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Morrisby General Ability Tests (MGAT)

The Morrisby Organisation

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Abstract

This review is now over 15 years old and has not been updated since publication. Referral to or use of the review should be with the caveat that the content may be outdated or incorrect.

The MGAT are paper-and-pencil tests which aim to measure verbal, numerical and perceptual potential. Each aspect is measured by two sub-tests. The verbal part 1 test uses an 'odd-one-out' format where two of the words presented do not belong with the other four, and the verbal part 2 test uses word relationships such as similars and opposites. Numerical part 1 comprises digit series and part 2 number squares.

General Description of Test: The MGAT are paper-and-pencil tests which aim to measure verbal, numerical and perceptual potential. Each aspect is measured by two sub-tests. The verbal part 1 test uses an 'odd-one-out' format where two of the words presented do not belong with the other four, and the verbal part 2 test uses word relationships such as similars and opposites. Numerical part 1 comprises digit series and part 2 number squares. The perceptual part 1 test consists of an 'odd-one-out' among abstract figures where two do not belong with the other four, and part 2 of relationship principles between pairs of abstract figures/ symbols. As far as possible the test does not require the use of complex mathematical knowledge or vocabulary. The tests were designed to be used with people of all levels of ability, from school leavers to senior management.

The MGAT form part of the Morrisby Profile (see the MP review in this series), which also includes measures of personality.

Classification

Content Domains:

Test Type

Ability – General

Ability –
Numerical

Ability – Verbal

Perceptual Speed

Related content

Test Review

Graduate and
Managerial
Assessment
(GMA)

Article

Executive
Coaching and
Psychometrics: A
case study
evaluating the
use of the Hogan
Personality
Inventory (HPI)
and the Hogan
Development
Survey (HDS) in
senior
management
coaching

Article

Verbal Ability

Numerical Ability Perceptual Speed General ability

Intended or main area(s) of Use:

Educational

Work and Occupational

Counselling, Advice, Guidance, and Career Choice

Intended mode of use (conditions under which the instrument was standardised and validated):

Supervised and controlled administration. Test administration under the control of a qualified administrator or proctor

Description of the populations for which the test is intended:

General population.

Number of scales and brief description of the variable or variables measured by the test:

3. The verbal part 1 test uses an 'odd-one-out' format where two of the words resented do not belong with the other four, and the verbal part 2 test uses word relationships such as similars and opposites. Numerical part 1 comprises digit series and part 2 number squares. The perceptual part 1 test consists of an 'odd-one-out' among abstract figures where two do not belong with the other four, and part 2 of relationship principles between pairs of abstract figures/symbols. As far as possible the test does not require the use of complex mathematical knowledge or vocabulary.

Items format:

Multiple choice, same scale alternatives

Number of test items:

No information given.

Compassion-
focused
perceptual
positions

Article

Leading Maths:
The essential
guide for new
and aspiring
maths leaders

Test Review

Advanced
Managerial Test
(AMT)

Keywords

verbal
numerical
perceptual
maths
school leaver
senior
management
personality

Administration modes:

- Interactive individual administration
- Supervised Group administration

Response mode:

Paper and pencil

Time:

Preparation: 10 minutes.

Administration: 1 hour 30 minutes.

Scoring: 15 minutes.

Analysis: 15 minutes.

Feedback: 30 minutes.

Different forms of the test:

No alternative forms are available.

Measurement and Scoring

Scoring procedure for the test:

Computer scoring manual entry of responses from the paper response form

Simple manual scoring key-clerical skills only required

Score transformation for standard scores:

1. Normalised - scores obtained by use of normalisation look-up table

Scales Used:***Percentile-based scores:***

- Centiles

Standard scores:

- Normalised scores based on a variation of the T-score scale.

Supply Condition and Costs

Documentation provided by the distributor as part of the test package:

User manual

Supplementary technical information and updates (e.g. local norms, local validation studies etc) Technical (psychometric) manual

Methods of publication:

Paper

Start-up costs:

Initial costs are £37.50 for a specimen set. The manual is available separately for £23.70.

Recurrent costs:

Reusable test booklets, £4.85 each; set of combined answer sheets (10), £12.70. Costs for the first 10 candidates would be £98.70 (£ 9.87 per candidate, including manual and scoring keys). Thereafter, recurrent costs per administration would be £1.27 per candidate for answer sheets.

Prices for reports:

None available.

Prices for other bureau services:

None available.

Test-related qualifications required by the supplier of the test:






- Accreditation in general ability and aptitude testing: measures of maximum performance in relation to potential for attainment
- The test will be supplied to anyone who is a Level A user.


Professional qualifications required for use of the test:


- None

Evaluation of Test Materials

Key to symbols:

	Inadequate
	No longer used
	Adequate/Reasonable
	Good
	Excellent
[N.r.i.o.r]	(for updates only) Item was not rated in original review

Quality of the explanation of the rationale, the presentation and the quality of information provided: 

<i>Overall rating of the Quality of the explanation of the rationale:</i>	
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i) Theoretical foundations of the constructs:	0 stars
ii) Test development procedure:	N.r.i.o.r.*
iii) Thoroughness of the item analyses and item analysis model:	N.r.i.o.r.*
iv) Explanation of content validity:	★★★

Adequacy of documentation available to the user (user and technical manuals, norm supplements etc):



i) Rationale:
★★★★
ii) Development:
★★★★
iii) Standardisation:
★★★
iv) Norms:
★★★★
v) Reliability:



vi) Validity:



Quality of the Procedural instructions provided for the user:

i) For test administration:

ii) For test scoring, norming etc:



iii) For interpretation and reporting:



iv) For providing feedback and debriefing test takers and others:



v) For providing good practice issues on fairness and bias:



vi) Restrictions on use:



vii) References and supporting materials:



Quality of the materials:



i) General quality of test materials (test booklets, answer sheets, test objects, software, etc):



ii) Test quality of the local adaptation (if the test has been translated and adapted into the local language):

N/A

iii) Ease with which the test taker can understand the task:



iv) Ease with which responses or answers can be made by the test taker:



v) Quality of the items:

N.r.i.o.r.*

Reviewer's comments on the documentation (comment on

rationale, design, test development and acceptability):

The documentation is very clear on administration and generally helpful with interpretation and feedback, but somewhat lacking in other areas. The manual would be strengthened by the inclusion of information on the development of the tests.

For interpretation of the scores, no supporting evidence is provided for the 12 identified profiles or for their link with occupations. It would be helpful if information about the frequency of the profiles was given, together with validity information on the relationships between individual profiles and job performance. It is understood that additional supporting evidence is available in a separate booklet, 'Occupational Profiles: Additional Technical Data'.

Design: The answer booklet is well designed and attractive, although the answer sheets may pose difficulties for some candidates as there is limited space. This may prove difficult for someone with motor or visual impairment. The answer sheet may also be improved by making consistent the way in which candidates record answers. They are sometimes required to work down the page and sometimes across. The scoring stencils are straightforward and easy to use.

Rationale: The manual does not cover the rationale for the test in sufficient detail. However, this is covered comprehensively in an accompanying booklet, Theory of the Differential Test Battery, which also covers the whole of the Morrisby Profile.

Acceptability: All three tests have high face validity.

Norms, Validity & Reliability

Evaluation of technical information:



Norms or reference group information:

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Overall adequacy:	☆☆☆
i) Appropriateness for local use, whether local or international norms:	☆☆☆
ii) Appropriateness for intended applications:	☆☆☆
iii) Sample sizes:	☆☆☆☆
iv) Procedures used in sample selection:	No information is supplied.
v) Quality of information provided about minority/protected group differences, effects of age, gender etc:	N.r.i.o.r.*







Reviewers' comments about the norms:

There are seven norm tables, five of which appear to be based on sub-samples of 4016 people completing the test in 1991 and 1992, although this is unclear. These are for adults (aged over 16 years), 15-year-olds, 14-year-olds, graduates and managers, and engineering apprentices. There is no information given about the other two tables: one for years 12 and 13 studying for 'A' levels, and one for year 11 expected to achieve two or more 'A' levels.

Many of the tables are for young people in school. The tables would be improved by more information being supplied on them, especially in the graduate and managerial table. Other norms are available from the Morrisby Organisation and it would be useful if these were included in the manual together with further information on the existing tables.

Validity:

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Overall adequacy:	
Construct Validity (overall adequacy):	
i) Designs used:	Correlations with other instruments and performance criteria.
ii) Sample sizes:	
iii) Procedure of sample selection:	No information is supplied.
iv) Median and range of the correlations between the test and other similar tests:	
v) Quality of instruments as criteria or markers:	
vi) Differential Item Functioning (DIF) analyses:	N.r.i.o.r.*
Criterion-related validity: overall adequacy:	
i) Description of the criteria used and characteristics of the populations:	Concurrent
ii) Sample sizes:	0 stars
iii) Procedure of Sample selection:	No information is supplied.

iv) Median and range of the correlations between the test and criteria:



Reviewers' comments about validity:

Content validity: The intellectual processes covered are similar to many other tests.






Criterion-related validity: There is only one criterion-referenced study reported, which correlates the test with total number of GCSE passes. The correlations obtained are in general reasonable, although some of the sample sizes for correlations with individual GCSE results are very low (e.g. only 18 subjects for economics and business studies). The pattern of correlations is as would be expected, with verbal ability correlating more strongly with English language passes and numerical ability with mathematics performance. No occupational studies are reported. The studies are related only to school pupils. For the purposes of rating, these have been counted as evidence of construct validity.

Construct validity: Correlations are given with Raven's Matrices (SPM), AH5 and AH6 (AH5-6), DAT verbal reasoning (DAT), Bennett's Mechanical Comprehension Test (BMCT) and Witkin's Group Embedded Figures Test (GEFT). Apart from the study involving Raven's Matrices, the numbers in the samples for the studies are all below 100. The correlations obtained with Raven's Matrices are adequate for verbal reasoning and reasonable for verbal and perceptual ability.

The sample consists of graduate careers advisers and is, therefore, limited.

No modern tests have been used as criteria. No evidence that test scores relate to success in occupations is given.

Reliability:

Overall adequacy:	
i) Data provided about reliability:	Only one reliability coefficient.
Internal consistency:	
i) Sample size:	
ii) Median of coefficients:	
Test retest stability:	
i) Sample size:	
ii) Median of coefficients:	
Equivalence reliability:	
i) Sample size:	N.r.i.o.r.*
ii) Median of coefficients:	N.r.i.o.r.*

Reviewers' comments on Reliability (comment on confidence intervals for reliability coefficients and provide Spearman Brown equivalents for a 30-item scale):

One study is referred to. It has a large sample size, comprising year 11 and year 12 students in secondary education. Correlations for consistency are excellent; those for stability are good.

Final Evaluation

Evaluative report of the test:

The MGAT have been in use for a considerable time and are not dissimilar to other tests of verbal, numerical and perceptual ability. The tests are clearly presented, have a high face validity and are easy to administer and score.

The manual gives adequate information about reliability. The norm groups included are adequate, although norms for more occupational groups would improve this information. There is also a lack of detail about some of the norm tables. Although information is included in the norms for candidates of higher ability, these are extrapolations and should be treated with caution. Information on gender and ethnic differences is included in the manual and there are clear cautions about using the test with those whose first language is not English.

Adequate validity evidence is also provided both in terms of construct validity and in relation to academic performance at GCSE level. The provision of more evidence of predictive validity with occupational groups would be useful. The manual would also be enhanced by the inclusion of more information about the development of the tests, which at present is provided in a separate booklet.

Given the composition of the tests and the technical data supplied, much of which is relevant to young people in education, the tests are appropriate for use in careers guidance. To a lesser extent, they would be appropriate for use in career development and selection, if more appropriate occupational technical information can be made available.

There is an issue, however, with the guidance on interpretation of the ability profile given in the manual. Interpretation of the scores is based on a notion that the particular shape that the scores produce relative to each other is differentially indicative of occupational potential. Relatively little emphasis is given to

the overall average level of the scores. Each profile type is named (e.g. 'the science profile'; 'the commerce profile') and described as a 'pattern of talents'. Descriptions of these types, however, include aspects such as interests, values, motivation and personality, which are not related to ability. For example, the Type A2 profile indicates 'having a high regard for academic attainment and attaching importance to general cultural activities'; variation AD is associated with 'a concern for people as people'; Type C individuals 'look to get a fair return from their expenditure whether effort or money. They are generally well organised in their day-to-day activities.' Each type is also linked to a particular occupational area. No empirical evidence is provided to support this typology (the rationale for which is included in the Theory of the Differential Test Battery - a separate booklet).

Conclusions:

The tests themselves are sound measures of verbal, numerical and perceptual ability and usable as such, particularly in careers guidance. However, the profile-based interpretation guidelines were not supported by empirical evidence in the information provided for review. On the basis of the information reviewed, the tests would be better used as indicators of levels of ability. Far more evidence needs to be provided to support the interpretation of ability profile patterns in terms of personality differences or in terms of differential job suitability.

Recommendations:

- Suitable for use in the area(s) of application defined by the distributor, by test users who meet the distributor's specific qualifications requirements

Summary Evaluation of the Test

Content Domains:

Verbal Ability Numerical Ability Perceptual Speed General ability

Intended or main area(s) of Use:

Educational

Work and Occupational Counselling, Advice, Guidance, and
Career Choice






Intended mode of use (conditions under which the instrument was standardised and validated):

Supervised and controlled administration. Test administration under the control of a qualified administrator or proctor

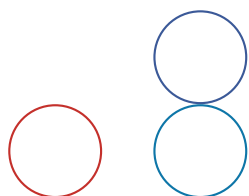
Test Description:

<i>Test Name:</i>	Morrisby General Ability Tests
<i>Local test distributor / publisher:</i>	The Morrisby Organisation
<i>Date of Current Review:</i>	2003
<i>Date of Publication of Current Review/Edition:</i>	2003
<i>Constructs Measured:</i>	4: General Ability; Verbal Ability; Numerical Ability; Perceptual Speed
<i>Administration Mode:</i>	Interactive individual administration Supervised Group administration
<i>Response Mode:</i>	Paper and pencil

Instrument Evaluation:

Characteristics	Evaluation
Quality of Documentation	
Quality of Materials	
Norms and reference groups	
Construct validity	
Criterion-related validity	
Reliability-overall	

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