



The British
Psychological Society
Psychological Testing Centre

Test Review

Mindset Advantage

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Test Review of Mindset Advantage

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GENERAL INFORMATION AND DESCRIPTION OF THE INSTRUMENT

Test Name: Mindset Advantage

Date of current review: August 2019

Date of previous review: N/A

Original test name: N/A

Authors of the original test: Kathy Weeks, Matthew Syed, Linda Morison

Authors of the local adaptation: N/A

Local test distributor/publisher: Matthew Syed Consulting

Publisher of the original version of the test: N/A

Date of publication of current revision/edition: February 2019

Date of publication of adaptation for local use: N/A

Date of publication of original test: N/A

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General description of the instrument

Mindset Advantage is a new instrument designed to be used in occupational settings. The instrument is underpinned by the concept of “growth mindset” described by Carol Dweck. A growth mindset is characterised by a belief that abilities are not fixed but can change and grow through effort. The opposite is a fixed mindset characterised by the belief that abilities are innate and cannot be changed. The instrument aims to measure how a growth mindset manifests in the workplace at the individual level and the extent to which the organisational culture encourages a growth mindset. Feedback from the instrument includes pointers for development for both the individual and the organisation as a whole. The instrument has been developed to be used in the context of growth mindset interventions in the workplace.

The instrument has two main scales: one which measures the manifestations of growth mindset in the workplace at the individual level and one which measures the extent to which the organizational culture supports a growth mindset.

The scale for the individual consists of 68 items spread across 9 subscales which indicate how a growth mindset manifests in the workplace: “Growth”; “Attitude to Failure”; “Attitude to feedback”; “Humility”; “Perception of Potential”; “Curiosity”; “Attitude to Complexity”; “Agility” and “Collaboration”. The test taker completes 7-point Likert scale items (strongly agree to strongly disagree; very important to not at all important; never to always) using an on-line questionnaire.

A computer-generated feedback report includes:

- a) An introduction to growth mindset and how it applies in the workplace
- b) An overall summary of the test-takers scores for each subscale (converted to be out of 100) alongside a categorisation of that score into low (bottom quartile of norm group) medium (middle two quartiles of norm group) or high (top quartile of norm group) for each subscale.
- c) A personal development plan based on their lowest scoring subscales and lowest scoring items
- d) For each subscale, a summary of the relevance of that dimensions in the workplace, a repeat of their score and categorisation as low, medium or high and then which quartile their score falls into in the sample of scores for their team.

The organisational culture scale consists of 29 items and 6 subscales which indicate the extent to which the organisational culture enables a growth mindset to flourish: “Supports risk taking”; “Ownership and Commitment”; “Trust”; “Fosters Innovation”; “Valuing Potential over Pedigree” and “Freedom”. Each individual completes 7-point Likert scale items within these subscales (strongly agree to strongly disagree) but the feedback report presents responses summarised across the whole organisation. The report gives:

- a) an overall score for each of the subscales (converted to be out of 100) alongside a categorisation of that score into low (bottom quartile of norm group), medium (middle two quartiles of norm group) and high (top quartile of norm group).
- b) The score and categorisations into low, medium and high are then presented with text explaining each subscale.
- c) Five strengths and five areas for development for the organisation based on the highest and lowest scored items.

d) Boxplot-like graphs showing the quartile distribution of scores within the organisation for each individual item

The norm categorisations for both scales are based on convenience samples of individuals working in UK based organisations who are representative of the population eligible to use the instrument.

Both scales are completed in the same sitting using an on-line questionnaire which they access through an emailed link. The computer-generated reports are emailed directly back to test takers. Neither individual scores nor reports are shared with anyone else. The feedback is designed to facilitate self-insight and self-development of the test-taker.

Classification

Content domains:

Beliefs

Organisational function, aggregated measures, climate etc

Personality – Trait

Values

Intended or main area of use:

Work and Occupational

Description of the populations for which the test is intended:

Individuals working in organisations: graduates, professionals, managers and directors

Number of scales and brief description of the variables measured by the instrument

Mindset advantage has two overarching scales, one for individuals and one for company culture.

The scale for individuals contains 9 subscales:

1. Growth – the extent to which the individual embraces challenges or new tasks that may be difficult in order to stretch themselves.
2. Attitude to Feedback – extent to which the individual is open to possibly negative feedback.
3. Humility – the extent to which the individual is free from a need to focus on status and looking impressive.
4. Attitude to Failure – the extent to which the belief that failure is an opportunity to learn facilitates the individual in engaging with tasks
5. Belief in Potential – the extent to which the individual believes it is possible to develop abilities through effort.
6. Curiosity – extent to which the individual actively seeks new and fresh perspectives.

7. Attitude to Complexity – the extent to which the individual recognises multiple factors at play when things go wrong in the workplace rather than being quick to blame.
8. Agility – extent to which the individual is willing to change and be flexible rather than staying with what feels safe and known.
9. Collaboration – extent to which the individual trusts their colleagues enough to ask for help and share ideas.

The scale for company culture contains 6 subscales:

10. Supports Calculated Risk Taking – the extent to which individuals feels safe taking calculated risks in the organisation.
11. Ownership and Commitment – the extent to which the individual feels they have a say in in the organisation.
12. Trust – the extent to which individuals trust their colleagues and management within the organisation.
13. Fosters Innovation – the extent to which the conditions within the organisation are perceived to foster innovation.
14. Value of Potential over Pedigree – the extent to which the organisation is perceived to value the potential of an individual.
15. Freedom – the extent to which individuals feel they can perform their role free from rigid rules within the organisation.

Response mode

- Computerised

Demands on the test taker:

Manual capabilities

- Information missing

Handedness

- Irrelevant / not necessary

Vision

- Information missing

Hearing

- Irrelevant / not necessary

Command of test language

- Necessary information given

Reading

- Necessary information given

Writing

- Irrelevant / not necessary

Items format

Likert scale ratings

Number of alternatives: 3 types of scales, each of which have 7 points

- Disagree to Agree
- Unimportant to Important
- Never to Always

Ipsativity:

- Not relevant

Total number of test items and number of items per scale or subtest

Total items 96

68 for the individual scale, 29 for the company culture scale (minus one item which is shared between the "Collaboration" subscale of the individual scale and "Trust" for the organisation level scale)

For the individual scale the number of items per scale is between 5 and 9, specifically: "Growth" 6; "Attitude to feedback" 8; "Humility" 5; "Attitude to Failure" 8; "Belief in Potential" 7; "Curiosity" 9; "Attitude to Complexity" 7; "Agility" 9 and "Collaboration" 9

For the company scale the number of items per scale is between 3 and 7: "Supports Calculated Risk Taking" 4; "Ownership and Commitment" 5; "Trust" 7; "Fosters Innovation" 6; "Value of Potential over Pedigree" 3 and "Freedom" 4

Intended mode of use:

- Controlled mode: No direct human supervision of the assessment session is involved but the test is made available only to known test-takers. Internet tests will require test-takers to obtain a logon username and password. These often are designed to operate on a one-time-only basis.

Administration mode:

Computerised web-based application – unsupervised/self-assessment

Time required for administering the instrument

Preparation:

Liaising to obtain emails, preparing and sending emails to launch, remind and send feedback reports likely to take several hours. Once set up around 5 minutes per individual to check whether completed and send reminders.

Administration:

20 minutes on average to complete the 96 items in the questionnaire

Scoring:

Automated

Analysis:

Automated

Feedback:

Automated

Indicate whether different forms of the instrument are available and which form(s) is (are) subject of this review

Generally, one combined questionnaire but it is possible to only administer the individual component of the instrument.

Measurement and scoring

Scoring procedure for the test:

Computer scoring with direct entry of responses by test taker

Bureau-service – e.g. scoring by the company selling the instrument

Scores:

Items are reversed where necessary so that a higher score is indicative of higher levels of growth mindset manifestation.

The 7-point Likert items are coded as 0 to 6 and where appropriate reverse scored. Scores out of 100 for subscales are obtained by calculating the mean score, dividing by 6 and multiplying by 100.

All items are forced response so there is no missing data.

Scales used:

Other:

An integer score for each scale is given along with a categorization of that score as low (lowest quartile of norm group); medium (middle two quartiles) and high (highest quartile).

Score transformation for standard scores:

Not applicable

Computer- Generated Reports**Are computer generated reports available with the instrument?**

Yes

Name or description of report:	
Media	<ul style="list-style-type: none"> • Integrated text and graphics
Complexity	<ul style="list-style-type: none"> • Simple (For example, a list of paragraphs giving scale descriptions)
Report structure	<ul style="list-style-type: none"> • Scale based – where the report is built around the individual scales.
Sensitivity to context	<ul style="list-style-type: none"> • One version for all contexts
Clinical-actuarial	<ul style="list-style-type: none"> • Based on clinical judgment of group of experts
Modifiability	<ul style="list-style-type: none"> • Not modifiable (fixed print-only output)
Degree of finish	<ul style="list-style-type: none"> • Publication quality
Transparency	<ul style="list-style-type: none"> • Clear linkage between constructs, scores and text
Style and tone	<ul style="list-style-type: none"> • Guidance/suggests hypotheses
Intended recipients	<ul style="list-style-type: none"> • Test takers
Do distributors offer a service to modify and/or develop customised computerised reports?	<ul style="list-style-type: none"> • Yes (There is an option to include only the individual scale. There is also an option to include a limited number of specific additional questions in the questionnaire – for example opinions on a new company policy - which are then reported descriptively in a separate section of the report)

Supply Conditions and Costs

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

User Manual

Technical (psychometric) manual

Methods of publication:

Paper

Start – up costs:

Training costs to be confirmed at time of publication.

Recurrent costs:

Online Mindset Advantage instrument. Unit price of £195 per individual report. Unit cost decreases with larger orders or if the organisation level component is not required.

After the instrument has been completed and feedback reports returned, it is possible to purchase access to a suite of on-line material provided by Matthew Syed Consulting to enable test-takers to continue their learning and development. This can be on an individual or subscription basis.

Prices for reports generated by user installed software: N/A

Prices for reports generated by postal/fax bureau service: N/A

Prices for reports by internet service: N/A (included above)

Prices for other bureau services: correcting or developing automatic reports:

Costs for producing additional organisational summary statistics are negotiated directly with Matthew Syed Consulting

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

None

Professional qualifications required for use of the instrument:

None

EVALUATION OF THE INSTRUMENT

Key to symbols:

[n/a]	This attribute is not applicable to this instrument
0	Not possible to rate as no, or insufficient information is provided
★	Inadequate
★★	Adequate
★★★	Good
★★★★	Excellent

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

Quality of the explanation of the rationale

Overall rating of the quality of the explanation of the rationale ★★★★★

Theoretical foundation of the constructs	★★★★
Test development (and/or translation or adaption) procedure	★★★★★
Thoroughness of the item analyses and item analysis model	★★★★★
Presentation of content validity	★★★★
Summary of relevant research	★★★★★

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

Overall adequacy of documentation available to the user (user and technical manuals, norm supplements, etc.) ★★★

Rationale	★★★★★
Development	★★★★★
Development of the test through translation/adaption	N/A
Standardisation	★★★★
Norms	★★★★
Reliability	★★★★★
Construct validity	★★★★★
Criterion validity	N/A
Computer generated reports	★★★★

Quality of the procedural instructions provided for the user

Overall adequacy



For test administration	★★★★★
For test scoring	★★★★
For norming	★★
For interpretation and reporting	★★
For providing feedback and debriefing test takers and others	★★
For providing good practice issues on fairness and bias	★★
Restrictions on use	★★★★
Software and technical support	N/A
References and supporting material	★★★★★
Quality of the procedural instructions provided for the user	★★★★

Reviewer's comments on the documentation

Users of the Mindset Advantage are provided with two manuals (The Mindset Advantage User Manual, and the Mindset Advantage Technical Appendices), which together provide a comprehensive description of the rationale for the instrument, as well as the psychometric development and overall psychometric properties of the instrument. The theoretical and academic basis of Mindset Advantage is very clearly outlined providing a good explanation of the theoretical rationale for both the individual and organisational scales used in the instrument, and background to the concept of Growth Mindset. The research that has been identified is highly supportive of the instrument and its objectives.

The instrument itself is very well presented and clear information about its use and scoring is provided. The preference for raw scores is not fully explained, but the fact that the instrument is intended for use in development may be sufficient explanation in itself. Normed scores are also provided to give respondents an idea of their 'performance' relative to others, and relevant normative statistics are outlined in the technical documentation.

Detailed information is provided about the standardisation and norm samples. Data is presented around the internal consistency and temporal stability of the questionnaire, and SEMs are also shown. Criterion related validity is noted as a future development for the questionnaire, and no translations are yet available.

Full and comprehensive information is provided around administration in terms of set up, project management, and communication. However, limited information is provided around profile interpretation and feedback for users, nor are example profiles or case studies presented to aid interpretation.

Whilst explanation of scoring is detailed, information is not given regarding system checks to ensure the accuracy of the scores. Given that certain comparisons will be calculated on a project-by-project basis (i.e. to compare the individual to their team/organisation), some information on how these comparisons are undertaken and quality assured within the platform would be valuable.

Information and analysis is presented regarding score differences in gender, ethnicity and age. Some differences are noted. Whilst the instruction is given for these differences to be “borne in mind”, the manual states the “because the instrument is for self-development and broad-brush cut-off values are used” this is not considered to be an issue. It would be valuable to have further detail here around the practical significance of such differences, such as in the form of d values.

Example emails provide some information on accessing the system. The questionnaire is described as “mobile optimised and desktop friendly” but no further information is given around compatible browsers or technical support in the event of completion issues.

Quality of the test materials

Quality of the test materials of CBT and WBT

Quality of the design of the software (e.g. robustness in relation to operation when incorrect keys are pressed, internet connections fail etc.)	★★★
Ease with which the test taker can understand the task	★★★★★
Clarity and comprehensiveness of the instructions (including sample items and practice trials) for the test taker, the operation of the software and how to respond if the test is administered by computer	★★★★
Ease with which responses or answers can be made by the test taker	★★★★★
Quality of the design of the user interface	★★★★★
Security of the test against unauthorized access to items or to answers	★★★★
Quality of the formulation of the items and clarity of graphical content in the case of non-verbal items	★★★★
Quality of the materials of CBT and WBT	★★★★★

Reviewer’s comments on quality of the materials

The general quality of the test materials is excellent, the materials being of professional standard. Efforts have been made to make the instructions easy to understand and the assessment is easy to complete.

The test content is accessible via mobile and desktop. It is simply and attractively laid out. Questions all have a 7-point rating scale, either of agreement, importance or frequency. Demographic questions are presented at the start.

The manual details that links sent out to agreed email addresses. It is not entirely clear whether links are unique to individuals or can be shared.

The items are clear and straightforward. If translation is undertaken in future, there may be potential issues with certain items due to slightly colloquial wording e.g. “The organisation has a culture of ‘safety in numbers’ when it comes to decision making”. It would potentially

be valuable to have more information at the start of the questionnaire about the item formats contained within it, and some example items to illustrate these formats. Additionally, as the questions with the same rating scale are presented as clusters, the initial stem is not visible on the same screen for the second question in the cluster and beyond. It may be valuable to make this stem visible for each question format for clarity (e.g. “Rate how strongly you agree or disagree with the following statements”).

Whilst growth mindset is referenced in the email it is not in the test instructions, which just mentions ‘mindset’. Elaboration here would be helpful for the participant to understand what is being referred to within the questionnaire.

The graphical interface, whilst attractive, may cause issues for screen readers or those with visual impairments. It is not clear what provisions are made for this.

Norms

Is the test norm referenced? Yes

Norm referenced interpretation

Overall Adequacy:



Appropriateness for local use	★★★★
Appropriateness for intended applications	★★
Sample sizes (classical norming)	★★★★
Sample sizes continuous norming	N/A
Procedures used in sample selection	Convenience sample
Representativeness of the norm sample(s)	★★★★
Quality of information provided about minority/protected group differences, effects of age, gender etc.	★★★★
How old are the normative studies?	★★★★★
Practice effects	N/A

Is the test criterion referenced? No

Reviewer’s comments on the norms

The norm referencing of the Mindset Advantage tool is somewhat challenging to rate against standard criteria given the multiple comparisons that are presented in the same report.

The Mindset Advantage operates with one large norm group although this has been developed from three distinct subgroups; this group is an ‘opportunity’ sample which contains of all the people who had successfully completed all of the present questionnaire or completed the parts of previous iterations of the questionnaire using the same items. There are differences in the number of people completed the scales varying from 776 (for Collaboration, and Attitude to Complexity), 1029 for Curiosity, and 1975 for the remaining Individual scales, and 917 for each of Organizational scales. The sample sizes are large and more than adequate, but the fact that a single norm group has different sizes for scales is slightly confusing and difficult to explain to respondents. This might be solved by having a new norming exercise only using candidates who have completed all of the scoring items for the current version.

Specifically:

1) Test takers' individual scores are compared to norm groups of good size and representation. However, the size and make-up of these norms varies by scale, and only one norm group is available for each scale - the Curiosity subscale norm being based on datasets 2 and 3 from the standardisation trial, and Collaboration and Attitude to Complexity on dataset 3 only. The remaining six scales were based on data from all three data sets. In the manual the comment is made that the datasets have similar characteristics with the implication that no systematic differences exist across them. Whilst this is to some extent true, and where scales can be compared differences appear minimal, there are also some differences, such as the industry make-up across the samples and the proportion of Senior Managers in dataset 3 as compared to the others (7.7% compared to 12.9% and 15.6%). In the absence of exact equivalence between the datasets, it may have been preferable to generate the norms on the basis of dataset 3 only, for which data was available on all scales, therefore ensuring consistency across the comparison group (even though the sample size is smaller).

2) Test takers' scores are also compared to the scores of the team completing the questionnaire and presented as a percentile score compared to others within the team completing the test. In this case, these scores will vary by team and sample sizes are therefore not detailed. It is not clear what minimum team size is required for these scores to be calculated, and the concern here is the potential over-interpretation of scores based on small team sizes where the percentages have limited utility.

3) Test takers' ratings of the organisational characteristics are combined at the level of the organisation and presented in terms of an organisational average compared to the average of other organisations. Because data was only available for 11 organisations, the organisational norm is simulated rather than based on actual data from a large number of organisations. Again, this presents potential issues with over interpretation of results based on limited data. These limitations are however noted in the 'Future Directions' chapter of the technical manual which states that updating these norms is a priority once further data has been collected.

In light of the above, the ratings provided are based on the norms applied to the individual's scores and used to categorise these scores in 'high', 'medium' and 'low'. However, the nature and potential limitations of the other 'normative' scoring provided in the report via the team and organisational comparisons are not yet 'good', and need attention due to the impact on interpretation.

Reliability

Overall Adequacy:



Overall Adequacy	
Data provided about reliability	➤ Reliability coefficient and Standard error of measurement given for a number of different groups (for each scale or subscale)
Internal consistency:	
Sample size	★★★★
Kind of coefficients reported	➤ Coefficient alpha
Size of coefficients	★★
Reliability coefficients are reported with samples which..... match the intended test takers
Test related reliability-temporal stability:	
Sample size	★
Size of coefficients	★★★★★
Data provided about test-re-test interval	6 weeks
Reliability coefficients are reported with samples which..... match the intended test takers
Equivalence reliability:	
Sample size	n/a
Are the assumptions for parallelism met for the different versions of the test for which equivalence reliability is investigated?	n/a
Size of coefficients	n/a
Reliability coefficients are reported with samples which.....	n/a
IRT based method:	
Sample size	n/a
Kind of coefficients reported	n/a
Size of coefficients (based on the final test length)	
Inter-rater reliability:	
Sample size	n/a
Kind of coefficients reported	n/a
Size of coefficients	n/a
Other methods of reliability estimation:	
Sample size	n/a
Results	n/a

Reviewer's comments on reliability

Internal consistency reliability (Cronbach's alpha) is reported for the individual and organisational scales in the questionnaire.

Values for three datasets are quoted for the Individual Scales and are within acceptable levels (range: 0.68 to 0.78, with an approximate median value of 0.76). The lowest figure is for the Belief in Potential scale for one of the datasets, but the equivalent figure for this scale in the other datasets is higher (0.76 and 0.73). The reliability figures are relatively stable across the different datasets, suggesting that the internal consistency is not sample dependent.

Reliability figures for a single dataset are quoted for the Organizational Scales and are within acceptable levels (range: 0.71 to 0.82, with a median value of 0.79).

The item-total correlations for all of the items are above 0.28 (with the majority between 0.40 and 0.59), showing that all items are reliable on an item-by-item basis.

Whilst a small test retest study is presented, with promising results, the use of a student sample is problematic given the lack of correspondence between this group and the target group. The test-retest reliability coefficients quoted for the Individual Scales are very good (range: 0.78 to 0.86, with a median of 0.80) but are based on a very small sample (n =36). The manual does suggest that these should be viewed with caution due to the small sample size.

Validity

Overall Adequacy:



Construct validity:	
Design used	<ul style="list-style-type: none"> ➤ Exploratory Factor Analysis ➤ Confirmatory Factor Analysis ➤ (Corrected) item-test correlations ➤ Difference between groups ➤ Correlations with other instruments and performance criteria
Do the results of (exploratory or confirmatory) factor analysis support the structure of the test?	★★★★
Do the items correlate sufficiently well with the (sub) test score?	★★★★
Is the factor structure invariant across groups and/or is the test free of item-bias (DIF)?	0
Are the differences in mean scores between relevant groups as expected?	0
Median and range of the correlations between the test and tests measuring similar constructs	★★★★
Do the correlations with other instruments show good discriminant validity with respect to constructs and the test is not supposed to measure?	★★★★

If a Multi-Trait-Method design is used, do the results support the construct validity of the test (does it really measure what it is supposed to measure and not something else)?	n/a
Other, e.g. IRT-methodology, (quasi-) experimental designs (describe):	n/a
Sample sizes	★★★★
Quality of instruments as criteria or markers	★★★★
How are old are validity studies?	Number of years: 2
Construct validity – Overall adequacy	★★★★
Criterion – related validity:	
Type of criterion study or studies	n/a
Sample sizes	0
Quality of criterion measures	0
Strength of the relation between test and criteria	0
Criterion – related validity – overall adequacy	0
How old are the validity studies	Number of years...n/a

Reviewers' comments on validity

The exploratory factor analysis and two confirmatory factor analyses do generally support the factor structure of 9 Individual subscales and 6 Organizational subscales; the conditions for the exploratory factor analysis do show some issues with the loading of some items but this is not an issue in the confirmatory analysis. There are significant positive correlations between the factors (except for Curiosity and Humility which was noted in the manual as meriting further investigation) but they are still quite distinct.

Item total correlations for the individual section of the questionnaire ranged from 0.29-0.63, with the majority (52 out of a total of 68 items) falling between 0.3 and 0.5. For the organisational scale, item total correlations range from 0.38-0.72. 25 of the 29 item total correlations on this part of the questionnaire exceeded the 0.50 threshold.

Scale intercorrelations are provided for the published scales, albeit in the Technical Appendix.

A good range of correlations are presented with high quality related measures. The pattern of correlations for the measures is, for the most part, in line with expected hypotheses based on the content of the tools. Specifically, for the individual scale, the highest correlation was found between the Growth Mindset score of the Mindset Works scale and the Overall Score from the Mindset Advantage instrument. The Mindset Advantage Individual subscales have also been compared to Grit Scale, Revised Life Orientation Test (negative correlations with Pessimism scale), and Curiosity and Exploration Inventory-II (decent correlations with Brief Resilience scale, less strong with Embracing Learning scale). Correlations with a benchmark measure of the Big 5 personality factors would help to clarify what the constructs measure.

The Trait Descriptive Adjectives (TDA) could be used to locate constructs on the Periodic Table of Personality (Woods & Anderson, 2016).

The Mindset Advantage Organizational subscales have only been compared with the Dimensions of Learning Organization Questionnaire (N=141). Some strong correlations were found with Learning Culture, Empower, and Enquiry and Dialogue scale, and follow the patterns hypothesised. The authors comment that few related questionnaires are available, however, given the relatively high correlations between the scales in this instance, it would be good to see whether expected lower correlations were evident for organisational level questionnaires measuring unrelated/less related constructs.

Given the fact that the Mindset Advantage is a newly published tool aimed at development, the lack of criterion-related validity is understandable. A study (n = 80) comparing pre- and post-intervention in terms of growth mindset is presented which shows significant increases in the means for Individual subscales but stable means for Organizational subscales. This would be hypothesised as the Individual subscales should be affected by the intervention but the Organizational subscales not so. However, this feels more like an indication of the effectiveness of the intervention rather than the criterion-related validity of the Mindset Advantage. The gathering of objective measures of work performance to establish criterion validity is mentioned as a key activity in the 'Future Directions' chapter of the technical manual.

Quality of computer generated reports

Overall adequacy of computer generated reports:



Report 1

Scope or coverage	★★★
Reliability	★★★
Relevance or validity	★★★★★
Fairness, or freedom from systematic bias	★★★★
Acceptability	★★★★★
Length	★★★★

Reviewers' comments on computer generated reports:

There is a single feedback report (named 'Mindset Profile') that is attractively designed and laid out, but a bit lengthy (approximately 33 pages). Lots of consideration has been put into the actual design and the content of the report which has been refined using feedback from respondents during workshops to maximise the information and insights available. There is no 'manager' report as the feedback is for respondent only.

The report clearly outlines that the Mindset Advantage is designed for developmental purposes and as such the report is intended to give insights into the individual's own mindset and that of their organisation. The scores/reporting for the organisational scales require aggregation across other individuals from the same organisation, but the Individual scales are based purely on that respondent's answers.

The report is split into two main sections: Individual (including subsections: Summary Results, Development Plan, and Behaviour Analysis) and Organisation (including subsections: Summary Results, Behaviour Analysis, Strengths and Areas for Development, Question by Question analysis).

The Individual Summary Results shows the results 'out of 100' and then tells the respondent whether this is a low, medium or high score relative to the norm group.

The report continually stresses that this is a development-focused report and explains how less strong areas can be developed. The three lowest scoring areas seem to be chosen for the development plan section and different descriptive text based on the score are provided. This text highlights what the specific key area for development is and some personal action points to help the respondent developed this area. This text has obviously had a lot of attention and does provide advice that seems almost bespoke in its quality. This section ends with some extra development actions.

The next section is named 'Behaviour Analysis' in the list of contents and headed 'You vs Your Team'. It includes all nine of the scales and describes the behaviours associated with this area and why it is important. This text is not however dynamic, with all respondents getting the same text regardless of their scores although the obtained scores (the raw score and a categorised percentile score) are presented for each.

The Organisation Summary Results are shown in the same format as the Individual Summary Results, with a similar spider diagram and the same raw score and percentile category set up.

Each of the six organisation dimensions are presented with some brief explanatory text on the importance of the dimension. This text is fixed and does not differ with the score obtained.

Most of the remaining pages of the report (about 7 pages) are devoted to the visualisation of the actual responses given to the items in the Organisation section. The first page shows the five items with the highest and lowest mean scores, and the following pages are made up of graphs showing the spread of scores with an indication of where 50% of respondents have scored. This section could be greatly reduced in terms of the number of pages over which it is spread, and the importance of the actual spread of scores is not immediately evident.

The final two pages present some concluding points and follow-up offerings.

What might be an additional benefit would be a way of aggregating scores from the Individual section as well and being able to show these on an Organisational level. This may be something that is available as an additional offering at present as the developers offer consultancy services.

There are some elements of the report which may, however, cause confusion for users. As the report is intended to be standalone, these may impact interpretation and the value obtained from the questionnaire. Specifically:

- 1) The titles of sections in the contents page do not always correspond to the titles of sections in the report, making it difficult to cross reference
- 2) Whilst instructions are provided on how to review the results in the report, the use of norming related phrases such as 'in the top 25% of our normalised population' may be confusing for untrained and trained test users alike.
- 3) For the individual level of reporting by scale, three pieces of information are included a) low/med/high indicators in relation to the overall norm, b) a raw score which is transformed to be out of 100 and c) a percentile score based on the team. This information could be confusing to users, particularly when they disagree with one another. Consideration could perhaps be given to presenting this information in a more accessible way, for example by presenting the organisation and team norm benchmarks visually on the same scale, expressing scores as item means on the 0 to 6 scale used for item level reporting, and/or removing the raw scores which do not really add to interpretation.
- 4) No response style checks (e.g. acquiescence, socially desirable responding) are used to determine whether there are self-presentation issues in terms of how the participant has responded to the questionnaire (although it is commented that items have been designed to minimise this).

Final Evaluation

Evaluative report of the test:

The Mindset Advantage tool is a questionnaire designed to assess the growth mindset of individuals, for use in development contexts. It is clearly focussed on growth mindset and utilises the research of psychologists such as Carol Dweck and the experience of its developers in their particular areas of expertise to offer a unique assessment of an area attracting a lot of interest in HR, development and psychology communities. As well as providing reports for individual dimensions of growth mindset, the questionnaire also includes scales relating to the organisational factors supporting growth mindset, which are contained within the report but based on combined scores across teams/organisations.

The tool has a strong theoretical rationale, and a good explanation of underlying theory is provided in the detailed and comprehensive user manual and technical appendices. However, as the authors acknowledge, the relevance of growth mindset and the specific scales used are, to a large extent, extrapolated from research from educational and high performance/sport domains. Whilst logical inferences can be (and are) made about how these can be extended into an occupational context, the absence of specific evidence underpinning the validity of the constructs within this context represents a gap. For this reason, criterion validity studies should be a key priority for future development, in light of the current limited evidential base for the applicability of growth mindset in an organisational context. This is identified by the authors as a key development in the manual.

The development process for the questionnaire is detailed, and information provided about the thorough approach to item generation to establishing the scales within the questionnaire. Good construct validity evidence is presented around the relationship between the questionnaire other related scales.

The instrument itself is presently very professional and is easy to use and understand. Its relatively short completion time (about 20 minutes) allows insights into nine different areas which together make up the respondent's individual growth mindset. Each of these are described in detail and the origin and distinctiveness of each is clearly identified. The questionnaire also provides a measure of organisation culture as the research behind the instrument stressed the importance of creating a growth mindset organisational culture which would foster individual growth mindset.

The report is professionally designed but might be seen as quite lengthy. The advice and development points are well described, and the report seems genuinely helpful and insightful. However, the nature of some of the reporting for the questionnaire has the potential to cause confusion, due to the fact that comparisons are made with an overall norm and scores for the team, in addition to raw scores. The clarity of the report is particularly critical as it is intended for the participant and will not necessarily be accompanied by feedback from an experienced practitioner. There is a strong sense in which this instrument would greatly benefit from linking to workshops and consultancy provided by the publishers.

The developers have outlined a number of issues that they felt needed addressing. Mention is made of the need for work on norms including new norms. Further work is suggested to refine the factor structure and improve reliability although these are relatively good as they are but could benefit from larger test-retest studies. The absence of criterion validity studies is also noted as an area needing development, both in terms of correlating with current relevant performance but also in terms of reflecting 'improvements' in scores and relevant performance after intervention. It is clearly positioned as a developmental tool and there are several warnings from the publishers that this is not to be used for selection or promotion purposes.

Further developments look at using the instrument outside of the UK (it has been used with groups in Ireland and the US) in languages other than English. Currently the instrument is used in the context of workplace interventions which obviously allows greater exploration of the results and their implications. The publishers are considering the implications of potentially making the individual scale set of the instrument available to those who wish to assess their own mindset and benefit from the development plans it provides, but outside of an organisation-based intervention.

Conclusions:

Mindset Advantage is a well-developed and well-researched instrument that has the potential to provide valuable information to individuals around their growth mindset. As such, it offers a good measure of growth mindset, both in terms of individual developmental needs and a measure of the manifestation of a growth mindset within an individual's organisation. Good efforts have been made to establish the psychometric properties of this instrument and further projected work will make them even more robust. There are some issues surrounding norms, but these are being addressed. More work is required in terms of validity, but this is something that the developers are aware of and are working towards rectifying. Whilst there are some gaps where further research or additions are required, the tool appears sound for use specifically in developmental contexts.

Recommendations:

- Suitable for unsupervised self-assessment in the area(s) of application defined by the distributor

Bibliography:

Woods, S. & Anderson, N. (2016). Toward a Periodic Table of Personality: Mapping Personality Scales Between the Five-Factor Model and the Circumplex Model. *Journal of Applied Psychology*. 2016, Vol. 101, No. 4, 582–604