method. A percentile ranking with reference to a norm sample is also given.

Application

This AMT is a non-verbal test for assessing general intelligence as revealed in the ability to think inductively. It is suitable for subjects aged 13 and over.

Theoretical background

Numerous results of statistical correlation analyses and inter-group comparisons (involving other tests and various external criteria) provide evidence of the test’s convergent and discriminant validity and enable differentiated assessment of various validity aspects of the 3DW. For example, technology students have significantly higher test scores than students of other subjects.

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Special Intelligence Tests

G. Gittler © SCHUNFRED Gmbh

Adaptive Spatial Ability Test

A3DW

Adaptive Matrices Test

AMT

L. F. Hornke, E. Etzel & K. Rettig © SCHUNFRED Gmbh
Reliability
Reliability in the sense of internal consistency as taken as given as a result of the validity of the Rasch model. Precision is represented for the short form by a critical standard estimate of error of 0.55, which corresponds to a reliability of 0.70. For the standard form the critical standard estimate of error is 0.50, corresponding to a reliability of 0.75. In contrast to linear test forms the quoted precision applies to all respondents across all parts of the range. This represents a decisive advantage over conventional psychometric tests constructed on the basis of classical test theory.

Validity
Studies are available both of the construct representation and of the convergent and discriminant validity of the Adaptive Numerical Flexibility Test; these demonstrate the construct validity of the test.

Norms
Norms are available (overall norm, and separated by gender and educational level) for a sample of N=13612 individuals (585 men, 777 women; age range 15-52). The data was collected at the end of 2004 and beginning of 2005.

Testing time
The time required for the test is between 30 and 45 minutes.

Application
Non-verbal assessment of general intelligence for performances above average, based on eductive thinking; applicable to people 12 years of age and over.

Theoretical background
The extensive administration of the Raven Standard Progressive Matrices (RPM) resulted in a demand for a short screening form, as well as for a test to assess the upper 25% of the cognitive capacity range. The Advanced Progressive Matrices were developed to meet these demands. The APM consists of some exercises (Set I with 12 items) that can also be used for screening, a second set (II) with 36 items to assess this area more thoroughly. As with all Raven Matrices Tests, the APM also assesses the ability to detect a certain order in a chaos, or the meaning of apparently randomly compiled elements, i.e. the eductive ability (the word educere comes from the Latin word educere: deduce). As perception in general is a process of understanding that includes the capacity to find a structure in a chaos, Raven’s Progressive Matrices (RPM) can be considered to assess logical reasoning and recognition. Sparman and other psychologists agree that the general factor (g-factor) assessed in most intelligence tests consists of two main components, eductive and reproductive abilities. From this point of view, the RPM measure one of the most basic human abilities.

Administration
After an instruction phase, the items are presented according to difficulty level. The respondent selects one out of eight answers with the light pen, the mouse, the touchscreen or the computer keyboard. He or she can correct the selected answer and can return to the previous item. It is also possible to omit items, which are represented again after the last item has been responded to. This version of the RPM can be administered without any time limit, just like the paper-and-pencil version.

Test forms
There are 5 test forms available. S1 (Set I + II) and S5 (Set II) with time limit, S2 (Set I + II), S3 (Set I), and S4 (Set II) without time limit.

Scoring
The following variables are scored: “Number of correct” for set I and set II.

The test protocol indicates each individual answer as well as the time needed to respond.
Scoring
The following variables are scored:

- Total of correct,
- Expected values of all sets compared to the raw scores for the entire test,
- Error distribution.

Results are reported in the form of raw scores and percentile ranks, together with an optional test protocol of the respondent’s answers to each item.

Reliability
A number of reliability studies are quoted in the test manual. The results vary depending on the population studies; reliabilities are usually lower for clinical and less gifted groups. The majority of the internal consistencies lie between r=0.80 and r=0.90; in most studies retest reliability is above r=0.80.

Validity
All factor analytical studies show that the Raven Matrices Test is a good indicator for Spearman’s g-factor, although there are differences depending on the composition of the test battery. Correlations with school performance are usually lower that those between school performance and knowledge tests.

Norms
Percentile ranks and T-score norms of the paper-and-pencil form are available for the following groups:

- Children aged 4.9 – 12.00,
- Adults aged 55 – 100.

Form S2: this test form is provided with corrected norms of the standard form (without adult norms).

Time required for the test
Between 18 and 30 minutes

Validity
The psychological validity of the FOLO test is evident – respondents immediately associate the test with logic and logical reasoning. Construct validity has been demonstrated by factor analysis. Predictive validity has been demonstrated for occupations that require skill in logical reasoning.

Norms
Norms for a sample of 2886 Swedish adults are available. The norms are also available separated according to age and education. Additionally, norms are also available for 500 Austrian adults; these norms have also been partitioned according to education and age.

Time required for the test
The test itself takes 12 minutes to complete. With instructions the total administration time is about 15 minutes.
FRM
Free Response Matrices

B. Piskernik © SCHUHFRIED GmbH

Scoring
A central raw score is reported; this gives the number of correctly worked items. As an aid to interpretation, percentile ranks are also reported.

Reliability
The reliability of both forms of the FRM was calculated by estimating Guittman’s x₂ and Cronbach’s α. The reliability of the short form S2 measured by x₂ is at least .752, while that of the standard form is at least .876.

Validity
There is good evidence of the validity of matrix tests in many areas of psychological assessment, including human resources, clinical assessment and education. The construct validity of the FRM is demonstrated firstly by the validity of the Rasch model for both test models and secondly by the high correlations with comparable matrix tests such as Raven’s Advanced Progressive Matrices.

Norms
The norm sample of Form S1 consists of 166 (50.2%) men and 165 (49.8%) women aged between 16 and 82. The norm sample consisted of 200 adults from the United States ranging in age from 18 to 72 (mean age = 32) with a range of educational backgrounds.

Time required for the test
Depending on the test form the completion requires between 20 (short form-recognition items only) and 60 to 80 minutes (constructed response and recognition items). Time estimates include instruction and practice phase.
Application
The object of measurement is Computational fluency, i.e. the ability to apply the basic arithmetic operations (addition, subtraction, multiplication and division) to mathematical problems in everyday life.

Theoretical background
From a theoretical perspective the test occupies the middle ground between a cognitive intelligence test and a test of knowledge. In随文 comparable vocational training without difficulty and "poor performance on the job." The test protocol shows types and assessment of solutions as related to the spatial axis.

Validity
The psychological validity is evident – when they see the task, respondents immediately think of calculation and arithmetic. Logical validity is given by the operational definition of the task. Construct validity was demonstrated by analyzing the intercorrelations between MIP and a numerical test. Prognostic validity has been demonstrated for occupations that require good computational fluency. The criteria used were "completed vocational training without difficulty" and "poor performance on the job." The test protocol shows types and assessment of solutions as related to the spatial axis.

Validity with respect to the external criterion (orientation, established on an instrument flight simulator) is rtc=.56, with respect to the internal criterion (Elid Price Spatial Test) rtc=.64.

Norms
Noms from an evaluation calibration sample comprised of 596 persons for the age groups 17 to 38 are available.

Administration duration
Approx. 30 minutes.

Reliability
The internal consistency (Cronbach's Alpha) is rtt=74.

Validity
Validity with respect to the external criterion (orientation, established on an instrument flight simulator) is rtc=.56, with respect to the internal criterion (Elid Price Spatial Test) rtc=.64.

Norms
O. Bratfisch, E. Hagman © SCHUHFRIED GmbH

Test structure
Realistic calculation tasks are presented in writing on the screen. Paper and pencil are provided for calculation purposes.

Test forms
There is one test form.

Scoring
Each correct answer scores one point. The sum of correct answers provides the overall score.

Reliability
The split-half reliability coefficients vary between r=0.81 and r=0.91 for respondents of different educational levels (Swedish norm sample). For the representative Austrian norm sample the test’s reliability is 0.80 (Guttman’s λ2).
The theoretical background

Raven's Matrices Test assesses the ability to recognize a certain order in an apparent disorder, in other words: the ability to recognize and think clearly. Spearman and other psychologists showed that the educative ability (educative capacity) is one or two main components of general intelligence or the g-factor. Educative derives from the Latin word educere, e = out + ducere = lead.

Scoring

The sum of correct answers (with norm comparison) is the measure for the educative component of the g-factor. Additional scores (in test forms S1 and S7 only): in all 5 subsets, the raw-scores are compared with the expected results. In addition, the answering patterns of those taking the test are examined to find out whether or not they manipulate the raw-scores intentionally (McKinzie, 1999).

If this is really the case, a corresponding message is included in the scoring report. The test protocol depicts each item together with the time spent for answering it.

Reliability

The split-half-reliabilities were r > .90 in over 40 studies with people of differing age and from diverse cultural backgrounds. The test authors indicate rtt=.83 and rtt=.93 in a summarizing overview. In this form of the SPM, an internal consistency between r=.77 and r=.96 was determined in various norm samples.

Validity

Raven Matrices Tests assess general intelligence, that is, the various fundamental abilities necessary in everyday life. This is why the correlations with other tests or external criteria are most of the time rather low. Intercorrelations are the highest with arithmetic, technological and scientific abilities. Correlations between the SPM and school performances result in values up to r=.70. Correlations with other intelligence and ability tests vary between r=.20 and r=.80. Factor-analytical calculations show high values in the g-factor, often amounting up to r=.95.

Reliability

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Application
This test assesses visual memory performance by measuring how respondents receive and replay visual information (memorizing the position of symbols on a city map).

Theoretical background
The test items, created on the basis of a specific construction rationale, assess visual memory performance. This visual memory is particularly important in the building up of so-called “memory point” knowledge, which is an aspect of a person’s ability to orientate him- or herself. The test items were constructed primarily on the basis of Kosslyn’s theory of visual representation (1980) and Hänggi’s integrative information processing model (1989).

Administration
The respondent is initially presented with an on-screen city map on which typical locations (bars, offices, railway stations etc.) are marked by symbols. The respondent has to memorize the positions of the individual symbols and afterwards recall them correctly. This is tested by presenting a city map without symbols and asking the respondent to mark the location on the map where the symbol used to be. As soon as the respondent has marked a spot on the map, the actual position of the symbol in question is displayed, thus giving the respondent feedback on the correctness of his/her answer. The individual tasks vary with regard to the number of symbols and the spatial characteristics.

Test forms
There are three test forms; these differ according to the degree of precision with which they estimate the person parameter (PAR). The Screening Form can be used to provide a quick overview in situations where the assessment has no particular consequences for the respondent (e.g. in studies in which visual memory is being measured as a control factor). The Precision Form should only be used in special diagnostic situations in which increased measurement precision is particularly important (e.g. expert opinions in a legal context). The increase in measurement precision (i.e. reduction of the error of estimation) of course requires a longer testing time.

Evaluation
The test yields the person parameter and a norm comparison (percentile ranking) with regard to the variable “visual memory performance”.

Reliability
All items conform to the criteria of probabilistic test theory and thus can be shown to measure the same aptitude dimension. Since the item presentation occurs adaptively, there is optimal precision of measurement for any level of capability. The required degree of measurement precision can therefore be achieved with significantly fewer items than would otherwise be the case. The reliability is r=0.64 for Test Form S1, r=0.75 for Test Form S2 and r=0.84 for Test Form S3.

Validity
The construct validity of the test derives in part from the fact that the test items are underpinned by a construction rationale derived from psychological theory. The embedding of the tasks in a realistic scenario contributes to the ecological validity of the test. In this connection extensive use was made of the opportunities which the computer offers for creating new item and reaction formats.

Norms
The test produces a sample-independent person parameter according to Rasch which describes the respondent’s aptitude. In addition norms are available for a student sample of N=590 and a representative sample of N=481 people in the age range 17–85. The latter sample is also available divided into four age groups.

Administration time
The time needed for the test varies between 10 and 15 minutes, depending on the number of items worked.

Scoring
The following variables are scored: Total mean duration, total mean error duration, percent error duration (calculated as the ratio of total error duration to total duration), coordination difficulty.

Reliability
Internal consistency lies between r=0.83 and r=0.98.
### Application

**Test to measure figural fluency, divergent thinking and executive functions.**

**Theoretical background**

The 5-Point Test is a widely used test of brain functioning. Performance makes demands on different neuropsychological domains – planning, cognitive flexibility and divergent thinking. The FPT’s usefulness as a clinical test has been demonstrated for both neurological and psychiatric disorders. The influence of different demographic variables has been discussed in the literature. In particular, age and education level appear to affect performance on the FPT.

**Norms**

The norm sample for the 5-Point Test – Langensteinbach Version comprises 331 health respondents from the entire age range of the adult population.

**Time required for the test**

The 5-Point Test – Langensteinbach Version consists of a short practice section and the test itself. The test takes about five minutes to complete, including initial explanation of the task.

**Administration**

The respondent’s task is to carry out as many additions or subtractions of two numbers as possible within two minutes, while observing certain rules. The patterns involve connecting two or more dots by means of straight lines.

**Scoring**

The main variables describe the total number of patterns produced, the number of correct patterns and perseveration errors. The number of strategies used, the error rate and the number of correctly worked items are also reported.

**Reliability**

The test’s reliability has been estimated by calculating Cronbach’s alpha and other reliability measures using the data of the norm sample. For the variable Figural Fluency, Cronbach’s alpha is 0.879. The test’s reliability can therefore be classed as high.

**Validity**

There is considerable empirical evidence to support the validity of the task paradigm implemented in 5POINT. For 5POINT itself, correlations with the paper-and-pencil version provide proof of the test’s construct validity. Construct validity was also investigated by calculating the correlations between 5POINT and other neuropsychological tests.

The FPT’s usefulness as a clinical test has been demonstrated for both neurological and psychiatric disorders. The influence of different demographic variables has been discussed in the literature. In particular, age and education level appear to affect performance on the FPT.

**Application**

Assessment of concentration, mental saturation and fatigue in mental tasks under time pressure (continuous addition tasks as in the Pauli Test, but also more difficult test forms).

**Theoretical background**

The ALS, an enhanced version of Kraepelin’s work and the Pauli Test, uses the method of continuous addition to assess the respondent’s performance over a period of time: the subject is required to perform repeated addition of two single-digit numbers as fast and accurately as possible over a relatively long period. The test is subdivided into time-based sections (partial intervals); this enables the trend of performance to be evaluated. It is also possible to modify the test by varying the difficulty of the arithmetical problems and by including an additional short-term memory task. This makes it possible to assess aspects of the respondent’s fluid intelligence.

The ALS, an enhanced version of Kraepelin’s work and the Pauli Test, uses the method of continuous addition to assess the respondent’s performance over a period of time: the subject is required to perform repeated addition of two single-digit numbers as fast and accurately as possible over a relatively long period. The test is subdivided into time-based sections (partial intervals); this enables the trend of performance to be evaluated. It is also possible to modify the test by varying the difficulty of the arithmetical problems and by including an additional short-term memory task. This makes it possible to assess aspects of the respondent’s fluid intelligence.

**Administration**

The respondent’s task is to carry out as many additions or subtractions of two numbers as possible within two minutes, while observing certain rules. The patterns involve connecting two or more dots by means of straight lines.

**Scoring**

Items answered as a measure of working speed, Increase in items answered as a measure of the improvement or deterioration in the respondent’s performance. Error percent and Errors as measures of the accuracy of the respondent’s work and the number of omissions.

The results of the partial intervals are depicted graphically, illustrating the trend of the respondent’s performance.

**Reliability**

Our own studies carried out with various samples yield split-half reliabilities of between r=0.81 and r=0.99 for the variables items answered and Errors. They are largely similar to the reliabilities obtained for the paper-and-pencil version; for that version test-retest and split-half reliabilities for the variable Items answered lie above r=0.95, while for Errors and Corrections values between r=0.68 and r=0.88 were obtained.

**Validity**

Tasks of the type used in the Work Performance Series described in the literature as involving sustained concentration during mental work under time pressure. They also involve personality traits such as resistance to distractions, disturbance and interference, motivation and willpower, and the ability to sustain one’s attention during a particular task.

**Norms**

For the S1 form a norm sample (N=242) and various special norms (job applicants, job seekers etc.) are available. For the S2 form norms there is an Austrian norm sample (N=280) and norms for job applicants (N=1105), job seekers (N=103) and Swedish adults (N=199). For the S7 forms there are representative norms of N=280 respondents and a sample of N=2907 employees.

**Time required for the test**

Between 15 and 25 minutes (including instruction and practice phase), depending on test form.
Application
Assessment of visual observational ability and skill in obtaining an overview, and also of visual orientation ability and speed of perception.

Theoretical background
The ATAVT tests observational ability by briefly presenting pictures of traffic situations. The items are constructed according to explicit theory-led principles based on detailed analysis of the cognitive processes involved in working the test. The design of the ATAVT is based on the principles used in the well-established TAVTMB test but builds on these by taking account of recent research findings relating to the perception of scenes and objects. 84 items were drawn up and evaluated using the 1PL Rasch Model. The resulting item pool enables the test to be presented adaptively, with all the associated advantages that this brings.

Administration
The respondent is briefly shown pictures of traffic situations. After seeing each picture, he is asked to state what was in it, choosing from five answer options that are given. Items are presented adaptively - that is, after an initial phase the respondent is presented with items whose difficulty is increasingly tailored to match his ability.

Test forms
There are two test forms: S1 for use in countries in which traffic drives on the right and S2 for countries that drive on the left.

Scoring
The person parameter is reported, together with the corresponding percentile rank and T-score.

Reliability
Because of the validity of the 1PL Rasch Model, reliability in the sense of internal consistency is given. The precision of measurement is set at a critical standard error of measurement of 0.49. This corresponds to a reliability of r=0.80. The pre-defined precision of measurement applies to all respondents at all ability levels.

Validity
Somer et al. (2008) obtained a multiple correlation of R=0.90 between the difficulty parameters of the 1PL Rasch model and the design characteristics of the test items. This is usually interpreted as an indicator of the test’s construct validity (Embreton, 1983). Evidence of criterion validity is provided by various studies of the prediction of global assessments of driving behavior. For example, Somer et al. (2004), using a test battery which included a precursor version of the ATAVT, obtained a classification rate of 74.7% in the prediction of driving behavior. Rissler et al. (2008) reported classification rates of 80.2% and 86.5%, with the precursor version of the ATAVT that they used contributing a relative relevance of 17.6% and 5.8%. The results obtained by Rissler et al. (2008) were replicated in a study by Sommer et al. (2008). In addition, the authors demonstrated the incremental validity of the ATAVT alongside ability tests and driving-related personality traits. Evidence of the ATAVT’s validity has also been obtained in the field of rail transport (RSSB, 2010). In a sample of 135 train drivers and trainee train drivers, ATAVT correlated significantly with the assessment of operating safety systems in locomotives (r=0.288) and the assessment of performance in the execution of procedures (r=0.324).

Norms
A norm sample consisting of N=1,190 individuals is available. Person parameters corrected for age are also provided.

Time required for the test
Approx. 10 minutes.

Note
The program automatically checks the graphics output speed and issues a warning if the requirements are not met. This can be tested before purchase simply by installing the Demo version.

Application
Assessment of eye-hand coordination under conditions of predetermined speed. It is used mainly in traffic psychology to measure axonomotor coordination.

Theoretical background
This test is an enhanced version of “Le test du double labyrinthe” by Bonnardel, which is routinely used in French traffic psychology. The original test involved a piece of equipment with a cylinder that rotated at a constant speed. The respondent’s task was to keep two markings in the middle of the track, using two levers. Each time a marking touched the side of the track, this was scored as an error. The present test transfers the working of Professor Bonnardel’s device to the computer.

Administration
The respondent is required to maintain the position of two circles on a track by means of two control knobs. The left knob controls the left circle, while the right knob controls the right circle. The respondent is instructed to ensure that the circles do not touch the edges of the track. If they do, the respondent must immediately use the appropriate control knob to correct the position. After a practice phase of 45 seconds, the test phase starts; this lasts 2 minutes and 45 seconds.

Test forms
There is one test form.

Scoring
The following variables are calculated:
- Error duration
- Percent error duration
- Number of errors
- Error duration – left hand
- Percent error duration – left hand
- Number of errors – left hand
- Error duration – right hand
- Percent error duration – right hand
- Number of errors – right hand

A chart of the course of the test can be provided if required.

Reliability
The present reliabilities (internal consistency) amount to 0.97 for “Error duration” and 0.80 for “Number of errors”. In addition, separate reliability coefficients are available for the left and right hands.

Validity
A validation study of the computerized version of the Double Labyrinth Test (B19) found significant correlations between the 2HAND test and the B19. The test can therefore be considered to have convergent validity.

Studies of the test’s validity are also available for a precursor version of the test (Wittmersheim & Schlegel, 1979). Norms
Norms are available for a representative sample of N=673 normal individuals.

Time required for the test
Approx. 5 minutes.
**Application**
Assessment of attention and concentration through comparison of figures with regard to their congruence. Can be used with respondents from 4 years of age (depending on test form).

**Theoretical background**
The Cognitron is based on the theoretical model of Reulecke (1991), which sees concentration as a state that can in principle be described by three variables: 1. Energy: the concentrative state is demanding and consumes energy; 2. Function: the function of concentration in performing a task; 3. Precision: The quality of the test form with unlimited working time the variable “Energy” as defined by Reulecke (1991) is measured by the time taken at a pre-set level of precision and function.

**Administration**
The Response Panel or computer keyboard is used as the input device. An animated instruction phase and an error-sensitive practice phase lead on to the task itself. In the test forms with free working time the respondent’s task is to compare an abstract figure with a model and to decide whether the two are identical. Once the answer has been entered the next item follows automatically. In the test forms with fixed working time a reaction is required only if the figure is identical with the model. Once the presentation time has expired the next item follows automatically. It is not possible to omit an item or to go back to a preceding one.

**Test forms**
There are six test forms with free working time (S1-S3, S8-S9, S11) and two test forms with a fixed working time of 1.8 seconds per item (S4-S5). Forms S1 and S4 contain the same stimulus and of forms S5-S8. This test form consists of 12 items; the two forms have a seven-minute time limit.

**Scoring**
Main variable of forms S1-S3, S11: Mean time “correct rejection” (soo). Main variables of forms S4-S5: Total “correct reactions”, Total “incorrect reactions”. Main variables of forms S8-S9: Total “reactions” (correct and incorrect reactions), percentage “incorrect reactions”.

**Reliability**
The reliabilities are very high, the majority of them being over r = 0.95.

**Validity**
Many studies of different aspects of validity (content validity, convergent and discriminant validity, construct validity, criterion validity) have been carried out; all these studies indicate that the test is valid. A number of studies carried out in the field of traffic psychology also confirm the validity of the test.

**Norms**
For the COG forms S1 – S5, S8, S9 and S11 norm samples of N=300 healthy respondents are available. The theoretical background (temporal) sequence of stimuli are also operationalized in the test forms. The immediate block span backwards. Differences in performance between the two test forms are particularly relevant in the context of development psychology. Normal samples are also available separately according to age and educational level. Special norms from among the following are also available for these forms: norms for drivers with conspicuous personal behavior, Swedish adults, job seekers, schoolchildren.

**Time required for the test**
Approx. 5–20 minutes (including instruction and practice phase).
DAKT Differential Attention Test

D. Brattlisch, E. Hagman: SCHUHFRIED GmbH

Application
DAKT is used primarily to measure perceptual speed and accuracy – that is, the quantity and quality of concentration and attention.

Theoretical background
DAKT is a non-verbal test for measuring perceptual speed and accuracy. Perceptual speed is defined as the capacity to recognize details rapidly in a distracting perceptual environment and to differentiate them from irrelevant material. The ratio between the number of errors and the quantitative performance is taken as the measure of accuracy. Research on mental ability using factor analysis has unambiguously identified a perceptual factor which involves a major component of speed. DAKT focuses on this factor.

Administration
DAKT consists of three subtests containing different material (numbers, letters and figures). The task is to identify and mark critical items as fast and as accurately as possible.

Test forms
There are two parallel test forms (S1 and S2). Each of the subtests can be administered separately.

Scoring
The number of correctly solved items constitutes the measure of perceptual speed; the percentage of errors in the total number of items worked is the measure of accuracy. The results protocol shows raw and standard scores for each subtest and for the test as a whole.

Reliability
The parallel-test reliability coefficients are r=0.96 for perceptual speed and r=0.95 for accuracy.

Validity
The psychological validity of DAKT is evident – the respondents think immediately of “attention and concentration”. Logical validity is given by the operational definition of perceptual speed and accuracy. Content validity has been proven through factor analysis. Prognostic validity has been demonstrated for occupations requiring a high level of perceptual speed and accuracy.

Norms
For both test forms norms of an Austrian norm sample of N=525 persons as well as a Swedish norm sample of N=1120 are available. Both norm samples are also available broken down by age. Statistically the total Austrian norms do not differ from the total Swedish norms; the two sets of norms can therefore be regarded as parallel.

Testing time
The testing time for each subtest is three minutes. Add approximately four minutes for instructions and solving the practice items.

Application
Assessment of long-term selective attention and concentration and of general performance and commitment; can be used from 15 years of age.

Theoretical background
A basic definition of attention is that it is a selection process: perception and conceptualization are oriented and focused on a portion of the stimuli with which a person is simultaneously confronted. The sustained aspect highlights the fact that attention operations become more difficult when they need to be continuously repeated. In contrast to vigilance, sustained attention is operationally defined as selective awareness of stimuli that are either continuously or frequently present. Vigilance, on the other hand, requires relatively infrequent reactions to stimuli that occur at irregular intervals and in diverse locations. Measurement of sustained attention assesses primarily aspects of general performance ability or performance readiness that are largely independent of intelligence.

Administration
Triangles appear in a row on the screen, pointing either up or down. The respondent must press the reaction button whenever a pre-defined number of triangles points downwards.

Test forms
Three test forms are available, differing in the number of triangles and the regularity with which the lines change. Forms S1 and S2 are recommended for use only with clients whose attentional performance is thought to be impaired.

Scoring
The following variables are calculated: Sum correct, Mean time correct, Sum incorrect and Mean time incorrect.

Reliability
For Form S1 the values of Cronbach’s Alpha for the main variables in the total sample are 0.896 (Sum correct) and 0.98 (Mean time correct). For Form S2 the corresponding values are 0.91 (Sum correct) and 0.98 (Mean time correct) and for Form S3 0.98 (Sum correct) and 0.97 (Mean time correct).

Validity
Criterion validity is given. Sustained attention is a psychological construct which refers in general terms to a prerequisite of performance that is relatively independent of intelligence and effective over relatively long periods of time. The possibility that the Sustained Attention Test requires the use of higher cognitive functions can be ruled out. The test reveals the stability of a person’s long-term attentional performance as an underlying requirement of cognitive abilities under speed conditions.

Norms
Norms are available for “normal individuals” for sample sizes of N=286 (S1), 295 (S2) and 302 (S3). The norms are also available partitioned according to age and in some cases according to educational level. For Form S1 a norm sample of N=369 neurological patients is also available.

Time required for the test
Between 20 and 35 minutes (including instruction and practice phase), depending on test form.
Application
Measurement of reactive stress tolerance, attention and reaction speed in situations requiring continuous, swift and varying responses to rapidly changing visual and acoustic stimuli.

Theoretical background
The DT is used to measure reactive stress tolerance and the associated ability to react. The test requires the respondent to use his cognitive skills to distinguish different colours and sounds, to memorise the relevant characteristics of stimulus configurations, response buttons and assignment rules, and to select the relevant responses according to the assignment rules laid down in the instructions and/or learned in the course of the test. The difficulty of the DT arises from the need to sustain continuous, rapid and varying responses to rapidly changing stimuli.

Administration
The respondent is presented with colour stimuli and acoustic signals. He/she reacts by pressing the appropriate buttons on the response panel. The stimuli are presented in three different ways: (1) in Adaptive Mode, in which the presentation speed adjusts to the respondent’s performance level; (2) in Action Mode with no time limit; and (3) in Reaction Mode with fixed time limit. The use of headphones ensures the exclusion of distracting noises.

Test forms
S1 (adaptive short); S2 (adaptive); S3 – S6 are forms that vary in their reaction mode, length or stimulus material.

Scoring
Depending on the stimulus/reaction mode, the variables Median reaction time, Number of correct reactions (on time, delayed), Number of incorrect reactions, Number of omitted reactions and Number of stimuli are scored.

Reliability
For all test forms the internal consistencies for the main variables lie between $r=0.98$ and $r=0.99$.

Validity
An extreme-group validation carried out by Karner (2000) found significant differences in the Determination Test between drivers who had committed alcohol-related offences and the norm group. The test results of the drivers who had committed alcohol-related offences were significantly worse than those of the norm population. A study by Neuwirth and Dorfer (2000) showed that the Determination Test could distinguish between all the referral groups tested in the course of a traffic-psycho- logical assessment (psychiatric and neurological clients, clients who had been involved in alcohol abuse) and the norm group.

Since the test is designed to involve fast and accurate responses, the difficulty of the DT depends primarily not on the stimulus-response pairings but on the speed with which the stimuli change and on the number of different stimuli and responses which the subject has to move between.

Administration
The test involves the presentation of coloured stimuli and acoustic signals. The child reacts by pressing the appropriate buttons on the response panel. The stimuli are presented adaptively – that is, the speed of presentation adapts to the ability level of the child. The use of a USB headset ensures that extraneous sounds do not intrude upon presentation of the acoustic signals; the headset is furthermore essential for the precise measurement of time intervals.

Test forms
S1 Adaptive mode
ELST English Language Skills Test

G. Janous, T. M. Ortner, E. Lick © SCHUHFRIED GmbH

Application
- Tasting knowledge of English in the areas of text comprehension, vocabulary and grammar.

Theoretical background
- ELST measures English-language skills in the areas of vocabulary, grammar, and text comprehension. Using a theory-led approach, the items were designed based on the occurrence frequencies (vocabulary, grammar) and text construction factors that influence text comprehension. The requirements arising from the test’s use as a foreign-language test were explicitly taken into account in the design process. The applicability of the dichotomous Rasch model – and hence the test’s fairness – was successfully proved for the test materials used in all three areas.

Administration
- The test is presented as a multiple-choice ability test with a time limit for each item. For all the subtests, item set selection yields a learning total as an estimate of general text difficulty (r = 0.33).

Test forms
- Two test forms are available:
  - S1 with instructions in the respondent’s language
  - S2 with instructions in English.

Scoring
- Results are reported in the form of a raw score and person parameter for each subtest, together with the corresponding norm scores.

Validity
- The items, which were designed in cooperation with linguists, have content validity. In addition, scores on all the subtests correlate at a moderate level with German language verbal comprehension tests (0.20 ≤ r ≤ 0.41). Construct validity was tested using the underlying construct rationale. The theoretically assumed item difficulties in the vocabulary test (based on word frequencies in the British National Corpus taking into account the frequencies of the stimulus and solution words) explain in total 22% of the variance in the empirically observed difficulty parameters. The item difficulties of the grammar test can be explained in terms of the frequency of the grammatical forms used (44% of variance explained). Analysis of the test comprehension test shows that a significant proportion of the difficulty is explained by the item type (25%). In addition, rank correlations show a slight to moderate correlation between item difficulty and general text difficulty (r = 0.33).

Norms
- A norm sample is available of N = 2978 Austrian applicants to universities of applied sciences in the years 2007-2008.

Time required for the test
- Text comprehension: approx. 20 mins.
  - Vocabulary: approx. 10 mins.

J. Vetter, S. Aschenbrenner, M. Weisbrod © SCHUHFRIED GmbH

FGT Figural Memory Test

Application
- Test to measure figural learning performance and figural episodic memory.

Theoretical background
- An assessment of memory deficits normally covers a number of aspects; these should include both verbal and non-verbal memory. The FGT can be used to test memory for figural material in a manner that complies with the guidelines of the German Society for Neuropsychology (GNN). It uses a learning paradigm that measures the increase in learning after repeated presentation. It makes it possible to test both short- and long-term retention as well as recognition performance. The FGT thus enables multiple facets of episodic figural long-term memory to be measured. It is suitable for use both with healthy individuals and with psychiatric and neurological patients.

Administration
- The FGT consists of several parts. The first part comprises five learning and reproduction runs in which either 9 or 12 figures (depending on test form) are presented repeatedly. Immediately after presentation each figure must be reproduced by means of simple mouse clicks on the screen. After a break this is followed by the second part, which requires free reproduction of the figures without a second viewing. The third part involves free reproduction after an extended delay, together with a forced-choice recognition task.

Test forms
- There is a short form (9 items) and a long form (12 items); in each case a parallel form is also available.

Scoring
- The scoring of the FGT yields a learning total as an estimate of figural episodic memory, plus measures of delayed reproduction after brief and extended delays and a measure of recognition performance.
Application
Assessment of the central-nervous activation (arousal) with the help of threshold values, when high frequency light is recognized as constant light. To be used with adults.

Theoretical background
Physiological studies prove that the activation (arousal) of the organism is centrally controlled. The flicker-fusion frequency is regarded, next to other criteria (e.g. EEG, SCR) as an indicator for this central-nervous function capacity.

Administration
In the increasing process the frequency of a flickering light is augmented until a constant light is perceived. In the decreasing process the frequency of a higher frequency light, that the respondent perceives as constant, is reduced until it is subjectively perceived as flickering. The respondent has to confirm every change of perception by pressing a key. The critical frequency is then stored. The median values of the critical frequencies in the increasing or decreasing mode are threshold values and they are called “Fusion frequency (VF)” and “Flicker frequency (FF)”.

Test forms
There are three standard test forms with five practice and by default eight measurement runs each available:
S1: Determines flicker and fusion frequency (increasing and decreasing measuring mode)
S2: Determines only fusion frequency (increasing measuring mode)
S3: Determines only flicker frequency (decreasing measuring mode).

Scoring
The following variables are scored:
- Fusion frequency VF (Hz)
- Flicker frequency FF (Hz)
- Error in measurement of VF (Hz)
- Error in measurement of FF (Hz)

The fusion frequency (VF) and flicker frequency (FF) mark the level of activation. The measurement errors of the median values serve as control variables. They make an estimate possible on how precisely the respondent was able to determine the change from flicker to constant light.

Reliability
The data of the representative norm sample yields estimates of internal consistency of 0.939 for fusion frequency (VF) and 0.949 for flicker frequency (FF). Special studies with senior executives produced split-half reliability coefficients of r=.92 for the fusion frequency (VF) and of r=.91 for the flicker frequency (FF). For a group of psychiatric patients values of r=.86 and r=.92 were found. The stability coefficients for test-retest interval of between two and eight hours were of r=.86 (VF) and r=.85 (FF) for senior executives.

Validity
In pharmacological studies, this method revealed biologically induced by medical drugs. A study by Görtelmeyer et al. (1982) found that the flicker-fusion frequency together with EEG-Variables are described by a common factor, which can be interpreted as the expression of cortically modulated attention.

Norms
Comparison scores of N=313 normal persons of ages 16-87 are available for test form S3. Results on Form S4 can be compared with the comparison scores of N=78 normal persons of ages 16-89. Form S5 was standardized on a sample of N=159 normal persons of ages 15-87. Overall norms and age norms are available. Comparison scores of N=763 adults of ages 17-91 are available for the clinical short form S6.

Time required for the test Approx. 15 minutes.

Application
Measurement of memory performance and cerebral deficits (quantification of mnesic deficits) based on decisions on whether an item is new or has already been presented; suitable for use with respondents aged 6 years and over.

Theoretical background
Most theories assume that every piece of information (item) in memory has a certain familiarity, which rises with the number of presentations. It is also assumed that this familiarity is subject to random fluctuations, so that familiar items may be assessed as new and new items as familiar. Various results in this area of overlap are used to judge the certainty with which the respond-ent differentiates between familiar and new items. Memory deficits can be sensitive indicators of brain function disorders and are the most frequently cited symptom in the wake of brain damage. Recognition performance is also considered an indicator of pathological aging.

Administration
Depending on the test form, words, objects, numbers, meaningless syllables, letter-number combinations, or difficult-to-name items are presented in sequence. The respondent must decide whether an item is being shown for the first time on the screen or whether he has appeared previously.

Test forms
The FVV is available in five test forms (S2 to S6). The forms S2 to S5 differ in level of difficulty. Each test form contains 210 items (105 verbal and 105 nonverbal). S6 is a short form with a low level of difficulty, which is especially suitable for use in the clinical field.

Scoring
The following variables are scored:
- Number of hits: This variable characterizes the number of correctly recognized items.
- Number incorrect positive: Number of yes-answers to distractor items, i.e. an item that has only been shown once is classed as having been shown twice.
- Mean reaction time hits
- Discrimination ability: distribution-free measure of the respondents’ ability to differentiate between items presented once and those shown repeatedly (familiarity).
- Answer tendency: Indicates whether or not a respondent tends to answer conservatively (when in doubt “No”) or liberally (when in doubt “Yes”).
The shape that the respondent is looking for (the house) is containing different patterns. The patterns are not just a jumble ways shown at the side, outside the pattern area of the item, related to comprehension. The test, the explicit goal was to design what modern test theory articulated) through identification of a specific shape embedded in a pattern. 

Application
Assessment of the cognitive style of field (in)dependence (field articulation) through identification of a specific shape embedded in a pattern.

Theoretical background
GESTA is based on the concept of field dependence. This ty - pology differentiates between field-dependent and field-independent people. Field-dependent people are influenced in their perception by surrounding stimuli, so that their perception is always influenced by the surrounding “field”. It is not just per - ception but the entire “mental apparatus” (including cognitions and emotions) that is affected by this dependence on the "field”. The concept of field dependence has developed in four phas es. The first tests were based on the theory of Witkin & Asch (1948). The first phase saw the introduction of the classic test for the assessment of field dependence, the Rod-and-Frame Test (RFT; Witkin, 1949). This was followed in the second stage of development by the test that is now most commonly used to measure field dependence: the Embedded Figures Test (EFT; Witkin et al, 1971).

The Gestalt Perception Test was drawn up on the basis of the hierarchical model. The aim is to measure the ability to decon- struct structures and reassemble them. During development of the test, the explicit goal was to design what modern test theory would define as a multidimensional test that measures the con- struct of field dependence.

Administration
The task is to identify a specified shape (in the form of a house) within a pattern and to trace the outline of the house by marking the corners with the mouse. The test consists of 30 items, all containing different patterns. The patterns are not just a jumble of lines; to varying degrees they have a “good” gestalt or shape. The shape that the respondent is looking for (the house) is always shown at the side, outside the pattern area of the item, and thus serves as a model. For each item the respondent has 20 seconds to find the solu - tion. An item is classified as solved if the outline of the house is traced correctly (corners marked in the correct order) within the time limit. A detailed instruction and practice phase precedes the test phase.

Test forms
There is one test form.

Scoring
The number of correctly solved items is calculated as the test score.

Reliability
Because of the validity of the Rasch model, the test can be assumed to have internal consistency. Cronbach’s Alpha varies in the different samples between r=0.89 and r=0.95. The split-half reliabilities are also very high, lying between r=0.83 and r=0.94.

Validity
From the point of view of probabilistic test theory, reliability can be considered as given since all items measure the same ability dimension. The results on convergent validity are also especially important. The study by Hengvich and Kriechbaum (1996) shows that the correlation between the subtest “Analyze and Synthesize” of the AID and GESTA is r=0.66. The correlation between EFT and GESTA is at r=0.51. The two tests EFT and GESTA are also found to correlate in similar ways with other variables that were investigated (extraversion, social desirabil - ity, intelligence).

Norms
Norms are available for a sample of N=442 individuals that is representative of the normal population in terms of age. Sub-samples based on gender, age and education are also available. The data was gathered in two collection phases between 2002 and 2008 in the Test & Research Center of SCHUHFRIED GmbH, using a stratified quota sampling plan.

Time required for the test
The time required for the test is a maximum of 20 minutes (in - cluding the instruction and practice phase).

Application
Test to measure various aspects of response inhibition. The test uses a stop signal paradigm, a go/no-go paradigm, a cued go/ no-go paradigm and a behavioral shift paradigm.

Theoretical background
The ability to suppress unwanted reactions is a basic prereq- uisite for flexible and appropriate behavior; in the literature it is termed “response inhibition”. Response inhibition is regarded as a component of the executive functions. It requires the integrity of specific prefrontal areas and their subcortical connections. Im - plements of response inhibition are observed in many neurologi - cal and psychiatric disorders and have a significant impact on the sufferer’s ability to function in everyday life.

Administration
The present test facilitates the detailed measurement of vari - ous aspects of response inhibition; the precise assessment that results can provide a starting point for therapeutic intervention. For practical purposes it is recommended that one test form is administered as a routine test. This can then be followed by de - tailed assessment with further test forms tailored to the specific issue under investigation and the respondent's ability level.

Test forms
There are eleven test forms. For each of the following paradigms there is a pair of parallel test forms: stop signal (S1/S2), go/no - go (S3/S4), cued go/no-go (S5/S6), behavioral shift (shift only, S7/S8), behavioral shift (shift and inhibition, S9/S10). There is also a short form that uses the go/no-go paradigm (S13).

Scoring
The main variables are the parameters that reflect the inhibition process (Stop signal reaction time, Commission errors). In addi - tion, other error types and reaction times are measured as an aid to comprehensive interpretation of the test results.

Reliability
The test’s reliability was estimated by calculating split-half reli - ability coefficients for the main variables for the norm sample of each test form. For Forms S1/S2 (stop signal) the value of the resulting coefficient is 0.87; for Forms S3/S4 (go/no-go) it is 0.83; for Forms S5/S6 (cued go/no-go) it is 0.86; for Forms S7/S8 it is 0.79 and for Forms S9/S10 it is 0.77 for the variable Commission errors and 0.67 for Number of shift errors. For Form S13 Cron - bach’s Alpha is 0.71.

Validity
Extensive literature supports the validity of the tests used here. In particular, construct validity at the level of neuropsychological functions is confirmed by factor analytic studies in which these tests load onto a common inhibition factor. However, the intercor - rrelations vary between the studies, which indicates that the tests form measures different aspects of a common construct.

Norms
Norms are available for the individual test forms varying in size between 354 and 359 individuals aged between 16 and 84. For some test forms norms separated according to education, age and gender are also available.

Time required for the test
The time required for Forms S1 – S10 is approximately 7-10 min - utes (including instructions). Forms S13 requires approximately 3-4 minutes. The total testing time depends on the degree of detail with which response inhibition needs to be measured — i.e. how many test forms are used.
**VIENNA TEST SYSTEM**

**LVT**

**Visual Pursuit Test**

B. Berti 
SCHUHFRIED GmbH

![Example of the Visual Pursuit Test](Image)

- **Adaptive**
- **Parallel test form**
- **Conforms to Rasch Model**
- **Links with CogniPlus**
- **Additional device required**
- **Resistant to faking**
- **Wide norm spectrum**

**Can be administered online:**
- Unsupervised
- Without installation
- With the VTS Test Player lite
- With the VTS Test Player

**Scoring**

The following variables are scored:
- **score**
- **median time of correct answers (sec.)**

**Reliability**

Internal consistency is r=0.96 for the long form, r=0.92 for the short form and r=0.92 for the screening form.

**Application**

Assessment of visual orientation ability and skill in gaining an overview, for use with adults.

**Theoretical background**

Special psychological tests are used to assess the more complex dimensions of perception. Most of these tests have been developed in connection with particular issues relevant to experimental psychology or practical situations. The present Visual Pursuit Test is not merely a new edition of an old test, but has been developed from experience and observations gained from many previous versions. It assesses the aspect of visual orientation performance involved in tracking simple visual elements in a relatively complex environment. The respondent is required to work in a focused way, ignoring distractions, while being placed under time pressure. The test is thus also suited to the assessment of selective visual attention.

**Administration**

The test commences with a combined instruction and practice phase. If the eight practice items are worked with fewer than three errors, the respondent moves on to the test phase items. The respondent is presented with an array of lines and must as quickly as possible find the end of a specified line. The reactivity component can work at his own speed.

**Test forms**

The test forms are:

- S1 (long form with 80 items)
- S2 (short form with 40 items)
- S3 (screening form)

**Time required for the test**

Between 5 and 25 minutes (including instruction and practice phase).

**Norms**

Norm samples of size N=407 to N=785 are available for the three forms of the LVT; some norms are also available separated by age and educational level. In addition, norms for drivers with conspicuous behaviour are available for Form S2 form.

**Reliability**

The test's reliability was calculated using split-half reliabilities obtained from the norm samples. For the main variables (the medians of motor time, detection time and cognitive reaction time) the reliabilities thus measured were between 0.96 and 0.99 for Form S1, between 0.96 and 0.97 for Form S2 and between 0.92 and 0.97 for Form S3.

**Validity**

The MDT has content validity, because the task used directly resembles those encountered in complex real-life situations such as arise when driving, participating in sport or engaging in motor racing.

**Application**

Measurement of attentional performance, decision speed and motor reaction speed in response to a succession of rapidly presented visual movement stimuli.

**Theoretical background**

The attentional performance required in the MDT involves detecting direction of movement and responding to this movement as quickly as possible. The test measures both the time taken to detect movement, decide on its direction and select a response and – separately – the subsequent motor reaction time. It thus identifies both a cognitive component (decision time) and a motor component (reaction time). The reaction required in the MDT must take place within a narrow time window. Reactions that are too late or too early are also documented, as are omitted or incomplete reactions.

The design of the test means that more is called for than simple yes/no decisions and simple choice reactions; its demands thus resemble those encountered in complex real-life situations such as occur when driving, participating in sport or engaging in motor racing.

**Administration**

The respondent's task is to react as quickly as possible to the sudden movement of a central visual stimulus on the screen. There is a narrow time window in which this reaction must occur. A choice reaction or a simple reaction is required, depending on the test form. The tasks require a rapid reaction and are aimed at strong performers.

**Norms**

Norm samples varying in size between N=269 and N=271 are available for each of the test forms S1, S2 and S3. These norms are also available partitioned according to gender and age. In addition, norms of 47 racing drivers are available for Form S2.

**Testing time**

The time required for each of the three test forms is around five to seven minutes.

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**VIENNA TEST SYSTEM**

**MDT**

**Movement Detection Test**

D. Hackfort 
SCHUHFRIED GmbH
Application
Measurement of fine motor abilities through static and dynamic tasks for finger, hand, and arm movement, applicable from seven years of age.

Theoretical background
The Motor Performance Series (MLS) is a test battery developed by Schoppe on the basis of Fleishman’s factor analysis of fine motor abilities. The MLS assesses the following six aspects of fine motor abilities: Aiming (accuracy of movement), hand shakatremor, precision of arm-hand movements, manual dexterity and finger dexterity, rate of arm and hand movements, wrist-finger speed.

Administration
The MLS Work Panel is required for the administration of the MLS. This Work Panel measures 300 x 300 x 15 mm; it contains holes, grooves and contact surfaces. A stylus is attached to either side of the panel. The stylus on the right is black; the one on the left is red. The following tasks are carried out using the Work Panel:

- Steadiness (one or both hands), line tracking (one hand), aiming (one or both hands), inserting pins (one or both hands), tapping (one or both hands).

Test forms
The following test forms are available:
- S1: Standard form according to Schoppe & Hamster (17 subtests)
- S2: Short form according to Sturm & Büssing (8 subtests)
- Individual subtests can be selected for administration.

Scoring
Results table: Speed and/or accuracy scores are calculated for the right and left hands for one-handed and two-handed performance.

Results table for fine motor abilities aspects: Table of the theoretically estimated Fleishman factors for the right hand.

Profile: The normed variables and the Fleishman factors can be administered online: "unsupervised" without installation with the VTS Test Player lite with the VTS Test Player

Can be administered online:
- "unsupervised"
- "without installation"
- "with the VTS Test Player lite"
- "with the VTS Test Player"

Validity
Factor-analytic control studies on clinical groups and a group of healthy persons showed that the six factors of the MLS explain over 85% of the total variance. Comparisons between people with and without disorders of the central motor system revealed significant and highly significant differences in performance. This confirms that impairments in fine motor function can be objectified using the MLS. Only slight correlations of up to r=0.35 were found between the variables of the MLS and cognitive criteria, such as those measured by the HAWIE, CPT and the STROOP test, and between the MLS variables and various personality dimensions (e.g., extraversion, neuroticism, rigidity).

Norms
Form S1: sample of school students between 13 and 19 years of age (N=100); sample of adults (N=420), representative norm sample (N=107), collected at the Test & Research Center of the SCHÜHFRIED company in 2004, sample of left-handed adults and young people between 14 and 66 years of age (N=89), collected at the Test & Research Center of the SCHÜHFRIED company during the period 2005-2009.

Form S2: Representative sample, N=252, as total sample and subdivided according to education, age and gender. Sample of patients without neurological symptoms N=200, 2 samples of patients with Parkinson's disease N=70 and N=114.

Time required for the test
Approx. 15-20 minutes (for the short form).

Scoring
Results table: Speed and/or accuracy scores are calculated for the right and left hands for one-handed and two-handed performance.

Results table for fine motor abilities aspects: Table of the theoretically estimated Fleishman factors for the right hand.

Profile: The normed variables and the Fleishman factors can be displayed in a profile.

Reliability
Retest coefficients for the subtest parameters Aiming, Line tracking and Tapping were calculated (test-retest interval 1 day). They varied between r=0.52 and r=0.92 for the right hand and r=0.60 to r=0.90 for the left hand. For the subtest Tapping (variable Hits) the consistency coefficient (Cronbach’s Alpha) was calculated; it amounted to r=0.94.

Application
MOUSE is used to measure motor planning and execution processes in connection with using the computer mouse. It is particularly useful as a pre-test for tests such as the Trail-Making Test that presuppose familiarity with the use of the mouse.

Theoretical background
The computer mouse has become the standard input device for computer-based psychological assessment tests. To ensure that testing is fair and valid, it should not simply be assumed that the respondent is competent or able to use the mouse; instead, this ability should be verified. This can be done using the Mouse Ability Test. The use of MOUSE is particularly recommended before administering tests that have a speed component.

Method
Twenty-five squares of decreasing size are shown on the screen. The respondent’s task is to click on them one by one as quickly as possible. His behavior when working this task is documented and scored.

Test forms
There is one test form.

Scoring
MOUSE provides various measures of speed and accuracy when executing mouse movements.

Reliability
The reliability of the variables Speed and Accuracy, measured by Cronbach's Alpha, is between 0.96 and 0.83.

Economy
As a computer-based test, and on account of the short test length and the automatic calculation of scores, MOUSE is very economical to administer and score.
Scoring
The defined test score is the number of items solved.

Reliability
The reliability in the sense of an inner consistency is given due to the validity of the Rasch model. The following characteristic values for reliability were calculated: split-half-reliability r=0.87, Cronbach’s alpha r=0.84 and Guttman’s lambda 3 r=0.84.

Validity
Since the tasks of the MTA coincide by their content as well as formally with those of other mechanical/technical tests that were checked for their external validity, the external validity is deemed to be secure also for them. One external validity criterion (positive/negative completed re-training in a technical profession, r=0.47) confirms the selection quality of the MTA.

Norms
The norms available are based on a sample of N=205 adults. Three additional samples are based on the data of N=556 students from vocational schools, which were further divided between professions with technical understanding (N=339) and professions without technical understanding (N=217).

Testing time
Test phase: 40 minutes at the maximum.

Application
Test that assesses the mechanical/technical understanding using animated items (instruments, to which a construction plan must be assigned), to be used with adolescents and adults.

Theoretical background
In psychology there is a multitude of terms like “technical/constructive” or “practical/technical understanding”, which are used in connection with mechanical/technical understanding. Paul & Arnold (1972) limit the definition in the following way: “Technical understanding broadly contains the following abilities: a) to understand and describe technical drawings or instruments and to use their characteristics, b) to correctly understand and describe basic technical laws (e.g. the effect of the lever), with which everybody is acquainted in daily life, c) the personal inner connection with technical problems (e.g. planning a“practical/technical understanding”, which are used in connection with mechanical/technical understanding. Paul & Arnold (1972) limit the definition in the following way: “Technical understanding broadly contains the following abilities: a) to understand and describe technical drawings or instruments and to use their characteristics, b) to correctly understand and describe basic technical laws (e.g. the effect of the lever), with which everybody is acquainted in daily life, c) the personal inner connection with technical problems (e.g. planning a
The following variables are measured in all the test forms:

- Correct
- Omissions
- Incomplete Correct
- Mean time "Correct"
- Mean time "Incorrect"

Reliability

Evidence of the internal consistency of the test scores is provided by the analysis of dimensionality that was carried out using modern methods of probabilistic test theory. The reliability (Cronbach’s Alpha) of the main variables Correct, Omissions and Incorrect is between α=0.68 and α=0.98, depending on the test form. For the subsidiary variables Mean time "correct" and Mean time "incorrect" reliability coefficients between α=0.71 and α=0.98 were obtained.

Validity

Construct validity relates to the meaning of the test score and the respondent’s cognitive processes when working the task in relation to its design characteristics. The item domain includes consistent implementation of the 2-back or 3-back paradigm from recent research literature. This in itself indicates that the test has content validity. Further evidence of the content validity of the four test forms is provided by various factor analytic studies that provide proof of the material-specific processes that would theoretically be expected.

Norms

For the two test forms that implement a 2-back paradigm norms are available for N=310 individuals (Form S1) and N=381 individuals (Form S2) aged 15 and above. In addition, norms of N=313 individuals aged between 18 and 80 are available for Form S1. Because the individuals in this norm sample also worked all the other tests in the Cognitive Basic Assessment test set (COGBAT), these norms enable test results within the test set to be directly compared.

For the two test forms that use a 3-back paradigm norms are available for N=309 individuals (Form S3) and N=382 individuals (Form S4) aged 16 and above. For all four test forms the norms are provided both separated according to educational and age groups and combined.

Time required for the test

The time required for the test is 9 minutes. S3, S4: approx. 11 minutes.

Application

Assessment of the capacity limits of verbal working memory.

Theoretical background

Updating the contents of working memory involves the controlled replacimg of old information with new. New perceptions and surfacing memories constantly replace the existing material in working memory. Updating verbal and visual content is considered to be a key task of working memory: it is regarded as a specific component and is a central process in our thinking. "Updating" is an important predictor of higher cognitive functions up to and including fluid intelligence.

The test has been developed on the basis of current models of working memory, making use of the n-back paradigm. Drawing on a broad literature base, connotations were chosen as item material in order to target the verbal component of working memory. The task design is firmly rooted in up-to-date experimental and neuropsychological research work, thus ensuring that the test has content validity.

Administration

For the two test forms (100 2-back paradigm) or 140 (3-back paradigm) connotations with a presentation time of 1.5 seconds, followed by an inter-stimulus interval that is also of 1.5 seconds. The respondent must press the green button on the response panel if the consonant currently displayed is identical to the consonant that appeared either two places back (2-back) or three places back (3-back). An example of a 2-back task: a response is required if a consonant is identically to the low but one consonant, is in the case with the second bold “B” in the following example: F.G.H.B.L.B.S. If the consonants are not identical, no button is to be pressed.

Test forms

Our test forms are available: Forms S1 and S2 involve a 2-back design, while Forms S3 and S4 use a 3-back design.

Scoring

The following variables are measured in all the test forms: Correct, Omissions, Incorrect, Mean time “correct” and Mean time “incorrect”. Results are provided for all the scales in the form of raw scores, T-scores and percentile ranks.

Reliability

Evidence of the internal consistency of the test scores is provided by the analysis of dimensionality that was carried out using modern methods of probabilistic test theory. The reliability (Cronbach’s Alpha) of the main variables Correct, Omissions and Incorrect is between α=0.68 and α=0.98, depending on the test form. For the subsidiary variables Mean time “correct” and Mean time “incorrect” reliability coefficients between α=0.71 and α=0.98 were obtained.

Validity

Construct validity relates to the meaning of the test score and the respondent’s cognitive processes when working the task in relation to its design characteristics. The item domain includes consistent implementation of the 2-back or 3-back paradigm from recent research literature. This in itself indicates that the test has content validity. Further evidence of the content validity of the four test forms is provided by various factor analytic studies that provide proof of the material-specific processes that would theoretically be expected.

Norms

For the two test forms that implement a 2-back paradigm norms are available for N=310 individuals (Form S1) and N=381 individuals (Form S2) aged 15 and above. In addition, norms of N=313 individuals aged between 18 and 80 are available for Form S1. Because the individuals in this norm sample also worked all the other tests in the Cognitive Basic Assessment test set (COGBAT), these norms enable test results within the test set to be directly compared.

For the two test forms that use a 3-back paradigm norms are available for N=309 individuals (Form S3) and N=382 individuals (Form S4) aged 16 and above. For all four test forms the norms are provided both separated according to educational and age groups and combined.

Time required for the test

The time required for the test is 9 minutes. S3, S4: approx. 11 minutes.

Application

Assessment of non-verbal learning: graphic material that is difficult to verbalise, consisting partially of geometric and partly of irregularly shaped figures, is presented for memorisation. Some figures (from both item categories) occur repeatedly in the course of the test. The memorised material is recalled using the recognition method. The results of the NVLT yield information about the patient’s dual encoding ability and hence provide a valuable indication of the likelihood of being able to make successful use of this ability in memory therapy with the patient in question. The NVLT can be administered to healthy people as well as to people with cerebral lesions, in whom it may be used to assess some specific aspects of working memory processes. When used with patients it may well serve to complement its verbal equivalent, the Verbal Learning Test (VLT), in the assessment of material-specific learning disorders in the context of amnesia diagnostics.

Theoretical background

Based on the memory theories of Atkinson, Shiffrin and Baddeley, as well as on findings from neuropsychological research into amnesia, the NVLT was designed to assess learning ability with regard to non-verbal memory material that is stored in a material-specific long-term memory store. Through separate assessment of learning capacity in relation to geometric (high-associative) and irregular (low-associative) items it is possible to test respondents’ and patients’ ability in the “dual” storing of material (Pariou 1971) in verbal and pictorial code. In addition, the trend of these variables over the seven item blocks is recorded. A reliability index is also determined in a measure of the stability of the learning process. The median reaction times for correct and incorrect “yes” answers are given and are also quoted separately for high-associative and low-associative items.

Reliability

Split-half reliability coefficients were calculated for the main variables of the NVLT. They vary for the long form between r=0.89 and r=0.93 (adults) and between r=0.80 and r=0.87 (children and young people) and for the short form between r=0.82 and r=0.90 (adults) and r=0.71 and r=0.84 (children and young people).

Validity

Construct validity was analysed by investigating whether or not the process of learning over the course of the test was as monotonic as possible in terms of the Fullen Scale. This was the case to 78.7%-95.3% for the repeated geometric (high-associative) items, and to 50.3%-73.7% for the irregular (low-associative) shapes. However, the number of deviations from the ideal learning curve is very low for both item types. An analysis of the performance in the deviations between item block showed a structure that supports the inference that only one homogenous characteristic (learning ability) is assessed throughout all the item blocks. An examination of neurological patients with unilateral right- or left-hemispheric vascular cerebral lesions to test the differential validity of the NVLT and the parallel VLT showed that these two tests can detect material-specific learning disorders in the sense of double dissociations very precisely, not only for the groups as a whole but also in a high percentage of individual cases.

Norms

For the two test forms of NVLT representative norm samples are available for adults (N=363). For Form A (S1+S2) there are also available for children and young people (N=526). The norms for adults are available both for the sample as a whole and also separated according to educational level. In addition raw scores adjusted for age effects are available for the main variables: these have also been normed. The age range covered by the norms is 6-82 years. In addition, in the long form of the NVLT separate norm scores are provided for the learning of high-associative (geometric) and low-associative (irregular) items.

Time required for the test

Between 9 and 12 minutes (including instruction and practice phase), depending on test form. The visual discrimination test takes approximately three minutes.
Application
Assessment of the perseveration tendency (stereotypies) can be used as of 6 years of age.

Theoretical background
The consensus in scientific literature is that perseveration means an unwarranted repetition in cognitive processes and ways of behavior. Resistance to change and rigidity take the place of variability, flexibility and adaptability. The motor perseveration or “stereotypy” is marked by a high degree of variability, flexibility and adaptability.

The extent of the individual repetition tendency was determined in the above-mentioned experiment. In this experiment the respondents have to touch individual circles.

Administration
Nine big circles are displayed on the monitor. As in Mittenenbeck’s experiment 64 “beeping sounds” are presented per minute. The task consists in pressing with the light pen on the circles, to the tact of the tones. The test contains an instruction and a practice phase, in which the respondent receives feedback. After 210 entries the program indicates the end of the test.

Test forms
There is one test form.

Scoring
The following information theoretical values are calculated:
- Redundancy of the first degree (R1) as relative preference of individual circles.
- Redundancy of the second degree (R2) as the measure for the preference for individual combinations of two circles (the respondent pointed the light pen preferably to circle Y after circle X). The person taking the test cannot control the 81 combination options consciously anymore. The lower the value is for R2, the greater the randomness of pointing the various circles, i.e. there is no preference for specific combinations of pairs. Patients with organic brain damages or patients with psychiatric symptoms display a marked preference for certain sequences of pairs.

Control variables: “Omitted” and “Multiple reactions” in the interval between two beeping sounds.

Reliability
The split-half reliability (odd-even) varies between r=.86 and r=.91 for the Redundancy of the first degree. For the variable Redundancy of the second degree the same calculation mode was applied to produce reliabilities between r=.81 and r=.87.

Validity
A number of studies with the pointing experiment showed a significantly higher perseveration for clinical respondent groups in the following ascending order: epileptics, respondents with organic brain dysfunctions or damages, depressive patients, neuropsychiatric patients, and schizophrenics. These results were confirmed when applying the computerized Perseveration Test to patients with cranio-cerebral injuries. Additionally it is deemed evident, that rigidity and inflexibility of cognitive processes result in a greater repetition tendency of certain courses of action. In a study by Stoffers et al. (2001) it is reported, that when comparing two respondent groups with early signs of Morbus Parkinson (of which one groups was treated with medical drugs and the other one not) by the Perseveration Test, a marked reduction in the capacity to create patterns at random could be found in both groups.

Norms
Norms of N=417 healthy persons between the ages of 6 to 95 years are available. Additionally, test results were compared to age-specific subsamples.

Testing time
About 5 minutes.

The Perseveration Test (PP) as a computerized version.

Application
The test is designed to assess the perception and processing of peripheral visual information.

Theoretical background
Good visual perception is indispensable for many activities – such as driving a motor vehicle – in which humans interact with machines. Over 90% of the information received by a driver is perceived via the visual channel. The literature relating to the visual aspects of driving, peripheral visual perception is usually mentioned in connection with three matters:

1. Estimation of speed (high angular velocities arise in the peripheral visual field)
2. Handling the vehicle (objects at the side of the carriageway move past peripherally)
3. Monitoring of the motor environment (detection of events and objects, e.g. overtaking cars or vehicles emerging from a side street). The PP is designed as a purely behavior-based instrument that meets high methodological standards.

Administration
Light-emitting diodes mounted on the apparatus generate light stimuli that move at a pre-set speed (in regular “jumps”). Critical stimuli appear at pre-defined intervals; the respondent reacts to these as quickly as possible, as for example when driving a car. Traffic-psychological studies have demonstrated that the test has adequate validity.

Norms
A norm of N=351 (173 men, 178 women) adults is available for the variable Field of vision and Tracking deviation. The data was collected in 2008 in Vienna. In addition to the total sample, three subsamples consisting of different age groups are available.

Time required for the test
The time required for the test is approximately 15 minutes (including the instruction and practice phase).

Scoring
The following variables are scored:
- Overall field of vision, visual angles left/right, tracking deviation, number of hits left/right, number of incorrect reactions, number of omitted reactions, median reaction time left/right.
Application

Depending on the form used, the RT can be used to measure either reaction time or reaction time and motor time. Forms S7 and S8 can also be used to measure phasic alertness. Forms S1–S3 can be used with children as young as six years of age.

Theoretical background

Dorsch (1994) defines reaction time as the time that elapses between a signal and the start of the mechanical response movement when the respondent is instructed to react as quickly as possible. Since such response times need to be measured in milliseconds, the test instrument used must be very precise and highly reliable. 

With the RT it is possible to measure reaction time for both simple choice and a multiple-choice reactions. Light and sound stimulus modalities are available, with a choice of the colours red, yellow or white, so that different stimulus constellations for the measurement of reaction time can be created. These can range in the different test forms from individual stimuli to simultaneous or sequentially presented stimulus combinations.

The use of a rest key and a reaction key makes it possible to distinguish between reaction and motor time.

Administration

The Response Panel is used as the input device. An animated instruction phase and an error-sensitive practice phase lead on to the task itself. The test involves the presentation of coloured stimuli and/or acoustic signals. The respondent is instructed to press the reaction key only when specific stimuli are presented, and, having pressed the key, to return his finger immediately to the rest key. Headphones can be used in group testing situations.

Test forms

Forms S1–S5 assess reaction time and motor time in response to simple and complex visual or acoustic signals. Forms S1 and S2 involve only one critical stimulus, to which the client must react. These two forms therefore do not measure incorrect reactions. By contrast, forms S3 and S4 contain critical stimulus combinations to which the client must react; incorrect reactions are measured in these forms. Form S5 is particularly suitable for measuring changes in reaction time over a relatively long period of time under monotonous stimulus conditions (vigilance). Forms S7–S8 are used to measure alertness.

Scoring

The following main variables are calculated, depending on test form: Mean reaction time and Mean motor time, Dispersion of reaction time and Dispersion of motor time, Difference in mean reaction time with and without cue and Difference in mean motor time with and without cue. Means are calculated using a Box-Cox transformation; this ensures that they provide an optimal representation of the central tendency of the distribution of the reaction times.

Reliability

Reliabilities (Cronbach’s alpha) in the norm sample vary between r=0.83 and r=0.88 for reaction time and between r=0.84 and r=0.95 for motor time.

Validity

Content (logical) validity is given for the Reaction Test. The presentation of an individual stimulus for one second is such a simple requirement that it can be assumed that nothing other than a reaction to that stimulus occurs. Studies of criterion validity in the field of traffic psychology show significant correlations between results on the RT and the result of a standardized driving test. In addition, it has been shown that the test has adequate convergent validity.

Norms

Norm samples varying in size for the different test forms between N=775 and N=855 are available for the RT; some norms are also available partitioned according to age, gender and educational level. For a number of forms special norms are also available for school children and for drivers who have committed motoring offences.

Time required for the test

Between 5 and 10 minutes (including instruction and practice phase), depending on test form.

Application

Assessment of long-term focused attention. The test measures the visual differentiation of a relevant signal within irrelevant signals. It is suitable for use with individuals from seven years of age.

Theoretical background

Signal discovery theory (synonymous with the signal detection theory of Green and Swets, 1966) describes the perception of weak signals against a constantly changing ("noisy") background. It is not concerned only with the visual differentiation of signals of a particular type that are close to the perception threshold. More generally it addresses the question: under what conditions can a person detect the presence of a weak signal against a background of irrelevant signals or among other signals that could sometimes be confused with the relevant signal? There is a close link here with statistical decision theory. The response "signal present" or "signal not present" is viewed not just as an issue of sensitivity to differences but mainly as a decision-making problem: the testee must decide between two possible responses, to which different probabilities attach.

Administration

Dots are displayed over the entire screen area; pseudo-randomly, some of the dots disappear and others come into view. The critical stimulus constellation consists of four dots forming a square. Whenever this stimulus appears, the testee must respond by pressing a button.

Test forms

S1: Standard (white signals on a black background)
S2: Standard, inverted (black signals on a white background)
S3: Short signal duration
S4: Signal balance (neglect assessment)

Scoring

The main variables calculated are the numbers of correct, delayed and incorrect reactions as a measure of the reliability of the detection process, and the median detection time as a measure of the speed of the detection process.
Application
This test measures the respondent’s simultaneous capacity - that is, his/her ability to coordinate several tasks that must be performed at the same time (divided attention during cognitive activities) - and his/her stress tolerance.

Theoretical background
Operationally SIMKAP is based on the definition of simultaneous capacity and stress tolerance. Simultaneous capacity is defined as the performance achieved when handling routine and cognitive (problem solving) tasks simultaneously. Stress tolerance is defined as the extent to which performance differs when dealing with identical routine tasks under normal (baseline) and under stress conditions.

Administration
SIMKAP consists of five subtests. In the long form the first three subtests use different materials (number, letters and shapes) to measure baseline perceptual speed and accuracy; these subtests represent routine tasks. In the short form (S2) perceptual speed and accuracy is measured using numerical material only. The fourth subtest of the long form (S1) and the second subtest of the short form (S2) involve simple intellectual tasks (problem-solving). The last subtest is the one that measures simultaneous capacity. It combines the previous requirements - routine tasks of perceptual speed/accuracy and problem-solving tasks must be dealt with simultaneously.

Test forms
There is a long form (S1) and a short form (S2).

Scoring
The main scoring variables are Simultaneous Capacity and Stress Tolerance. In addition, scores for perceptual speed and accuracy under normal (baseline) and stressful conditions are reported.

Reliability
The reliability for overall performance in the long form is 0.97 for simultaneous capacity and 0.91 for stress tolerance. In the short form S2, reliability if 0.94 for simultaneous capacity and 0.89 for stress tolerance.

Validity
The psychological validity of SIMKAP is obvious, since the test’s content immediately causes respondents to think of real-life situations that require different situations to be handled simultaneously. Logical validity is given by the operational definition of simultaneous capacity and stress tolerance. The construct validity of the long form S1 has been demonstrated by factor analysis. Prognostic validity has been demonstrated for occupations demanding a high degree of simultaneous capacity and stress tolerance.

The criteria used were “completed vocational training without difficulty” and “poor performance on the job”. A further study of the prognostic validity of the long form S1 carried out by the Swedish Marine showed that SIMKAP differentiates extremely well among speed boat commanders.

Norms
Norms of a sample of 436 Austrian adults are available for the long form (S1). The norms are also broken down by level of education and age.

Scoring
The following seven variables are assessed: “Time in ideal range”, Mean and distribution of “Angle deviation”, “Horizontal deviation”, and “Vertical deviation”.

Reliability
The internal consistency is situated above r=0.90 in all scales.

Validity
The results of statistical correlation analyses and inter-group comparisons (including other tests and various external criteria) back up the convergent and discriminant validity of the SIMKAP. Extensive aviation psychological validations (pilot selection) have been conducted with the Austrian Federal Army.

Norms
Test forms S1-S3 are provided with age- and education-specific samples (n=239). Test form S4 can be compared to age-, gender-, and education-specific samples (n=189).

Testing time
Instruction: about 5 minutes
S1: 10 minutes
S2: 15 minutes
S3: 20 minutes
S4: 10 minutes

Test forms
There are four test forms:
S1: Short form (screening: 10 minutes)
S2: Standard form (15 minutes)
S3: Long form (higher measurement accuracy: 20 minutes)
S4: Special form for foot pedals (10 minutes)
The SWITCH test is a standardized test to measure cognitive flexibility (or switching ability) in healthy individuals and in psychiatric and neurological patients.

### Reliability
The split-half reliabilities for the norm sample varied between r=.85 and r=.99.

### Validity
The test's reliability has been estimated by calculating different reliability measures using the data of the norm sample. The reliability of the main variables can be classified as satisfactory.

### Application
Test to measure cognitive flexibility (or switching ability) in healthy individuals and in psychiatric and neurological patients.

### Theoretical background
Cognitive flexibility is the ability to switch flexibly between two different tasks. Like working memory and response inhibition, cognitive flexibility is regarded as a basic executive function. SWITCH has been specially developed to facilitate specific and nuanced assessment of deficits in this area.

### Norms
The norm sample for SWITCH comprises 303 healthy respondents from the entire age range of the adult population. It is representative of the general population of Austria in terms of age and gender.

### Time required for the test
The SWITCH test takes approximately 12 minutes to complete.

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**Switch Costs**

1. **Reading Speed Alone**
   - The experimental set-up “color interference”, where reading the word that is written in a differently colored font is made more difficult since color-word and color in which the word is written do not match.
   - Time required for the test: Approx. 15 minutes.

2. **Determination of the Color Naming Speed.**
   - The experimental set-up “word interference”, where naming the word “reading baseline” and the naming interference (the difficulty of reading the word that is written in a differently colored font) is made more difficult since color-word and color in which the word is written do not match.
   - Time required for the test: Approx. 15 minutes.

### Administration
The task is to press the correct respective entry field or color button as fast as possible.

### Test forms
Three test forms are available: Test forms S7 and S10 determine first the “baseline” then the “interference condition”. The two test forms vary as regards the input medium and the instructions (the respondent names/does not name the color aloud).

### Scoring
The main variables are reading interference (the difference of the reaction time medians of the “reading interference condition” and the “reading baseline”) and the naming interference (the difference of the reaction time medians of the “naming interference condition” and the “naming baseline”). Additionally, the following variables are issued for each individual test part: “Median reaction time” and “Number of incorrect answers”. The test protocol shows each single reaction of the respondent with reaction time of the respondent and evaluation of the reaction.
Applicability

Test to measure general neuropsychological functions such as attention, visuo-motor processing speed and executive functions.

Theoretical background

The Trail-Making Test is widely used internationally to investigate brain functioning. It consists of two parts. Performance on different parts of the original TMT makes demands on different neuropsychological domains – attention, processing speed and executive functions, such as cognitive flexibility and working memory. TMT-A is primarily a measure of processing speed, while TMT-B assesses higher cognitive abilities such as mental flexibility. In the TMT-L, some weaknesses in the original version have been corrected. For example, the item distance is always constant and is in the foveal visual field. In addition, in the TMT-L the paths in Part B are identical to those in Part A; this makes it easier to control motor influences and to compare results on the two parts of the test.

Administration

The present test is based on established experimental paradigms for measuring cognitive flexibility. It can be used to assess neuropsychological deficits and prepare for therapeutic intervention.

Test forms

In Part A of the present computerized and optimized version the numbers 1 to 25 are arranged pseudo-randomly on the screen; the task is to tap or click on the numbers in sequential order as quickly as possible. Tapping is done with the forefinger of the dominant hand, while clicking is done with the mouse. Part B uses the numbers 1 to 13 and the letters A to L. These must be tapped or clicked alternately and in ascending order as quickly as possible, using the forefinger of the dominant hand or the computer mouse.

Scoring

The main target variables are the working time in Parts A and B of the Trail-Making Test – Langensteinbach Version. The number of errors, the ratio score and the difference score are also reported. Outliers are analyzed to determine whether the results are influenced by singularly impaired search processes.

Reliability

The test’s reliability is estimated by calculating Cronbach’s alpha and other reliability measures using the data of the norm sample. The test’s reliability can be classified as high.

Validity

Extensive empirical evidence supports the validity of the Trail-Making Test – Langensteinbach Version. The test’s construct validity was examined using the original TMT, the WAFA, neuropsychological tests for assessing the executive functions (Task Switching, Tower of London – Freiburg Version and n-back tasks) and other basic cognitive functions.

Norms

The norm sample for the TMT-L comprises 309 healthy individuals covering the entire age range of the adult population.

Testing time

The Trail-Making Test – Langensteinbach Version consists of two parts (Parts A and B). The working time is about two minutes for each part.

Application

Test to measure planning ability in healthy individuals and in psychiatric and neurological patients.

Theoretical background

The term “planning ability” is used here to describe the ability to model solution possibilities cognitively and to assess the consequences of an action before it is carried out. The “Tower of London” dates back to an attempt by Shallice (1982) to devise a planning task that covers a broad difficulty spectrum and hence makes it possible to administer a large number of qualitatively different problems. The present version is based on the findings of recent studies of the connection between task complexity and the cognitive processes that underlie planning ability. Use of the TOL-F is recommended for various neurological disorders (e.g. frontal brain injury, neurodegenerative diseases) and psychiatric disorders (e.g. schizophrenia, compulsive disorders) in which planning ability is likely to be impaired.

Administration

The present test provides a detailed evaluation of planning ability and hence enables a precise assessment, which can be used as a basis for therapeutic intervention. Either the standard or the short form of the TOL-F can be used, depending on the reason for the investigation and the patient’s ability level.

Test forms

There are two test forms. The first form is the standard form, which provides a detailed assessment of planning ability. The second form is a short form which discriminates mainly in the lower ability range; it therefore enables quick and economical measurement of performance deficits. Both the standard and the short forms of the TOL-F are available in three parallel versions.

Scoring

The main target variable is planning ability – i.e. the number of items worked correctly within a time limit of one minute each. Information on error types (such as systematic rule infringements or changes of mind while working the items) and on planning and execution times is reported.

Reliability

The test’s reliability was estimated from the data of the norm sample. Cronbach’s Alpha and other measures of reliability for planning ability as the main variable are α=0.7 and α=0.8 – bearing in mind the broad range of different item difficulties combined with the relatively short test duration – are entirely satisfactory.

Validity

Extensive literature supports the validity of the test implemented here. Variants of the “Tower of London” had already been used with numerous neurological and psychiatric patient groups and with healthy adults and children. The present variant is based on a number of recent studies of the psychometric properties of the “Tower of London”.

Norms

Data is available for 269 individuals from the normal population aged between 16 and 84 years, distributed approximately uniformly with regard to age and gender. Also available is the 2012 COGBAT norm sample, which consists of 313 individuals from the normal population. In addition to the total norm, age-, education- and gender-specific norms are provided for this norm sample.

Time required for the test

The standard form of the TOL-F takes around 16 minutes to complete; the short form requires around 11 minutes.
Application
Assessment of attention in the form of sustained vigilance in a low-stimulus observation situation; suitable for use with individuals aged 6 and over.

Theoretical background
Challenges involving vigilance are characterized by the following conditions: a lengthy test requires uninterrupted vigilance of the subject; the signals which need to be attended to appear irregularly and do not automatically attract attention. The stimuli presented therefore need to be of relatively low intensity and critical events need to occur relatively infrequently. As a general principle a maximum of 60 critical stimuli per hour is suggested. The decline in performance in vigilance experiments is explained by the lowering of the subject's activation level and the attendant increase in response latency. According to neuropsychological activation theory, stimulus poverty leads to the cortex being insufficiently stimulated by the ascending reticular activating system (ARAS). The cerebral cortex therefore fails to receive the wake-up impulse needed to sustain particular activities; this results in psychological exhaustion and a decline in performance efficiency. It is this situation which has given rise to the concept of being "overchallenged by understimulation".

Administration
A white dot moves along a circular path in small jumps. Sometimes the dot makes a double jump; when this happens the respondent must react by pressing a button.

Test forms
- S1: The dots that make up the circular path are shown on the screen as small circles. This form differentiates only among performances that are well below average; it is intended primarily for use with patients whose vigilance is thought to be significantly impaired. Significant stimuli appear considerably more frequently than in forms S2 and S4.
- S2: In this form the path is not marked out on the screen. The respondent must assess whether the white dot has made a double jump (intrinsic stimulus) or not.
- S4: Identical to S2, but the length of the test is increased to 66 minutes.

Scoring
The following variables are calculated: Number of correct, Number of incorrect, Mean value of reaction time correct (sec.), Gradient of reaction time correct together with the associated measures of uncertainty.

Reliability
Depending on the test version and the comparison sample, the following split-half reliabilities were obtained for the main variables:
Number of correct: r=0.85 – r=0.95; Number of incorrect: r=0.69 – r=0.93; Mean value of reaction time correct: r=0.87 – r=0.99.

Validity
- Sensitivity validity is given: all the criteria required in the most important tests for the measurement of vigilance are met. Tests of extreme group validity found that patients with right-hemisphere cerebral lesions obtained significantly worse results than patients with comparable left-hemisphere brain injury.

Norms
- S2: Austrian norm sample N=271, sample of psychiatric patients N=111, Swedish job-seekers N=480 and Swedish applicants for technical occupations N=367.
- S4: Comparison scores of N=114 patients with sleep apnoea are available.

Time required for the test
- Between 30 and 70 minutes (including instruction and practice phase), depending on test form.

Application
Assessment of sub-functions of attention, suitable for respondents from the age of 7.

Theoretical background
Modern views of the dimensionality of attention can be summarized in the model proposed by van Zomeren and Brouwer (1994). According to this model the central factors include the distinguishing of intensity and selectivity aspects of attention; these need to be differentiated into their more specific components. The intensity aspect of attention comprises two components, alertness and vigilance. Alertness involves the short- and longer-term maintenance of attention, while vigilance relates to the sustaining of this arousal. With this distinction the selectivity aspect of attention processes the model distinguishes between focused or selective attention and divided attention.

The spatial orienting of attention is a separate, additional dimension (Posner et al., 1978, 1984). It does not form part of the model described above but is included in more recent taxonomies (Blum, 2005).

Both Posner and Raichle (1994) and Fernandez-Duque and Posner (2001) distinguish three types of attention networks: a) Orienting (corresponds to the network of spatial direction of attention), b) Vigilance (corresponds to the intensity dimension) and c) Executive Attention (corresponds roughly to the selectivity dimension).

Administration
The WAF test battery consists of six tests that can be administered independently of each other or, as a test battery, in any desired combination. In addition, WAF can be used to make a differential assessment of sensory impairments.
- WAFW: Pre-tests for attention functions
- WAFA: Alertness
- WAFV: Vigilance / sustained attention
- WAFF: Selective attention
- WAFA: Divided attention
- WAFS: Spatial attention and visual field / extinction - neglect

For each of the WAF tests different test forms are available, enabling dimensions of attention to be assessed under different presentation modalities. These are thus separate sub-tests for visual, auditory and crossmodal presentation. In some subtests of the WAF test battery automated and controlled aspects of attention are presented separately, the stimuli either become more prominent because the intensity level is increased ("popping out"), or they become less prominent because their intensity is decreased and cognitively controlled "top down" processes are then required. Both attention processes are relevant in everyday life; both can interact and both can be selectively impaired, for example as a result of brain damage, since they are based on different cerebral networks (Cortibetta & Schultmann, 2002).

WAFW
In order to exclude the possibility that perceptual impairments may influence the processing of the stimuli used in WAF, thus impairing reliable diagnosis. WAFW can be used before the start of an assessment in order to determine whether the respondent has the perceptual ability necessary for completion of the WAF tests.

WAFA
WAF measures reaction time in response to simple visual or auditory stimulus material. The stimulus is presented either with or without a warning signal in the same stimulus modality or the contrasting one (intrinsic vs. phasic alertness). A special standardization process enables fatigue or stress patterns to be measured.

WAFV
In WAFV the respondent is presented with visual and auditory stimuli that occasionally diminish somewhat in intensity. The person's task is to respond to these occasional cases; when sustained attention is being measured they constitute around 25 % of the stimuli while in the case of vigilance they make up only 5 % of the stimuli.

WAFF
The spatial orienting of attention is measured using either 4 or 8 spatial positions in a task similar to a Posner paradigm. Peripheral (exogenous) and central (endogenous) spatial cues are used. In the neglect test stimuli are presented at various positions in the right or left visual field or simultaneously in equivalent positions in both halves of the field of vision (extinction condition).

WAFA
The respondent is presented - depending on the subtest - with relevant visual or auditory stimuli against a background of distracting stimuli. The person's task is to respond to any predefined changes in relevant stimuli; one stimulus occurs consecutively, all other stimuli are to be ignored.

WAFS
The person receives relevant and irrelevant stimuli in one or both presentation modalities; the task is to react to changes in the relevant stimuli while ignoring irrelevant ones.

WAFF
The respondent receives stimuli on two visual channels or on one visual and one auditory one. The task is to monitor channels to determine whether one of the stimuli changes twice in succession.
Test forms/subtest

**WAFV:** 4 test forms
Separate forms for distinguishing brightness, distinguishing shape, distinguishing pitch and distinguishing volume.

**WAFA:** 2 test forms (standard form and short form), each with 6 subtests
Subtests: Intrinsic (visual), phasic (unimodal visual), phasic (cross-modal visual/auditory), intrinsic (auditory), phasic (unimodal auditory), phasic (cross-modal auditory/visual).

**WAFF:** 8 test forms (4 long and 4 short forms; the short forms for sustained attention have been specially developed for children and young people).
Separate forms for vigilance (visual), vigilance (auditory), sustained attention (visual), sustained attention (auditory). Separate short forms for sustained attention (visual) and sustained attention (auditory).

**WAFG:** 5 subtests
Subtests with either four or eight stimulus positions and peripheral or central cues. In addition a test for visual field / neglect under sustained attention (visual), sustained attention (auditory), separate forms for vigilance (visual), vigilance (auditory), sustained attention (visual), sustained attention (auditory).
Separate short forms for sustained attention (visual) and sustained attention (auditory).

**WAFW:** 3 subtests
Unimodal (visual), unimodal (auditory), crossmodal.

**WAFG:** 3 subtests
Unimodal (visual), unimodal (auditory), crossmodal.

**WAGF:** 2 test forms (standard form and short form), each with 2 subtests:
Subtests: unimodal (visual), crossmodal.

**Scoring**
In all WAF tests the reaction times and the various error types are scored. For most of the variables a norm comparison is also carried out, yielding percentile ranks and T-scores.

**Reliability**
Especially given the short testing time, the reliabilities (Cronbach’s alpha) obtained for the WAF tests are very good.

- WAFA: In the WAFA test, reliability between r=0.86 and r=0.97 (children and young people 0.92-0.97)
- WAFF: In the WAFF test, reliability between r=0.92 and r=0.97 (children and young people 0.96-0.97)
- WAFA: In the WAFA test, reliability between r=0.88 and r=0.97 (children and young people 0.92-0.98)
- WAFF: In the WAFF test, reliability between r=0.88 and r=0.97 (children and young people 0.92-0.94)
- WAGF: In the WAGF test, reliability between r=0.93 and r=0.97 (children and young people 0.91-0.96)
- WAFS: In the WAFS test, reliability between r=0.93 and r=0.97 (children and young people 0.93-0.94)
- WAFFG: In the WAFFG test, reliability between r=0.89 and r=0.97 (children and young people 0.95-0.96)

**Validity**
A study of the tests’ construct validity involving a sample of n=256 adult respondents and 270 children and young people provided empirical confirmation of the theoretical model on which the WAF test battery is based and was able to distinguish it from other models.

- **Norms**
For all WAF tests, norms representative of the general population are available; the norms relate to N=2055 individuals in the age range 16-77. The norms are available both for the sample as a whole and also separated according to educational level. In addition, all WAF tests provide raw scores adjusted for age effects for the main variables; this is a particularly efficient method of standardization for age. A norm sample of N=270 children and young people in the age range 7-17 is also available. Some norms representative of the general population consisting of N=309 or N=313 individuals aged between 16 and 89 are available for individual subtests of the short forms of WAFG and WAFA.

**Time required for the test**
The time required to complete the individual WAF tests is relatively short. It is therefore possible to create batteries of tests for complex assessment purposes without requiring too much of the respondent in terms of time or motivational commitment. It is usually not necessary to administer each test in all stimulus modalities. This must be decided by the user, taking into account any information about a patient’s difficulties or disabilities that has already been gathered. The test results cannot be interpreted with confidence unless the person/patient meets the sensory and motor requirements for satisfactory completion of the test.

- WAFF: approx. 2 minutes for each pre-test
- WAFA: between 14 and 27 minutes, depending on test form
- WAFF: between 15 and 30 minutes, depending on test form
- WAFF: approx. 5 minutes for each test form
- WAFS: approx. 10 minutes for each subtest
- WAFFG: approx. 8 minutes for each subtest
- WAGF: between 12 and 30 minutes, depending on test form

**Application**
Estimation of speed and movement of objects in space.

**Theoretical background**
An important function in many areas of modern life is an individual’s ability to imagine the effect of a movement and correctly estimate the movement of objects in space. In traffic psychology, aviation psychology and sport this skill is particularly important. Since the ability to estimate movement is hard to assess by conventional methods, the ZBA test was developed as part of the Vienna Test System.

**Administration**
A green ball appears on the screen, moving slowly. At an unpredictable moment the ball disappears and two red lines appear. One line passes through the point at which the ball has just disappeared. The other is the target line. Anticipation of time is measured by instructing the respondent to indicate when the ball will reappear at the target line. He does this by pressing a button at which he considers to be the appropriate moment. To measure anticipation of movement, the respondent is additionally asked to indicate the location at which the ball will cross the target line. This is done by means of two keys that control an arrow on the screen. The respondent receives feedback only during the instruction phase; no feedback is given during the test phase.

**Test forms**
There is a long form (S1) with 48 items, a short form (S2) with 12 items, a linear form (S3) with 8 items, a linear form for time estimation only (S4) with 30 items, and a screening form for time estimation with 18 items.

**Reliability**
Reliabilities (internal consistency) obtained for the long form, particularly for anticipation of time, are very high, ranging from r=0.94 to r=0.99. Reliabilities (internal consistency) for anticipation of movement in the long form are as follows:

- Median direction deviation overall r=0.79
- Median direction deviation for linear path r=0.93
- Median direction deviation for complex path r=0.76
- Median direction deviation for sinusoidal path r=0.68

**Validity**
Validity studies are currently available for a precursor version of the test. The results of an evaluation study involving a driving test show that in real-life traffic situations the overestimation of distance causes more problems than underestimation of distance.

**Norms**
Representative norm samples are available for all forms except S5. The size of the norm sample varies, depending on the test form, between N=300 and N=672. Some norms are also available partitioned by age, education and gender.

**Time required for the test**
Between 5 and 25 minutes (including instruction and practice phase), depending on test form.
Reliability

Because the Partial Credit Model (Masters, 1982) applies, the internal consistency of the 30 subscales is given both within and across the two language versions. The reliability coefficients (Cronbach’s Alpha) of the individual subscales vary between 0.70 and 0.90. The reliability coefficients of the higher-level Big Five factors vary between 0.80 and 0.97, depending on the subscale selected. These results hold for both the German and the English versions of BFSI.

Validity

The content validity of the individual subscales is given on account of the theory-based item construction of the individual blocks. In addition, the author provides evidence that respondents’ test behavior can be entirely explained by the item characteristics and the item differences in the latent personality traits that are the object of measurement. Further evidence of validity is provided by factor analysis studies that have investigated the questionnaire’s factor structure. The results of these studies confirm the questionnaire’s theoretically postulated factor structure within each of the language versions and for both versions together. The available evidence of validity has been complemented by meta-analytical studies of the criterion validity of the Big Five and some selected studies of the criterion validity of the questionnaire described here. The results demonstrate that the personality traits measured by BFSI can contribute to prediction of success in work or training.

Norms

Norms are available for N=1314 German-speaking individuals aged between 14 and 85 years and for N=520 English-speaking individuals aged between 14 and 70. Both norms are also available partitioned according to age, gender and educational level.

Time required for the test

The administration time depends on the subscales selected. If all the subscales are selected the time required for the test is approximately 18 minutes.

Application

The EPP6 test is a multi-dimensional modular personality inventory for assessing the three dimensions of extraversion, emotionality, and adventurousness as described by Eysenck.

Theoretical background

The EPP6 is a multi-dimensional questionnaire based on the personality theory of Eysenck. On account of the wide band-width of the Five Factor Model, Eysenck’s factors of extraversion, neuroticism and psychoticism can be readily incorporated into the overall classification structure of this model. These universal factors enable a more individual perspective to be adopted. However, the dimensions have not become superfluous: the intention is that they should be underpinned by these factors. The three dimensions mentioned in the EPP6, namely extraversion, emotionality (neuroticism) and adventurousness (psychoticism) confirm this theory and summarise the scores obtained on the seven subscales. In addition, an honesty scale has been added to the questionnaire.

Administration

After general instructions have been provided the test items are presented one by one. Using a four-point answer scale, respondents indicate the extent to which the presented adjective or statement applies to them. As soon as an answer has been entered the next item appears. It is not possible to correct preceding items.

Test forms

There is one test form.

Scoring

Raw scores and the corresponding person parameters are calculated for the all the subscales presented on the basis of the Partial Credit Model (Masters, 1982). If more than one subscale is selected for one of the Big Five factors, a person parameter is also calculated for that factor on the basis of the results of the confirmatory factor analysis. In addition, T-scores and percentiles are calculated and reported for each test score. The results are displayed in tabular form and as a profile. The program also checks the consistency of the test scores within each of the five higher-level factors, using methods of psychometric single-case analysis.

Reliability

For Form S1 the reliability scores (internal consistency) range from r=0.56 (tough-mindedness) to r=0.85 (inferiority, unhappiness) for men and from r=0.41 (tough mindedness) to r=0.89 (unhappiness) for women. For Form S2 reliabilities range from r=0.68 (irresponsibility) to r=0.89 (unhappiness) for women and from r=0.74 (assertiveness) to r=0.85 (unhappiness) for men.

Validity

Factor analysis reveals a clear three-factor structure. The emotio-nality factor explains 27.2% of the variance, the adventure factor 17.9% and the extraversion factor 10.1% (cumulatively 55.1%). These findings were replicated by Eysenck, Barrett, Wilson & Jackson (1992) and Costa & McCrae (1995). In addition, Costa & McCrae (1995) provide some alternative factor solutions that are of particular interest with regard to the Five Factor theory. Furthermore, the factorial validity of the EPP6 has been shown to apply across different cultures and age groups; high levels of equivalence are found in the factor structures obtained from these different samples (Eysenck, Wilson & Jackson, 2000).

Norms

The norms are quoted in percentile ranks and T-scores for all the subscales and dimensions. The norm sample of the paper-and-pencil version of the EPP6 was used, consisting of N=11394 respondents. A norm sample of N=222 representative of the general Austrian population is also available.

Time required for the test

Between 20 and 55 minutes (including instruction and practice phase), depending on test form.
Application

A self-assessment test for identifying likely behavior and experience in situations involving social communication, achievement or recreational activities.

Theoretical background

The IPS test calls for self-assessments of likely behavior and experience in situations that serve as prototypes of typical demands encountered in everyday life. It covers three broad areas: involving social and communicative behavior, achievement behavior, and health and recreational behavior. The 80 items are grouped into a number of scales within each area; these scales provide the basis for the provision of a separate profile score for each area. In addition to the self-assessments of behavior and experience, information from 15 separate items and the 3 scales formed from them is used to assess the respondent’s satisfaction with their behavior.

Administration

After the instruction phase, the items are presented in succession on the screen. The respondent enters his answers on a rating scale. All items must be answered.

Test forms

There is one test form.

Scoring

The scale scores are first calculated as stanine scores. The profile is then created; this is done separately for each of the three areas. Classification probabilities are calculated, indicating how closely the individual’s profile conforms to the reference profiles drawn up for each area. Finally, estimated scores and satisfaction scores can be compared.

Reliability

IPS has good to adequate reliabilities in all scales and profiles.

Validity

Validity is confirmed by results obtained with different samples and at a number of levels. For both the scales and the profiles there are clear links, in line with the claim to validity, with the dimensions of other tests (FPI-R, A/VE/M), as well as close correlations with self-assessments and observer ratings in relevant situations of challenge. Overall there is convincing evidence of validity in the sense of construct validation.

Norms

Norms of two types are available for the IPS. Firstly, norms for the scale scores are quoted in the usual way (differentiated for age, gender, occupation, etc.). However, these two items of supplementary information are not at present used in scoring the test.

Test forms

There is one test form.

Scoring

The factor scores on the twelve bipolar factors complete the description of results.

The factors are regarded as bipolar dimensions. The cooperation group comprises the following factors:

- Reaction to frustration and criticism (tolerant/oppositional vs. emotional/reacting)
- Striving for contact (active/sociable vs. reserved)
- Attitude to others (empathic vs. issue-oriented)
- Teamworking (independent vs. collegial)
- Willingness to work under pressure (high/ambitious vs. calm/relaxed)
- Leadership style (forward-looking vs. confidential)
- Leadership focus (superordinate vs. detailed)
- Leadership basis (subject expertise vs. interdisciplinary competence)

Reliability

The reliability of the factor analytic dimensions was estimated by the split-half method with a correction for test length; the values obtained ranged between 0.65 and 0.85 with a mean of 0.76.

Validity

External validity was calculated as a multiple correlation of the 12 factors with various external criteria. This yielded (significant) correlations of r=0.38 with gross annual salary (N=1840), r=0.41 with hierarchical position (6 levels, N=1929) and r=0.42 with self-reported weekly working hours (N=1920).

Norms

A representative norm sample (N=340) is available for the computer version; a large norm sample (N=1929) is also available for the paper-and-pencil version.

For both norm samples, norms for subsamples based on age and education are available in addition to the total norm. The norms of the paper-and-pencil version are also provided separately for three function groups (sales, technology, administration) and three hierarchy groups (high, medium, low). For the representative norm sample of the computer version separate norms are also available for men and women.

Testing time

Approx. 10–20 minutes.
Validity
A multitude of validity studies were conducted. They showed correlations between novelty seeking and bad behavior in the military (r=0.35) and type 2 alcoholism (r=0.38). A study by Srvaric et al. (1993) found that the existence of some kind of personality disorder was highly determined by low point scores in self-directedness and cooperativeness. The TCI manual reports about studies – some of them using a precursor model of the TCI – that examine the genetic stability and the variability of the character dimensions. For example complex studies of more than 1400 pairs of twins showed that the four temperament dimensions novelty seeking, harm avoidance, reward dependence and persistence are genetically homogenous (Heath, Madden, Cloninger & Martin, 1994). There are also very comprehensive studies of the neurocognitive correlates of the temperament dimensions The TCI manual also reports studies of the theoretical background

Application
This test measures four temperament dimensions and three character dimensions (main dimensions) as well as 24 dimensions of a lower order. The scoring is effectuated for the seven dimensions of higher order as well as for the 24 dimensions of lower order. The four temperament dimensions measured are self-directedness, coop- erativeness and self-transcendence.

Reliability
The inner consistency (Cronbach’s Alpha) varies between r=.54 (perseverance) and r=.83 (novelty seeking) for the norm sample of healthy Germans.

Scoring
The raw scores for the different scales are calculated as the sum of their component items. The results protocol consists of a results table with the raw and standardized scores for all the scales and the working time, as well as a test profile and a test protocol which records the subject’s responses.

Validity
Both for people convicted of offences and for a normal sample there are significant medium-strong correlations with scales of the FAF aggressivity questionnaire (Hampel & Selg, 1998).

Noms
A representative norm sample (n=427) is available, covering an age range of 16 – 91 and separated by gender, age and education.

Testing time
The time taken to administer the test varies between 20 and 30 minutes.
The test is used to assess the extent and frequency of aggressive behavior in traffic.

**Reliability**
The internal consistency of the test was calculated as Cronbach’s Alpha. For the normal condition the internal consistency (mean value of all scales) is r=0.96; for the stress condition it is r=0.97.

**Validity**
There are many studies of the construct and criterion validity of AVIS; for a summary see Herzberg (2001a). Construct validation is based on the analysis of inter-individual differences in the test results, studies of the convergent and discriminant validity of AVIS and common factor analyses with tests that have related and divergent validity - these include psychometric personality tests, interpretive tests, driving-related tests and observer ratings.

The construct validity of AVIS has been proven. The criteria used were the number of warnings and fines, the current total of points registered with the Central Index of Traffic Offences in Flensburg and the number of points registered in the last three years, the total number of accidents, the number of accidents in which the subject had been at fault and the number of times the driving license had been revoked. Because of the distribution characteristics of the criteria and the associated problems of reliability (Kladeberg, 1982), the analysis of the correlations between the AVIS scales and the criteria was carried out using structural equation models. Significant statistical correlations between AVIS and all the criteria were found.

**Norms**
Noms are currently available only for the standard form S1. For all the variables overall norms from a sample of N=242 individuals are available, as well as age-specific and education-specific norms. For the short form S2 only the norms of the standard form S1 are available at present.

**Time required for the test**
Between 8 and 25 minutes (including instruction and practice phase), depending on test form.
Symptoms of stress: physical; emotional/cognitive. 
Coping: palliative; instrumental.

The Differential Stress Inventory makes it possible to measure the extent and the causes of stress, coping strategies and risks of stress stabilisation.

Application
The Differential Stress Inventory makes it possible to measure and differentiate between stress triggers, symptoms of stress, available coping strategies and risks of stress stabilisation. Both the extent and the cause of stress are identified. Main areas of application: work psychology, company and organisation psychology, health psychology, clinical psychology.

Theoretical background
The idea of developing the Differential Stress Inventory arose from the need to create a tool which would identify the way in which an individual deals with stress and which would do justice to the multi-dimensionality of the construct. In view of the practical implications for counselling and therapy, a behaviour-theory model was considered to be the best basis for the construction of a stress questionnaire.

The theoretical basis of the construction of the Differential Stress Inventory was the concept of the diagnosis of achievement anxiety put forward by Rost and Schermmer (1987). The similarity between anxiety and stress which has often been remarked upon in the literature does indeed make such an approach appropriate. The tool is made up of 9 dimensions which have been obtained by factor analysis and which measure different aspects of the causes and symptoms of stress, coping strategies and stress stabilisation.

It is also possible to assign subjects to one of five stress types, depending on how they experience and respond to stress: normal, over-stressed, stress resistant, low stress – successful coping, high stress – successful coping.

Administration
After instructions have been given the items are presented sequentially on the screen. The subject indicates his responses on a four-point verbally-marked scale (from is almost always true to is almost never true). It is not possible to omit items. The item immediately preceding the current one can be corrected once.

Test forms
There are two test forms (S1 – for employed persons/adolescents and S2 – for school-age students/young people). Each form contains 121 items relating to four aspects of stress: stress triggers, symptoms of stress, coping and stress stabilisation.

Scoring
The raw scores on the scales and the response times for each item are measured. Output is provided in the form of a results table with raw scores and percentiles for all the scales together with the individual test profile.

The following normed variables are covered:
- Causes of stress: everyday events; interaction with others; anxieties about life circumstances.
- Symptoms of stress: physical; emotional/cognitive.
- Coping: palliative; instrumental.
- Stress stabilisation: external; internal.

In addition, classification probabilities are calculated which identify the extent to which an individual’s profile resembles five different reference profiles.

Reliability
All scales of the DSI have a high degree of internal consistency (Cronbach’s Alpha between .70 and .94).

Validity
Since the scales of the DSI have been obtained by factor analysis and which measure different aspects of the causes and symptoms of stress, coping strategies and stress stabilisation.

It is also possible to assign subjects to one of five stress types, depending on how they experience and respond to stress: the five types are normal, over-stressed, stress resistant, low stress – successful coping, high stress – successful coping.

Administration
After the instruction phase, the items are presented sequentially on the screen. The subject indicates his responses on a four-point verbally-marked scale (from is almost always true to is almost never true). It is not possible to omit items. The item immediately preceding the current one can be corrected once.

Test forms
There are two test forms (S1 – for employed persons/adolescents and S2 – for school-age students/young people). Each form contains 121 items relating to four aspects of stress: stress triggers, symptoms of stress, coping and stress stabilisation.

Scoring
The raw scores for all scales and the response times for each item are calculated. The results are reported in the form of a results table with raw scores and percentiles for all scales and an individual test profile.

The following normed variables are reported:
- Causes of stress: everyday events; interaction with others; anxieties about life circumstances.
- Symptoms of stress: physical; emotional/cognitive.
- Coping: palliative; instrumental.
- Stress stabilisation: external; internal.

In addition, classification probabilities are calculated which identify the extent to which an individual’s profile resembles five different reference profiles.

Reliability
All scales of the DSiHR have high internal consistency (Cronbach’s Alpha between .70 and .94).

Validity
Since the scales of the DSI have been obtained by factor analysis, construct validity as understood in classical test theory can be regarded as given.

Norms
The norms for S1 are based on a representative sample of N=334 individuals (160 men, 174 women) tested in Austria in 2010. Norms are also available differentiated by gender, educational background and age. The norms for S2 were drawn up from a sample of N=606 children and young people (232 boys, 374 girls) tested in Germany in 2007. Norms are also available differentiated by gender and age.

Administration
Approx. 15 minutes.

Norms
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Application
The EBF measures an individual's current level of recovery and stress – his or her 'recovery-stress state'. It uses retrospectively gathered information on the frequency of stressful situations and reactions to them and on recovery activities within the last three days.

Theoretical background
The stress-strain concept, on which the EBF is based, is closely linked with models developed in psychological stress research. Stress is viewed as a state of mental strain which may continue for some time after the source of the stress has been removed. The Recovery-Stress Questionnaire measures stress and its consequences. It can be used to draw conclusions about the level of strain on the individual. Since strain places demands on resources, and these resources may become exhausted as stress levels rise, the Recovery-Stress Questionnaire also covers recovery activities. The recovery aspect is assessed in terms of the balance between strain and recovery in the last three days.

Administration
After the instruction phase, the items are presented in succession on the screen. Respondents enter their answers on a seven-point scale (ranging from "never" to "always"). An answer may be corrected once only. All unanswered items are presented again at the end of the run, but there is no compulsion to answer them.

Test forms
The long form EBF-72/3 consists of 72 items. The two parallel short forms EBF-24A/3 and EBF-24B/3 each contain 24 items. These test forms are standardised self-assessment tests that use 12 subscales to measure the frequency of stress and recovery.

Scoring
Raw scales are calculated for all subscales. The raw scores for the two variables Strain and Recovery are calculated from the relevant subscales. The scores are then compared with orientation scores for all subscales.

Reliability
The internal consistency of the scales of the long form lies between r=0.80 and r=0.97. Test-retest reliabilities after 24 hours are between r=0.79 and r=0.91.

Validity
The intercorrelation structure was found to be largely sample-independent. Correlations with respondents' current state of mind, as measured by the adjective list, were in accordance with the construct. In a study of medical students one day before, one day after and three weeks after a difficult examination, the average recovery-strain balance as depicted by the standard form was in accordance with expectations. The Recovery-Stress Questionnaire sensitively depicts the effects of stress management training and other measures and enables performance and health in stress situations to be forecast.

Norms
The recovery-strain state varies over time and as a result of specific stresses and recovery activities. Mean scores of 418 working men and women are available for the EBF-72/3. These should be interpreted as orientation scores rather than as norms and should always be considered against the specific situational background.

Time required for the test
Approximately 10 minutes for the standard form and 7 minutes for the two parallel short forms.

Application
The IVPE is used to measure personality traits relevant in the context of a driving-related psychological assessment: readiness to take risks, sense of social responsibility, self-control and emotional stability. It includes an honesty scale for monitoring any tendency to faking.

Theoretical background
The inventory is a computerised personality test measuring personality traits that are relevant to traffic psychology: sense of social responsibility, self-control, emotional stability and readiness to take risks. Social behavior in road traffic situations is viewed as being linked above all to the ability and motivation to conform to rules and norms. The measurement of sense of social responsibility is based on the three-component model of the attitude to social values of Stahlberg and Frey (1990). The General Theory of Crime of Gottfredson and Hirschi (1990) provides the basis for the construction of the items on the self-control scale. Neuroticism, which is defined as the opposite of emotional stability, is measured by personality traits that Östendorf (1998) has shown to be the best indicators of this latent personality dimension. The construct of sensation-seeking as a measure of readiness to take risks is assessed by a scale based on the "thrill and adventure-seeking" dimension postulated by Zuckerman (1994). The choice of this subscale is justified by its significance for safe driving behavior (cf. Jonah, 1997).

Administration
The respondent rates the degree to which particular statements about driving, leisure and work apply to him/herself. The response is entered via the Response Panel, mouse, computer keyboard or touch screen on an answer bar with a sliding marker. It is possible to correct the immediately preceding item.

Test forms
There is one test form.

Scoring
The scoring program recalculates the respondent's analog answer to produce dichotomous scales. The analogue scale is divided in different ways for each scale. The following variables are measured: Emotional stability, Sense of responsibility, Self control and Adventurousness. The IPVE also includes the Honesty control scale. Results are provided for all the scales in the form of raw scores, T-scores and percentile ranks.
The evaluation of motives relating to performance, control, affiliation and motivation management.

Factor analysis suggests a three-factor constellation: a fear factor (fear of failure, fear of losing control and fear of rejection), a factor representing hopes for success and control and a third factor describing hopes for affiliation.

Validation

Studies have shown that individuals with achievement motivation perform better on a management training course and individuals with high control motivation benefit more from this kind of training. Wegge, Quaeck and Kleinbeck (1996) investigated the influence of motives – measured by the MMG, the TAT and a questionnaire (AMS) – on subjects’ video game preferences. Subjects were shown three games which they could choose between; the selection consisted of a game involving fighting, an adventure game and a simulated motor cycle race. "Fear of failure" was a good predictor for the length of playing time. "Fear of losing control" and "fear of failure" were good predictors of the amount of time the subject spent with the games. Individuals with high "hope for affiliation" had by far the strongest preference for the adventure game. When asked about their general preferences with regard to video games, individuals with high "hope for affiliation" mentioned the game's colour and music, while individuals with high "hope for success" particularly enjoyed games in which they could determine the difficulty level themselves.

Application

This questionnaire is designed to measure stress and dissatisfaction at work. It is advisable to use it in work- and health-psychological examinations.

Norms

The various examinations carried out to check the validity of the SBUSB have all yielded good results.

Reliability

The internal consistency (Cronbach’s alpha) of the scales lies between r=.77 and r=.90.
As soon as I notice that other people do not approve of my behavior, I try to change it appropriately.

#### Application

**Assessment of aptitude and inclination for activities related to customer orientation.**

**Theoretical background**

The aim of the development of this test was the creation of a diagnostic tool for the assessment of people’s aptitude and inclination for work in the area of customer orientation by recording their attitudes and fields of interest in that area. Well-proven concepts were built, based on self-evaluations of the respondents. According to Stratemann (1991) and Kumpf (1990) the situation of the person working in service and sales can be modeled as an activity, or according to Zimbong & Sonnenberg (1988) as communication. From an aptitude-diagnostic viewpoint constructs arose that were defined according to classic test theory and checked according to certain quality criteria.

The scales assess motivational as well as competence-oriented concepts as relatively stable personality traits observed over a period of time. The test consists of 94 items, which can be linked to 8 scales. The scales extraversion, empathy, self-monitoring and frustration tolerance measure capacities, which have to be considered prerequisites for customer-oriented behavior. The remaining four scales measure primarily the motivational factors: striving for social acceptance, performance motivation, motivation for providing assistance, and dominance.

**Administration**

After the instruction the questions are presented one after the other on the monitor. The respondent answers on a four-level continuum from “Applies to a great extent” to “Does not apply at all”. One correction per item is allowed. Skipping items is not possible.

**Scoring**

The raw scores of all scales and the response time for each item are recorded. The printout contains a result table with the raw and standard scores for all scales and the working time, and optionally a test profile and an item analysis protocol of the respondent’s strengths and weaknesses.

**Reliability**

The consistency coefficients (Cronbach’s Alpha) of the 8 scales vary between r=.50 and r=.79.

#### Validity

Results for the prognostic and construct validity are currently being examined, as well as the specific role of individual constructs in the prognosis of aptitude and suitability for certain professional functions, e.g. through configural models. In a sample of 370 bank employees in asset management consulted services, significant correlations were found between the scales of SKASUK and those of MMG (Multi-Motive-Grid).

**Norms**

A representative norm sample of the general population in the size of N=306 is available. These data were collected in the Test & Research Center of SCHAUFRIED in the year 2003. A standardization has also been carried out with various miscellaneous samples from consulting projects.

Data of 1654 people between the age of 17 and 35 are available.

**Testing time**

About 20 minutes.

**Application**

This test is used to predict the driving behavior of people with experience of driving. The VIP has been explicitly designed for use in a concrete selection situation. It is therefore particularly suitable for applied psychology situations, such as assessment of professional drivers of different types. It aims to facilitate prediction of the respondent’s future driving behavior by obtaining his profile of driving-specific rating on the dimensions of “Uncritical self-perception (US)”, “Aggressive interaction with other road users (AI)” and “Emotional driving (ES)”, supported by a control scale “Attitude to social conformity (SE)”.

**Theoretical background**

Consideration of ways of improving the usefulness of questionnaires in assessment of fitness to drive yielded the following list of requirements for future questionnaires to be used in the assessment of fitness to drive (for more detail see Schmidt, 1982b):

1. Development in a situation comparable to the application.
2. Theoretically justifiable connection between questionnaire dimensions and driving behavior.
3. Testing of dimensionality with two independent samples representative for the target group. If possible using two different methods, one of which should preferably be a probabilistic model.
4. Comprehensibility of item wording (abundance of ambiguity, clarity of the language).
5. Strategy for monitoring social conformity (type of instructions, control scales with comparable content, testing fit of response behavior to the model).
6. Precautions against response sets (balance between yes/no answers, avoiding opportunities for extreme answers).

The present questionnaire is not to be regarded as an attitude questionnaire in the classical sense; instead it should be seen in the light of cognitive approaches to behavioral therapy (e.g. Mahony, 1977, Molenkamp, 1979) as an attempt to measure cognitive strategies for assessing situations, one’s own behavior and the consequences of that behavior. Just like observable behavior, these things are determined by the individual’s learning history.

**Administration**

The questionnaire contains 49 items, which the respondent must rate as “true” or “not true”.

**Test forms**

There is one test form.

**Scoring**

The scoring involves calculating a total score for each scale. In accordance with the concept of driving behavior as social interaction, the items can be assigned to the three scales of “Uncritical self-perception” (US = 20 items), “Aggressive interaction with other road users” (AI = 10 items) and “Emotional driving” (EA = 11 items). The fourth scale “Attitude to social conformity” (SE = 8 items) also contains driving-related statements that do not differ formally from the items in the other three scales. This function as a control scale: it provides information about the way in which the questionnaire was answered and hence about the extent to which the other scale scores can be interpreted.

**Reliability**

Internal consistence (Cronbach’s Alpha) for the different scales lies between r=0.54 and r=0.79.

**Validity**

Given the theoretical models of driving behavior on which the test’s design is based (e.g. Kielbseltz, 1977; Wilde, 1978) and the background provided by behavioral approaches, (see e.g. Mahony, 1977) there appears to be adequate evidence of the test’s content validity. Indicators of construct validity come from the correlations that were found as expected between the VIP scales and other questionnaires (16PF, 7PF/8PF, the Risk-Readiness Factors Questionnaire, FRF, VPT and VPT.2). The expected correlations between the VIP and variables from history-taking and structured interviews were also found. With regard to criterion validity, small but positive correlations were found between questionnaire scale scores and criteria of driving behavior, i.e. between subjective assessment and observable behavior.

**Norms**

Norms are available for a sample of N=303. The data was collected in 2012 in accordance with the most recent microcensus. Norms (N=6088) collected by the Kuratorium für Verkehrssicherheit für die ART2020 are also available.

**Time required for the test**

Approx. 10 minutes.
There is one test form. Test forms differently scored data. The respondent may choose from three possible answers (right/left/cannot decide) in deciding which of two simultaneously presented areas is larger. The second subtest “Coding symbols” measures respondent’s aspiration level and frustration tolerance. Respondents are required to assign symbols to abstract shapes in accordance with a specified key, and are then asked to predict their performance on the next task. In addition, feedback is given. The third subtest “Differentiating figures” measures performance motivation. Respondents are asked to indicate which figure in a row of symbols does not belong.

Test forms
There is one test form.

Scoring
Three test scores are calculated in the subtest “Comparing surfaces”: Exactitude, Decisiveness and Impulsiveness/Reactivity. The subtest “Coding symbols” yields test scores for Performance level, Aspiration level, Frustration tolerance, Time of maximum performance and Target discrepancy. The final subtest “Differentiating figures” yields the test score Performance motivation.

Reliability
In the view of the authors, calculation of the standard measurement error for the AHA is inappropriate.

Validity
On account of the theoretically based derivation of the test scores, content validity can be assumed. Ebenhöhl (1994), Kubinger (1995) and Frestort (2003) showed that individual test scores differentiated significantly between successful and less successful co-workers or trainees. As predicted by the theory, different test scores were found to be advantageous in the three studies. In addition, Kubinger & Hofmann (1998) showed in a factor-analytical study that Impulsiveness/Reactivity correlates with extraversion, while Frustration tolerance correlates with conscientiousness. Performance motivation, on the other hand, appears to be a separate factor and is not covered by the “Big Five”, Wagner-Menghin (2003) reports the results of a study on the identification of three motivational types.

Norms
A representative norm sample N=429 is available. An evaluation of non-z scores, content validity can be assumed. Ebenhöhl (1994), Kubinger (1995) and Frestort (2003) showed that individual test scores differentiated significantly between successful and less successful co-workers or trainees. As predicted by the theory, different test scores were found to be advantageous in the three studies. In addition, Kubinger & Hofmann (1998) showed in a factor-analytical study that Impulsiveness/Reactivity correlates with extraversion, while Frustration tolerance correlates with conscientiousness. Performance motivation, on the other hand, appears to be a separate factor and is not covered by the “Big Five”, Wagner-Menghin (2003) reports the results of a study on the identification of three motivational types.

Resistance to falsification
Evidence of resistance to falsification has been provided by a number of studies (e.g. Kubinger, 1995; Hofman & Kubinger, 2001; Bienen, 2000; Greiff, 2003; Greiff, 2003).

Time required for the test
Between 35 and 60 minutes (including instruction and practice phase).

Application
The subtests of the Resilience Assessment Test together comprise an objective test battery for measuring aspects of resilience.

Theoretical background
BACO is an objective test based on R.B. Cattell that examines the success of an individual’s strategies for dealing with potential stressors. It measures the extent to which an individual is able to withstand stress – i.e. the degree to which his resilience, performance and mental state remain unaffected in a stressful situation.

Administration
The first subtest “Time pressure” measures resilience under pressure of time. The respondent is required to work a coding task for which the time allowed becomes progressively shorter. The second subtest “Presence of others” measures resilience in the presence of other people. Stylized faces are shown on-screen as the respondent performs calculations. The third subtest “Conflict of tasks” measures resilience in situations in which different tasks make simultaneous demands on the respondent’s attention: a main and a secondary task are to be performed in a simulated office environment. The fourth subtest “Hindrance to planned action” measures resilience in the context of unexpected changes. The task involves finding one’s way through a changing maze. The fifth subtest, “Inadequate feedback”, measures resilience when negative feedback is given in a simulated job application situation. The sixth subtest, “Unfavorable working conditions”, uses a simulated office situation to measure resilience to unfavorable working conditions.

Test forms
There is one test form.

Scoring
Forty test variables are calculated, of which 26 are normed. The test variables that are calculated describe the individual’s test performance and provide information on the aspects of resilience measured in BACO.

Reliability
Split-half reliabilities between 0.34 and 0.91 were obtained for the variables of the individual subtests.

Validity
Many of the test variables have content validity that arises from the test concept. With regard to correspondence validity, Kleweg (2004) found that the resilience measured by BACO could not in principle be measured by self-assessment methods. Also available are the results of studies of psychophysiological effectiveness, content validity and prognostic validity in alcohol patients, together with the findings of a resilience diary study.

Norms
Norms are available for a sample of N=511. For individual subtests norms are also available for university of applied science students (N=187) and social workers (N=190).
The scoring is computerized and yields values for the effort put around the screen by pressing two buttons in order to move left or right; each press of a button causes him to advance by one field.

Theoretical background
This test has been developed to take account of the findings of achievement motivation research (relating, for example, to the importance of motivating conditions such as setting specific goals for the respondent, making the outcome of the test dependent solely on the respondent, giving performance feedback). Each of the three subtests is built around a particular incentive or stimulus that has been shown to be relevant in motivating respondents' performance: incentives arising from the task itself, from setting one’s own goals, and from competition.

Norms
Age-specific norms are available for a sample of N=630 individuals.

Time required for the test
The time required for the test is approximately 20 minutes (including the instruction and practice phase).

Reliability
Internal consistency (Cronbach’s alpha) is over .90 for performance scores and between .80 and .90 for difficulty level.

Validity
For task-related effort in particular clear indications of validity were found in that there were positive correlations with very different indicators of performance (final grades in the secondary school leaving examination, educational level, intelligence test performance and various attention evaluation tests).

Test forms
There is one test form.

Scoring
The scoring is computerized and yields values for the effort put into completing the test, for changes in the respondent’s performance in the face of personal goals and of competition, and for difficulty level. If performance is implausibly poor on individual runs the computer can make an adjustment for invalid reactions. Information is also provided on performance over the course of the test and on the error percentage.

Application
The Objective Achievement Motivation Test (OLMT) is a computerized test for the behavioural assessment of achievement motivation. It provides information about the effort applied when working on tasks under various significant constraints.
Application

Measurement of the subjectively accepted level of risk in traffic situations in accordance with the theory of risk homeostasis.

Theoretical background

This test assesses risk-taking behavior in potentially dangerous driving situations. In the literature the term “risk” is not used in a way that is by any means uniform. However, defining elements that all the different definitions have in common are the potential danger and the possibility of harm (Schuster, 2000). The theoretical model on which the WRBTV is based is Wilde’s theory of risk homeostasis (Wilde 1978, 1994). The dimension measured is the subjectively accepted level of risk.

Administration

Respondents are given full instructions on how to work the test. They are informed that they will view 24 driving situations, which will be described in words before they are shown on-screen. Each driving situation is then shown twice. On the first occasion respondents simply observe the situation. On the second occasion the respondent is required to press a key to indicate the distance to which the driving manoeuvre that has just been described becomes critical or dangerous – i.e. the point at which the respondent would no longer perform the manoeuvre. The first of the 24 driving situations serves as a practice item.

Test forms

There is one test form.

Scoring

The variable “willingness to take risks in traffic situations” measures behavior in potentially hazardous driving situations.

Reliability

Because of the applicability of the Latency Model (Schelleitner, 1978, 1979, 1985) for the latency times in the driving situations, internal consistency is given. Reliability as measured by Cronbach’s α is 0.92.

Validity

Three independent studies have with the help of the Latency Model (Schelleitner, 1978, 1979, 1985) demonstrated the test’s construct validity with reference to the risk homeostasis theory of Wilde (1978, 1994). All the studies showed that the WRBTV measures the unidimensionally personality construct “subjectively accepted level of risk”. In addition, studies of convergent and divergent validity show significant correlations between the variable “willingness to take risks in traffic situations” and various tests measuring sensation-seeking and sense of responsibility. Correlations with unrelated personality traits and tests measuring mental speed and general intelligence do not differ significantly from zero.

Evidence for the criterion validity of the test was provided by a study carried out by Sommer, Arendasy, Schuhfried & Litzenberger (2005) which showed that a test battery that included WRBTV was able to correctly classify around 89% of drivers who had either had no accidents or a number of accidents (R²=0.837; adj. R² = 0.836).

Test-retest reliabilities are also available for intervals of three months, four months and one year. Validity

Extensive studies of the validity of the AISTR have been carried out and have shown among other things that the test has factorial, convergent validity and criterion validity.

Norms

The norms were obtained from a calibration sample of 2,496 young people aged between 14 and 21 drawn from the most important schools and training centres in Austria.

Time required for the test

approx. 10 – 15 minutes (including instruction and practice phase).

Scoring

The raw scores for all scales and the response times for each item are calculated. The following are provided:

1. a report for the test administrator with
   - raw and standard scores on the six interest dimensions (with profile)
   - Holland code (the three most prominent interest dimensions) and a list of occupations that are congruent with the Holland code (Z-S index)
   - a hexagonal diagram of the interest dimensions

2. a report for the respondent with
   - interest profile
   - Holland code a list of occupations that are congruent with the Holland code (Z-S index)
   - differentiation score for the six interest dimensions

Reliability

Studies using the norm sample yielded internal consistencies (Cronbach’s α) for the interest scales of between r=0.79 and r=0.87. Test-retest reliabilities for the individual tests between r=0.83 and r=0.96 for a test-retest interval of two days and between r=0.60 and r=0.75 for an interval of two years. 

Validity

According to Holland (1985) there are six fundamental personality orientations in our cultural milieu. Holland also postulates that each person searches for the environment that corresponds to his personality type and hence to his interests. If he succeeds, there is complete person/environment congruence. The AISTR measures this congruence between an individual and his or her environment. The test consists of 60 items, which measure the following six interest dimensions: practical and technical, intellectual and investigative, artistic and linguistic, social, entrepreneurial, and organizational and administrative interests. The concept of congruence means that the test can be used to assign people to occupations on the basis of their different psychological characteristics.

Administration

After the instruction phase, the items are presented in succession on the screen. The respondent enters his answers on a five-point scale. At the end of the test, and respondents can choose whether to answer them or not.

Test forms

There is one test form with 60 items; it has been adapted for a number of different countries and languages.

Scoring

The raw scores for all scales and the response times for each item are calculated. The following are provided:

1. a report for the test administrator with
   - raw and standard scores on the six interest dimensions (with profile)
   - Holland code (the three most prominent interest dimensions) and a list of occupations that are congruent with the Holland code (Z-S index)
   - differentiation score for the six interest dimensions

2. a report for the respondent with
   - interest profile
   - Holland code a list of occupations that are congruent with the Holland code (Z-S index)
   - differentiation score for the six interest dimensions

Application

The AISTR is a differential test for identifying educational or career interests, for use from the age of 14 onwards. It is therefore used primarily in educational and occupational counselling.

Theoretical background

According to Holland (1985) there are six fundamental personality orientations in our cultural milieu. Holland also postulates that each person searches for the environment that corresponds to his personality type and hence to his interests. If he succeeds, there is complete person/environment congruence. The AISTR measures this congruence between an individual and his or her environment. The test consists of 60 items, which measure the following six interest dimensions: practical and technical, intellectual and investigative, artistic and linguistic, social, entrepreneurial, and organizational and administrative interests. The concept of congruence means that the test can be used to assign people to occupations on the basis of their different psychological characteristics.

Administration

After the instruction phase, the items are presented in succession on the screen. The respondent enters his answers on a five-point scale. It is possible to correct each item once and to omit individual items. If unanswered items are presented again at the end of the test, and respondents can choose whether to answer them or not.

Test forms

There is one test form with 60 items; it has been adapted for a number of different countries and languages.

Scoring

The raw scores for all scales and the response times for each item are calculated. The following are provided:

1. a report for the test administrator with
   - raw and standard scores on the six interest dimensions (with profile)
   - Holland code (the three most prominent interest dimensions) and a list of occupations that are congruent with the Holland code (Z-S index)
   - differentiation score for the six interest dimensions

2. a report for the respondent with
   - interest profile
   - Holland code a list of occupations that are congruent with the Holland code (Z-S index)
   - differentiation score for the six interest dimensions

VIENNA TEST SYSTEM
MOI Multi-method Objective Interests Test Battery

R. T. Proyer, J. Häusler © SCHUHFRIED GmbH

Introduction

You can now practice on an example.

The picture shows an airplane. If you are interested in airplanes, press the green button. If you are not interested in airplanes, press the red button.

Uninteresting Interesting

Application

Assessment of vocational interests based on the vocational interest theory of Holland (1997), for use with respondents aged 14 and over.

Theoretical background

J.L. Holland (1997) distinguishes between Realistic, Investigative, Artistic, Social, Enterprising and Conventional interests. Drawing on this theory, which is widely utilised in both theory and practice (Proyer, 2007a; Rayman & Atanassoff, 1999), MOI operationalises the six interest dimensions in various different ways.

The test battery includes a verbal questionnaire, a non-verbal questionnaire, objective personality tests and a scale measuring vocational identity. The main purpose of these objective personality tests is to derive information on vocational interests from observation of the testee’s behaviour in standardized working task situations (for details: Ottner, et al., 2006; Proyer & Häusler, 2007). This kind of information is particularly useful if the respondent chooses not to reveal in his or her vocational interests or exhibits a low level of differentiation and weak vocational identity. However, high levels of vocational identity and of differentiation in the interest profile render the provision of this kind of additional information in the counselling situation unnecessary.

Administration

MOI consists of a verbal and non-verbal interest questionnaire, three objective personality tests (“Distractibility”, “Allocation”, “Tachistoscope”) and a scale measuring vocational identity.

Test forms

There are two test forms which can be used as pre-defined combinations of the subtests. The short form (S2) contains only the two subtests that measure vocational interests explicitly; the long form (S1) includes in addition the subtests for implicit vocational interests or exhibits a low level of differentiation and weak vocational identity. However, high levels of vocational identity and of differentiation in the interest profile render the provision of this kind of additional information in the counselling situation unnecessary.

Scoring

For all the subtests specific scores for the six interest dimensions are calculated. Across all the subtests administered, normed total scores are reported for the explicitly measured and implicitly measured interests. The data can be interpreted with reference either to a total norm or to intra-individual differences in interests.

Reliability

Depending on the scales used, the reliability coefficients of the objective personality tests range from 0.64 to 0.92.

Validity

Higher correlations were found between the verbal and non-verbal questionnaire scales and corresponding scales taken from the General Interest Structure Test. The correlation between the self-report measures and the objective personality tests were lower as has been expected on the basis of the current research literature (cf. Ottner et al., 2008). Generally, the correlations between the different MOI scales and measures of intelligence were in line with those usually reported in the literature. Taken together, these results support the construct validity of this measure. Furthermore, MOI subtests were found to be capable of identifying individuals studying different disciplines (restriction: R not represented).

Norms

A norm sample of N=462 is available; the data was collected at different centres in Austria and Switzerland.

Time required for the test

Test form S1: 40-60 minutes
Test form S2: 15-20 minutes

Validity

The test was administered to 345 individuals, split into two groups (Biehl, 1972). One group (N=180) consisted of drivers who had been apprehended on one or more occasions for drink-driving and referred by the authorities for traffic psychological assessment. These individuals cannot be regarded as alcoholics in the clinical sense. The other group (N=165) consisted of drivers who had not committed any drink-driving offences.

The variable Alcohol risk distinguishes between the two groups at a significant level. There is no significant difference between the two groups on the Dissimulation scale; that is, the tendency to lie is the same in both groups.

Norms

The variables Alcohol risk and Dissimulation were normed. The norm sample (N=310) is made up of 141 (46%) men and 169 (54%) women. The sample is subdivided into two subsamples on the basis of gender for S1 (long form) and S2 (short form).

Time required for the test

Between 5 and 10 minutes (including instruction phase), depending on test form.

Clinical Tests

Attitude and Interest Tests

Identification of Alcohol Risk

ATV

B. Biehl © SCHUHFRIED GmbH
The reliability was assessed based on the calculation of Cronbach’s Alpha and Gutmann’s a2 for the norm sample. The result of this is a value of 0.841 for Cronbach’s Alpha and a value of 0.851 for Gutmann’s a2.

Validity
Extensive literature supports the validity of the test. The literature reports not only evidence for the accepted one-dimensionality of the test, but also theory-confirming correlations with personality questionnaires that record related constructs. In addition, there is evidence that the test separates healthy and clinical patients for which deficits in the capacity for empathy is to be expected.

Norms
The norms are based on a sample of 311 healthy adults (163 women) aged between 16 and 85. The sample is therefore representative of the overall German and Austrian population in terms of age and gender.

Time required for the test
The test takes approximately 10 minutes to complete.

Application
The Empathy Quotient (EQ) test was developed for use in a clinical and research context. It aims to illustrate pathological deficits in the ability for empathy. As shown in previous studies, the test makes a valid distinction between groups of patients that demonstrate a deficit in this ability (e.g., persons with Asperger’s Syndrome or autism disorder) and healthy control patients.

Theoretical background
Empathy - the ability to put yourself in another person's position and share the feelings of other people - is without question one of the basic components of our emotional and social lives. The EQ thereby gives information on the degree to which a person attributes cognitive and affective empathy to him/herself.

Scoring
The individual answers in EQ are assigned points, and the total of these points is the Empathy Quotient, the main variable of the EQ. The Empathy Quotient thereby gives information on the extent to which a person attributes cognitive and affective empathy to him/herself.

Reliability
The reliability was assessed based on the calculation of Cronbach’s Alpha and Gutmann’s a2 in the data for the norm sample. The result of this is a value of 0.841 for Cronbach’s Alpha and a value of 0.851 for Gutmann’s a2.

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Application
The reliability was assessed based on the calculation of Cronbach’s Alpha and Gutmann’s a2 in the data for the norm sample. The result of this is a value of 0.841 for Cronbach’s Alpha and a value of 0.851 for Gutmann’s a2.

When a person attributes cognitive and affective empathy to him/herself, the test measures a total score (raw score) and the working time for each item. Depending on the amount of the total score, the result is then placed into one of five categories: “normal”, “less than normal”, “minimal suicide risk”, “strong suicide risk” and “especially strong suicide risk”.

Validity
Studies show primarily significant correlations with several scales in the Giessen test ("negatively vs. positively experienced social resonance" r=.39, "hypomania vs. depressive irritation" r=.55) and the attitude questionnaire of the "Generalized Other" ("experiences of rejection and disdain from others" r=.50, "positive vs. negative attitude towards the social environment" r=.41, "reduction of performance" r=.41, "dominance and willingness to lead" r=.34).

Norms
The subjects’ total scores are placed in one of five categories. In the computer version a comparative sample of 266 psychiatric patients serves as the basis for this assessment.

Administration
After the instruction phase, 52 items are presented on the screen in succession. The subject enters his/her answers on a bipolar scale (true/false). It is possible for the subject to correct his/her answers once and to skip over items. The items that were skipped over will be presented once again at the end of the test; however, the subject is not required to answer these.

Scoring
The test measures a total score (raw score) and the working time for each item. Depending on the amount of the total score, the result is then placed into one of five categories: “normal”, “less than normal”, “minimal suicide risk”, “strong suicide risk” and “especially strong suicide risk”.

Reliability
Relevant information in the literature is lacking. Experiments with a sample of psychiatric patients showed a split-half coefficient of r tt=.89 for the variable “total score”...
Application

The questionnaire assesses the positively felt mental effect and social function of alcohol. This questionnaire is applicable to all respondents who have experience of alcohol. It gives indications on respondents at risk in advance of dependency and identifies alcoholism by the extent of the positively felt effects of alcohol. In addition, the FFT supplies, with little effort, reliable information for use in individual counseling and therapy.

Theoretical background

The FFT is based on the findings of social/cognitive and learning-theory-based alcoholism research, which is increasingly also being used to inform strategies for tackling recidivism in cases of dependency. The emphasis is on the role of alcohol as a reinforcer where the individual concerned lacks alternative strategies. Items from 17 different function areas of alcohol can be measured on 5 scales scaled according to the Rasch model. These scales assess the excitatory effect of alcohol, Psychopharmacological effect of alcohol, Sociodynamic function of drinking, Exploiting a social context and Symptoms of mental and physical dependency. Additionally, a discriminant score is calculated; this assesses the level of risk of alcohol abuse. An item analysis protocol describing the responses to the individual statements can be provided.

Reliability

The reliabilities (Cronbach’s Alpha) for the 5 scales lie between r=0.87 and r=0.96. Measurement precision is given due to the validity of the Rasch model for all 5 scales. Due to the proven unidimensionality of the test, scaling fairness can be deemed to be given. This means that different groups of people are not systematically disadvantaged or favored by individual items.

Validity

Even without taking into account scale 5, the FFT separates normal drinkers from respondents dependent on alcohol with a high level of certainty. In addition, profile differences in dependency have been demonstrated depending on gender, age, type of dependency and the degree of chronication.

Norms

For all three forms the following reference groups are available: norms of N=244 abstinent alcohol-dependent patients, norms of N=95 respondents with normal alcohol consumption and norms of N=98 people who have committed driving offences and who were tested as part of the assessment of their fitness to drive. In addition, for all three forms a representative norm sample is available, consisting of N=202 (S1), N=301 (S2) and N=284 (S3).

Testing time

10-20 minutes (including instruction and practice phase), depending on test form.

Application

Self-assessment test to measure subjective mental ability in the areas of memory, attention and executive functions.

Theoretical background

In mental disorders there may be considerable discrepancy between a patient’s subjectively experienced neuropsychological impairments and his objective test results (e.g. Mowla et al., 2007; Noaismith, Longley, Scott & Hickie, 2007; Lahrt, Babio & Hartje, 2007). However, the reason for the discrepancy between objective test results and subjective perception of cognitive limitations in everyday life is far from clear. It is theorised, that everyday situations differ from standardized test settings in many respects (Acker, 1990). For example, by comparison with the standardised neuropsychological test setting, everyday tasks are likely to be more complex, to have larger social and emotional components and to place greater demands on the individual’s own resources for providing structure and motivation. In addition, there are more distracting stimuli in real life, and they include stimuli of greater emotional relevance that are particularly distracting. This effect is more than usually marked in some patient groups, such as patients with depression or borderline personality disorder (Beblo et al., 2010; Mensebach et al., 2009). It is of course equally possible that patients’ self-perception may be distorted (Reid & Macullic, 2006; Rourke, Halman & Bussell, 1999). Probably both the differences between the test situation and everyday life and altered self-perception contribute to the divergent findings (Lahr et al., 2007). As a result of the low correlation between tests and questionnaires, the usefulness of subjective information has sometimes been questioned (Mowla, et al., 2007). On the other hand it has repeatedly been shown that cognitive deficits are good predictors of functional outcome in schizophrenic patients (e.g. Ventura et al., 2009). Among newly diagnosed schizophrenia patients, subjective cognitive deficits are good predictors of the presence of symptoms one year later (Moritz et al., 2000). They are also a good predictor of relapse or future deterioration of symptoms (Moritz, 2008). Assessment of subjective cognitive deficits is also indicated for patients with depressive disorders or secondary symptoms of depression, because subjectively perceived performance impairments correlate with the severity of the depression: they restrict quality of life, contribute to lowered expectations of self-efficacy and can affect the patient’s therapy motivation and compliance with pharmacist treatment.

Reliability

Two measures that depict the lower limit of reliability were calculated from the norm sample data: these measures are Cronbach’s Alpha and the greatest lower bound (gb). For the different scales these values are between 0.82 and 0.94 (Alpha) and between 0.85 and 0.96 (gb).

Validity

An initial study of the test’s validity is already available (Beblo et al., 2010). Through comparison tests the study shows that the questionnaire provides a good picture of the subjective cognitive impairments of depressive and schizophrenic patients by comparison with healthy controls.

Norms

The norm data for the test was collected in 2011 in the Test & Research Center of SCHUHFRIED GmbH. It involves 329 non-clinical respondents.

Time required for the test

Approx. 10 minutes.
The Questionnaire on Reaction to Pain is a multi-dimensional instrument for evaluating the behavior of persons experiencing pain. This test was developed for diagnosing patients with chronic pain. The results can provide help for the assessment of indications for psychological pain therapy as well as for a treatment plan. Due to its economical handling, the test is also suited for monitoring therapeutic progress.

Theoretical Background
Treatment programs are available for patients with chronic pain within the context of approaches in behavioral medicine. In practice, indications assessment, especially in multi-professional teams, is often a problem. With four factor-based scales, the FSV test records subskills in dealing with pain, which correspond to building blocks for approaches to treating pain.

The scales
- avoidance
- activity and
- social support
are based on the theory of effective learning processes in pain, which holds that the experience of pain is intensified by negative reinforcement (putting an end to an aversive condition by withdrawing) and is eased by positive reinforcement (turning to important persons who share a close relationship with the patient) and eventually can be reduced by confrontation.

The scale
- cognitive control
refers to relaxation skills, ability to use the imagination and self-instruction as determined by experiments.

Administration
Following general instructions on how to complete the test, the subjects are given specific test instructions with an example item. The items (ideas) are then presented one after the other. The subject enters his/her answers according to a five-point rating scale ranging from “does not apply” to “applies to a great extent”.

Scoring
The sum values for the four scales are calculated. Thanks to the test profile (diagrammatic depiction of the scale results as compared to the norm values), the results are visible at a glance. In addition an item analysis protocol can be printed out which lists all of the items – classified according to scale – with the corresponding answer.

Reliability
The alpha coefficients (internal consistency according to Cronbach) were calculated for the four subtests. Depending on the scale and sample, they lie between $\alpha = .68$ and $\alpha = .84$.

Validity
Several studies show statistically significant correlations with pain adjective scales. In addition, relationships to irrational attitudes, to self-communication and to situative physical and emotional reaction tendencies were also established.

Norms/ Comparative Samples
Norm values are presented separately for:
- rheumatism patients, $N=325$
- headache patients, $N=124$

Until the norms of the computer version of this test are available, the norms for the paper-pencil test form will be used.

Administration duration
3-5 minutes
Note on installing the Vienna Test System

The VTS must be installed by a Windows user with local administrator rights.

Recommendations for installing the Vienna Test System

Before you install the VTS, your operating system should be fully updated – i.e. all available Windows updates should be installed. To see whether any updates are available for your system, go to http://update.microsoft.com

Many PC manufacturers (e.g. Dell, HP, IBM, Lenovo) supply their own drivers for graphics cards. Please check that the latest drivers for your graphics card are installed on your computer.

Single workstation solution – local installation

### Server solution hosted by the customer

The hardware features of the server depend on the planned number of parallel test administrations. The following configuration represents a minimum that enables approx. ten tests to be administered in parallel.

#### Server

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<tr>
<th>Hardware requirements</th>
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#### Software requirements

- Windows Server 2008 R2 SP1

### Client

#### Hardware requirements

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#### Monitor

We recommend LCD monitors with a screen diagonal of at least 17” and a resolution of at least 1280 x 1024.

For CRT monitors the refresh rate must be at least 75 Hz.

#### Software requirements

- Windows XP (incl. Service Pack 3)
- Windows 7 (incl. Service Pack 1)
- Windows 8

### Special system components

To ensure that times are measured exactly, the following tests need to be presented using a USB response panel: COG, DAUF, DT, DTKI, INHIB, MDT, NBN, NBV, RT, SIGNAL, STROOP, SWITCH, VIGIL, WAFA, WAFG, WAFS, WAFV, WAFW, ZBA.

We also recommend using SCHUHFRIED’s calibration module to calibrate your monitor before measuring times precisely for the first time.

**Web Direct Testing – online – unsupervised**

For Web Direct Testing, where tests are presented online, a good internet connection (e.g. broadband, DSL) is essential. The tests can be launched in the browser. Browser Microsoft® Silverlight® 5 must be installed in the browser before tests can be presented. To download and install Microsoft® Silverlight® 5 go to www.microsoft.com/getsilverlight

Details of system requirements and a list of supported browsers are available on the same website.

### Safety features

If the Vienna Test System is used within the healthcare service, the use of the following devices may be required:

- Medical grade isolation transformer in accordance with EN 60601
- Galvanic medical network insulation in accordance with EN 60601 (if the computer is connected to a data network)

Please ask your in-house health and safety officer.

Products of SCHUHFRIED GmbH are developed and produced in accordance with EU Directive 93/42/EEC. The CE mark confirms that our products comply with technical safety regulations, electro-magnetic compatibility guidelines (EN 60601), bio-compatibility guidelines (EN 30993) product-specific requirements and underlying quality management standards.

Please consult us before purchasing new devices; we shall be pleased to help you select the most appropriate items for your purposes.

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### Single workstation solution – local installation

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### Online testing options

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**unsupervised**

Online tests can be administered and for at least one subtest or test form the setting can be unsupervised.

**without installation**

Online testing can take place in the browser, with no installation needed; the test setting must be supervised.

**with the VTS Test Player lite**

The VTS Test Player lite can be used to administer a test online. This can be done on a local PC without Windows administrator rights.

**with the VTS Test Player**

The VTS Test Player can be used to administer a test online. The Test Player is installed on the local PC; this requires a Windows user with local administrator rights.
CogniPlus, which is available in a wide range of languages, is used to train cognitive functions. Efficient. Multi-media. Motivating.

**7 reasons to choose CogniPlus**

1. Developed by prominent scientists
2. Based on a deficit-oriented intervention approach
3. Embedded in a context of scientific theory
4. Realistic and motivating design
5. Adapts automatically to the client’s ability
6. Training at all ability levels
7. Recommended by respected institutions

You too can profit from a state-of-the-art program that covers all the areas of cognitive training and comes with user-friendly management software.

Biofeedback 2000®-pert is the innovative wireless biofeedback system from SCHUHFRIED. It can be used for relaxation, rehabilitation and assessment. Acquire just the modules that you need.

**The key features of Biofeedback 2000®-pert**

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- Transfer of readings via wireless technology (Bluetooth®) by means of small, lightweight modules worn directly on the body
- Complete freedom of movement during measurement
- Highly sensitive sensors with high stability against artifacts

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