ASSESSOR
questionnaire

User
Manual

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1.   Introduction

This guide has three main purposes:

1. To describe Assessor
    A description of the components that make up Assessor and the training required accessing the various levels of report that can be produced.

2. To explain how to use the product.
    There are three main types of use which are envisaged for Assessor:
    ➢ Career uses, such as in counselling a client who is choosing a career or planning a career change.
    ➢ Selection uses – informing decisions about which candidates will quickly fit in to a particular organisation and contribute rapidly to its business effectiveness.
    ➢ Uses within organisations:
       ▪ Informing the career path planning process: for example, does the individual have the competencies, personality, and values suited to the next level of management – or would a different type of role suit him or her better?
       ▪ Informing the performance review process: for example, used as a stimulus to talk through behaviour styles and preferences at work.
       ▪ As an important input to a team building process.
    ➢ Training needs analysis

    Each of these uses have been dealt with in a separate section, detailing how to use the product for this purpose.

1. To provide more technical information.
    There is a further chapter, which details the evidence of the reliability and validity of the measure, along with other relevant information, including how the questionnaire was devised, and equal opportunities information. A Directory of Competencies used by Assessor is included in the Assessor pack; we suggest you use this document as a searchable reference to assist you in using the product and reports.

If you are looking for information about how to install and use the software, please read the Software Guide. This Product Guide is for people wanting to know what to use the product for, and what (if any) training they need to do so.

Should you have any comments or queries about Assessor we will be pleased to discuss these with you. Please do not hesitate to contact us.

Description of Assessor

2.1   Background

Businesses and organisations have previously had to choose from a multiplicity of questionnaires to address different assessment requirements. The Assessor system has been designed to provide one comprehensive solution for all assessment needs, including recruitment and selection, development and counselling. It is for use at all levels and with all job functions and business cultures. All this is now available from just one questionnaire.

Assessor provides a wide range of outputs including careers advice reports, competency reports and Type, Relationship and Values personality reports. It provides comprehensive information and has the highest levels of validity and reliability, yet only takes around 20 to 25 minutes to complete.

Assessor is the result of many years of research and development based on consultancy work with a wide variety of clients. It is easy to use and can be administered via paper and pencil, computer or the internet/intranet. Using state of the art technology, Assessor provides test scores and comprehensive computer generated narrative reports immediately following administration of the questionnaire.

Training requirements have been designed to make Assessor accessible as possible to the user. With training pre-requisites kept as short and focused as possible, organisations are able to use it without the need for lengthy and expensive periods of training. Assessor is the ideal tool for today's employers and is future-proof, being designed for today yet flexible enough to assess the jobs of tomorrow.

2.2   Components

Assessor has three main components. These are:

- The assessment questionnaire
- The competency directory
- The reports

Each of these is described in further detail below.

2.3   The Assessment Questionnaire

This is a 190-item multiple-choice questionnaire. None of the questions involve right or wrong answers. They are designed to identify personal qualities, or competencies, which are most likely to be characteristic of the individual's behaviour at work. Therefore, this product is designed for a range of assessment applications.

The questionnaire may be completed in the region of 25 to 30 minutes, although the candidate's speed in completing this questionnaire is nothing more than an indication of the candidate's speed, and no significance should be placed upon this. Different people work at different speeds with this kind of questionnaire and in general it should not have any significance.

2.3   The Directory of Competencies

2.3.1   Introduction

A competency can be defined in a variety of ways.

One definition is
> '*An underlying characteristic of an individual which is causally related to effective or superior performance in a job*'   (Boyatzis, 1982)

Another definition is
> '*An ability expressed in terms of behaviour*'   (Selby, 1991)

The Directory of Competencies used in Assessor lists 102 such competencies, which may also be called 'criteria', 'traits', or 'qualities'; there are other names in use in addition to these.

Competencies help to distinguish superior from average performers and provide a way to characterise the requirements of any particular job activity at any particular level in the organisation.

2.3.2   Competency Profiling

The competencies which are contained in the Directory of Competencies reflect the behaviour that is required for the present and, if possible, future success of the job role and the organisation.

At more senior levels it is usually wise to establish the requisite competencies by taking into account the direction of, and future plans for, the business, as well as the requirements of any particular role at that point in time. There are a number of ways of determining these:

(a)   An expert panel

An expert panel identifies the key challenges, which must be met by an effective jobholder, and the composition of the personal qualities which are needed in order for success to be a possibility. Panel members are usually people who are influential with respect to the job under scrutiny and they will usually involve the line manager of the jobholder as well as other 'opinion formers', who determine success with respect to that particular role. They may identify the competencies through discussion or some more structured interview, perhaps involving some of the following approaches.

(b)   Behavioural Event Interviews/Critical Incident Interviews

This kind of interview involves a sample of people who are currently highly rated in the job under scrutiny. The number of incumbents could vary from 5 to 20, and they should be asked to complete a structured interview such as a repertory grid questionnaire (Kelly) or a critical incident questionnaire (Flanagan).

These two techniques will identify the key personal requirements for the jobholder to achieve success, or the critical job activities with which the jobholder must cope effectively, if success is to be achieved. Both these techniques are relatively quick and easy to complete.

They are not described further here, because the Directory of Competencies is the product of these processes.   The reason why these processes may be undertaken separately is in order to identify the unique phraseology associated with any individual company or job.   However it is likely that the Directory of Competencies covers the majority of job contexts.

2.3.3   The Competency Framework

In identifying the competency framework, a review of current literature was undertaken. This produced a framework that contains 6 generic groups of competencies, which are clustered under the following headings.

(i)   **Achievement and Action Competencies**
        This covers achievement motivation, concern for order and quality, initiative and information seeking.

(ii)   **Helping and Service Competencies**
        These cover the interpersonal skills associated with assisting and facilitating clarity, consensus and customer service skills. Customers may include internal colleagues.

(iii)   **Influencing Competencies**
        These cover impact and influence as well as organisational awareness and relationship building in order to achieve work related goals.

(iv)   **Managerial Competencies**
        These cover developing others, directness, teamwork, co-operation and leadership.

(v)   **Cognitive Competencies**
        These cover analytical thinking, conceptual thinking and other forms of expertise.

(vi)   **Personal Effectiveness Competencies**
        These cover the remaining personal qualities associated with flexibility, confidence and capability.

2.4   Reports

There is a range of report options initially available with the intention that these will be extended in the future, especially in the area of role specific competency reports.

Access to these reports will depend on the training qualification attained by the user.

2.4.1   Psychometric reports

There are a range of psychometric reports available, a short version and a full version covering each of the three areas of personality assessment included within the questionnaire:

Occupational Type

A measure of personality type as widely used in modern organisations, using the following dimensions:

- Introvert / Extrovert
- Sensing / Intuitive
- Thinking / Feeling
- Judging / Perceiving

Occupational Relationships

A measure of occupational relationships, giving information about the following areas:

- Sociability
- Contact with others; Membership of groups
- Power and responsiveness
- Openness and shyness
- The ORP short report summarises this information into an "Inclusion" profile, a "Control" profile and an "Affection" profile, describing respectively, social orientation, responsibility / leadership, and preference for emotional involvement with others.

Employment Values

A measure of personal values associated with work and the work environment:

- Work ethic (an attitude which is highly predictive of work behaviour).
- Sociability (valuing being with others and seeking effective working relationships.)
- Risk taking (valuing excitement of part of the working environment).
- Stability (whether candidates prefer security and stability at work).
- Responsibility (a general measure of work reliability, and whether others will regard the candidate as trustworthy.)
- Need to achieve (whether the candidate strives for success and set their sights high.)
- Task orientation (valuing "finishing what you start").
- Leadership (valuing being in charge of others).
- Development (valuing the acquisition of new skills and understanding).
- Innovation (valuing creativity and novelty).
- Intellectual demands (valuing the application of logic and analysis to tasks).
- Status (valuing the achievement of respect and position).
- Structure (valuing clarity of expectation, structure and organisation in work.)
- Inclusion (the extent to which the candidate would want to work as part of a close-knit team).

In addition, there is a single-page "Score Chart" report which gives the raw and sten scores for all of these dimensions. This may be useful to a user who would prefer to prepare their own narratives from these scores, or who requires a single-page summary.

Full details of these personality dimensions and how to use the reports are provided on our Personality training course

2.4.2   Competency reports

These are split into a number of groups

Standard Competency reports

Competency – Summary Report
This lists all 102 Competencies on a single page, giving scores for each and indicating in colour which are strong and which are weaker.

Competency – Full Report

This lists all 102 Competencies for each candidate, giving scores for each and providing behavioural anchors with respect to those scores.

Competency – High / Low Report
This lists only the ten strongest and ten weakest competencies for each candidate shown in the context of the six generic groups.

Competency – Selective Report
This lists just those competencies that you select from the 102 competencies, giving scores for each and providing behavioural anchors with respect to those scores.

Role Competency reports

A number of pre-selected groups of competencies covering specific occupations. Assessor delivers as standard, the following sets:
1. Retail Assistant
2. Telesales
3. Mobile Salesperson
4. Property Negotiator

Selective Competency Set reports

You can devise competency sets, which match the requirements of your own organisation and the needs of each particular role. These are easy to develop, using Assessor's searchable Directory of Competencies and the flexibility of the Assessor reporting tool.

2.4.3   Careers Advice Reports

There are a number of options:

- The Job Preferences report generates a list of possible careers, along with some general advice on career choice based on this type of information. These preferences draw upon the UK context and may not be relevant for other cultural environments.
- The Careers Advice – Short Report gives the following information:
  - A narrative report giving information about the candidate's personal preferences and work style.
  - A bullet-pointed summary of work style preference, strengths, weaknesses, and preferred work environment.
  - A brief, illustrative list of suitable occupations and less suitable occupations.
  - A summary of competencies – the ten mostly highly rated competencies and the ten lowest rated competencies.
- The Careers Advice – Full Report is the same as the short report but includes an expanded list of careers which would suit the candidate's preferences.

There are a number of limitations to this type of reporting; for example, a career as an occupational therapist may be suggested, but the candidate may not have the means to study for this career, or there may not be places available on the relevant courses. These limitations, which will be true for any type of career reporting, are described more fully at the beginning of each report.

2.5 Training

There are a range of training options available for Assessor users depending on previous experience and qualifications and the level at which the questionnaire is going to be used. For example, careers advice reports can be produced and used without the need for any training, whilst to use **all** the different reports produced by Assessor, including Type, Relationships and Values personality reports, would need up to four days training. The need for training can be reduced or eliminated where users hold recognised BPS level A and level B (Intermediate) qualifications which we recognise and which we can give registered Assessor users credit for within our professional bronze, silver and gold training structure.

The range of reports each Assessor user can produce and use depends on their level of training, experience and their level of registration with us. The design of the product means that there can be a phased approach to its implementation where users wish. For example, a new user could start off using Assessor careers advice reports without the need for training and subsequently progressively qualify to utilise the competencies and personality reports from the questionnaire.

Details of how training and access to the various levels of the product are illustrated as follows:

	Pre-Requisite Qualification	Training Required	Qualification
Careers Advice	Nil	Nil	-
Competence	Nil	1 Day	Bronze
Ability Questionnaires	Bronze	1 Day	Silver
Psychometric	Silver	2 Days	Gold

People with BPS Level A or Level B qualifications can register, without the need for further training, and qualify for entry to Silver qualification and use the Assessor competency reports. They then need to undertake two days training to be able to use the psychometric reports.

For users of our questionnaires who wish to achieve BPS Level qualifications, we can provide Level A and Level B (Intermediate) training.

Please contact us if you wish to discuss your training requirements or how your existing qualifications relate to Assessor.

3.   Using Assessor

3.1   Questionnaire administration

The questionnaire can be administered on a PC to candidates who will respond to answers, which appear on the screen. It can also be completed without supervision via the Internet. Finally it can be administered in paper & pencil form using the reusable question Booklet and an Answer Sheet.

There are a number of steps, which should be carefully followed by test administrators as part of the assessment procedure.

Please remember what you felt like the first time you were asked to complete some questionnaires, try to ensure that you treat the candidate exactly as you would have liked to have been treated at that time.

• Plan to avoid interruptions
• Ensure that the environment is conducive to concentration – e.g., comfortable temperature, the screen is free from glare, etc
• Explain clearly and succinctly to the candidate what the assessment procedure involves, why it is being used and how it is appropriate to the post for which the person is being considered or other use
• Ensure the candidate understands the instructions before they begin to answer the questions
• Be available to deal with any emergencies, but do not encourage the candidate to interact with you while they are answering the questions. Do not watch their answers
• Respond directly, briefly and reassuringly to any questions which the candidate may ask, taking care to check out that the candidate has clearly understood
• If the candidate appears uncomfortable, use discretion in deciding whether to ask them if everything is OK. If not, end the session prematurely. This is an exceptionally rare occurrence
• At the end of the assessment session, close the system down, and explain to the candidate what happens next

Following these steps enables the candidate to focus on the questions they are being asked and to answer as candidly as possible. Remember, whether the candidate understands what they are supposed to do is not part of the assessment task.

Please remember that the candidate will see you as an expert and you should aim to maintain a balance between making the candidate feel comfortable and effectively managing the assessment situation.

At the end of the assessment session you should explain to the candidate what happens next and ensure that they clearly understand you in this respect.

3.2   Providing Feedback

Whatever the usage of the questionnaire we would recommend that feedback is provided to the candidate.

Sometimes a candidate will disagree with statements or sections in the report. There may be several reasons for this:

- The report may be valid but describing something currently beyond the candidate's understanding of themselves. In this situation, it may be helpful to ask the candidate to discuss the report with someone else who knows him or her well.
- The candidate's scores may have fallen at a decision point in the software. The software may have followed its rules and produced a narrative consistent with the candidate's answers; however, the candidate's true score may lie just to the other side of the decision point. In this case, be led by the candidate and disregard that part of the report.

3.3   Selecting Competencies

For a description of each of the 102 competencies, please see the Directory of Competencies enclosed with this product.

Ensure that the set of competencies you select covers the key areas of job requirement and that you do not simply choose some which begin sequentially from the beginning. If you do not identify the areas of requirement before you read the Directory of Competencies it is likely that, since all of them appear interesting and relevant, the organisation may end up being influenced more by the order of presentation of the competencies than the true requirements of the organisation. Therefore try to review the broad headings as these are key with respect to job competency and use those as the basis for choosing particular competencies from the Directory.

As a guide, in order to ensure robustness, three things should occur:

a) Ensure that a more or less equal number of competencies are distilled from each of the generic groupings.

b) Check out your choice by evaluating a small number of high performers in the role under scrutiny, using the competencies you have selected. They should distinguish high from low performers and they should characterise high performers by being competencies they rate highly on. You may choose to correlate the empirical assessment with some managers' opinions about the competencies of the high performing incumbents.

c) Benchmarking the competencies involves establishing an acceptable level of competency (perhaps with a numerical rating) against which aspiring incumbents will be measured. This benchmark usually only emerges over time and needs continual scrutiny.

As a final point, it may be useful, after identifying the current competency requirements, to think ahead and specifically incorporate one or two with the future in mind. How is the job requirement going to change and how will standards change in the future?

3.4   Using Assessor for career counselling

Assessor can have an important role to play in the career counselling process.

Use Assessor to generate a list of possible career choices based on the individual's work preferences, personality and values. The counsellor can then use this list to explore with the candidate, their reactions to the list, with a view to generating a wider range of possibilities than the candidate may have started out with.   Typically in career counselling, the process involves widening the career options with the candidate, and then narrowing them down again; the role of Assessor careers reports would be to assist in the widening part of the process. The information can then be used in many different ways, such as supporting well-considered answers to interview questions.

3.4.1   What are the benefits?

- Generating a list of possible career choices widens the candidate's scope, making suggestions they may not have considered.
- If discussions then result in a shortlist of possible careers, rather than vague ideas, an Action Plan can be devised. The Action Plan can be put together in conjunction with the counsellor, or with the use of other sources of help.
- Generating objective information about the candidate's strengths and weaknesses is likely to lead to greater self-knowledge. This will be helpful in later activities such as writing an effective CV or resumé, or answering interview questions.
- Since the information in the report is an objective statement of the candidate's work and behavioural preferences, which is generated from their own responses to the Assessor questions, the information may be seen as more emotionally neutral.   It must be noted that the candidate generates the statements and not the counsellor. The candidate may therefore feel more open to the information, and possible conflicts are avoided.

3.4.2   Which reports should I use?

Which report is most use to you will clearly depend on factors such as the candidate's needs and the level of service you are providing. You may wish to start with either the Careers Advice – Short Report and move on to the Job Preferences report if necessary, or vice versa. However, for a fuller understanding of the client's preferred work style, which will in turn illuminate the career options suggested by Assessor, the Careers Advice – Full Report would be recommended.

You may also want to consider using psychometric reports, in order to explore in greater detail with the candidate, aspects of their personal preferences in the work context.

3.4.3   Working with the candidate's results

We would recommend discussing the candidate's results in some detail. Focus on the candidate's strengths – these are more likely to be a fruitful source of ideas about career directions.

In exploring the report with the candidate, it is important to ask for examples from a working and non-working context.   This will build a broader understanding of the candidate's abilities and preferences. For example, if they have a competency they are unable to exercise in the current or most recent work role, they may use it in another

context such as voluntary work or sporting activities. The broader the picture of the candidate, the better the basis to begin working with career choices.

3.5   Using Assessor for selecting employees

Selecting the candidate who will perform best in a job, is an area traditionally fraught with difficulty. A wrong decision can lead to wasted time, money, and potential. Yet the traditional methods of selecting staff – such as interviewing – have been found by researchers to be relatively unreliable.   Using Assessor provides an opportunity to supplement and strengthen more traditional methods:

- It can provide information about candidates' work styles and preferences.
- It can provide easy to understand reports about candidates' personalities types, work values and working relationships.
- It can provide a statement about a candidates' competencies which can be easily compared with
  - other candidates, and
  - your organisation's chosen competency priorities in each role.
- It can provide a basis for you to develop interview questions to explore any areas of particular concern – and so focus the interview much more effectively.

In short, Assessor is a powerful tool to help you understand how each candidate is likely to fit into your organisation, and your vacancy, before you make them an offer.

For a discussion about the meaning of "competency", please refer to section 2.3.1.

3.5.1   What are the benefits?

- You gain rapid, comprehensive information about each candidate's likely future behaviour at work – not just their qualifications and experience.
- Assessor can be completed at remote locations – you can choose to ask candidates to complete the measure on the Internet, so saving time and money on bringing them to your offices for assessment. A growing trend, for instance, is to connect Assessor to the organisation's on-line application form, so that candidates' competencies can be evaluated in the initial "cut" along with their qualifications and experience.
- The information is standardised, so you are not exposed to differences in opinion from different raters.
- You can quickly and easily match each candidate against either a pre-defined set of competencies (e.g., mobile sales people, retail assistants, property negotiators) or, you can easily build up sets of competencies relevant to your own organisation.
- You can target interview questions towards any area of concern you may have, so your interview time is much more productive.
- As your recruitment decisions improve, (as they will do, because you will be basing those decisions on scientifically validated data), you will have reduced risk of poor performance, personality clashes, and other causes of workplace inefficiency. You will save not only time, (in eliminating time lost on managing poor performance,) but also money, (e.g., reduced risk of payments to ex-employees). By employing the best candidate, you will be maximising the opportunities for positive performance – more sales, happier customers, and so on.

3.5.2   Which reports should I use?

You have a choice of almost the entire range of the Assessor's reports to use for selection purposes.

Your choice of report will depend very much on which dimensions are important for the role you are selecting for. However it is important to understand that the competencies are more directly related to the work environment than are personality dimensions.

You may wish to experiment with the full range of reports, before choosing which to use in which context; they are all valuable in a selection setting.

3.5.3   Working with the candidate's results

Psychometric testing must be conducted for a valid purpose. One way to ensure that you have a valid purpose in testing recruitment candidates, is to design a template before recruiting, which records which criteria will be related to excellent performance on the job.

When feeding back to the candidate, you are recommended to discuss the whole recruitment process and the overall conclusions drawn from it rather than the questionnaire results which can only form part of the decision. It is advisable to focus on the candidate's strengths, even if these are outside of the remit required by the job, as the candidate will then have some positive information to take away from the meeting.

In a sense, the "stakes are higher" in a recruitment situation, and the candidate may have a motive for wishing to appear in a different light to their actual normal work behaviour. Should this situation pose a problem, it is important to ask the candidate to give real examples of their behaviour, in order to clarify the situation.

3.6   Using Assessor with employees

There are several ways you might want to use Assessor with individuals in the workplace. These include,

- Performance Review
  - by matching the individual's competency profile with that of their role, as a way to highlight strengths and identify development areas.
  - by using the psychometric information in the Assessor report portfolio to stimulate a fruitful discussion about behaviour at work.
- Career Development – by matching the individual's set of competency strengths with profiles for other roles in the organisation; or by using the career reports to generate fresh ideas about career direction.
- Team Building – by using Assessor with all members of the team and feeding back the results in a way which builds understanding of different behaviour styles and values.

3.6.1   What are the benefits?

The benefits of using Assessor in targeted discussions with employees, include the following:

- Because objective information from a self-report source is provided, the discussion is based on evidence rather than opinion. It is thus likely to be less emotive and more productive.
- Possible development areas can be easily and quickly identified. For example, if the competency "Coach" is important in the role, but not strong in the individual, ways of strengthening this area can be discussed during the review.
- By matching the individual's competency set with other roles in the organisation, possible career paths can be identified, for later refinement. Again, this can be done relatively quickly and may generate surprising ideas which can open up new avenues.

3.6.2   Which reports should I use?

For career development and performance review based on competency matching, it is recommended that you use Assessor's competency reports.

For more detailed performance and development reviews, and for team-building, you may want to take advantage of Assessor's psychometric reporting.

3.6.3   Working with the candidate's results

This context is likely to be easier than the external recruitment arena, because it is likely that the parties at the review will already have some knowledge of each other, in a relationship of trust. A discussion of strengths and development needs is likely to be facilitated by this relationship, as either party may be able to suggest examples.

Should your intention be to use this type of data to build more effective teams, it is important to explain to all the team members some key background information. For example, they will need to know what the information does *not* say about individuals, e.g., that we are measuring preferences not absolutes; they will also need to be aware that the information is personal and should be treated with respect.

With this within-organisation use of the psychometric data, protection of the data becomes even more important. As with all psychometric data, it is a legal requirement that both paper and computer records are kept away from unauthorised access, and destroyed after a suitable time.

4.   Technical information

This section is important, because it describes the reasons we believe that Assessor is a quality measure. The information is presented to you under the following headings:

- A description of the questionnaire
- How the measure was developed
- Competencies and their use
- Validity (does Assessor measure what it says it is measuring?)
- Reliability (does it measure it consistently?)
- Norms
- Equal Opportunities

4.1   A description of Assessor

The main features of Assessor can be summarised as:

- Assessor consists of 27 sub-scales, 190 items in all.
- The items are divided into three sections.
- They are all in a multiple choice format.
- None of the questions involve right or wrong answers.
- The items may be completed on a PC, on the Internet, on an Intranet, or using a paper question booklet and answer sheet.
- It is possible to adapt the questionnaire administration for people with special needs, e.g., blind or dyslexic people, by reading the questions and possible responses to them. However, we would recommend reading the possible responses twice for each item, to guard against any bias which may result from people's natural tendency to choose the last response.
- The measure typically takes about 20 to 25 minutes to complete.
- There is no time limit, and the time taken by the candidate to complete it is not significant.
- It is appropriate for use with people with all kinds of educational, cultural or ethnic backgrounds, so long as they would agree that they are comfortable in an English language environment.
- Assessor may currently be administered in English & French and we intend to add further languages. Please contact us if you have a specific need for another language.
- The reading age required to complete Assessor has been calculated to be equivalent to between the sixth and eighth grade – that is, 11 to 13 years.
- However, it is not recommended to use Assessor with anyone under the age of 18. This is because behaviour preferences are unlikely to be firmly established before this.
- The questionnaire requires no previous computer experience to complete. In fact, our research has consistently shown that people respond more candidly and more quickly to a questionnaire presented through a PC than otherwise.
- If you have any doubts about whether the questionnaire is appropriate for any individual, you should discuss these doubts with them directly and openly.

4.2   How Assessor was developed

Assessor is the result of ongoing workplace research and trials stretching back for well over a decade. Originally, measures of Occupational Type, Occupational Relationships, and Employment Values, were combined into a single measure. Statistical analysis then revealed underlying relationships between the total measure and competencies. Today, scoring algorithms in the software produce the measurement of the complete range of 102 competencies. Further information is provided below:

4.2.1   Item generation

Applying psychological theory to work place scenarios generated a large number of initial items. The items were then sifted for ease of understanding and lack of ambiguity. The remaining items were put into a research version of the questionnaire and given to a large number of participants of varying ages and occupations. Their responses were collected and used for statistical analysis of the questionnaire.

4.2.2   Item Scale Correlations

Each item was correlated to the total scale score. These item scale correlations were high, so a criterion cut off of 0.5 was applied (much higher than the 0.2 cut off criterion recommended by Kline, 1986). Items which fell below this cut off level were discarded.

4.2.3   Range of Response Analysis

Each item was analysed to see if the full range of responses were being used. This information was necessary to ensure that each item discriminated between different types of people (because, if all people answered in the same way, the item is not telling us anything about those people.) For items scored on a four-point scale, the criterion for rejection was an item which had displayed a range of less than four points. Items which did not meet this criterion were discarded.

4.2.4   Item Means

Another way to check that each item was adding information to the total picture was to check item means. For items scored on a five-point scale, the criterion for rejection was if an item displayed a mean of less than 2 or greater than 4. Similarly, for items scored on a four-point scale, any which had a mean of less than 2 or more than 3 were discarded.

4.2.5   Cluster Analysis

The remaining items, which had satisfied the above criteria, were then analysed using cluster analysis. This was to identify which items clustered most closely together. For each scale, 8 final items were selected, with one exception, which used 6 items.

This process resulted in the 190 items, which make up today's Assessor questionnaire.

4.2.6   Competency development

Over the last decade, more than 30 different organisations, from many different sectors, have asked us to develop and test competency sets for them. In each case, the competency was validated against successful job performance and related to Assessor items.

Each competency is derived from a number of psychometric scales, weighted and combined using an algorithm in the Assessor software. They are then standardised using the selected norm group and reported on a ten-point scale. This rating describes the individual's likely performance on each competency.

4.3 Validity

Establishing validity attempts to answer the question, does this instrument measure what it says it's measuring? There are several ways to establish this.

4.3.1   Face Validity

Face validity is the extent to which a questionnaire appears to measure what it claims to measure. With this in mind, it is important that the questionnaire, if it is to display high face validity, is relevant to the occupational context, as well as to the candidate.

Assessor, and a supplementary questionnaire, were given to 32 people from a range of occupations. The supplementary questionnaire was designed to assess Assessor's Face Validity. The responses collected from the questionnaire indicated that it had a high level of face validity and, in addition, the results showed that the questions were easy to answer and considered highly relevant.

Face validity is not, in itself, a measure of validity per se. That is, it does not help us answer the question, does it measure what it says it's measuring? However, face validity is important, because if the individuals answering the questions do not believe the measure is valid, they are unlikely to answer with due care. Therefore, this danger has been minimised in the Assessor questionnaire, as the face validity has been measured and found to be high.

4.3.2   Construct Validity

Construct validity looks at whether a questionnaire is appropriate to measure a particular psychological construct or constructs. (In simple terms, "does it correlate with other measures which measure things which are similar?") Assessor has been designed to measure a very broad range of psychological constructs, some of which do overlap with other psychometric questionnaires.

The core scales of Assessor have been correlated with the scales of a number of other questionnaires. Questionnaires that have scales that produce high correlations with Assessor include Type questionnaires, Relationships questionnaires, a range of Values and Interests questionnaires, factor analytic questionnaires such as the 16PF, and Creativity questionnaires. Examples of the resulting correlations follow, presented in the following order: construct validity for the Type part of the Assessor (formerly known as OTP), for the Relationships part of Assessor (ORP), and the Values part of Assessor (EVI).

4.3.2.1   Comparison Of The Occupational Type Profile And The Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator is a questionnaire that has been designed to measure Type. Like the Occupational Type Profile the Myers-Briggs Type Indicator is developed from Jung's theory of Type and uses the same four scales Extraversion/Introversion, Sensing/Intuition, Thinking/Feeling, and Judging/Perceiving. As such it provides a useful stable mate for Construct Validity studies.

Table 1: Correlations Between the Occupational Type Profile And Myers-Briggs Type Indicator

Myers-Briggs Type Indicator Scales	Occupational Type Profile Scales			
	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Extraversion - Introversion	**0.59**	0.01	-0.10	0.00
Sensing - Intuition	0.80	**0.68**	-0.22	0.39
Thinking - Feeling	-0.17	0.00	**0.56**	0.06
Judging - Perceiving	0.04	0.45	-0.02	**0.71**

Sample Size = 50

The Correlations

The table above shows correlations between the scales of the Occupational Type Profile and the scales of the Myers-Briggs Type Indicator. The correlations highlighted in **bold** are those one might expect to find. The high correlations between the scales of each questionnaire indicate that there is a strong relationship between them. This is likely to be because both purport to measure the same personality characteristics.

4.3.2.2 Comparison Of The Occupational Type Profile And The 16PF

The 16PF Primary Factors

The 16PF is an overall measure of personality. It uses sixteen core scales and from these, eight other composite scales (Second Order Factors) are also calculated. Many of the scales measured by the 16PF have similarities with the four scales measured by the Occupational Type Profile, and it is for this reason that it provides a useful comparison.

Table 2: Correlations Between The Occupational Type Profile And The Primary Factors Of The 16PF Version 4. Form A.

16 Personality Factors Primary Factors	Occupational Type Profile Scales			
	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Factor A = Warmth	**-0.50**	0.04	**0.15**	0.05
Factor B = Intelligence	0.35	0.02	-0.13	-0.08
Factor C = Emotional Stability	**-0.50**	0.13	0.16	0.02
Factor E = Dominance	**-0.25**	**0.33**	**-0.38**	**0.27**
Factor F = Impulsivity	**-0.56**	**0.32**	**0.21**	**0.36**
Factor G = Conformity	0.00	**-0.46**	-0.09	-0.47
Factor H = Boldness	**-0.83**	**0.27**	0.24	0.14
Factor I = Sensitivity	0.00	**0.21**	**0.18**	0.09
Factor L = Suspiciousness	0.16	0.14	**-0.52**	0.03
Factor M = Imagination	0.01	**0.15**	-0.02	-0.20
Factor N = Shrewdness	**0.18**	**-0.51**	0.01	-0.22
Factor O = Insecurity	0.29	-0.05	**0.16**	**0.33**
Q1 = Radicalism	**-0.20**	**0.37**	**-0.37**	0.02
Q2 = Self - Sufficiency	**0.45**	0.01	-0.13	-0.21
Q3 = Self - Discipline	0.04	**-0.43**	0.11	**-0.56**
Q4 = Tension	0.50	-0.06	-0.15	**0.18**

Sample Size = 91

The Correlations

The Correlations above show many relationships between the Occupational Type Profile and the 16PF. The correlations highlighted in **bold** are those which one might expect to find. A good example of such an expected finding would be the correlation of -0.50 between the Extraversion/Introversion scale of the Occupational Type Profile and the Factor A (Warmth) of the 16PF. That is, outgoing Extroverts score more highly on Warmth than the more reserved Introverts.

The 16PF Second Order Factors

As mentioned above the sixteen core scales of the 16PF are used in different combinations to provide eight further scales. Many of these additional Second Order factors also have similarities with the scales of the Occupational Type Profile.

Table 3: Correlations Between The Occupational Type Profile And The Secondary Factors Of The 16PF Version 4. Form A.

16PF Second Order Factors	Occupational Type Profile Scales			
	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Extraversion	**-0.78**	**0.23**	0.3	0.3
Anxiety	**0.58**	-0.07	-0.2	0.2
Tough Poise	-0.11	0.01	**-0.35**	0.11
Independence	**-0.48**	**0.43**	**-0.34**	**0.09**
Control	0.01	**-0.51**	0.01	**-0.57**
Adjustment	**-0.60**	0.19	-0.02	-0.03
Leadership	**-0.74**	0.01	0.08	**-0.13**
Creativity	0.18	**0.35**	-0.26	-0.11

Sample Size = 91

The Correlations

The correlations highlighted in **bold** are those one might expect to find. A good example is the correlation of -0.35 between the Tough Poise scale on the 16PF and the Thinking/Feeling scale on the Occupational Type Profile. That is, people with Thinking preference, who may tend to be more tough-minded, logical, analytical decision makers than those with Feeling preferences, also tend to score more highly on the Tough Poise scale.

4.3.2.3 Comparison Of The Occupational Type Profile And FIRO-B

The FIRO-B

The FIRO-B is a questionnaire designed to assess social relationships. Different Types behave differently towards one another and are inclined towards different relationships. A comparison between the FIRO-B and the Occupational Type Profile will provide further evidence of Construct Validity.

Table 4: Correlations Between The Occupational Type Profile And FIRO-B

FIRO-B Scales	Occupational Type Profile Scales			
	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Wanted Inclusion	**-0.57**	0.01	**0.43**	0.12
Expressed Inclusion	**-0.24**	0.15	**0.32**	0.18
Wanted Control	-0.09	0.14	0.06	-0.07
Expressed Control	0.17	-0.17	0.12	**-0.17**
Wanted Affection	**-0.25**	0.11	**0.45**	0.19
Expressed Affection	**-0.22**	0.01	**0.33**	0.10
Total (general measure of sociability)	**-0.39**	0.14	**0.31**	0.09

Sample Size = 82

The Correlations

The table above shows a number of correlations between the two questionnaires, the correlations in **bold** indicate those which one might expect to find. A good example is the correlation of -0.57 between the Wanted Inclusion scale of the FIRO-B and the Extraversion/Introversion scale on the Occupational Type Profile. That is, Extraverts are more likely to want others to include them in social interactions, than Introverts.

4.3.2.4 Comparison Of The Occupational Type Profile And The Occupational Relationships Profile

The Occupational Relationships Profile

The Occupational Relationships Profile is another questionnaire designed to assess social relationships. However in addition, the full ORP also measures Leadership, Leadership Style, Preferred Style of Leader and four composite scales Sociability, Proactivity, Team and Individual. (This is in contrast to the Relationships section of Assessor, which has been slightly shortened so that only core Relationships scales are measured, rather than the additional scales). The information about relationships (shown in the table below) is useful for the same reasons as that from the FIRO-B.

Table 5: Correlations Between The Occupational Type Profile And The Core Scales Of The Occupational Relationships Profile

Occupational Relationships Profile Scales	Occupational Type Profile Scales			
	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Contact At Work	**-0.38**	0.12	**0.17**	0.00
Membership	**-0.28**	0.13	0.13	0.00
Power	**-0.30**	0.07	-0.18	0.07
Responsiveness	**-0.20**	0.00	0.10	0.11
Openness	**-0.25**	0.08	**0.19**	0.03
Shyness	**-0.32**	0.08	**0.20**	0.02
Sociability	**-0.36**	0.13	0.13	0.03
Proactivity	**-0.24**	0.03	-0.15	0.00

Sample Size = 637

Correlations

The table above shows a number of correlations between the two questionnaires, the correlations in **bold** indicate those which one might expect to find. Good examples are the correlations of 0.19 and 0.2 between the Thinking/Feeling scale of the Occupational Type Profile and Openness and Shyness scales of the Occupational Relationships Profile.

4.3.2.5 Comparison Of The Occupational Type Profile And The Employment Values Inventory

The Employment Values Inventory

The Employment Values Inventory measures personal values associated with work and the working environment. We know that certain Types are likely to value certain types of work far more than others so this comparison can give more useful evidence that the Occupational Type Profile is measuring Type.

Table 6: Correlations Between The Occupational Type Profile And Employment Values Inventory

Employment Values Inventory Scales	Occupational Type Profile Scales			
	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Work Ethic	-0.19	0.00	-0.08	-0.23
Social Outgoingness	**-0.31**	0.00	**0.37**	-0.08
Risk Taking	**-0.28**	**0.41**	-0.09	**-0.35**
Stability	0.10	**-0.41**	0.18	**-0.29**
Responsibility	-0.15	**-0.18**	0.03	**-0.39**
Need To Achieve	-0.39	**-0.19**	**-0.15**	-0.11
Task Orientation	-0.23	-0.07	**-0.16**	**-0.23**
Leadership	**-0.35**	0.01	-0.14	-0.05
Training and Development	-0.18	-0.12	-0.23	-0.19
Innovation	-0.37	0.01	-0.21	-0.11
Intellectual Stimulus	-0.15	**0.17**	**-0.14**	**-0.17**
Status	-0.21	-0.08	0.01	-0.14
Structure	0.07	**-0.33**	0.12	**-0.21**
Inclusion	**-0.3**	-0.09	-0.22	-0.16

Sample Size = 620

The Correlations

The table above shows a number of correlations between the two questionnaires, the correlations in **bold** indicate those which one might expect to find. Good examples include the correlations that Risk Taking has with Extraversion, Intuition and Judging or the correlation that Social Outgoingness has with Extraversion.

4.3.2.6 Comparison Of The Occupational Type Profile And The Creativity Questionnaire

The Creativity Questionnaire

The Creativity Questionnaire is an occupational questionnaire designed to provide a focus on traits relevant to creative and innovative behaviour. We would expect certain Types to display different amounts and kinds of behaviour. In particular we know that Jung postulated that Intuitive Types would be more creative and innovative than Sensing Types.

Table 7: Correlations Between The Occupational Type Profile And The Creativity Questionnaire

Creativity Scales	Occupational Type Profile Scales			
	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Originality	**-0.32**	**0.46**	-0.21	0.10
Rule Conscious	**-0.16**	**0.40**	-0.18	**0.38**
Openness To Change	**-0.29**	**0.40**	-0.08	0.06
Assertiveness	**-0.39**	**0.28**	-0.25	0.08
Independence	-0.32	0.07	-0.23	-0.08
Achievement	-0.35	**0.20**	-0.12	-0.14
Radicalness	-0.20	-0.14	0.22	**-0.25**
Response Style	-0.23	0.01	0.01	-0.27
Overall Creativity	**-0.26**	**0.50**	-0.29	**0.22**

Sample Size = 316

The Correlations

The table above shows a number of correlations between the two questionnaires, the correlations in **bold** indicate those one might expect to find. The high number of correlations which the Sensing/Intuition scale shares with the components of the Creativity questionnaire, is an excellent example of how the scale measures what it intends to measure, as is the overall correlation of 0.50 between overall creativity and Jungian N.

4.3.2.8 Comparison Of The Occupational Relationships Profile And The FIRO-B

The FIRO-B

The FIRO-B is a questionnaire which has been designed to measure Relationships. Like the Occupational Relationships Profile the FIRO-B is developed from Schutz's theory of Relationships and uses very similar scales to the first six used in the Occupational Relationships Profile. As such it provides a useful comparison for Construct Validity studies.

Table 8: Correlations Between Occupational Relationships Profile And FIRO-B

FIRO B Scales	Occupational Relationships Profile Scales								
	Contact at Work	Membership	Power	Responsiveness	Openness	Shyness	Sociability	Proactivity	Team
Expressed Inclusion	**0.32**	-0.03	0.10	0.05	-0.02	-0.08	0.52	0.24	0.42
Wanted Inclusion	0.20	**0.10**	-0.09	-0.18	0.12	0.06	0.58	0.08	0.50
Expressed Control	0.38	0.18	**0.80**	0.00	-0.16	-0.07	0.03	0.47	0.01
Wanted Control	-0.51	-0.18	-0.01	**0.35**	-0.29	-0.26	0.06	-0.26	0.10
Expressed Affection	0.65	0.09	-0.02	-0.06	**0.23**	0.15	0.09	0.12	0.12
Wanted Affection	0.32	0.04	-0.18	-0.19	0.44	**0.40**	0.12	0.05	0.13
Total (general measure of sociability)	0.54	0.41	0.16	0.09	0.11	0.06	**0.60**	0.21	0.58

Sample Size = 82.

The Correlations

The table above shows correlations between the scales of the Occupational Relationships Profile and the scales of the FIRO B. The correlations highlighted in **bold** are those one might expect to find. The high correlations between the scales of each questionnaire indicate that there is a strong relationship between them. This is likely to be because both purport to measure the same personality characteristics.

4.3.2.9 Comparison Of The Occupational Relationships Profile And The Employment Values Inventory

The Employment Values Inventory

The Employment Values Inventory measures personal values associated with work and the working environment. We know that those displaying a certain relationships profile are likely to value certain types of work far more than others so this comparison can give more useful evidence that the Occupational Relationships Profile is measuring Relationships.

Table 9: Correlations Between The Occupational Relationships Profile And Employment Values Inventory

Employment Values Inventory	Occupational Relationships Profile Scales								
	Contact at Work	Membership	Power	Responsiveness	Openness	Shyness	Sociability	Proactivity	Team
Work Ethic	0.16	0.16	0.08	-0.09	0.53	0.18	0.20	0.09	0.13
Social Outgoingness	**0.49**	**0.43**	-0.08	0.13	0.08	**0.45**	**0.49**	-0.14	0.51
Risk Taking	0.13	0.11	**0.25**	-0.05	0.03	0.09	0.18	0.17	0.09
Stability	0.01	0.09	-0.07	**0.20**	-0.01	0.05	0.10	-0.14	0.03
Responsibility	0.14	0.18	0.13	-0.07	-0.04	0.30	0.26	0.07	0.22
Need To Achieve	0.25	0.24	**0.36**	-0.18	-0.01	0.26	0.35	0.27	0.26
Task Orientation	0.13	0.09	0.29	-0.10	-0.04	0.10	0.20	0.25	0.14
Leadership	0.15	0.06	**0.59**	-0.19	-0.05	0.22	0.31	0.46	0.21
Training and Development	0.33	0.34	0.05	-0.11	0.08	0.19	0.28	0.01	0.36
Innovation	0.22	0.24	0.14	-0.06	0.07	0.26	0.30	0.07	0.25
Intellectual Stimulus	0.15	0.22	0.09	-0.01	0.07	0.20	0.26	0.02	0.20
Status	0.14	0.21	0.33	-0.06	-0.13	0.16	0.28	0.15	0.16
Structure	0.05	0.07	0.00	0.22	-0.04	0.06	0.12	-0.10	0.05
Inclusion	**0.48**	**0.37**	0.03	0.06	0.09	**0.43**	**0.46**	-0.03	0.60

Sample Size = 620

The Correlations

The table above shows a number of correlations between the two questionnaires, the correlations in **bold** indicate those one might expect to find. The correlations between the social values and the relationships dimension, is an excellent example of how the scale measures what it intends to measure.

4.3.2.10 Comparison Of The Occupational Relationships Profile And The Creativity Questionnaire

The Creativity Questionnaire

The Creativity Questionnaire is an occupational questionnaire designed to provide a focus on traits relevant to creative and innovative behaviour. We would expect those displaying certain relationships to display different amounts and kinds of behaviour. For this reason the following comparison provides further useful information.

Table 10: Correlations Between The Occupational Relationships Profile And The Creativity Questionnaire

Creativity Scales	Occupational Relationships Profile Scales								
	Contact at Work	Membership	Power	Responsiveness	Openness	Shyness	Sociability	Proactivity	Team
Originality	0.12	0.09	0.27	-0.27	0.12	0.19	0.17	**0.26**	0.19
Rule Conscious	0.10	0.08	0.28	-0.16	0.00	0.04	0.12	0.23	0.12
Openness To Change	0.23	0.21	0.22	-0.18	0.18	0.25	0.27	0.15	0.28
Assertiveness	0.16	0.17	**0.51**	**-0.31**	0.14	0.15	0.28	0.42	0.29
Independence	-0.53	-0.31	0.05	0.01	-0.25	-0.30	-0.34	0.03	-0.46
Achievement	0.20	0.16	0.31	-0.28	0.13	0.20	0.23	-0.10	0.29
Radicalness	0.20	0.23	-0.06	-0.02	0.26	0.27	0.22	-0.10	0.24
Response Style	0.12	0.12	-0.02	-0.21	0.24	0.29	0.14	0.02	0.23
Overall Creativity	0.04	0.07	0.40	-0.27	0.05	0.10	0.16	0.33	0.13

Sample Size = 316

The Correlations

The table above shows several correlations between the two questionnaires, the correlations in **bold** indicate those one might expect to find. Particularly interesting are the 0.51 correlation between Assertiveness and Power, and the –0.31 correlation between Assertiveness and Responsiveness.

4.3.2.11 Comparison Of The Employment Values Inventory, MBTI, FIRO-B, and JPI

In addition to the above correlations between the Values, Type and Relationships, Values were correlated with Myers-Briggs Type Indicator, FIRO-B and the Jackson Personality Inventory. The MBTI and FIRO-B have already been described, but the JPI is a 320 item personality questionnaire which measures 16 personality dimensions, which can be described as in the following table.

Scale Name	'Flavour' of High Score
Anxiety	Worry, apprehension, tension
Breadth of Interest	Involved, curious, interested
Complexity	Complex, taste for the abstract
Conformity	Susceptible to group pressure, compliant
Energy Level	Lively, industrious, eager
Innovation	Value new ideas, imaginative
Interpersonal Affect	Kind, affectionate, concerned
Organisation	Orderly, disciplined, systematic
Responsibility	Strong sense of duty dependable
Risk-taking	Bold, intrepid, incautious
Self-esteem	Socially confident, outspoken
Social Adroitness	Shrewd, persuasive, influential
Social Participation	'Joiner', convivial, gregarious
Tolerance	Broad-minded, impartial
Value Orthodoxy	Traditional, law-abiding
Infrequency	Careless answering

Employment Values scales are, it must be recalled, scales of values, not 'personality' scales. Nevertheless, some overlap and consistency with 'personality trait' scales would be expected. This has been found as predicted.

At the same time, the degree of correlation - while significant in all reported cases at or below the 0.02 level - is not so great as to suggest that the Employment Values scales are identical to other scales. They are not; but show sufficient overlap to suggest strongly that they do measure the constructs which they are designed to do.

Table 11: Correlations between Employment Values and the MBTI, FIRO, and JPI

Value	Correlate	Correlation	*N*
Work Ethic	WI Organisation	0.31	(105)
	WI Energy Level	0.30	(106)
	Myers Briggs (Judging)	0.27	(138)
	WI Value Orthodoxy	0.26	(105)
	WI Risk taking	0.23	(106)
Social Outgoingness	FIRO B 1(e)	0.40	(138)
	FIRO B 1(w)	0.24	(138)
	WI Social Participation	0.24	(106)
	FIRO B A(w)	0.22	(138)
Risk taking	WI Risk taking	0.59	(106)
	Myers Briggs (Perceiving)	0.46	(138)
	Myers Briggs (Intuition)	0.41	(138)
	WI Innovation	0.34	(106)
	WI Breadth of Interest	0.23	(106)
	WI Organisation	0.23	(106)
	WI Infrequency	0.22	(105)

Stability	Myers Briggs (Judging)	0.39	(138)
	WI Risk taking	0.29	(106)
	Myers Briggs (Sensing)	0.28	(138)
	WI Complexity	0.27	(106)
	JPI Conformity	0.26	(106)
	FIRO B 1(e)	0.23	(138)
	WI Anxiety	0.22	(106)
Responsibility	WI Organised	0.45	(106)
	WI Energy Level	0.38	(106)
	Myers Briggs (Judging)	0.30	(138)
	Myers Briggs (Thinking)	0.23	(138)
	FIRO B 1(e)	0.23	(138)
	WI Self esteem	0.23	(106)
	WI Social Participation	0.23	(106)
	WI Value Orthodoxy	0.23	(105)
	WI Anxiety	0.22	(106)
	WI Breadth of Interest	0.21	(106)
	WI Responsibility	0.21	(106)
Need to Achieve	FIRO B C(e)	0.28	(138)
	WI Organised	0.28	(106)
	WI Energy Level	0.27	(106)
	WI Self esteem	0.24	(106)
	JPI Breadth of Interest	0.23	(106)
	FIRO.B A(e)	0.22	(138)
	WI Social Adroitness	0.22	(106)
Task Orientation	WI Self esteem	0.45	(106)
	WI Energy Level	0.39	(106)
	WI Organised	0.33	(106)
	WI Value Orthodoxy	0.28	(105)
	Myers Briggs (Thinking)	0.28	(138)
	FIRO B C(e)	0.28	(138)
	WI Breadth of Interest	0.25	(106)
	FIRO B C(w)	0.24	(138)
Leadership	WI Self esteem	0.48	(106)
	FIRO B C(e)	0.43	(138)
	WI Energy Level	0.38	(106)
	WI Breadth of Interest	0.30	(106)
	WI Innovation	0.28	(106)
	FIRO B C(w)	0.27	(138)
	Myers Briggs (Extrovert)	0.27	(138)
	FIRO B 1(e)	0.25	(138)
	WI Organisation	0.25	(106)
	WI Social Participation	0.23	(106)
	Myers Briggs (Thinking)	0.22	(138)
	WI Conformity	0.22	(106)
Training & Development	WI Energy Level	0.29	(106)
	WI Breadth of Interest	0.28	(106)
	WI Organised	0.28	(106)

	WI Self esteem	0.28	(106)
	WI Responsibility	0.25	(106)
	WI Tolerance	0.25	(106)
	Myers Briggs (Judging)	0.23	(138)
Innovation	WI Innovation	0.65	(106)
	Myers Briggs (Intuition)	0.44	(137)
	WI Breadth of Interest	0.37	(106)
	WI Risk taking	0.28	(106)
	FIRO B C(e)	0.27	(138)
	Myers Briggs (Perceiving)	0.26	(138)
	WI Social Adroitness	0.23	(106)
	WI Energy Level	0.23	(106)
Intellectual Stimulus	WI Innovation	0.49	(106)
	Myers Briggs (Intuition)	0.31	(138)
	WI Breadth of Interest	0.29	(106)
Status	FIRO B 1(e)	0.23	(138)
	WI Social Adroitness	0.22	(106)
Structure	WI Conformity	0.43	(106)
	Myers Briggs (Judging)	0.34	(138)
	WI Risk taking	0.34	(106)
	Myers Briggs (Sensing)	0.31	(137)
	WI Complexity	0.24	(106)
	FIRO B C(w)	0.22	(138)
Inclusion	FIRO B 1(e)	0.36	(138)
	Myers Briggs (Extrovert)	0.26	(138)
	FIRO B 1(w)	0.22	(138)
	WI Energy Level	0.21	(106)
	WI Responsibility	0.21	(106)

4.3.2.12 Comparison of Assessor scales with 16PF factors

All Assessor scales were combined in a study which compared them to 16PF factors in a sample of 51 employed people. Correlations showed that relationships were as expected, for example, Social Outgoingness Value correlated with 16PF Factor A (Warmth). In the following table, only the significant correlations are shown, for the sake of clarity.

The 16PF factors are shown across the top of the table. The factors are:
A =   Warmth; Reserved vs Outgoing
C =   Emotional Stability; Affected by feelings vs Emotionally stable
E =   Dominance; Humble vs Assertive
F =   Liveliness; Sober vs Happy-go-Lucky
G =   Rule Consciousness; Expedient vs Conscientious
H =   Social Boldness; Shy vs Venturesome
I =   Sensitivity; Tough-minded vs Tender-minded
L =   Vigilance; Trusting vs Suspicious
M =   Abstractedness; Practical vs Imaginative
N =   Privateness; Forthright vs Shrewd
O =   Apprehension; Self Assured vs Apprehensive
Q1 =   Openness to Change; Conservative vs Experimenting
Q2 =   Self Reliance; Group Dependence vs Self Sufficient

Q3 =   Perfectionism; Undisciplined Self Conflict vs Controlled
Q4 =   Tension; Relaxed vs Tense

The Assessor scales have been abbreviated as follows:

Employment Values:

WE = Work Ethic
SO = Social Outgoingness
RT = Risk Taking
Stab = Stability
RP = Responsibility
NA = Need for Achievement
TA = Task Orientation
LE = Leadership
TD = Training and Development
Inv = Innovation
IS = Intellectual Stimulus
Stat = Status
Struc = Structure
IC = Inclusion

Occupational Type

EI = Extraversion / Introversion
SN = Sensing / Intuition
TF = Thinking / Feeling
JP = Judging / Perceiving
Uc = Uncertainty

Occupational Relationships

Contact = Contact
Memb = Membership
Power = Power
Resp = Responsiveness
Open = Openness
Shy = Shyness
Socblty = Sociability
Proact = Proactivity

The pattern of correlations support an argument that Assessor is measuring what it says it's measuring. For example, the employment value, Social Outgoingness is positively related to Warmth, Liveliness, and Social Boldness, but negatively related to factors such as Privateness, Self Reliance and Tension. Other examples are the positive correlation between Assessor Power and 16PF Dominance; between Assessor Feeling (TF) and 16PF Warmth; and Assessor N (Type Intuition) and 16PF Openness to Change.

Table 12: Correlations between 16PF and Assessor

16PF Assessor	A	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4
WE														.28*	
SO	.51**			.46**		.42**			-.29*	-.47**			-.58**		-.33*
RT			.30*									.32*			
Stab		-.35*	-.44**	-.28*	.32*	-.39*		.44**	.31*	-.37**					
RP					.35**										.32*
NA			.45**												
TA				-.30*		-.37**					.29*				
LE			.38**										.28*		
TD							.34*								
Inv									.33*			.46**			
IS	-.28*						-.31*						.28*		
Stat															
Struc			-.42**					.33*				-.40**			
IC	.34*					.30*				-.33*			-.44**		.33*
EI	-.53**	-.30*	-.46**	-.55**		-.77**				.55**			.45**		
SN			.28*		-.39**				.47**			.49**			-.38**
TF	.56**					.30*				-.42**			-.34*		
JP									.33*						-.52**
UC	-.37**						-.38**								
Contact	.29*	.40**		.29*		.36*				-.39**			-.69**		
Memb															
Power			.33*					-.33*						-.35*	
Resp													-39**	-.36*	
Open	.38**	.32*				.30*				-.39**			-.55**	-.39**	
Shy	.65**	.38**		.38**		.46**				-.43**			-.59**		
Socblty										-.40**			-.55**	-.35*	
Proact		.29*	.31*				-.43**								

On the basis of the evidence presented in the preceding pages, we can therefore conclude that Assessor has a strong and consistent construct validity.

4.3.3   Criterion Validity

Criterion validity assesses the extent to which questionnaire scores are correlated with criterion measures. Typically, criterion measures will be behavioural anchors that can be used to assess performance, for example, sales figures or supervisor ratings. Criterion related validity is calculated by correlating questionnaire scores with the criterion measure. The aim is to discover which questionnaire scores can be used to predict future performance. In practice, criterion related validity can be determined in two ways, either by concurrent or predictive validity.

4.3.4   Concurrent Validity

Concurrent validation can occur when the questionnaire scores and criterion measures are obtained at the same time.

We have examples of correlations between the core scales of the questionnaire, subsequent competence scores and job performance, many of which are as high as 0.8. This is clear evidence of the questionnaire's ability to predict job performance. One example is shown below where the competencies have been used to predict job performance amongst telesales staff in a telecommunications company.

Table 13: The nine competencies correlating most strongly with job performance among telesales staff in a telecommunications company.

Competencies	Job Performance
Leadership Tenacity	0.82
Extrovert	0.73
Confidence	0.66
Communications Style	0.65
Professionalism	0.58
Motivation	0.49
Incisive	0.47
Delegation	0.40
Drive	0.40

What follows are some further examples of studies which have been carried out to find which scales predict job performance in a variety of organisations. In most cases the majority of scales have a relationship with job performance. This evidence suggests that Assessor has high concurrent criterion validity.

Table 14: Correlations between Assessor Type scales and job performance in Depot Managers from a manufacturing company

	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Performance	-0.49	0.64	0.76	0.11

Sample Size = 28

Table 15: Correlations between Assessor Relationships scales and job performance in Depot Managers from a manufacturing company

Assessor Relationships scale	Job Performance
Contact at Work	0.38
Membership	0.21
Power	0.62
Responsiveness	-0.11
Openness	0.12
Shyness	0.00
Sociability	0.35
Proactivity	0.40

Sample Size = 28

Table 16: Correlations between Assessor Type scales and job performance in sales representatives working for a communications company

	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Performance	-0.29	0.20	0.44	-0.21

Sample Size = 40

Table 17: Correlations between Assessor Relationships scales and job performance in sales representatives working for a communications company

Assessor Relationships scale	Job Performance
Contact at Work	0.42
Membership	-0.13
Power	0.35
Responsiveness	-0.11
Openness	0.21
Shyness	0.06
Sociability	0.31
Proactivity	0.46

Sample Size = 40

Table 18: Correlations between Assessor Type scales and job performance in Area Managers working for a high street retailer

	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Performance	-0.47	0.21	0.11	0.11

Sample Size = 17

Table 19: Correlations between Assessor Relationships scales and job performance in Area Managers working for a high street retailer

Assessor Relationships scale	Job Performance
Contact at Work	0.63
Membership	0.42
Power	0.28
Responsiveness	0.18
Openness	0.11
Shyness	0.09
Sociability	0.52
Proactivity	0.28

Sample Size = 17

Table 20: Correlations between Assessor Type scales and job performance in branch managers working for a high street retailer

	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Performance	0.30	0.10	0.10	0.01

Sample Size = 40

Table 21: Correlations between Assessor Relationships scales and job performance in branch managers working for a high street retailer

Assessor Relationships scale	Job Performance
Contact at Work	0.26
Membership	0.04
Power	0.34
Responsiveness	-0.19
Openness	0.20
Shyness	0.17
Sociability	0.29
Proactivity	0.30

Sample Size = 40

Table 22: Correlations between Assessor Type scales and job performance in trainees working for a high street retailer

	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Performance	-0.09	0.42	0.30	0.10

Sample Size = 21

Table 23: Correlations between Assessor Relationships scales and job performance in trainees working for a high street retailer

Assessor Relationships scale	Job Performance
Contact at Work	0.26
Membership	0.19
Power	0.04
Responsiveness	0.14
Openness	0.25
Shyness	0.21
Sociability	0.32
Proactivity	0.08

Sample Size = 21

Table 24: Correlations between Assessor Type scales and job performance in a sample of solicitors

	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Performance	0.12	-0.32	0.12	-0.34

Sample Size = 36

Table 25: Correlations between Assessor Relationships scales and job performance in a sample of solicitors

Assessor Relationships scale	Job Performance
Contact at Work	0.16
Membership	-0.21
Power	0.42
Responsiveness	-0.18
Openness	0.04
Shyness	0.10
Sociability	0.16
Proactivity	0.42

Sample Size = 36

Case Study

One example of criterion related validity can be demonstrated in a large UK recruitment company, who wanted to supplement their existing competency framework with some additional data relating competencies to superior performance.

The company identified a group of 20 high performers and 20 poor performers, spread across two broad categories – branch managers, and staff whose jobs included a sales component. The 40 individuals were asked to complete Assessor on the internet.

Mann Whitney *U* tests were computed for the competency scores, to establish on which factors the high performing staff were different from the low performing staff. Used when sample sizes are small, the Mann Whitney *U* test ranks all the cases. If there is no underlying relationship in the data, the two groups (high and low performers) will be randomly distributed in the rank order. However, if there is an underlying relationship, then the two groups will tend to polarise in their rankings. The test computes the difference from a random pattern. Results for the sales people were as follows:

Table 26: Mann Whitney U-tests for high and low performing branch managers

Competency	Grp	*N*	Mean Rank	Sum of Ranks	*U* statistic	Significance
Discipline	High	7	11.21	78.5	5.5	.006**
	Low	8	5.19	41.5		
Self Directed	High	7	10.21	71.5	12.5	.07
	Low	8	6.06	48.5		
Tolerance	High	7	5.43	38.00	10.0	.04*
	Low	8	10.25	82.00		
Interpreting Others' Behaviour	High	7	5.79	40.5	12.5	.07
	Low	8	9.94	79.5		

So high performing sales people, in this company, tend to score more highly on Discipline (defined as "Has little or no difficulty when required to be critical or to discipline colleagues") and Self Directed ("Chooses key issues and attends to them. Keen to determine own priorities"), but lower on Tolerance ("Is tolerant when others make mistakes. Accepts that new skills take time to learn") and Interpreting Others' Behaviour ("Quick to reach conclusion about other peoples activity, relates it to current priorities with incisive interpretations"). The picture which emerges suggests that high performing sales people in this company are hard driving individuals who perhaps do not pay too much attention to the needs of colleagues at work.

As a further step, the high performing branch managers were contrasted with high performing sales people, to establish any additional factors related to effective performance in the branch manager's role. Results were as follows:

Table 27: Mann Whitney U tests for sales and managerial staff

Competency	Grp	*N*	Mean Rank	Sum of Ranks	*U* statistic	Significance
Assertiveness	Sales	7	4.57	32.0	4.0	.07
	Mgr	4	8.50	34.0		
Copes with pressure	Sales	7	7.57	53.0	3.0	.04*
	Mgr	4	3.25	13.0		
Corporate Awareness	Sales	7	7.43	52.0	4.0	.07
	Mgr	4	3.50	14.0		
Deductive Reasoning	Sales	7	4.50	31.5	3.5	.04*
	Mgr	4	8.63	34.5		
Delegation	Sales	7	4.29	30.0	2.0	.02*
	Mgr	4	9.00	36.0		
Influential	Sales	7	4.64	32.5	4.5	.07*
	Mgr	4	8.38	33.5		
Open Minded	Sales	7	7.71	54.0	2.0	.02*
	Mgr	4	3.00	12.0		
Self Directed	Sales	7	4.00	28.0	0	.006**
	Mgr	4	9.50	38.0		

Contrasted with the high performing sales people, the branch managers were more likely to be Assertive, to use Deductive Reasoning, Delegation and Influencing, and they were also even more Self Directed than the high performing sales people. Compared to the managers, the sales people scored more highly on Copes with Pressure, Corporate Awareness, and Open Minded.

Finally, all the high performers in the sample were compared to all the low performers. A total of 15 Factors showed a difference at the 0.05 level or below:

Table 28: Mann Whitney U tests for high and low performing recruitment specialists

Competency	Grp	*N*	Mean Rank	Sum of Ranks	*U* statistic	Significance
Can Juggle with Sensitivity	High	11	8.14	89.5	23.5	.04*
	Low	9	13.39	120.5		
Deductive Reasoning	High	11	13.08	145.0	20.0	.02*
	Low	9	7.22	65.0		
Discipline	High	11	14.05	154.5	10.5	.002**
	Low	9	6.17	55.5		
Incisive	High	11	8.05	88.5	22.5	.03*
	Low	9	13.5	121.5		
Innovative	High	11	8.09	89.0	22.5	.03*
	Low	9	13.44	121.0		
Interpreting others' behaviour	High	11	7.82	86.0	20.0	.02*
	Low	9	13.78	124.0		
Planning & Organising	High	11	12.82	141.0	24.0	.05*
	Low	9	7.67	69.0		
Profit Focus	High	11	12.82	141.0	24.0	.05*
	Low	9	7.67	69.0		
Responsibility	High	11	13.27	146.0	19.0	.02*
	Low	9	7.11	64.0		
Self Directed	High	11	13.5	148.5	16.5	.01*
	Low	9	6.83	61.5		
Tolerance	High	11	7.55	83.0	17.0	.01*
	Low	9	14.11	127.0		

While it is encouraging to have so many competencies differentiating between high and low performers in this organisation, in practice, a recruitment template based on all these factors would have proved unwieldy. Therefore, combinations of factors were assessed iteratively to see which could be used to provide a simple recruitment template. This final process resulted in a general model, as follows:

STEN SCORES

SCALES	1	2	3	4	5	6	7	8	9	10
Deductive Reasoning	🟥	🟥	🟥	🟨	🟩	🟩	🟩	🟩	🟩	🟩
Planning & Organising	🟥	🟥	🟨	🟩	🟩	🟩	🟩	🟩	🟩	🟩
Self Directed	🟥	🟥	🟥	🟨	🟩	🟩	🟩	🟩	🟩	🟩

Candidates whose sten scores on these three competencies fall into the green zone are accepted. Those who score in the yellow zone are considered with caution, while those who score in the red zone are excluded from further analysis.

The template was tested using the 20 sets of data already received (11 Highs and 9 Lows). Results showed that if used in selection, 10 Highs and 2 Low candidate would have been selected. 1 High and 7 Low performing candidates would have been rejected or treated with caution.

From this study, we concluded that Assessor's competency measures validly discriminated between high and low performing staff members within this organisation.

4.3.5 Predictive Validity

When questionnaires are being used for selection and recruitment, the ultimate aim of using the questionnaire is to make predictions about performance. The only way to properly validate this, is to carry out what is called a predictive validation study. Such a study is carried out by collecting questionnaire results from a group of individuals and then, after a period of time, measuring the performance of those individuals and correlating this with the questionnaire results obtained earlier. This indicates the extent to which the questionnaire scores can actually predict future performance. It should be noted, however, that such a study is expensive, time consuming and will often prove harder to carry out than a concurrent validation which will quite often give a quick indication (although not as accurate) of the level of validity of the questionnaires being used. Several predictive validation studies have been carried out using Assessor, some of which are illustrated below.

Table 29: The nine competencies correlating most strongly with job performance among area managers in a fashion retailing organisation

Competencies Measured September 1995	Job Performance Measured September 1996
Motivation	0.78
Developing People	0.65
Team work (2)	0.63
Communication Style	0.63
Stamina (3)	0.55
Personal Standards	0.54
Business Judgement	0.50
Deductive Reasoning	0.46
Flexibility (1)	0.45

Table 30: Correlations between Assessor Type scales and job performance (a year later) in a sample of retail Area Managers

	Occupational Type Profile Scale Scores Completed September 1995			
	Extraversion Introversion	Sensing Intuition	Thinking Feeling	Judging Perceiving
Performance Reviewed September 1996	**-0.47**	**0.21**	**0.11**	**0.11**

Sample Size = 25

Table 31: Correlations between Assessor Relationships scales and job performance (a year later) in a sample of retail Area Managers

Assessor Relationships scale	Job Performance
Contact at Work	0.63
Membership	0.42
Power	0.28
Responsiveness	0.18
Openness	0.11
Shyness	0.09
Sociability	0.52
Proactivity	0.28

Sample Size = 25

Taking all the validity information together, it would be reasonable to argue that Assessor is a valid measure. This is because it has demonstrated construct validity in a variety of different ways; and demonstrated criterion related validity in both concurrent and predictive contexts.

4.4   Reliability

"Reliability, as it is applied to tests, has two distinct meanings. One refers to stability over time, the second to internal consistency." (Kline, 1993, p 5). Both types of reliability have been checked for Assessor.

4.4.1   Internal Consistency

Internal consistency measures how consistent the individual scores are for a given scale. To use an example let us assume all of the questions in the Extraversion/Introversion are consistent, i.e. each one is measuring Extraversion/Introversion. If we add extra items from another scale (for example, Thinking-Feeling) the scale would no longer be very consistent since not all of the questions would be measuring Extraversion/Introversion. The internal consistency thus gives us an indication about how well an individual scale is working since if the items are not consistent the scale will not be able to measure what it claims to measure (i.e. will not be valid).

Cronbach's Alpha measures internal consistency and is based on the average correlation between all pairs of items and the average number of items. Alpha increases as the number of items increase and as the average inter item correlation increases.

Two different measures of internal consistency were used to measure each of the scales in Assessor.

4.4.1.1 Cronbach's Alpha

Cronbach's Alpha (α) is based on the average correlation between all pairs of items and the average number of items. Alpha increases as the number of items increases and as the average inter-item correlation increases. The cut-off for Alpha co-efficients should ideally be 0.7, but 0.65 is acceptable. During initial research, all scales were found to have a Cronbach's Alpha of 0.7 or above. More recently, scales were checked again with a sample of more than 1000 students. Results are shown below:

Table 32: Cronbach's Alpha reliability coefficients for Assessor, using a sample of 1031 students

Scale	α	N
Extraversion Introversion	.86	1026
Sensing Intuition	.75	1026
Thinking Feeling	.60	1026
Judging Perception	.79	1026
Contact at work	.75	1031
Membership	.91	1031
Power	.88	1031
Responsiveness	.67	1031
Openness	.78	1031
Shyness	.72	1031
Work Ethic	.68	1031
Social Outgoingness	.78	1031
Risk taking	.74	1031

Stability	.77	1031
Responsibility	.77	1031
Need to achieve	.76	1031
Task orientation	.65	1031
Leadership	.74	1031
Training and development	.78	1031
Innovation	.85	1031
Intellectual stimulus	.86	1031
Status	.74	1031
Structure	.81	1031
Inclusion	.87	1031

These are either good or excellent, with one exception. Further analysis of this scale is ongoing.

Further research was conducted in 2000 with a sample of 5757 internet completions. The results were as follows:

Table 33: Cronbach's Alpha coefficients for Assessor, using a sample of 5757 UK residents

Scale	α
Extraversion Introversion	.8606
Sensing Intuition	.7733
Thinking Feeling	.6585
Judging Perception	.8028
Contact at work	.7284
Membership	.9103
Power	.9092
Responsiveness	.7360
Openness	.7361
Shyness	.6238
Work Ethic	.6600
Social Outgoingness	.7585
Risk taking	.7443
Stability	.7884
Responsibility	.7149
Need to achieve	.7428
Task orientation	.6702
Leadership	.7260
Training and development	.8212
Innovation	.8265
Intellectual stimulus	.8477
Status	.7616
Structure	.8549
Inclusion	.8673

Again, these results can be described as good to excellent.

Earlier research focussed on checking the individual components of Assessor:

Table 34: Cronbach's Alpha coefficients for Type scales using a sample of 1989 UK residents

Scale	α
Extraversion Introversion	.84
Sensing Intuition	.72
Thinking Feeling	.70
Judging Perception	.73

Table 35: Cronbach's Alpha coefficients for Assessor Relationships scales using a sample of 1987 UK residents

Scale	α
Contact	0.60
Membership	0.88
Power	0.84
Responsiveness	0.72
Openness	0.75
Shyness	0.70

Table 36: Cronbach's Alpha Coefficients for Assessor Values scales using a sample of 459 UK residents

Scale	α
Work Ethic	0.724
Social Outgoingness	0.835
Risk-taking	0.756
Stability	0.777
Responsibility	0.766
Need to Achieve	0.747
Task Orientation	0.757
Leadership	0.794
Development	0.787
Innovation	0.837
Intellectual Demands	0.853
Status	0.862
Structure	0.842
Inclusion	0.881

Once again, these results range from good to excellent.

4.4.1.2 Split Half Reliability

Another way of measuring internal consistency is to use split half reliability. This technique correlates all of the items in one half of the scale with those in the other half. Although this test is more stringent, guidelines for interpretation of the results are similar to those for the Cronbach's Alpha, as discussed above.

Table 37: Split half reliability figures for Assessor using a sample of 1031 UK students

Scale	Split half
Extraversion Introversion	.87
Sensing Intuition	.76
Thinking Feeling	.60
Judging Perception	.81
Contact at work	.70
Membership	.88
Power	.88
Responsiveness	.68
Openness	.81
Shyness	.73
Work Ethic	.67
Social Outgoingness	.73
Risk taking	.69
Stability	.74
Responsibility	.74
Need to achieve	.71
Task orientation	.64
Leadership	.72
Training and development	.79
Innovation	.86
Intellectual stimulus	.85
Status	.70
Structure	.80
Inclusion	.85

Table 38: Split Half reliability figures for Assessor using a sample of 5757 UK residents

Scale	Split half
Extraversion Introversion	.8587
Sensing Intuition	.7587
Thinking Feeling	.5657
Judging Perception	.8378
Contact at work	.6909
Membership	.8966
Power	.9080
Responsiveness	.7457
Openness	.7783
Shyness	.6788
Work Ethic	.6153
Social Outgoingness	.7367
Risk taking	.7334
Stability	.7452
Responsibility	.7558
Need to achieve	.6998
Task orientation	.6613
Leadership	.7390
Training and development	.8173
Innovation	.8463
Intellectual stimulus	.8208
Status	.7147
Structure	.8582
Inclusion	.8561

Once again, these results range from the acceptable to the very good.

4.4.2   Test Retest Reliability

Test retest reliability is concerned with the consistency of questionnaire results over time. It is calculated by correlating the results of a group of individuals who complete a questionnaire on two separate occasions. The degree to which consistency is achieved on both occasions will indicate the test retest reliability. There is no "industry standard" for test-retest correlations, as these will vary naturally, according to the sample size and the length of time between completing the measure. Another key factor relates to the stability over time of the underlying construct being measured, as some are more enduring than others.

Table 39: Test Retest reliability figures for Assessor Type scales (N = 45, time lag = 21 days)

Scale	Test - Retest
Extraversion Introversion	0.82
Sensing Intuition	0.88
Thinking Feeling	0.66
Judging Perception	0.86
Uncertainty	0.56

Table 40: Test Retest reliability figures for Assessor Relationships scales (N = 32, time lag = 21 days)

Scale	Test - Retest
Contact	0.73
Membership	0.78
Power	0.82
Responsiveness	0.78
Openness	0.70
Shyness	0.79
Sociability	0.82
Proactivity	0.88

A recent study checked the test-retest reliability figures for all three main components of Assessor.

An initial sample of 150 civil servants from the North London area completed Assessor using question booklets and answer sheets. After a three month time lapse, the sample were asked to complete Assessor again. Results were then matched, leaving a usable sample of 40 individuals who had completed the questionnaire on both occasions. Each participant in the study received a computer-generated feedback report by way of thanks for their participation in the project.

Of the three key areas investigated by Assessor, Employment Values is conceptually the one least likely to be enduring over time. This is because peoples' value systems change as their needs, self-knowledge, and situations change.

Despite this proviso, the results from the test-retest study for the values questionnaire were very encouraging:

Table 41: Test Retest reliability figures for Assessor Values scales (*N* = 40, time lag = 3 months)

Employment Value	*r*	Employment Value	*r*
Work Ethic	54**	Leadership	61**
Social Outgoing	64**	Training & Development	79**
Risk Taking	71**	Innovation	85**
Stability	61**	Intellectual Stimulus	80**
Responsibility	64**	Status	50**
Need for Achievement	79**	Structure	77**
Task Orientation	44**	Inclusion	71**

** Significant at the .01 level

As a concept, Type is very much more robust, that is, much less likely to change markedly over time. This is borne out in the test-retest figures:

Table 42: Test Retest reliability figures for Assessor Type scales (*N* = 40, time lag = 3 months)

Type Dimension	*r*
Extraversion / Introversion	91**
Sensing / Intuition	81**
Thinking / Feeling	81**
Judging / Perceiving	79**
Uncertainty	57**

** Significant at the .01 level

Results on the relationships scales were equally satisfactory:

Table 43: Test Retest reliability figures for Assessor Relationships scales (*N* = 40, time lag = 3 months)

Relationships Dimension	*r*
Contact	84**
Membership	75**
Power	65**
Responsiveness	81**
Openness	75**
Shyness	66**
Sociability	82**
Proactivity	63**

** Significant at the .01 level

Taking the reliability evidence as a whole, it is reasonable to conclude that the Assessor questionnaire has shown convincing consistency both internally, and over time.

4.5   Norms

The individual's Assessor scores on Personality Type, Relationships, Values and Competencies are compared to an appropriate norm group. The work of comparing the scores to the norm group is carried out within the package, so no user intervention is required.

4.5.1   Description of standard norms

4.5.1.1   The General Population norm group

The default norm group in the software is called "General Population". It is based on data from 108,253 UK residents who completed the questionnaire on the Internet during 1999, 2000 and 2001. We have called this norm group "general population" because with a sample size this large, we believe that it is reasonable to assume that many different ages, occupations, and other differentiators will be represented within the sample.

4.5.1.2   The Managers norm group

The managers norm group is based on 1,015 managers who completed the questionnaire during the development phases, in the 1990's. They are drawn from many different organisations, and range in seniority from middle managers to more senior levels.

4.5.1.3   The Graduate norm group

The graduate norm group provided is drawn from data provided by 22,637 final year students and graduates. It is comprised predominantly of UK students, but also some from other countries. The students completed the questionnaire on the Internet between 1997 and 2002.

4.5.1.4   Future norm groups

However, individual organisations may wish to develop normative information about the members of their organisation, or groups of people of particular interest such as applicants. Should this be the case, please contact us for advice.

In addition, we are actively committed to progressively providing further norm groups as well as job related sets of competencies, so that they may be used for the prediction of work behaviour and the selection context.

In this way, we hope to increase the practical usability of this questionnaire by providing pre-selected sets of competencies against which candidates may be compared, in relation to a range of jobs.

4.6   Equal Opportunities

Although developed within the UK work context, Assessor's questions have undergone extensive piloting in North America, South Africa, Hong Kong, Australia, and throughout Europe.   The questionnaire is best suited to nationalities where English is the first language.

To date our research has failed to provide any evidence of Assessor leading to adverse impact against minority groups.

Please also refer to section 4.1, "A description of Assessor" for information on reading age pre-requisites, special needs, etc.

5.   Conclusion

We have aimed, in this guide, to provide guidance to users in an easy-to-understand format. However, Assessor is a powerful, scientifically sound product which must be used with due care. Although we have tried to provide guidance in this document and in our training course packages, ultimately Assessor's usefulness to you will depend on how you use it.

In conclusion, we would like to stress the following two points:

- We are keen to provide every support we can in your use of Assessor. If you have concerns, ideas, or would just like to talk through an issue, please do not hesitate to get in touch.
- Any modern professional product worth it's salt will always be in a constant process of development. Your feedback is valuable to us. If you can see a way to improve Assessor, or if there is something you particularly like about the product, we are very keen to hear from you. Please get in touch!

Appendix 1: Training requirements for each report type

There is a range of report options initially available, with the intention that these will be extended in the future, especially in the area of role specific competency reports.

Access to these reports will depend on the training qualification attained by the user.

	Access level
Psychometric Reports	
Score chart for questionnaire.	Gold
Occupational Type - Full Narrative	Gold
Occupational Type - Short Narrative	Gold
Occupational Relationships - Full Narrative	Gold
Occupational Relationships - Short Narrative	Gold
Employment Values - Full Narrative	Gold
Employment Values - Standard Narrative	Gold
Personality - Full	Gold
Personality - Summary	Gold
EQ	Gold
Standard Competencies	
Competence – Summary	Bronze
Competence – Full	Bronze
Competence – High/Low	Bronze
Competence – Selective	Bronze
Role Competencies	
Sales competence - Retail sales	Bronze
Sales competence - Telesales	Bronze
Sales competence - Mobile sales	Bronze
Sales competence - Property sales	Bronze
Careers advice	
Full	None
Short	None
Job Preferences	None

Appendix 2: References

Boyatzis, R. E. (1982), "*The Competent Manager*" (John Wiley)

Kelly, G. (1903), "*Theory of Personal Constructs*" (Norton)

Flanagan, J. C., "*Critical Incident Interviews*"

Eds: Mitrani, Dalziel and Fitt (1994), "*Competency Based Human Resource Management*" (Kogan Page)

Notes