PSYTECH
INTERNATIONAL

OPP

OCCUPATIONAL PERSONALITY PROFILE

TECHNICAL MANUAL

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THEORETICAL OVERVIEW

A major reason for using psychometric tests to aid selection decisions is that they provide information that cannot be obtained easily in other ways. If such tests are not used then what we know about the applicant is limited to the information that can be gleaned from an application form or CV, an interview and references. If we wish to gain i n f o r m a t i o n about a person's specific aptitudes & abilities and about their personality, attitudes and values then we have little option but to use psychometric tests. In fact, psychometric tests can do more than simply provide additional information about the applicant. They can add a degree of reliability and validity to the selection procedure that it is impossible to achieve in any other way. How they do this is best addressed by examining the limitations of the information obtained through interviews, application forms and references and exploring how some of these limitations can be overcome by using psychometric tests.

THE ROLE OF PSYCHOMETRIC TESTS IN PERSONNEL ASSESSMENT

While much useful information can be gained from the interview, which clearly has an important role in any selection procedure, it does nonetheless suffer from a variety of weaknesses. Perhaps the most important of these is that the interview has been shown to be a very unreliable way to judge a person's character. This is because it is an unstandardised assessment procedure. That is to say, each interview will be different from the last. This is true even if the interviewer is attempting to ask the same questions and act in the same way with each applicant. It is precisely this aspect of the interview that is both its main strength and its main weakness. The interview enables us to probe each applicant in depth and discover individual strengths and weaknesses. Unfortunately, the interview's unstandardised, idiosyncratic nature makes it difficult to compare applicants, as it provides no base line against which to contrast interviewees' differing performances. In addition, it is likely that different interviewers may come to radically different conclusions about the same applicant. Applicants will respond differently to different interviewers, quite often saying very different things to them. In addition, what any one applicant might say will be interpreted quite differently by each interviewer. In such cases we have to ask which interviewer has formed the correct impression of the candidate? This is a question to which there is no simple answer.

A further limitation of the interview is that it only assesses the candidate's behaviour in one setting, and with regard to a small number of people. How the candidate might act in different situations and with different people (e.g., when dealing with people on the shop floor) is not assessed, and cannot be predicted from an applicant's interview performance. Moreover, the interview provides no reliable information about the candidate's aptitudes and abilities. The most we can do is ask the candidate about his strengths and weaknesses, a procedure that has obvious limitations. Thus, the range and reliability of the information that can be gained through an interview are limited.

There are similar limitations on the range and usefulness of the information that can be gained from application forms or CV's. While work experience and qualifications may be prerequisites for certain occupations, in and of themselves they do not determine whether a person is likely to perform well or badly. Experience and achievement are not always good predictors of ability or future success. While such information is important it may not be sufficient on its own to enable us to confidently choose between applicants. Thus, aptitude and ability tests are likely to play a significant role in the selection process as they provide information on a person's potential and not just their achievements to date. Moreover, application forms tell us little about a person's character. It is often a candidate's personality that will make the difference between an average and an outstanding performance. This is particularly true when candidates have relatively similar records of achievement and past academic performance. Therefore, personality tests can play a major role in assisting selection decisions.

References do provide some useful information but mainly for verification purposes. While past performance is undoubtedly a good predictor of future performance references are often not good predictors of past performance. If the name of the referee is supplied by the applicant, then it is likely that they have chosen someone they expect to speak highly of them. They will probably have avoided supplying the names of those who may have a less positive view of their abilities. Aptitude and ability tests, on the other hand, give us an indication of the applicant's probable performance under exam conditions. This is likely to be a true reflection of the person's ability.

What advantages do psychometric tests have over other forms of assessment? The first advantage they have is that they add a degree of reliability to the selection procedure that cannot be achieved without their use. Test results can be represented numerically making it easy both to compare applicants with each other, and with predefined groups (e.g., successful vs. unsuccessful job incumbents). In the case of personality tests the test addresses the issue of how the person characteristically behaves in a wide range of different situations and with different people.

Thus, psychometric tests of personality, aptitude and ability tests provide a range of information that is not easily and reliably assessed in other ways. Such information can fill important gaps which have not been assessed by application forms, interviews and references. It can also raise questions that can later be directly addressed in the interview. It is for this reason that psychometric tests are increasingly being used in personnel selection. Their use adds a degree of breadth to assessment decisions which cannot be achieved in any other way.

MEASURING PERSONALITY

Interest in the measurement of psychological characteristics (psychometrics) can be traced back to the second world war. During the war there was a great need to select military personnel for air crew training which led to the development of a number of psychometric tests both here and in the United States. The main interest at this time was in the development of IQ tests, or tests of mental ability as they used to be called, rather than in the development of personality tests. While the psychological theory, trait theory, which underlies personality testing had been developed by Allport in the 1930's it was some time before this was used in an attempt to construct personality measures. It was not until after the Second World War that such work came to fruition.

There were probably two main factors responsible for the development of personality tests. Firstly, the development of electronic computers made it possible to calculate the statistics that form the basis of psychometric testing on large samples, with relative ease. While much of the statistical theory which underlies test construction had been developed before the war it had been almost impossible to perform these complex analyses on sufficiently large samples prior to the advent of computers. Thus, work in this area burgeoned after the war, when many of today's tests were developed (e.g., the 16PF, CPI, EPI etc.). The second factor that awakened interest in personality measurement was the realisation that if psychologists were to make similar advances in the scientific understanding of human behaviour, to those that natural scientists had made in understanding the physical world, then it would be necessary to develop techniques for measuring those psychological characteristics that would enable us to predict human behaviour. From these two considerations theoretical approaches to the measurement of personality, and the relationship between personality and behaviour, were developed from Allport's early work. The most extensive of these theories is probably that described by Cattell (1965) in his book: The Scientific Analysis of Personality.

Cattell's book is particularly difficult to understand. It is full of algebra, and in his attempt to provide a complete theory of human personality and motivation, he has invented many new and abstruse concepts (e.g., ergs, Q methodology etc.). In practice, the basic principles that underlie personality measurement are not as complex as they might first appear. A personality test simply consists of a collection of questions, or "items", which assess an individual's characteristic ways of thinking, feeling and acting in different situations. It is important to note however, contrary to some recent suggestions, that there is no reason these items should be transparent. That is, items do not have to directly ask a person how he typically behaves (e.g., I am a warm, friendly person). All that is needed for an item to work is for people to respond to it in a consistent way. Thus, good personality tests can be reliable, yet contain items that are not transparent. In the area of occupational selection and assessment it is in fact

best not to use transparent items, thus making it harder to fake test results.

Personality tests take items that measure different aspects of the same personality characteristic and combine them to form subscales or dimensions. By asking questions which address many different facets of a person's character, personality questionnaires attempt to get a broad picture of how the applicant usually acts in different settings and with different people (e.g., with friends, at work, at formal social engagements etc.). What psychologists mean when they talk about personality, is an individual's characteristic way of thinking, feeling and acting across a broad range of settings. Thus, when we say a person is extraverted, we mean that he is sociable, lively, outgoing and friendly: that he usually seeks variety, change and excitement and has a great need for others' company. Besides addressing those characteristics which are extreme or outstanding, personality tests also assess those ways in which a person is typical of a particular group.

In assessment and selection, we are often as interested to find that a person is average on a certain trait as we are to identify their most notable or extreme characteristics. For example, having an average score on a particular trait, say assertiveness, may better fit the demands of the job than being either highly assertive or highly unassertive. Average scores can describe a balanced and flexible position, where the person is capable of displaying the strengths that are found at both of the extreme ends of the personality dimension. In the case of a person who has average levels of assertiveness for example, they are likely to strive to achieve a balance between being task focused and achieving results yet being sensitive to others' needs and avoiding interpersonal conflicts.

CONSTRUCTION OF THE OPP

The OPPro is a personality test developed for use in industrial and organisational settings. The test was developed in the UK on a large sample of applicants drawn from a wide range of occupational groups. The OPPro measures nine different personality dimensions in addition to the distortion scale. Each of the nine dimensions measured by the OPPro are bi-polar. That is to say high or low scores on each dimension measure opposite personality characteristics (e.g., extraversion v introversion, tough-minded v tenderminded etc.). The personality characteristics which are measured by the OPPro have been selected for two reasons. Firstly, for their relevance to personnel assessment and selection decisions, and secondly, because of extensive research evidence demonstrating their validity. Thus, the test user can be confident that the OPPro is measuring meaningful aspects of the candidate's personality.

The personality scales measured by the OPPro were designed to be as short as possible while at the same time achieving a high level of reliability and construct validity. In general, these two demands run counter to each other in that the more items a test contains the more reliable that test will usually be. In addition, the more varied the test items are, the more likely it is that the test will be measuring broad personality constructs. However, if items are fairly varied, and thus measure broad constructs, more items are typically required for the test to reach acceptable levels of reliability, than if the items are very similar to each other. Thus, there is a need to balance the length of a test against the need for it to be valid and reliable. The OPPro attempts to achieve an optimal balance between these two conflicting demands, seeking to be short and reliable, yet measure broad, meaningful personality constructs. For this reason, we chose to use a five-point response scale rather than the more usual three-point scale (i.e., strongly agree to strongly disagree rather than true, uncertain, false). Five-point scales have the advantage of increasing item variance with the result that fewer items are needed to achieve the same level of reliability.

CRITERIA FOR ITEM GENERATION AND ITEM SELECTION

The principal aim in generating the items was to achieve a balance between adequate coverage of the construct (breadth) whilst maintaining acceptable levels of scale cohesiveness (internal consistency) and minimum overlap with other scales (noise).

- The above was operationalised with the following criteria:
- Items would correlate substantially higher with the target, keyed scale than any other. It was not considered acceptable to have the item to keyed scale correlation only marginally higher than the next best item to non-keyed scale correlation as this would contribute to a complex structure as defined by Barrett, Kline etc.

- Items should as far as possible be cross-culturally generalisable. All items that referred to parochial or culturally specific activities, concepts or behaviours not considered prevalent in other countries or cultures were avoided.
- Wherever possible items were to be limited to a single principal clause that was simple and unambiguous for readers having reached a high school level of education.
- Items that correlated highly with the social desirability scale were to be removed to minimise the likelihood of motivation distortion in selection settings.
- All gender specific pronouns and concepts were removed.

ADMINISTRATION AND SCORING OF THE OPPro

The reliability of a test depends very much on how it is administered and scored. Detailed administration and scoring instructions are provided in this manual for the OPPro and it is strongly recommended that these be followed to the letter.

The OPPro is provided with GeneSys® Integrated Assessment Software. GeneSys® will administer the OPPro and related aptitude batteries or it will accept scores from the answer-sheets when using the tests in paper and pencil format. In either case, GeneSys® will score the test and will provide the user with a selection of interpretative reports and occupational groups to use as the norm. Full instructions for administering and scoring tests are provided with the GeneSys® manual.

Computerised test interpretation

The Occupational Personality Profile (OPPro) has been designed to be administered and scored by computer. As well as printing scaled scores for each dimension GeneSys® integrated assessment software provides a detailed narrative report which interprets the personality profile and highlights the candidate's major strengths and weaknesses. In addition to reporting the candidate's scores on each of the fifteen personality dimensions measured by the OPPro GeneSys® also has the facility to print criterion scores for Belbin's team-roles and Holland's career themes. Given that it is not always possible to administer a test by computer the OPPro has an additional option which enables the test to be administered in a 'paper and pencil' format which is subsequently scored by computer.

THEORETICAL BASIS FOR OPP

This section of the Occupational Personality Profile (OPPro) User Guide describes the theoretical basis of the personality dimensions measured by the questionnaire. As was noted earlier the personality traits which this test measures were selected for two reasons. Firstly, because of their relevance to personnel selection and assessment decisions, and secondly, because of the extensive research literature demonstrating that these dimensions measure meaningful and stable personality characteristics. A thorough review of the research literature and discussions with many personnel professionals led us to develop the nine scales which form the OPPro. Thus, the empirical support for the theoretical constructs which the OPPro measures is large and we believe that each of these personality factors are salient to a wide range of selection decisions. A brief summary of the research evidence which supports these dimensions is presented below.

THE NINE SCALES OF OPP

1

Accommodating – assertive

Many psychologists have considered dominance or assertiveness to be an important personality characteristic (McDougall 1932, Guilford 1958, Cattell 1965). Moreover, the importance of this trait is clearly supported by our everyday experience. We have all made the observation that some people find it much

easier to assert themselves, and get what they want, than others. For some their lack of assertiveness may be such a problem that it will cause them to comply with others, even if this runs counter to their own needs, simply because they are unable to say no.

Furthermore, our everyday experience also indicates the importance of assertiveness at work. In organisational settings a high level of assertiveness will form the basis of an authoritarian, task-orientated leadership style, with low levels of assertiveness forming the basis of a democratic, person-centred style. These are the two leadership styles which were first identified by Bales (1958) and have since formed the basis of most leadership research. Given the relevance of this personality dimension to occupational assessment, and its clear psychological importance, it has been included in the OPPro.

2

Detail-conscious – flexible

This personality dimension has a long and distinguished history in psychology. The first person to identify this trait was Sigmund Freud who termed it the anal, or obsessional personality (see Kline, 1968). While Freud's suggestion that a psychologically rigid, obsessional character is due to fixation at the anal stage of psycho-sexual development is now questioned by most psychologists. Nonetheless, many accept the existence of this important personality trait. Not only is it similar to the well documented notion of the authoritarian personality (Adorno et al 1950) but with its emphasis on impulse control it is similar in many ways to Factor G in the 16PF. More importantly Kline (1968) has gone on to develop a personality scale to measure this characteristic. Working from the ideas originally expounded by Freud he has shown that such people are typically fastidious in their attention to detail. Rigidly adhering to set procedures and rules they are generally well organised individuals who support traditional values and dislike innovation and change. Happy to attend to fine detail and follow set systems and procedures this personality dimension is clearly important for many occupations.

3

Cynical-trusting

This dimension has been developed from the work of Christie and Geis (1970) who over a number of years have explored the so-called Machiavellian personality. Examining the strategies which Machiavelli suggests that successful politicians should employ, they have developed a personality questionnaire which assesses a cynical, suspicious and fundamentally sceptical attitude to human relationships. Lacking faith in other people's honesty and trustworthiness, Machiavellians believe that it is important to act in an expedient or manipulative way, expecting that other people will try to take advantage of them if they give them the chance. Some have suggested that this cynicism may be based on early childhood experiences, with the Machiavellian person having been repeatedly let down by important others. Conversely it may simply be a realistic response to the demands of a challenging world. Either way Machiavellians are not inclined to be gullible or easily misled, always questioning others' motives and wondering what their real intentions may be. With its emphasis on 'political' expediency, this dimension has been included in the OPPro.

4

Emotional-phlegmatic

Our everyday experience tells us that while most people experience some anxiety in certain situations there are some people who consistently experience high levels of anxiety in a broad range of settings. Similarly, there are other people who rarely experience mood swings, remaining calm and constant across situations. Thus, we might argue that anxiety, or the lack of it, is a personality trait.
A considerable amount of research exists to support this hypothesis. Eysenck & Eysenck (1969) has shown that anxiety, or neuroticism, is a stable personality characteristic. He not only argues that it is one of the most important personality factors, but also suggests that it might have a biological basis. Its clear importance as a personality dimension is demonstrated by the number of psychologists who have constructed scales to measure this

factor, amongst them Eysenck (Eysenck & Eysenck, 1969), Cattell (1965) and Thurstone (1950). With its clear implications for the way people deal with stress, and for their likely degree of emotional resilience, it would have been a major omission not to have included this factor in the OPPro.

5

Reserved-gregarious

Any observation of friends and acquaintances will tell us that some people have a much greater need for company than do others. In the most extreme case such people may actively dislike being on their own and, greatly needing others' affection, may have difficulty resisting group pressure. Thus, it is not surprising that psychologists have recognised the importance of this personality dimension for some time. In the early part of this century McDougall (1932) wrote about the gregarious instinct and more recently Maslow (1970) has suggested that 'the need for affiliation' is one of the most basic human motives.

Considerable research in the area of personality has supported these hypotheses, demonstrating that gregariousness is one of the most important and stable aspects of the human character. This idea is contained in Eysenck's (Eysenck & Eysenck, 1969) concept of extraversion and in Cattell's 16PF the sociability dimensions form one of the major factor clusters. With its clear relevance to many occupations, the failure to include such a dimension in the OPPro would have been a major omission.

6

Genuine-persuasive

This dimension has been derived from Snyder's (1979) concept of self-monitoring. The idea behind this notion is simply that people tend to base their behaviour either upon the demands of the situation or upon their own attitudes and opinions. Snyder (1979) has developed a questionnaire to measure this concept and has termed those people who generally base their behaviour upon the demands of the situation as high self-monitors. Such people are good actors and are generally persuasive. Being sensitive to social cues and expectations their behaviour will vary greatly between situations. Low self-monitors by contrast are not very responsive to the demands of the setting and their behaviour tends to be consistent across different situations. Sincere and open, their behaviour is usually a reflection of their own attitudes and opinions. Consequently, they may find it difficult to hide their true feelings and beliefs from others, possibly lacking tact and diplomacy in some situations. With its clear implications for sales positions and all those occupations which require tact and diplomacy it was felt that this recently developed personality dimension should be included in the OPPro because of its relevance to many selection decisions.

7

Composed-contesting

This dimension has been derived from work on the coronary prone personality. Considerable evidence now exists demonstrating that people who are prone to stress related health problems have a particularly tense, competitive and hard driving approach to work. Jenkins et al (1979) have termed this personality syndrome Coronary Type A Behaviour. This is characterised by a challenging, tense approach towards work which expresses itself most clearly in the inability to believe that others will meet your own high standards. While such an approach may superficially appear to be associated with success at work, on closer inspection such a personality orientation may at times be self-defeating. With their inability to delegate and tendency to take on more work than they can handle, Type A people may, in the long run, fail to be as effective as someone who is more composed in their working style.

8

Optimistic-pessimistic (internal)–external locus of control

This dimension has been developed from the work of Rotter (1966) who coined the term Locus of Control to describe people's expectations that their actions determine the outcome of events. The idea behind this

dimension is simply that while some people feel in control of the course their life is taking, believing that their actions will determine what happens to them, others feel that their lives are fundamentally out of their control and that their actions will have no influence on the outcome of events. Research has demonstrated that these expectations have many implications for behaviour. For example, people who believe that their actions will determine the outcome of events are more likely to persevere after an initial failure, anticipating future success. Moreover, they approach life in a more positive, optimistic way and are less likely to suffer from depression. In recent years the concept of locus of control has received a considerable amount of research attention, and although it is a relatively new concept in personality theory it is increasingly felt to be an important one. With its clear implications for self-motivation, it was felt that it was important to include this personality dimension in the OPPro.

9

Abstract-pragmatic

This dimension has its origin in Jung's (1921) concept of Thinking-Introversion versus Thinking-Extraversion; a concept which was later developed by Caine et al. (1981). Jung argued that Thinking-Introverts were inner-directed in their thinking style and would thus be abstract, intellectual, aesthetically sensitive people. The stereotypical artist, or academic, they are inclined to be creative and imaginative, yet may often be so involved in thought that they give little weight to practical realities. Thinking-Extraverts by comparison have an outer directed thinking style. Practical and pragmatic, Jung characterised such people as the stereotypical engineer, who always asks whether things work rather than why they work, as Thinking-Extraverts. Having little time for theorising and lacking aesthetic sensitivity they will prefer to focus on concrete, practical matters and may at times even be a little 'black and white' in their thinking style. With its emphasis on a theoretical, abstract approach to problems versus a practical, pragmatic approach, and its concern with artistic and aesthetic sensitivity, this dimension will be relevant to many selection decisions.

The distortion scale (social conformity)

The distortion scale was developed from the work of Crowne and Marlow (1964). After extensively exploring the factors which influence the image people choose to present of themselves to others, these authors invented the concept of the social desirability motive. They suggest that people who have high levels of social desirability have a strong need to seek social approval.

Consequently, they attempt to present an unrealistically positive image of themselves to others, in order to gain their approval. That is to say, they do not admit to having any of the weaknesses or foibles which make us human. Instead, they are motivated to pretend to be paragons of virtue having no flaws or defects of character, however small. Crowne and Marlow (1964) have developed a questionnaire which measures social desirability and this has subsequently formed the basis of the distortion scales which are used in most modern personality questionnaires (e.g., the OPQ† series of tests). Simply put, these scales measure a person's desire to present an unrealistically positive picture of themselves and as such measure motivational distortion.

DESCRIPTION OF THE OPP DIMENSIONS

The personality dimensions which are measured by the OPPro are described on the following pages. These descriptions only indicate the most salient characteristics of people who score at the extreme ends of each dimension and do not provide any interpretation of the overall personality profile. The significance of each dimension will be modified for those candidates whose scores are less extreme, and to this end the user is referred to the detailed narrative report which is produced by the GeneSys® Integrated Assessment Software System. In addition, interactions between these dimensions will significantly modify the meaning of each individual factor. As such, no personality dimension should be interpreted in isolation, but its meaning should always be considered in the context of a candidate's total personality profile. Such interactions are dealt with in the narrative report which is produced by GeneSys®.

ACCOMMODATING – ASSERTIVE

ACCOMMODATING	ASSERTIVE
Empathic	Dominant
People orientated	Task orientated
Accepting	Challenging
Sensitive to people's feelings	Unconcerned about others' feelings
Avoid confrontation	Confrontative

Low scorers are likely to be sensitive to others' needs and will usually avoid criticising other people for fear of upsetting them. Sensitive and unassuming, they are likely to have difficulty in being forceful and assertive with colleagues and may prefer to go along with people rather than confront them. Consequently, they may find it difficult to supervise subordinates' work as they will often place their colleagues' needs above the demands of the task. They will dislike having to discipline juniors and may find it difficult to ensure that work is completed on time. Finding it easy to empathise with others and understand their perspectives, they are likely to be good listeners. Colleagues will find it easy to discuss their problems with them, feeling that they understand. Their interpersonal sensitivity and awareness of others' needs places them in a good position to help smooth over interpersonal conflicts which are threatening to damage working relationships.

High scorers are inclined to be forceful and brash. Knowing their own mind, they will push others to agree with their point of view and will often get their own way. Not overly concerned about upsetting other people they may at times be confrontative and pushy. Rather insensitive to others' feelings, they will put the demands of the task above the personal needs of friends and colleagues. Concerned with getting results, they may at times upset people while trying to achieve their own ends. If they feel that something needs to be said they will usually say it, even if this may upset people. Given their forthright approach and tendency to be task orientated, they will be good at making sure that things get done. If, however, they are to avoid creating discord within the organisation they may need to temper their characteristically assertive style with a greater sensitivity to others' feelings. Inclined to be overly critical and to make smart sarcastic comments at others' expense, they are not good listeners and colleagues are not likely to take their problems to them.

DETAIL-CONSCIOUS – FLEXIBLE

DETAIL-CONSCIOUS	FLEXIBLE
Deliberating	Spontaneous
Controlled	Lack self-discipline and self-control
Rigid	Flexible
Enjoy attending to detail	Dislike attending to detail
Conscientious	Disregard rules and obligations

Low scorers are controlled and punctilious in their dealings with others, greatly respecting authority and the status quo. They believe it is important to follow accepted procedures and conventions and at times others may see them as somewhat obsessional and pedantic. By nature, extremely tidy and meticulous in everything they do, they have a fine eye for detail. Happy to rigidly follow set procedures and systems, and work within well-defined structures, they always ensure that things are done in a correct and proper way. Extremely conservative by nature, they are inclined to distrust the new and radical in favour of the tried and tested. Being very traditional they dislike change which they are likely to try to resist. Believing that it is important to plan well ahead, they are inclined to prevaricate and may have difficulty in situations which require decisive action. Respectful of authority and traditional values, and inclined to be concerned about status, they are always careful to act in a correct and proper way. Having a strong sense of self-discipline, they will persevere even with the most boring, repetitive tasks and can be trusted to see a project through to the end.

High scorers are spontaneous and lacking self-control they often act in an unplanned, impromptu way. Disinclined to plan ahead, they tend to take life as it comes.

Extemporaneous and casual in their attitude and not having a rigid, disciplined nature, they are inclined to be radical and unconventional. They will dislike having to adhere to set rules and procedures and will have difficulty persevering with tedious, repetitious tasks. Moreover, they do not like attending to detail and may be prone to make careless mistakes. Not in the least fastidious or fussy, they are not concerned with formalities or etiquette. Some people may see them as overly casual or informal in their attitude while others may find that their informality makes them feel at ease. Flexible and adaptable in their thinking style they are attracted by new and innovative ideas. Not in the least conservative, they will not cling to the past but instead will embrace the future as providing new and exciting opportunities.

CYNICAL – TRUSTING

CYNICAL	TRUSTING
Suspicious	Trusting
Cynical	Philanthropic
Inclined to question others motives	Takes people at face value
Sceptical	Have faith in others' honesty
May distrust other people	Sometimes a little credulous

Low scorers are suspicious and sceptical. Having a fundamentally cynical view of human nature, they believe that most people are only motivated by self-interest.

Consequently, they tend to question others' motives and not take people at face value. They are generally cautious and guarded in their dealings with colleagues as they anticipate that they will

take advantage of them if they give them the chance. Not inclined to be the least philanthropic or benevolent, they expect that people will only help if they stand to gain something for themselves by doing so. Their lack of faith in other people may in the most extreme cases prompt them to paranoia. Always wary and circumspect in their dealings with others, they will only let their guard down with the most intimate of friends. Rarely revealing their true motives and aims they will 'play their cards close their chest'. Sceptical and lacking faith in others' veracity they will try to avoid relying on colleagues. Only after they have put friends and colleagues to the test will they be prepared to trust them. Consequently, people may find it difficult to get close to them.

High scorers have an honest and trusting nature. Believing that people are basically sincere and goodhearted, they will expect others to be reliable and trustworthy and will take people at face value. While some may view their attitude as unduly credulous or naïve, it is simply that they see no reason why they should not trust other people. Having a basic faith in human nature they will not usually question other people's motives, not expecting them to be dishonest. Philanthropic and charitable, they will try to help friends and colleagues when possible, expecting others to help them when they are in need. Usually obliging and considerate towards others, they will expect those around them to be dependable. If people take advantage of their trust and good will, or let them down, they are likely to feel hurt, seeing such behaviour as a personal insult.

Straightforward and open in their dealings with other people, they will have to be repeatedly let down before their faith in human nature is shaken and they come to doubt others' sincerity.

EMOTIONAL – PHLEGMATIC

EMOTIONAL	PHLEGMATIC
Prone to worry	Self-assured
Moody	Emotionally stable
Inclined to be anxious in social settings	Socially confident
Troubled by feelings of anxiety and self-doubt	Secure
Easily take offence	Resilient

Low scorers are moody and emotional. Prone to suffer from feelings of anxiety and self-doubt, they may have difficulty coping under pressure. Quick to take offence, they will not find it easy to accept constructive criticism in the spirit in which it was meant. Instead, they are likely to take such criticism as a personal attack, unless it is cast in the most sensitive and delicate of ways. Temperamental and prone to emotional outbursts, they are likely to be touchy and somewhat volatile. They may react to demanding and stressful situations in an unpredictable, emotional way and will not cope well under pressure. Labile and inclined to mood swings, they will at times feel full of energy and on other occasions feel flat and lifeless for no obvious reason. Their tendency to worry about the future and doubt their own abilities may however motivate them to work hard in order to forestall anticipated problems and fears.

High scorers are emotionally stable and have a mature outlook on life. They are not easily upset and take most things in their stride.

Consequently, they will be able to accept constructive criticism without seeing it as a personal attack. Not inclined to emotional outbursts, they are stable, self-assured and secure. Coping well under pressure, they will usually have sufficient energy and enthusiasm to deal effectively with demanding situations. Not prone to feelings of self-doubt or insecurity, they will not worry unduly about past failures or future events. Self-confident and secure, they will not suffer from feelings of anxiety or panic. Resilient and not prone to violent mood swings, they will be more than able to meet life's demands. Well anchored and steadfast, and not in the least temperamental, some people may see them as rather lacking in emotion.

RESERVED – GREGARIOUS

RESERVED	GREGARIOUS
Reserved	Outgoing and sociable
Cool and introspective	Lively and talkative
Prefers to work alone	Enjoy working with others
Enjoy own company	High need for affiliation
Aloof and detached	Warm and participating

Low scorers are reserved and introspective and have little need for the company of others. They will be reticent when talking to strangers and, happy to work on their own, they will try to avoid jobs which require continually meeting new people. Lacking social confidence, they are likely to dislike having to talk to large groups of people. While they may at first sight appear reserved and cool, even aloof, they are not 'stand-offish'. It is simply that they require time to get to know new people. With close friends they can be as warm and socially involved as anyone. Given their natural reserve they are likely to slip into the background at social events and they may have difficulty mingling with a large group of strangers. Inclined to 'take a back seat' in meetings, they may need others to bring them out of themselves before they can show their full potential. Preferring the company of one or two close friends to that of a crowd, they are likely to focus on developing a few close relationships rather than many acquaintances.

High scorers are sociable and outgoing. Having a strong need for others' company they will want to be surrounded by warm, supportive friends and colleagues. They are likely to become somewhat tense and restless if they have to be on their own for long periods of time.

Consequently, they will seek out occupations which bring them into regular contact with other people. Lively and talkative, they are likely to take centre stage and may unwittingly over-shadow their more reticent colleagues. Socially bold, they will come to the fore at meetings and social events. Not feeling the least inhibited on such occasions, they will freely strike up conversations with strangers. Warm and socially uninhibited they will be interested in others and consequently they are likely to be popular. Their friends will be very important to them and they will devote much time to developing and maintaining personal relationships. Because of their strong need to belong they may, in the most extreme cases, have some difficulty functioning independently from group norms and expectations.

GENUINE – PERSUASIVE

GENUINE	PERSUASIVE
Base behaviour on own feelings and attitudes	Behaviour is determined by the demands of the situation
Forthright	Diplomatic
Honest and open	Manipulative and expedient
Genuine and sincere	Shrewd and calculating
May lack tact and diplomacy	Sensitive to 'political' issues

Low scorers are genuine and open in their dealings with others. Unable to hide their true feelings, they cannot easily convince people of views which they do not personally believe in.

Basing their behaviour upon their own attitudes and opinions, and having little awareness of the demands of the situation, they will find it difficult to deal with others in an expedient and calculating

way. They will find it hard to hide the truth from friends and colleagues who are likely to see through them.

Lacking social awareness, they may make the occasional faux pas. Their behaviour tends to be an expression of their true attitudes and opinions and consequently, is fairly consistent across different social settings. Others will see them as sincere and genuine, feeling that they know where they stand with them. Not in the least shrewd or astute in their dealings with colleagues, they may at times lack tact and diplomacy. Being somewhat insensitive to social expectations, they are not likely to be successful in situations which require a degree of tact or calculated behaviour.

High scorers tend to be good actors and are likely to be persuasive and influential speakers. Acutely aware of the demands of the situation, they will tailor what they say so as to take advantage of others' needs and expectations. Able to convince people of a particular point of view even if they do not believe it themselves, they are likely to be socially skilled and somewhat calculating. Able to hide their true feelings, they will act in a shrewd and expedient way when they deem it necessary. Sensitive to the demands of the situation and to others' expectations, their behaviour is likely to vary greatly from situation to situation. In the most extreme case, their colleagues may wonder what their own views really are. Socially astute, they will be successful in occupations which call for a high degree of tact and diplomacy. Able to laugh convincingly at others' jokes, even if they are not funny, more perceptive colleagues may doubt their sincerity. Almost social chameleons, others may view them as Machiavellian or manipulative in their dealings with colleagues. They, however, are likely simply to see themselves as shrewd game players.

COMPOSED – CONTESTING

COMPOSED	CONTESTING
Calm and composed	Ambitious and competitive
Able to delegate	May take on too much work
Keep work separate from home life	Work long hours
Able to unwind and relax	Have difficulty relaxing
Tolerant	Impatient
Able to distance themselves from work pressures	May be prone to stress related illnesses

Low scorers are generally calm and composed with regard to work. They dislike having to continually meet close deadlines, preferring instead to have time to take things at a steady pace. They do not have an aggressive, competitive attitude towards work and, being tolerant of others, are not likely to be irritated by slow or indecisive people. Seeing the benefits which are to be gained by not rushing to complete work within excessively short deadlines, they will dislike being put under pressure. They like to keep their work separate from their social life and enjoy having free time in which to relax. Not tense and hard driving, they are happy to use their free time simply to unwind, having no need to rush around achieving self-imposed goals.

Not having a particularly challenging and competitive attitude towards work, they will give colleagues credit where it is due. Believing that others are as capable as themselves, they will be happy to delegate work. Lacking a hard-driven, competitive edge, they will not be particularly challenging or contesting with colleagues.

High scorers are tense and competitive having an ambitious and challenging approach towards work. Expecting things to be done instantly, they are likely to be intolerant of slow, indecisive people. Moreover, their competitive nature may cause them to become irritated with people who get in their way. They often work long hours, under extreme pressure, and will have difficulty divorcing themselves from their work. Believing themselves to be indispensable, they may take on more work than they can manage. Often rushing to meet deadlines, they are likely to believe that

others will not produce work which meets their own high standards.

Consequently, they may find it difficult to delegate tasks. They hate to be kept waiting and are prone to be impatient. They are likely to have difficulty separating their work form their personal life and will often take work home with them. Unable to put their work behind them when they get home, they are likely to have difficulty relaxing. In the most extreme cases they may have so much difficulty separating themselves from their work that they will not know what to do with their time if they are not working.

OPTIMISTIC – PESSIMISTIC

OPTIMISTIC	PESSIMISTIC
Achieving and striving Believe their own actions determine outcomes Positive approach to set-backs Optimistic Believe they are in control of their own destiny	Resigned Prone to feelings of helplessness Inclined to pessimism Fatalistic Have little faith in their ability to determine events

Low scorers have a fundamental faith in their own ability to determine the course their life takes. As a consequence, they generally approach problems in a constructive and optimistic way. Actively striving to overcome difficulties, they will anticipate success in most things.

However, at times their optimism may be a little misplaced. They are likely to persevere in the face of failure, having learnt from past experience that they can usually find a solution to their problems. Taking set-backs as a challenge, they will strive to overcome them. Others are likely to respect their positive approach to problems and to be given confidence by their optimism. They may, however, continue to struggle to overcome a problem, unable to accept defeat, when it would have been wiser to have given up, investing their energies elsewhere. Taking charge of their life and working to actively shape their future, they are likely to believe that effort usually pays off in the end.

High scorers tend to be pessimistic and may be inclined to occasional bouts of depression. Not believing that their actions will shape future events, they may feel resigned and helpless when things go wrong.

Consequently, they are likely to give up at the first sign of failure and may need much support and encouragement if they are to be persuaded to persevere. In the most extreme case, their expectation of failure may even stop them from initiating action. They should nonetheless be capable of taking a fairly positive approach towards life when things are going well, although this may quickly turn into resigned pessimism if things go wrong. Inclined to accept their lot rather than strive to change their circumstances they may appear somewhat fatalistic. Lacking a basic belief in their own ability to shape the course their life takes; they are likely to feel helpless in the face of what they may see as the enormity of life's problems. For many, this lack of faith in their own ability to control events may be based on past experiences. Consequently, even when things are going well, they may be inclined to remember the past and wonder what is likely to go wrong next.

ABSTRACT – PRAGMATIC

ABSTRACT	PRAGMATIC
Imaginative	Down to earth and concrete
Aesthetically sensitive	Not interested in artistic matters
Creative and artistic	Practical and realistic
Abstract and intellectual	Pragmatic
Have a theoretical orientation	More concerned with 'how than why'

Low scorers have an abstract, theoretical approach to problems. More concerned with their own thoughts and designs than with practical realities, they will want to have the ideas and let others put them into practice. In the most extreme case, they may become so interested in the theoretical nuances of a problem that they lose sight of their overall goal. Greatly interested in the arts and other creative activities, they will have a strong sense of aesthetics and will appreciate good design. Having an intellectual orientation, they will enjoy thinking through a problem, particularly if they have the freedom to approach it in an innovative and radical way. Not always giving sufficient regard to practical matters, they will quickly become engrossed in the creative aspects of a task. Greatly appreciating the arts, and believing that they enrich life, they will enjoy expressing their creativity. Aesthetically sensitive, they will have a strong sense of the beauty which surrounds them.

High scorers are realistic and pragmatic in their approach to problems. They are not interested in artistic, creative activities and have little awareness of aesthetic issues.

Consequently, they are likely to view the arts as a waste of time and may be disparaging of such things, not appreciating the finer points of design. Approaching problems in a very 'black and white' way, they are likely to actively avoid jobs which require creativity, imagination and innovation. Having little time for the theoretical nuances of a problem, their strengths lie more in their ability to bring a realistic, practical approach to problem solving. Seeing theorising as a waste of time, others will appreciate their tendency to focus on the concrete aspects of a task. More interested in how to make things work, rather than in trying to understand why things work as they do, they are likely to stop others from following an impractical course of action. Theirs will be the voice which will always be heard asking, but will it work in practice?

NOTE This dimension is a measure of cognitive style and does not assess the candidate's level of intellectual functioning. While this dimension will indicate whether a person has an abstract or concrete intellectual orientation, that is to say prefers practical or creative activities, it does not indicate the quality of the candidate's work. To this end it is necessary to assess the candidate's aptitudes and abilities.

THE PSYCHOMETRIC PROPERTIES OF THE OPP

This chapter will present details concerning the psychometric properties of the Occupational Personality Profile. The aim will be to show that the OPPro fulfils various technical requirements, in the areas of standardisation, reliability and validity, which ensure the psychometric soundness of the test.

INTRODUCTION

standardisation: normative

Normative data allows us to compare an individual's score on a standardised scale against the typical score obtained from a clearly identifiable, homogeneous group of people.

Reliability

The property of a measurement which assesses the extent to which variation in measurement is due to true differences between people on the trait being measured, or to measurement error.

In order to provide meaningful interpretations, the OPPro was standardised against a number of relevant groups. The constituent samples which make up the OPPro norm base are fully described later. Standardisation ensures that the measurements obtained from a test can be meaningfully interpreted in the context of a relevant distribution of scores. Another important technical requirement for a psychometrically sound test is that the measurements obtained from that test should be reliable.

Reliability is generally assessed using two specific measures, one related to the stability of scale scores over time, the other concerned with the internal consistency, or homogeneity of the constituent items that form a scale score.

Reliability: stability

Also known as test-retest reliability, an assessment is made of the similarity of scores on a particular scale over two or more test occasions. The occasions may be a few hours, days, months or years apart. Normally Pearson correlation coefficients are used to quantify the similarity between the scale scores over the two or more occasions.

Stability coefficients provide an important indicator of a test's likely usefulness of measurement. If these coefficients are low (< approx. 0.6) then it is suggestive that either the behaviours/attitudes being measured are volatile or situationally specific, or that over the duration of the retest interval, situational events have made the content of the scale irrelevant or obsolete.

Of course, the duration of the retest interval provides some clue as to which effect may be causing the unreliability of measurement. However, the second measure of a scale's reliability also provides valuable information as to why a scale may have a low stability coefficient.

The most common measure of internal consistency is Cronbach's Alpha. If the items on a scale have high inter-correlations with each other, and with the total scale score, then coefficient alpha will be high. Thus, a high coefficient alpha indicates that the items on the scale are measuring very much the same thing, while a low alpha would be suggestive of either scale items measuring different attributes or the presence of error.

Reliability: internal consistency

Also known as scale homogeneity, an assessment is made of the ability of the items in a scale to measure the same construct or trait. That is, a parameter can be computed that indexes how well the items in a scale contribute to the overall measurement denoted by the scale score. A scale is said to be internally consistent if all the constituent item responses are shown to be positively associated with their scale score.

The fact that a test has high internal consistency & stability coefficients only guarantees that it is measuring something consistently. It provides no guarantee that the test is actually measuring what it purports to measure, nor that the test will prove useful in a particular situation. Questions concerning

what a test actually measures and its relevance in a particular situation are dealt with by looking at the test's validity. Reliability is generally investigated before validity, as the reliability of a test places an upper limit on a test's validity. It can be mathematically demonstrated that a validity coefficient for a particular test cannot exceed that test's reliability coefficient.

Validity

The ability of a scale score to reflect what that scale is intended to measure. Kline's (1993) definition is 'A test is said to be valid if it measures what it claims to measure'. Validation studies of a test investigate the soundness and relevance of a proposed interpretation of that test. Two key areas of validation are known as criterion validity and construct validity.

Validity: criterion validity

Criterion validity involves translating a score on a particular test into a prediction concerning what could be expected if another variable was observed.

The criterion validity of a test is provided by demonstrating that scores on the test relate in some meaningful way to an external criterion. Criterion validity comes in two forms – predictive & concurrent. Predictive validity assesses whether a test is capable of predicting an agreed criterion which will be available at some future time – e.g., can a test predict the likelihood of someone successfully completing a training course. Concurrent validity assesses whether the scores on a test can be used to predict a criterion measure which is available at the time of the test – e.g., can a test predict current job performance?

Validity: construct validity

Construct validity assesses whether the characteristic which a test is actually measuring is psychologically meaningful and consistent with the test's definition.
The construct validity of a test is often assessed by demonstrating that the scores from the test are consistent with those from other major tests which measure similar constructs and are dissimilar to scores on tests which measure different constructs. Construct validation should ideally go beyond simply correlating tests with each other as this could prove to be circular. Often self and peer ratings are correlated with tests scores as this provides non-test evidence about the soundness of the scales. Essentially, construct validation is demonstrated when a large number of hypotheses relating to the associated real-world behaviours are confirmed.

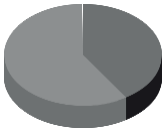
STANDARDISATION PROCEDURES AND NORMATIVE DATA

The standardisation sample is based on 1900+ UK adults, almost equally distributed between males and females. This ensures that the user of the OPPro can be confident that the norm comparison is a good representation of the general population. As well as the general population norm the GeneSys® software includes a number of more specialised norm groups.

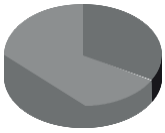
These include sales staff, undergraduates, technical trainees, personnel managers, trainers etc. documented below. In addition, the GeneSys® software allows users to establish their own in-house norms to allow more focused comparison with profiles of specific groups. As the Occupational Personality Profile is scored purely via the GeneSys® system, Psytech International does not publish separate norm tables. The GeneSys® OPPro installation contains all Psytech International norms as an integral part of the software. These norms are available for on-screen viewing. The total norm base of the OPPro is made up of the following constituent samples:

Samples by male/female

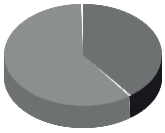
● male ● female



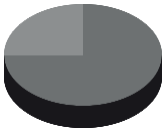
Sample 1: Retail sales staff
A total sample of 371 retail sales staff were obtained from two sources. 302 were sales assistants with one of the UK's leading and most prestigious department stores and 69 with a major furniture retail company. Both groups were participating in validation studies to assess the predictive validity of the OPPro scales. 41% were males and 59% female.



Sample 2: Undergraduates
The undergraduate sample of 158 consists of Business Studies students from three UK universities. Of the total undergraduate sample, approximately one third were male and two thirds female.

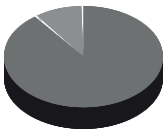


Sample 3: Personnel/Training professionals
A sample of 137 Personnel and Training Professionals were obtained from test training courses organised by Psytech International Limited.
Approximately 60% were in personnel roles, 25% in training roles and the remaining 15% were management, guidance or outplacement consultants. Approximately 60% were female and 40% male.

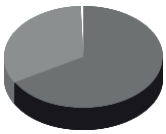


Sample 4: Management applicants
A total Management/graduate applicant sample of 166 was obtained from the following sources: 83 were applicants for senior executive positions with NHS Trusts, 51 were management applicants with a major international bank, 20 applicants with a County Council and 12 with a Management Consultancy firm. Within the total sample, approximately three quarters were male and one quarter female.

Sample 5: Telesales applicants
A sample of 199 applicants for a major insurance group were assessed as part of a selection procedure. The sample consisted of 66% females and 34% males.



Sample 6: Technical staff
A total of 319 applicants for technical roles (e.g., service, engineers, technicians, plant assembly workers, printing technicians etc.). These groups were sourced from a major heavy lifting equipment servicing company, a number of training organisations and a national local newspaper group. Over 90% were male, with less than 10% female in this sample.



Sample 7: General applicants
A total of 197 applicants for variety of non-technical, non-managerial roles. This sample group was obtained from a large number of companies across the UK who had agreed to help in the standardisation of the OPPro. The sample consisted of approximately 66% males and 33% females.

Table 1: Standardisation Sample Composition (age rounded up to nearest year)

	Males			Females		
Sample ID	Number	Mean Age	Range	Number	Mean Age	Range
1	125	39	28-47	41	35	27-40
2	155	23	18-40	216	21	17-41
3	53	37	29-56	84	36	31-44
4	58	22	18-43	100	21	18-32
5	237	29	22-38	461	27	20-41
6	300	35	22-49	19	27	21-35
7	131	29	23-51	68	26	22-45
Total	**1059**	**31**	**18-56**	**989**	**28**	**18-45**

OPP GENDER DIFFERENCES

Gender differences on the OPPro were examined by comparing results of 1194 males with 1395 female respondents. Table 2 provides mean scores for males and females on each of the OPPro dimensions as well as the t-value for mean score differences.

Of the ten OPPro dimensions, seven yield statistically significant gender differences. However, it should be noted that with sample sizes above 1000 for each group, even a raw score difference of one is statistically significant but is unlikely to generate meaningful differences in interpretation. The largest obtained difference between males and females is on the Abstract-Pragmatic dimension with males emerging as significantly more Pragmatic than females. Females in turn are more Composed, Genuine, Empathic, Emotional and Trusting than males. They are also more Pessimistic (external locus of control) than males. No statistically significant differences were found on the Flexible-Rigid, Reserved-Gregarious and Distortion scales. Finally, it is noteworthy that on the basis of a smaller sample on whom central Tendency data were available, a fairly large absolute difference was observed between females and males (61 to 34). This may have the effect of generating marginally less extreme profile scores among female than male respondents.

AGE AND OPP

To assess the relationship between age and OPPro scores, the OPPro results of 2392 respondents were correlated with their age. The age range of the sample was 16-64 with a mean of 31 and SD of 10.5, which is representative of the target audience for the OPPro.

In general, as attested by Table 3, seven of the OPPro dimensions register significant correlations with age. However, as with the gender differences, with such a large sample even very small obtained correlations are statistically significant. Of the seven that are statistically significant, only one OPPro personality dimension reveals a substantial age effect, namely Reserved-Gregarious. This suggests that those who are older in the sample, tend to have lower scores i.e., are more Reserved. This is not totally surprising, given the nature of the OPPro Reserved-Gregarious dimension and its focus on social activities, which perhaps tend to be more prominent in younger years.

The response style indicator for Central Tendency shows a most notable age effect (r=.49). This would point strongly to older respondents being less prepared to endorse the more extreme item responses. The practical consequence of this will be to generate less extreme, more moderate profiles. This will require further investigation as Age does not have a substantial direct effect on the individual test scores, but may have a moderating effect

ETHNIC ORIGIN & OPPro

A UK personal development organisation who targets their services at ethnic minorities gave their course participants the OPPro to complete as

part of a development exercise. Table 4 contains data for Black, Asian, Other and 'Norm' groups. Note that the Norm group is the Genesys Undergraduate norm group, which is a suitable comparison group.

Table 2: OPPro Gender Differences

OPPro Scale	Mean Female	Mean Males	t-value	p level	Valid N Female	Valid N Male
Assertive	29.17	30.92	-7.93	.000	1395	1194
Flexible	27.92	27.99	-.31	.757	1395	1194
Trusting	35.54	34.75	2.72	.007	1395	1194
Phlegmatic	35.77	38.88	-10.28	.000	1395	1194
Gregarious	34.33	33.88	1.85	.065	1395	1194
Persuasive	23.47	25.82	-10.01	.000	1395	1194
Contesting	28.48	25.97	10.37	.000	1395	1194
Pessimistic	21.54	19.55	8.97	.000	1395	1194
Pragmatic	26.50	29.38	-11.96	.000	1395	1194
Distortion	21.10	21.23	-.76	.447	1395	1194
Central Tendency	60.58	33.91	4.55	.000	77	234

Table 3: Age Effects on OPPro scores

OPPro Scale	r-value	Mean Males	t-value
Assertive	-.08	2392	.000
Flexible	.07	2392	.000
Trusting	.07	2392	.001
Phlegmatic	-.08	2392	.000
Gregarious	-.28	2392	.000
Persuasive	-.12	2392	.000
Contesting	.00	2392	.820
Pessimistic	.07	2392	.000
Pragmatic	-.02	2392	.321
Distortion	-.00	2392	.892
Central Tendency	.49	294	.000

Table 4: A Comparison of Ethnic Group Scores with the Genesys Norm

OPPro Scale	Black		Asian		Other		Norm	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Assertive	31.06	5.93	30.30	6.15	28.55	7.20	30.45	6.35
Flexible	27.65	6.31	29.61	5.41	29.00	5.22	30.37	6.24
Trusting	31.40	8.46	33.00	7.27	33.65	7.44	30.70	7.35
Phlegmatic	36.21	8.58	36.21	6.96	33.45	8.40	32.80	7.36
Gregarious	34.08	6.36	36.72	5.28	34.80	5.32	31.84	6.27
Persuasive	27.84	5.42	28.00	5.74	27.70	7.09	25.59	5.90
Contesting	27.79	6.06	26.90	5.30	27.85	5.07	28.19	6.40
Pessimistic	18.73	5.02	18.90	5.48	21.50	6.58	21.96	5.93
Pragmatic	26.12	5.44	26.27	6.71	26.20	6.90	25.72	6.14
Distortion	20.08	4.18	19.61	3.69	20.55	3.63	19.38	4.33
	Black (N=52)		Asian (N=71)		Other (N=20)		Norm (N=236)	

RELIABILITY

Internal consistency

Internal consistency reliabilities (Cronbach's Alpha) were computed for an OPPro sample of 942, as well as separately for each of the sexes. Table 5 provides these coefficients, number of items per scale and mean 'corrected' item-total correlations (ITC's) for each scale. The ITCs indicate the mean association between the constituent items within a scale and the scale score itself, each individual item-scale score coefficient is corrected for the inflation of the coefficient due to the item's inclusion in the scale score.

All the OPPro dimensions have reliability coefficients above .60 for both males and female groups indicating that the test meets an acceptable standard of reliability. The reliability of these scales compares very favourably with the reliability coefficients reported in the user manuals for both the OPQ and 16PF. As a number of authors have noted, many of the 16PF factors are very unreliable with few of the alpha coefficients being greater than .7 and many in fact being lower than .5. As will be noted, SEMs for the internal consistencies (expressed in Stanines) are all below 1.17.

Table 6 reports internal consistency estimates for three different samples (described above) retail sales staff, undergraduates and personnel and training delegates. These estimates indicate that the OPPro reliability remains fairly consistent with only relatively small fluctuations in alpha values over diverse occupational groups. The user can therefore be confident that the OPPro should provide consistent measurement for diverse groups.

Table 5: OPPro scale internal consistencies & Item Total Correlations (ITCs)

OPPro Scale	No. of Items	Males (N=323)	Females (N=619)	Total Sample (N = 942)		SEM
		Alpha	Alpha	Alpha	ITC	
Assertive	10	0.67	0.72	0.71	0.37	1.08
Flexible	10	0.78	0.75	0.77	0.44	0.96
Trusting	11	0.85	0.80	0.83	0.50	0.82
Phlegmatic	12	0.76	0.75	0.75	0.40	1.00
Gregarious	8	0.65	0.69	0.67	0.37	1.15
Persuasive	9	0.66	0.76	0.75	0.43	1.00
Contesting	10	0.77	0.74	0.75	0.41	1.00
Pessimistic	7	0.77	0.73	0.71	0.42	1.08
Pragmatic	9	0.72	0.67	0.70	0.38	1.10
Distortion	8	0.68	0.66	0.66	0.36	1.17

Table 6: OPPro scale Alpha & ITCs for various standardisation samples.

OPPro Scale	No. of Items	Sample 1 (N=371)		Sample 2 (N=158)		Sample 3 (N = 137)	
		Alpha	ITC	Alpha	ITC	Alpha	ITC
Assertive	10	0.63	0.15	0.73	0.22	0.70	0.20
Flexible	10	0.69	0.18	0.75	0.24	0.77	0.25
Trusting	11	0.77	0.23	0.68	0.16	0.81	0.28
Phlegmatic	12	0.69	0.16	0.72	0.18	0.76	0.21
Gregarious	8	0.64	0.18	0.74	0.27	0.68	0.18
Persuasive	9	0.74	0.24	0.74	0.25	0.74	0.25
Contesting	10	0.65	0.16	0.66	0.16	0.68	0.18
Pessimistic	7	0.68	0.29	0.68	0.24	0.75	0.27
Pragmatic	9	0.67	0.19	0.61	0.15	0.68	0.17
Distortion	8	0.61	0.17	0.67	0.20	0.66	0.19

Stability

Test-retest estimates of reliability were obtained for two periods, one and three months respectively. The three-month test-retest data was obtained from a sample of 260 working professional adults and the one-month data from a sample of undergraduates. Results in Table 7 indicate that OPPro remains highly consistent over both time periods with all coefficients above 0.7 and on average above 0.8. This suggests that the OPPro results are stable over time periods of up to at least three months.

One notable finding is that the

undergraduate data over the one-month period is slightly less stable than that of the working adults over a period twice as long. This may reflect somewhat more variable test taking motivation and/or stability in personality disposition among the undergraduate group.

Conclusion: reliability

The above internal consistency and stability estimates of reliability demonstrate that the OPPro is highly reliable internally and over the time periods covered. These reliabilities compare very favourably with other modern personality measures. Thus, we can conclude that the OPPro has achieved its aim of being both quick to complete yet reliable when compared with other commonly used personality questionnaires.

The internal structure of the OPPro

The inter-correlations between the various dimensions of a test are of interest as it is important that a test's sub-scales are relatively independent of each other, thus demonstrating that they are measuring distinct constructs.

Table 8 demonstrates that the correlations between the OPPro subscales are modest in size, indicating that the ten dimensions measured by the test assess different personality characteristics. There are, however, some interesting patterns of correlations between the OPPro factors. One is the moderately high correlation between Assertive and Persuasive. This suggests that assertive people are likely to be more manipulative in their dealings with others. This is clearly consistent with our definition of this scale. In addition, the OPPro dimension Trusting is negatively correlated with both the Contesting and Pessimistic dimensions. This is consistent with all dimensions measuring different aspects of anxiety. People who are trusting tend to be more composed, phlegmatic and confident that their efforts will result in positive outcomes. Such a finding is consistent both with our expectations and with research which suggests that an internal locus of control is associated with positive mental health. That is to say that more optimistic people, who believe they are in control of the direction their life is taking, are more emotionally stable and less prone to mood swings.

Table 7: OPPro Test-retest Reliability over two different time periods

OPPro Dimension	3 Months (N=260)	1.5 Months (N=77)	3 Months SEM	1.5 months SEM
Assertive	0.85	0.83	0.77	0.82
Flexible	0.88	0.84	0.69	0.8
Trusting	0.84	0.82	0.8	0.85
Phlegmatic	0.86	0.76	0.75	0.98
Gregarious	0.89	0.82	0.66	0.85
Persuasive	0.91	0.88	0.6	0.69
Contesting	0.88	0.73	0.69	1.04
Pessimistic	0.80	0.80	0.89	0.89
Pragmatic	0.91	0.88	0.6	0.69
Motivational Distortion	0.79	0.76	0.92	0.98

Table 8: Product-moment Correlations between OPPro Sub-scales (n = 988)

OPPro Scales	1	2	3	4	5	6	7	8	9	10
1 Assertive	1.00	-.02	-.18	.29	.08	.49	.16	-.24	-.09	.07
2 Flexible	-.02	1.0	.26	.06	.04	.12	-.28	-.34	-.27	-.27
3 Trusting	-.18	.26	1.00	.25	.24	.01	-.37	-.38	-.13	.13
4 Phlegmatic	.29	.06	.25	1.00	.29	.31	-.24	-.45	.02	.32
5 Gregarious	.08	.04	.24	.29	1.00	.29	-.12	-.21	-.11	.05
6 Persuasive	.49	.12	.01	.31	.29	1.00	.08	-.32	-.22	.04
7 Contesting	.16	-.28	-.37	-.24	-.12	.08	1.00	.29	.03	.08
8 Pessimistic	-.24	-.34	-.38	-.45	-.21	-.32	.29	1.00	.17	-.05
9 Pragmatic	-.09	-.27	-.13	.02	-.11	-.22	.03	.17	1.00	.03
10 Distortion	.07	-.27	.13	.32	.05	.04	.08	-.05	.03	1.00

CONSTRUCT VALIDITY

The relationship between the OPPro dimensions and the 16PF factors

A sample of 136 applicants completed both the OPPro and 16PF Form A as part of a selection process. The resultant correlation matrix is displayed in Table 9.

While good support is found for most, if not all OPPro dimensions, this is moderated by the low reliability of 16PF Form A which has the effect of suppressing resultant correlations. OPPro dimensions for which there are no clear 16PF equivalent factors provide an interesting pattern of results. OPPro Persuasive correlates with both 16PF Factor F and H, which are undoubtedly aspects of the 'social-chameleon' behaviour associated with self-monitors. OPPro Pessimistic (Internal Locus-of-Control) picks up aspects of anxiety as measured by 16PF but also Seriousness (F) and Shrewdness (N). The latter is an unusual relationship, but in so far as N on Form A of the 16PF appears to reflect an aspect of threat-sensitivity and the polar opposite of Forthrightness, this may make more sense. OPPro Contesting, a measure of Type-A behaviour, is not well represented in 16PF, with only Q4 registering a modest .3 correlations. Finally, OPPro Trusting-Cynical, a measure of the Machiavellian personality type, is poorly represented within the 16PF, with maximum correlations of only .31 and .30 with Tough-minded and Suspicious.

Using the sample of 136 applicants, multiple regression was used to predict OPPro dimensions from 16PF. Those 16PF factors included in the equation and the multiple regression coefficient R are provided in Table 9.

The multiple correlations demonstrate that most of the OPPro dimensions can be predicted with a high degree of accuracy from the 16PF factors. This provides clear evidence of the validity of the majority of the OPPro dimensions. There are, however, a number of exceptions to this general rule.

Firstly, as was noted above, the OPPro dimensions Contesting and Pessimistic are not predicted well from the 16PF. The concepts of the Coronary Type A Personality and Locus of Control had not been developed when the 16PF was constructed and thus these personality dimensions are not directly measured by this personality questionnaire. Similarly, the notion of the Machiavellian Personality was not conceived until the 1960's and consequently this personality characteristic has not been included in the 16PF. This accounts for our inability to predict the OPPro

dimension Trusting vs. Cynical from the 16PF. That Machiavellians lack aesthetic sensitivity (tough-minded) and interpersonal warmth is however not surprising. This is consistent with the finding that the OPQ dimension Empathy is negatively correlated with Machiavellianism.

The relationship between the OPPro dimensions and the 16PF-5 factors

A sample of 102 personnel and training professionals attending Psytech training courses completed both the OPPro and 16PF-5 questionnaires as part of the course requirement (see Table 10).

One interesting observation from the studies with both old and new forms of the 16PF is that generally the observed correlations with 16PF-5 are of a higher order. This would be expected by virtue of the higher reliability associated with 16PF-5. Once again, it can be noted that OPPro scales Contesting and Pessimistic have relatively weak overlap with 16PF-5 factors with multiple correlations reaching only .49 and .57 respectively. The OPPro dimension Trusting-Cynical now correlates .75 with 16PF-5 Factor L (Vigilance), when it only correlated .31 with 16PF Form A Factor L (Suspicious). This reflects very clearly the lack of equivalence between the old and new form as far as Factor L is concerned. In fact, the correlation between old and new form of the 16PF is reported as 0.15 and 0.38 for the UK and US forms respectively.

Table 9: Correlations between OPPro and 16PF Form A Factors

OPPro Scale	R	16PF correlations with each OPPro Scale
Assertive	.50	Assertive (E) .36, Forthright (N) .32
Flexible	.71	Expedient (G) .56, Radical (Q1) .41, Undisciplined (Q3) .48
Trusting	.48	Tender-minded (I) .31, Trusting (L) .31
Phlegmatic	.65	Calm-stable (C) .50, Socially-Bold (H) .3, Self-assured (Q2) .42, Relaxed (Q4) .40
Gregarious	.74	Warmth (A) .38, Enthusiastic (F) .59, Socially-Bold (H) .49, Group-orientated (Q2)
Persuasive	.62	Enthusiastic (F) .46, Socially-bold (H) .41,
Contesting	.44	Tense-driven (Q4) .30, Calm-stable (C) .25, Apprehensive (O) .24
Pessimistic	.56	Sober-serious (F) .3, Shrewdness (N) .31, Tense-driven (Q4) .37
Pragmatic	.69	Tough-minded (I) .55, Practical (M) .31
Distortion	.52	Conscientious (G) .34, Fake-good (FG) .42

Table 10: Correlations between OPPro and 16PF Form 5 Factors

OPPro Scale	R	16PF correlations with each OPPro Scale
Assertive	.68	Dominant (E) .57, Socially-bold (H) .31
Flexible	.72	Expedient (G) .53, Sensitive (I) .38, Abstract (M) .45, Open to Change (Q1) .42, Flexible (Q3) .53
Trusting	.75	Trusting .75
Phlegmatic	.77	Stability (C) .54, Dominance (E) .37, Socially-Bold (H) .41, Utilitarian (I) .35, Self-assured (O) .60, Relaxed (Q4) .38, Impression-Mgt (IM) .34
Gregarious	.82	Warm (A) .48, Stable (C) .43, Lively (F) .54, Forthright (N) .52, Group-oriented (Q2) .72 Relaxed (Q4) .37
Persuasive	.69	Dominant (E) .31, Lively (F) .36, Socially-bold (H) .55, Group-oriented (Q2) .30
Contesting	.49	Vigilant (L) .37, Tense (Q4) .22, Emotional (C) .26
Pessimistic	.57	Emotional (C) .32, Vigilant (L) .40, Apprehensive (O) .30, Tense (Q4) .34
Pragmatic	.77	Utilitarian (I) .67, Vigilant (L) .33, Concrete (M) .48, Traditional (Q1) .42
Distortion	.71	Trusting (L) .32, Tense (Q4) .45, Impression-Mgt (IM) .57

The relationship between the OPPro dimensions and the 15FQ SCALES

A sample of 158 volunteers completed both the OPPro and the 15FQ as part of a test validation exercise. These comprised primarily personnel and training delegates attending Psytech courses but also a group of undergraduate Business Study students who completed both tests as part of a course in Personnel Selection. Table 11 provides a list of OPPro dimensions correlating with each 15FQ scale.

What is evident from the table above is that there is a significant amount of overlap between the two measures. Equally it indicates which of the OPPro dimensions are not adequately covered by the 15FQ. The OPPro Assertive dimension correlates best with the 15FQ Assertive dimension and substantially with the 15FQ Direct scale, suggesting that high Assertive scorers on OPPro tend to be both dominant and direct (unrestrained) in their dealings with others. The Flexible dimension of the OPPro correlates substantially with the 15FQ Disciplined (-), Detail-Conscious (-), Radical and Restrained (-) dimensions, pointing to high scorers being undisciplined, expedient, unrestrained and spontaneous. The OPPro Trusting dimension correlates -0.68 with 15FQ Suspicious which strongly suggests that both scales are measuring the same underlying personality trait. The OPPro Phlegmatic dimension correlates with all three 15FQ anxiety dimensions, Calm-stable, Self-doubting (-) and Tense-Driven (-), indicating that the Phlegmatic dimension is a good general measure of stability. OPPro Gregarious is also significantly related to all the 15FQ Extraversion dimensions, Outgoing, Enthusiastic, Socially Bold, and Self Sufficient (-). The OPPro Persuasive dimension while correlating with the same 15FQ Extraversion dimensions has a higher degree of overlap with the 15FQ dimensions Enthusiastic, Socially Bold and Assertive and Restraint (-) suggesting that high scorers on Persuasiveness tend to be less empathic and warm-hearted. Locus of Control (Pessimistic) appears to span a number of 15FQ dimensions covering Extraversion,

Anxiety and Independence. This would suggest that individuals who have internal locus of Control (Optimistic), tend to be more resilient, enthusiastic, venturesome, direct and self-assured. The Pragmatic dimension of the OPPro has very strong inverse relationships with both the Intuitive and Imaginative dimension of the 15FQ. The only OPPro dimension which appears to have no direct equivalent in 15FQ is the Type-A measure, Contesting, which correlates moderately with Suspicious and modestly with Self-doubting and Tense-driven.

Table 11: Correlations between OPPro & 15FQ

OPPro Scale	R	16PF correlations with each OPPro Scale
Assertive	.73	Dominant (FE) .65, Direct (FN) .45
Flexible	.72	Expedient (FG) .52, Direct (FN) .37, Radical (FQ1) .45, Informal (Q3) .57
Trusting	.75	Trusting (FL) .68, Informal (FQ3) .32
Phlegmatic	.77	Stability (FC) .44, Dominance (FE) .33, Direct (FN) .32, Confident (FO) .48, Relaxed (Q4) .34
Gregarious	.82	Outgoing (FA) .59, Enthusiastic (FF) .37, Socially-Bold (FH) .40, Group-orientated (FQ2) .56
Persuasive	.69	Enthusiastic (FF) .45, Socially-bold (FH) .56
Contesting	.49	Self-doubting (FO) .33, Suspicious (FL) .28, Tense (Q4) .44
Pessimistic	.57	Temperamental (FC) .31, Restrained (FN) .36, Self-doubting (FO) .29, Retiring (FA) .25
Pragmatic	.77	Retiring (FA) .31, Reserved (FH) .31, Factual (FI) .63, Practical (FM) .64, Conventional (FQ1) .31
Distortion	.71	Suspicious (FL) .32, Distortion (FMD) .50

The relationship between the OPPRO & the OPQ factors

Below we present multiple regressions predicting each of the OPPro dimensions from the OPQ† Factor 5. As noted in Table 12, these multiple correlations (linear regressions) clearly demonstrate that the personality characteristics measured by the OPPro are consistent with those measured by the OPQ.

The multiple-correlations indicate that with the exception of the OPPro dimensions Contesting and Pessimistic, all the dimensions which are measured by this test are well predicted by the OPQ. Moreover, this pattern of results is consistent with the underlying meaning of each of these dimensions.

Although the pattern of results predicting Contesting and Pessimistic is consistent with the meaning of these dimensions the multiple-correlations with the OPQ are low. This is probably because these two OPPro dimensions are not directly measured by the OPQ. For example, the OPQ scale Optimism is measuring an aspect of emotional stability, the tendency to feel depressed and lethargic for no real reason. The OPPro dimension Optimistic vs. Pessimistic on the other hand is assessing a person's sense that they are in control of their life. Although this construct is associated with both depression and emotional instability it is nonetheless a distinct personality construct, as these results demonstrate. Similarly, the OPQ

does not attempt to measure the Coronary Type A Personality and for this reason it can only poorly predict the OPPro dimension Composed vs. Contesting.

The relationship between the OPPro scales and Jung type indicator

A sample of 95 volunteers completed both the OPPro and the JTI as part of a test validation exercise. These comprised primarily personnel and training delegates attending Psytech courses but also a group of undergraduate Business Study students who completed both tests as part of a course on Personnel Selection. Table 13 suggests good overlap with OPPro dimension and JTI with simple correlations with each of the JTI scales and a single OPPro dimension ranging from .57 to .73. The most notable relationships exist between Gregarious and EI (-.62), Pragmatic and SN (-.66), Phlegmatic and TF (-.32) and Flexible with JP (.45). In addition to being linked to anxiety, TF is also related to empathy and imagination. With the levels of overlap reported here, the OPPro could provide fairly accurate estimates of type.

Table 12: Multiple Regressions predicting the OPPro from OPQ Factor 5 (N = 41)

OPPro Scale	R	OPQ predictors for each OPPro Scale
Assertive	.65	-Empathy, Influence, Contesting, Gregarious
Flexible	.58	-Detail-conscious, -Planful, -Conservative
Trusting	.64	Empathy, -Contesting
Phlegmatic	.61	Phlegmatic, Relaxed, Optimistic, Social-confidence
Gregarious	.58	Gregarious, Social-confidence
Persuasive	.66	Influence, Gregarious
Contesting	.44	-Relaxed, Contesting, Active, -Phlegmatic
Pessimistic	.43	-Optimistic, Planful, Contesting
Pragmatic	.53	-Imaginative, Planful, Detail-conscious, -Empathy
Distortion	.53	Social Desirability

Table 13: Correlations Between OPPro & JTI

OPPro Scale	EI	SN	TF	JP
Assertive	-.29	.01	-.17	.06
Flexible	-.01	.43	.11	.45
Trusting	-.04	.09	.18	.02
Phlegmatic	-.12	.14	-.32	.17
Gregarious	-.62	-.11	.15	-.03
Persuasive	-.50	.34	.02	.18
Contesting	-.11	.04	.08	.06
External	.16	-.23	.12	-.24
Pragmatic	-.11	-.66	-.24	-.25
Confirming	.02	.07	.12	.02
Central	-.11	.03	.06	-.11

The relationship between the OPPro and Eysenck's EPQR and I7 scales

A sample of 158 professional working adults completed both the OPPro and the EPQR and I7 as part of a test validation exercise. From the results presented in Table 14, we are able to discern that the OPPro correlates well with the EPQR Extraversion and Anxiety factors and reasonably well with the I7 Empathy factor. Both OPPro dimensions Gregarious and Persuasive have strong correlation with Extraversion with more modest association being observed with OPPro Assertive and Phlegmatic. In OPPro terms, an Extravert will tend to be gregarious and outgoing, not only enjoying company of others but also being in the social spot-light. They will be able to perform to the gallery, often taking the lead in meetings and social events and generally having a degree of confidence and will not typically suffer from stage-fright. EPQR Neuroticism has a strong inverse association with the OPPro dimension Phlegmatic and a moderate positive association with OPPro Pessimistic or external locus of control.

Psychoticism is not well measured by OPPro as would be expected. Only modest associations are found with EPQR Psychoticism with high scores on OPPro Assertive and Flexible and low scores on Trusting. Whereas the I7 measure of Impulsiveness does not relate to any OPPro dimension, Venturesomeness is moderately related to OPPro Persuasive, Phlegmatic, Optimistic and Assertive. Empathy appears to provide support for the OPPro Assertive dimension in that high scorers on I7 Empathy tend to be more accommodating. Equally high scorers on I7 Empathy tend to be less phlegmatic in OPPro terms.

The relationship between the OPPro and the NEO

A sample of 107 delegates on Psytech training courses completed both the OPPro and the NEO short form. Results were correlated and the extent to which the 'big-five' as measured by the NEO could be predicted by OPPro was estimated via multiple regression.

Most notable in Table 15 are the very high multiple R achieved in each case by a relatively small number of OPPro dimensions. This would tend to demonstrate that OPPro has excellent coverage of the 'Big-Five' and would more than justify using OPPro to predict 'Big-

Five' scores.

Taking each in turn, Neuroticism (N) correlates most highly (-) with OPPro Phlegmatic, but also registers a notable correlation with Pessimistic (Locus-of-control). The modest relationship with OPPro Suspicious is not surprising as this is generally considered to reflect an aspect of anxiety. Extraversion correlates most highly with OPPro Gregarious but also to a lesser extent, Persuasive. The modest negative correlations with Pessimistic and Pragmatic only serve to suggest that
Extroverts perhaps tend to be somewhat more Internal and Abstract-minded. Openness registers a very notable correlation with OPPro Abstract-Pragmatic, with Flexible and Trusting correlating more modestly. The NEO factor for Agreeableness is perhaps most hard to pin down, at least as far as OPPro is concerned, with no bi-variate correlation exceeding .5. However, the picture that emerges from the four significant correlations is that those high on Agreeableness (as expressed by NEO) tend to be more trusting and accommodating, are more aware of the feelings of others (Persuasive) and finally more Abstract. The highest single correlation with NEO Conformity is obtained with OPPro Phlegmatic, which would point to some lack of convergence between the two measures. However, examination of the correlation between NEO N and C reveal the single highest intercorrelation (-.42) suggesting that some of the overlap is inherent within the NEO itself. In addition, to this perhaps surprising result, less unexpected was the -.47 correlation with OPPro Flexibility-Rigidity.

Table 14: Correlations between OPPro dimensions, EPQR and I7 (n = 158)

OPPro Scale	EPQR Psych	EPQR Extra	EPQR Neurot	EPQR Lie	17 Impul	17 Vent	17 Emp
Assertive	.34	.38				.32	-.44
Flexible	.32						
Trusting	-.29						
Phlegmatic		.37	-.60			.35	-.42
Gregarious		.56				.27	
Persuasive		.55				.46	-.27
Contesting							
Pessimistic		-.42	.32			-.31	
Pragmatic							
Distortion				.56			

EPQR-Psych Psychoticism
EPQR-Extra Extraversion
EPQR-Neurot Neuroticism
EPQR-Lie Social-Desirability

I7-Impul Impulsivity
I7-Vent Venturesomeness
I7-Emp Empathy-Sensitivity

Table 14: Correlations between OPPro dimensions, EPQR and I7 (n = 158)

OPPro Scale	N	E	O	A	C
Assertive	-.44			-.38	.33
Flexible			.43		-.47
Trusting	-.31		.35	.47	
Phlegmatic	-.70				.52
Gregarious		.52			
Persuasive		.38		.38	
Contesting					
Pessimistic	.58	-.33			-.38
Pragmatic		-.30	-.67	-.35	
Multiple R	.75	.73	.74	.74	.71

N Neuroticism
E Extraversion
O Openness
A Agreeableness
C Conformity

The relationship between the OPPro dimensions and Iine's PPQ

A sample of 144 volunteers completed both the OPPro and the PPQ as part of a test validation exercise.

Table 16 provides some evidence to suggest that the OPPro dimensions cover the measurement space of the 'Big-Five' factors as measured by the PPQ. The PPQ Unconventional factor correlates positively with Flexible and negatively with Pragmatic as would be expected. The most substantial correlation is between the PPQ Conscientious Factor and the OPPro Flexible vs. Detail-Conscious. Tender-Minded individuals as measured by the PPQ tend to be more Accommodating and Abstract as measured by the OPPro.

There are some unexpected findings. Whereas we would expect PPQ Insecurity to correlate substantially with the OPPro Anxiety measure, Phlegmatic, the correlation (-.31) is only modest in size. More substantial correlations are obtained with the Genuine end of the Persuasive scale and the Pessimistic (External Locus of Control) scale. Whereas the latter is generally consistent with Locus of Control being an indicator of positive mental health, the former correlation would suggest a significant social anxiety element to the PPQ Insecurity Factor. The second unexpected finding is the failure of the OPPro Gregarious dimension to correlate significantly with PPQ Extraversion. Modest correlations are obtained with OPPro dimensions Persuasive and Internal Locus of Control and PPQ Extraversion. Given that these OPPro dimensions are relatively independent, correlating only at -.32, this would once again point to some degree of overlap between the Insecurity and Extraversion Factors of the PPQ.

The relationship between the OPPro and the values & motives inventory (VMI)

A group of 59 undergraduate Psychology students volunteered to participate in a test validation exercise which involved completing both OPPro and two Values questionnaires, VMI and MAPP. For their co-operation, they were all offered an interpretation of their results.

While VMI is strictly a measure of personal values, the degree of overlap that was observed with OPPro is noteworthy. Two very substantial correlations were observed. The first OPPro Pragmatic-Abstract and VMI Aesthetics (-.71) would suggest that these two scales are virtually interchangeable. That is,

the measure of how important you consider Aesthetics to be, is hardly different to how interested you are in Abstract and Imaginative pursuits as self-reported in a trait-based questionnaire (in this case OPPro). An alternative explanation may be that if you are highly abstract and imaginative, you are likely to consider such pursuits as highly important. This may also apply to the other substantially elevated correlation between Affiliative Needs as measured by VMI and OPPro Gregarious (.73). If you are gregarious, you tend to have high affiliation needs.

Table 16: Correlations Between the OPPro & PPQ (N=144)

OPPro Scale	PPQ Insecure	PPQ Tender-minded	PPQ Extraversion	PPQ Conscientious	PPQ Unconventional
Assertive		-.36		-.56	.33
Flexible					
Trusting					
Phlegmatic	-.31				
Gregarious					
Persuasive	-.43		-.36		
Contesting				.31	
Pessimistic	.40		-.35	.28	
Pragmatic		-.38			-.36
Distortion					

Some other interesting although less significant trends emerge. High scorers on OPPro assertive tend to place less emphasis on traditional values, having higher needs for Achievement and Financial Status. Those with high scores on Flexible appear less concerned with Tradition, Ethics, Morality and high achievement, placing greater value on independence and aesthetics. OPPro Trusting-Cynical correlates most highly with Altruism and Affiliation. Interestingly, the negative correlations observed between OPPro Phlegmatic and VMI Safety and Ethics would suggest that those who are concerned about safety are more likely to be anxious as measured by OPPro and that those who emphasise spiritual values also tend to be marginally more anxious than those who do not. This ties in with the correlation between Locus of Control and VMI Ethics which suggests that some degree of fatalism may be attached to such beliefs. The VMI relationships with OPPro Persuasive are also interesting. Here the suggestion is that those who are more likely to 'play to the gallery' and be 'political' if need be are less likely to hold strong personal beliefs and at the same time are likely to have a stronger need for achievement. It should be pointed out that these correlations are modest. OPPro Contesting, which registers fairly modest correlations with other measures, registers .35 with Need for Achievement which is entirely consistent with the go-getting freneticism of the Type-A personality.

The relationship between the OPPro and MAPP values

The same sample of 59 Psychology undergraduates described above completed OPPro and MAPP. The results are presented in Table 18.

While the two measures are not designed to cover the same constructs, nonetheless some meaningful patterns emerge which provide further insights into the nature of the OPPro dimensions. For example, the results suggest that people who value Responsibility are more

likely to be Assertive in OPPro terms. MAPP Empathy and OPPro Empathic (low Assertive) correlate quite well (0.46) suggesting that those who value Empathic behaviour are more likely to express it as well. The more Detailed they are (i.e., low on Flexibility) the more emphasis is placed on Security, Personal Authority and Results whereas higher scores on Flexibility are associated Novelty and Levity. Higher scores on Gregariousness are associated with an emphasis on Intimacy and the OPPro Contesting is strongly associated with MAPP Competition, Results and Responsibility. Those high on OPPro Contesting appear to place less emphasis on Levity, which suggests that they are perhaps inclined to take things quite seriously. A very strong relationship was registered between OPPro Abstract and MAPP Self-expression (0.63) supporting the finding observed with the VMI that trait expressions of Abstract-thinking are no more than an expression of an orientation or preference.

Table 17: Correlations Between the OPPro & VMI (N=59)

OPPro Scale	VMI correlations with each OPPro Scale
Assertive	Traditional (-.32), Nach (.30), Financial Status (.33)
Flexible	Traditional (-.58), Moral (-.32), Independence (.52), Ethics (-.32), Nach (-.37), Aesthetics (.33)
Trusting	Moral (.34), Altruism (.51), Affiliation (.37), Affection (.31) Financial Status (-.32), Aesthetics (.32)
Phlegmatic	Ethics (-.32), Safety (-.33)
Gregarious	Affiliation (.73), Affection (.47)
Persuasive	Ethics (-.32), Nach (.27)
Contesting	Nach (.35)
Pessimistic	Ethics (.32)
Pragmatic	Independence (-.32), Aesthetics (-.71)
Distortion	Moral (.46), Altruism (.37)

Nach = Need for Achievement

Table 18: Correlations Between the OPPro & MAPP (N=59)

OPPro Scale	MAPP correlations with each OPPro Scale
Assertive	Responsibility .36, Novelty .33, Altruism -.46
Flexible	Results -.35, Pers Authority -.53, Novelty .34, Levity .42, Security -.41
Trusting	Altruism .48, Intimacy .34
Phlegmatic	Security -.26, Work .27
Gregarious	Intimacy .47
Persuasive	Responsibility .32, Intellect .28, Results .27
Contesting	Competition .50, Results .44, Pers Authority .34, Responsibility .40, Levity -.41
Pessimistic	Recognition .37, Responsibility -.34, Intellect -.30
Pragmatic	Novelty -.36, Self-expression -.63
Distortion	Material Wealth -.34, Altruism .46

The relationship between the OPPro and Gordon's survey of interpersonal values

A sample of 375 volunteers completed both the OPPro and the Survey of Interpersonal Values (GSIV) as part of a test validation exercise. The sample comprised professional working adults, undergraduate students, lecturers and academic administrative staff.

The GSIV measures individuals' values by assessing what they consider important in relationships with others for the purpose of selection, placement, counselling and research. As the GSIV assesses values and not personality traits, it would be expected that the overlap between the two tests would be fairly modest. However, results on Table 19 indicate that there may be some sizeable relationships between personality predisposition and what we consider important in our inter-personal relationships. The most striking correlation is between OPPro dimension Flexible and the GSIV Need for Conformity. This correlation is at the level that would be expected as a reliability estimate of an individual scale and suggests that these two dimensions are covering essentially the same measurement space. GSIV Needs for Recognition and Benevolence are not well measured by the OPPro with only very modest correlations obtained. Need for Independence correlates well with OPPro dimension Assertive and Need for Leadership with Assertive and Persuasive, suggesting that people who want to take the lead in their inter-personal relationships also tend to have assertive and fairly persuasive characters.

The relationship between the OPPro and the occupational interest profile (OIP)

A sample of 108 undergraduate Psychology students completed the OPPro, Occupational Interest Profile (OIP) and the VPI (Vocational Preference Inventory) as part of a validation exercise.

While it might not be expected that personality trait scales correlate with vocational interests, the OIP Work Needs reflect in part personal qualities that are relevant in the world of work. As such (see Table 20) OIP Stability correlates very highly with OPPro Phlegmatic (.74) and OIP People with OPPro Gregarious (.74). Also notable is the strong observed relationship between OIP Control and OPPro Assertive, both of which reflect a desire to take a dominant role in inter-personal situations. Less significant but nonetheless noteworthy, OIP Change, which reflect a preference for variety at work as opposed to routine, correlates .51 with OPPro Flexible-Rigid. The OIP Variety scale which in fact assesses a preference for excitement and risk-taking as opposed to safety and security, only registers a marginal (-.28) correlation for Locus-of-Control. This suggests that there is a small tendency for risk-takers to have a more internal Locus-of-Control –hardly remarkable.

Table 19: Correlations Between OPPro & GSIV (N=375)

OPPro Scale	GSIV Support	GSIV Confor	GSIV Recog	GSIV Indep	GSIV Benev	GSIV Leader
Assertive			.21	.40		.50
Flexible		-.72	-.21	.22		
Trusting				-.26		
Phlegmatic	-.39					
Gregarious					.21	
Persuasive			.27			.49
Contesting			.20			.25
Pessimistic		.31				-.25

OPPro Scale	GSIV Support	GSIV Confor	GSIV Recog	GSIV Indep	GSIV Benev	GSIV Leader
Pragmatic Distortion	-.31	.21	-.27			

GSIV-Support – Support
GSIV-Confor – Conformity
GSIV-Recog – Recognition
GSIV-Indep – Independence
GSIV-Benev – Benevolence
GSIV-Leader – Leadership

Table 20: Correlations Between OPPro & OIP Work Needs (N=108)

OPPro Scale	Variety	Stability	Change	People	Control
Assertive				.32	.65
Flexible			.51		
Trusting		.41			
Phlegmatic		.74	-.31		.30
Gregarious				.74	.31
Persuasive				.44	.47
Contesting		-.30			
Pessimistic	-.28	-.42			
Pragmatic Distortion		.36			

VARIETY Need for Excitement
STABILITY Need for Stability
CHANGE Need for Change
PEOPLE Need for People
CONTROL Need for Leadership

As suggested above, there is less expectation for personality traits to overlap for vocational interest scales and by and large this is the case with OPPro and the OIP interest scales (see Table 22). There are one or two notable exceptions. The OIP preference which reflects activities including selling and persuading (Persuasive) registers a very high correlation with OPPro Persuasive (.72). Equally, the observed correlation between OPPro Pragmatic-Abstract and OIP Artistic is exceptionally high (.82), suggesting that expressed interest as measured by OIP is hardly distinct from expressed behaviour as measured by OPPro. OIP Scientific interest hardly registers with OPPro, other than to suggest that people who are generally more interested in Scientific pursuits are marginally more stable and internal. OIP Practical appears to have no coverage within OPPro, whereas OIP Administrative/Clerical appears to link with OPPro Pragmatic-Abstract and Flexible-Rigid, although only marginally. The OIP Nurturing scale does correlate with OPPro Gregarious and Composed. This reflects that the OPPro Gregarious does cover empathy, concern, as well patience, as far as other people are concerned.

The relationship between the OPPro and holland's vocational preference inventory (VPI)

A sample of 108 undergraduate Psychology students completed the OPPro, Occupational

Preference Inventory) as part of a validation exercise.

The Holland VPI covers not only vocational interests but also measures a number of personality characteristics, based on the selection of job titles. The VPI three letter code, based on the three highest recorded interests, can provide the basis for a job-search for which numerous references are available.

Other than the very high correlation with OPPro Abstract-Pragmatic with VPI Artistic, only modest correlations were observed (see Table 22). This is not surprising as OPPro and VPI set out to measure different characteristics Once again as observed with the relationship between OPPro and OIP, a very strong link appears to be confirmed between expressed interest in Artistic/Creative activities and Abstract/Imaginative behaviour. This same finding is evident from the OPPro/MAPP and OPPro/VMI relationships which suggest equally that personality and values are less distinguishable than might ideally be the case. Preference for Realistic professions registers only a marginal .27 correlation with OPPro Pragmatic, whereas personality appears to have little to do with interest in the Scientific area. Social (nurturing) professions are more likely to be endorsed by higher scorers on OPPro Gregarious, reflecting the concern for people aspect within this OPPro scale. The VPI Enterprising scale appears to be marginally related to OPPro flexibility, suggesting that individuals who are more set in their ways are less inclined to opt for roles which demand demonstrable business outcomes. Perhaps a little surprising, VPI Conventional scale does not register at all with OPPro Rigid-Flexible (r=-.09) and only marginally with Abstract-Pragmatic (.27).

While stronger relationships might be expected with VPI personality scales, this is only partly the case. The VPI personality scales were not designed to provide a definitive, comprehensive measure of personality and do not conform to any particular theory of behaviour. As such there is no measure of Extraversion or Anxiety, which are considered to be the most important of personality factors. In spite of this, some interesting relationships were observed.

The Masculinity-Femininity scale of the VPI registers a notable 0.38 correlation with OPPro Abstract-Pragmatic, suggesting that those who tend to select masculine occupations tend to be more Pragmatic as measured by the OPPro. As the VPI Masculinity-Femininity scale is capable of classifying males and females fairly accurately, this might point to a possible sex difference on this OPPro scale. Capacity for status correlates with OPPro Assertive, Persuasive and Abstract.

Table 21: Correlations Between OPPro & OIP Interests (N=108)

	OIP VOCATIONAL INTERESTS						
OPPro Scale	**Pers**	**SCI**	**PRA**	**ADM**	**NUR**	**ART**	**LOG**
Assertive	.50						
Flexible				.-.30			
Trusting							
Phlegmatic		.26				-.29	.28
Gregarious					.44		
Persuasive	.72						
Contesting					-.32		
Pessimistic		-.29					
Pragmatic				.30		-.82	.32
Distortion							

PERS Persuasive PRA Practical SCI Scientific LOG Logical

ADMClericalNURNurturingARTArtistic

Table 22: Correlations Between OPPro & VPI (N=108)

OPPro Scale	R	I	S	E	A	C	SC	M/F	Status	Infreq
Assertive									.30	
Flexible				-.34						
Trusting							.24			
Phlegmatic					-.29					
Gregarious			.34							
Persuasive					.34				-.39	-.27
Contesting										
Pessimistic										
Pragmatic	.27			.30	-.66	.27		.38	-.34	
Distortion										

R Realistic
E Enterprising
I Investigative
A Artistic
S Scientific
C Conventional

SC Self-Control
M/F Masculinity
Femininity
Status Capacity Infreq
Infrequency

Validity study using external criterion scales

A concurrent validity study was performed correlating a number of the OPPro dimensions with the specific external criterion scales on which they were based:

Rigidity
The OPPro dimension Flexible –Detail - Conscious was validated against Gough and Sandford's (1952) Rigidity scale. This scale measures an individual's resistance to change with high scorers being detail conscious, persevering and fastidious and low scorers having a conservative, traditional nature.

Self-Monitoring
The OPPro dimension Persuasive –Genuine was validated against Snyder's (1974) Self-monitoring scale. This scale measures a person's tendency to base their behaviour either upon the demands of the situation or upon their own attitudes and values.

Extraversion, Neuroticism and Social Desirability
The Extraversion and Neuroticism scales from Eysenck's Personality Inventory (EPI) and EPQR were used to validate the OPPro scales Gregarious –Reserved and Anxious–Phlegmatic respectively. In addition, the brief lie scale which is included in the EPI was correlated with the OPPro Distortion scale.

Social Desirability
Given the brevity of the EPI and EPQR lie scales, and hence their low reliabilities, the OPPro Distortion scale was also validated against a longer and more reliable measure of Social Desirability (SD). Thus, The OPPro Distortion scale was also validated against Strahan and Gerbasi's (1972) short homogeneous versions of the Marlow-Crowne SD scale.

Machiavellianism
The OPPro scale Cynical –Trusting, which attempts to measure the Machiavellian personality, was validated against Christie and Geis's (1962) Machiavellianism scale.

Type A behaviour
The OPPro dimension Composed-Contesting was validated against May and Kline's (1987) shortened form of the Jenkins Activity Survey.

This scale measures Coronary Type A Behaviour which consists of the following facets: impatience, hard-driving/ competitiveness, speed/haste and unrepressed expression of emotion.

Locus of Control
The OPPro dimension Optimistic–Pessimistic was validated against Levenson's (1973) Internal-External Locus of Control scale. This consists of three sub-scales which measure respectively the beliefs that: powerful people control your life (Powerful Others), that your life is controlled by chance events (Chance) and that you are in control of your life (Internal).

Direction of Interest
The OPPro dimension Abstract–Concrete was validated against Caine et al.'s (1982) Direction of Interest Questionnaire (DIQ). This questionnaire measures a person's 'thinking style', assessing whether the person has a practical, concrete and realistic approach to problems or an abstract, theoretical, imaginative approach.

The first thing that inspection of Table 23 below reveals is that all but one of the criterion scales are highly correlated with their respective OPPro dimension. With the exception of the correlation between the OPPro dimension Trusting and its criterion scale, Machiavellianism, all these correlations are in excess of .58. This suggests that each of these dimensions is measuring the construct it was designed to measure.

The relatively low correlation (r=.38) between the OPPro dimension Trusting-Cynical and its criterion scale (Machiavellianism) suggests that while this OPPro dimension shares something in common with its criterion scale, it is measuring something different from Machiavellianism. The modest correlation between this dimension and the Powerful Other subscale of the Locus of Control scale (r= -.33) is, however, consistent with the idea that this dimension is measuring a general distrust of others, which is based on the belief that others may attempt to control you. Clearly more work is required to fully validate this scale. A final point of interest is that only the chance subscale of Levenson's (1973) Locus of Control scale was strongly correlated with the OPPro dimension Optimistic–Pessimistic (r=.59). While one may not have expected the Powerful Others subscale to be correlated with this dimension, one would have expected the Internality subscale to be strongly correlated, if this OPPro dimension were measuring a unidimensional concept of Locus of Control. Thus, the present results suggest that this OPPro dimension is measuring the fatalistic belief that one's life is controlled by chance.

Table 23: Correlations between OPPro Dimensions & External Criteria (n = 59)

External Measure	OPPro Dimension
Rigidity	Flexible -.78 Concrete .60
Neuroticism	Phlegmatic .60
Extraversion	Gregarious .62
Self-Monitoring	Persuasive .59
Type A	Contesting .58
Machiavellianism	Trusting .38
External Locus of Control	Pessimistic .59
EPI Lie Scale	Distortion .51 (.56 EPQR)
MC (30)	Distortion .68

CRITERION VALIDITY

In this section, we provide details of number of studies in which the OPPro has been used as part of a pilot study on a sample of job incumbents on whom performance data was available. Whilst it is not specifically recommended that

personality measures be used as direct measures on future job performance, these studies are intended to reflect the manner in which personality measures may shed light on some of the personality determinants of job performance.

Clerical performance

This investigation was carried out on behalf of a highly successful financial services group based in Hertfordshire. The aim of the study was to examine the extent to which the results of a number of tests including OPPro were related to measures of job performance. A sample of 75 junior clerical staff were tested and their performance rated on criteria elicited from the objective job analysis. Correlations with OPPro dimensions and performance criteria are displayed in Table 24.

Service engineers

A U.K. leading Crane & heavy lifting equipment servicing company tested a sample of 46 service engineers on the OPPro GRT2 battery (see GRT2 Technical Manual). Their overall performance was rated by supervisors.

Financial services:

A major financial services organisation administered the OPPro to new recruits in a sales role at the beginning of a residential training course as a validation exercise. It was hypothesised that as the selling process relies on interpersonal characteristics, there would be correlations between sales performance and OPPro dimensions. Sales performance was separated into issued and written business.

Issued business refers to the seller's actual earnings; policies that have been bought by the customer. Written business is a measure of what the seller declares as potentially sold before the business is issued; it is seen as a measure of the seller's potential earnings. It was hypothesised that poor sellers might have a high written, but low issued business level because they are selling to customers who have no intention of taking up policies, or they are not completing their paper-work properly.

Gregariousness, Persuasiveness and Conscientiousness registered statistically significant positive correlations with issued sales – overall, 15% of the variability in issued sales was accounted for. Written sales demonstrated fewer correlations, with Persuasiveness being the only predictor variable to achieve a modest correlation. This supported the notion that more Persuasive sales consultants may be better at obtaining initial interest, whilst Conscientiousness may contribute to closure of the sale. This could lend credence to the hypothesis that poor sellers did not complete paperwork properly.

Printers

A major local newspaper group with the largest number of local titles in the United Kingdom sought to examine whether tests could predict the job performance of experienced printers. A sample of 70 completed the OPPro GRT2 battery as well as the MRT2 (Mechanical Reasoning Test). Each of the group were assessed on a number of performance criteria by supervisors. In addition, test data were correlated with the results of a job sample print test which was administered at selection stage. Table 26 displayed the results of this study.

Table 24: Relationship between OPPro and Clerical Performance Criteria

Criterion	OPPro Dimension
Overall Performance	Assertive -.26 Conforming .18
Attitude towards work	Contesting -.17
Communication Skills	Flexible -.34 Persuasive -.32 Phlegmatic -.24 Pragmatic .22 Assertive .22
Attention to detail	Assertive -.36

Table 25: Correlations between OPPro & Service Engineer Performance

OPPro/GRT Measure	Overall Performance
Verbal	.46
Conforming	.30
Abstract	.28
Numerical	-.24
Contesting	.15

Table 26: Correlations Between OPPro & Printer Performance Criteria (N=70)

Criterion	OPPro Dimension
Overall Performance	Abstract .36 Numerical .28 Verbal .26
Performance Job Sample	MRT2 .42 Abstract .41 Verbal .33 Numerical .30 Pessimistic -.31 Contesting -.25
Initiative	Abstract .56 Numerical .44 Verbal .40 MRT2 .39 Pessimistic -.32 Flexible .27 Contesting -.27 Phlegmatic .25
Time keeping	Abstract -.32 Pessimistic .30 MRT2 -.29 Flexible -.25

Telesales staff

A sample of 30 existing telesales staff from a motor insurance company completed the OPPro GRT2 battery. Their overall performance was rated by their supervisors.

As can be seen the OPPro dimension flexible correlated fairly highly with overall performance, suggesting that the more detail-conscious staff were highly rated by their supervisors (see Table 27).

Department store sales staff

A major London department store used the OPPro to investigate the possibility of using personality measures to help predict future performance at the selection stage of their recruitment process. A total of 231 of their sales staff completed the OPPro and supervisor appraisal ratings were used as an overall performance measure. As can be seen from Table 28 three of the OPPro dimensions showed significant correlations with the criterion measure. Subsequent analysis demonstrated that these three dimensions identified 77% of the good performers in the sample.

Sales consultants in the furnishing trade

A major furniture retail company used the OPPro to help identify the most important personality characteristics for successful sales people. A total sample of 69 sales consultants was used for the study. As Table 29 shows there were a few interesting correlations with the performance criteria. Sales consultants who were fairly practical, calm and not too cynical tended to achieve the most orders. Sales consultants who achieved the highest monetary sales performance tended to be more extraverted and accommodating.

Prediction of job performance ratings for car dealership managers

A sample of 24 car dealership managers were assessed by their supervisors on a range of performance criteria. The correlations between their scores for these criteria (averaged to form

a single competency rating) and their OPPro dimensions are shown in Table 30.

Training applicants for car component training course

A large training company used the OPPro + General Reasoning Test to investigate the profiles of successful/non-successful applicants for training on a car components assembly task. A sample of 150 applicants was used for the study. It was found that a number of OPPro dimensions provided significant correlations with successful applicants.

The important OPPro determiners for successful applicants were flexibility and an internal locus of control both qualities which are probably necessary if one is to successfully learn a new skill. Successful applicants also tended not to be too phlegmatic nor prone to give socially desirable answers (see Table 31).

Whole sale electrical goods retailer

A major electrical goods wholesaler used the OPPro to identify predictors of effective performance among branch managers. A randomly selected sample of 30 branch managers were asked to complete the OPPro during a training course. A number of OPPro scales were related to a rating of job performance made by Regional Managers.

The more effective managers tended to be quite practical and pragmatic in their approach to solving problems. They were also more likely to be fairly anxious and not as self-assured as their less effective colleagues, but were more competitive. For this company, at least, extremely calm, self-confident managers did not seem to be particularly effective sales managers (see Table 32).

Table 27: Correlations between OPPro/Reasoning & Telesales Performance Criteria

OPPro/GRT Measure	Overall Performance
Verbal	.37
Conforming	-.30

Table 28: Correlations between OPPro & Retail Staff Performance

OPPro/GRT Measure	Overall Performance
Trusting	.17
Phlegmatic	.17
Pessimistic	-.23

Table 29: Correlations Between OPPro & Sales Consultant Performance Criteria

Criterion	OPPro Dimension
Net Orders	Pragmatic .23 Phlegmatic .19 Trusting .17
Converting leads to sales	Phlegmatic .26 Contesting -.25 Pessimistic -.22 Trusting -.16
Average value of sales	Gregarious .29 Assertive -.16 Pragmatic -.13

Table 30: OPPro Correlations with Performance Ratings of Car Dealership Managers

OPPro Predictor	Correlation Coefficient
Accommodating – Assertive	-.53
Cynical – Trusting	.36
Emotional – Phlegmatic	.34
Composed – Contesting	-.56
Optimistic – Pessimistic	-.34

Table 31: Correlations between OPPro & Successful Applicant for Component Course

OPPro Scale	Success
Flexible .29	.29
Phlegmatic -.17	-.17
Pessimistic -.16	-.16
Conforming -.18	-.18
Verbal .27	.27
Numerical .16	.16
Abstract	.30

Table 32: Correlations Between OPPro & Effective Sales Managers

OPPro Scale	Success
Pragmatic	.45
Phlegmatic	-.28
Contesting	.23
Pessimistic	.28

OPPro TEST QUALITY ANALYSIS

Test quality analysis (TQA) is a quantitative assessment of the quality of measurement of test items and scales. Quality of measurement is defined in the following analyses, with a single quality index –TQI, being provided by the equations in Barrett, Kline, Paltiel, and Eysenck (1993).

Item complexity

For each scale, the items which are not part of that scale are correlated with the scale score. The number of items correlating higher than a given bound value are noted. If more than 5 such items correlate at this level, they are treated as a scale and the correlation between the target scale score and the new scale score is computed, as is the new internal consistency coefficient. This analysis highlights items which are significantly related to non-keyed scales. It is a mandatory feature of the OPPro that no item correlates higher than the mean item-total correlation (ITC) for any non-keyed scale. This is generally a more restrictive analysis than the usual constraint of every item correlating higher with its own scale score than on any other scale score. For example, given an item correlates 0.5 with its own scale score

and 0.43 with another non-keyed scale, the conventional analysis would accept this item. However, if the mean ITC for the non-keyed scale is 0.40, this item would be flagged accordingly in the analysis. This analysis is sensitive to the size of the specified bound value (mean ITC or some other value) but insensitive to an item that may correlate 0.2 with its own scale and 0.3 with another scale. The next analysis addresses this situation.

Signal-to-noise ratio of items

The normalised ratio of keyed scale ITC (the ITC for an item on its specified scale) to the average non-keyed scale ITCs reduced in size by a correction factor that takes into account the quantity of this item's non-keyed ITCs that are two-thirds greater than the mean ITC on every non-keyed scale. This ratio is computed for each item in the test. It thus provides a highly constrained parameter that takes into account the size of the non-keyed scale ITCs for an item. Essentially it indexes the capacity of an item to provide a measure which is unique to a particular scale. A value of 1 indicates an item with no measurement noise or cross-talk. A value of 0 indicates an item that is incapable of making a measure that is not significantly confounded by associations with other scale scores in the test.

Scale (test) quality index (TQI)

This parameter indexes the measurement quality of a scale of items as a whole, taking into account the scale-item complexity, signal to noise ratio of the scale, and the disparity of mean ITCs below the mean ITC within a scale. This latter correction guards against the number of items in a scale that might have low ITCs, but where the mean ITC is biased upwards by the greater number of higher ITCs in the scale. For example, in a scale with 10 items, the first 5 items have ITCs of 0.5 the next 3 have ITCs of 0.42 and the last 2 items have an ITC of 0.15. The mean ITC for that scale is 0.41 which might otherwise appear to meet accepted standards and obscures two ITCs of marginal conceptual significance. The correction applied is sensitive to the quantitative level of disparity from the mean scale ITC value.

The global TQI varies between 0 and 1, a value of 0 indicating no test quality of measurement and a value of 1 denoting perfect measurement. Values between 0.6 and 0.8 indicate moderate to good measurement quality with values above 0.8 indicating excellent measurement characteristics.

Measurement complexity

A measure of the measurement complexity or unwanted measurement noise in a test can also be made, using the results from signal to noise ratio analyses noted above. The Test Complexity Index (TCI) is computed by summing the number of items with complexity ratios less than 0.5 (greater than the measurement noise of an item) and dividing this quantity by the total number of items in the test. A value of 0% would indicate no measurement complexity or crosstalk at all, a value of 100% indicates that no item in the test is capable of making a measure of a trait that is not confounded by its simultaneous measurement of several other trait characteristics. TCIs greater than about 20% indicate low factorial simplicity (Kaiser 1974) and poor rotational simple structure and factorial signal-to-noise ratios (Barrett et al, 1996).

Table 33 provides the Test Quality Indices (TQI) and Test Complexity Indices (TCI) for the OPPro questionnaire, in comparison with those computed over the Kline & Lapham PPQ, Saville & Holdsworth Concept 5.2, Eysenck's Personality Questionnaire –Revised (EPQR) and I7 scales, Gordon's Survey of Interpersonal Values (normative form) and two samples of the Sixteen Personality Factor Questionnaire (16PF) form A. The OPQ sample was provided by 621 mixed sex, applicant respondents aged between 10 and 50. The 16PF data was provided by a sample of 1898 mixed sex applicants and a second sample of 922 mixed sex graduate managerial applicants.

As can be seen from this table, the OPPro has a TQI value of 0.71, indicating a good measurement quality. Its complexity is about 16% – this compares very favourably with an OPQ TQI of 0.60 & TCI of 27.8%. As Barrett et al have indicated, this is due to extreme overlap between some of the OPQ scales. Of significance in this table is the extraordinarily low parameter values for the 16PF. These values indicate that the 16PF is not capable of discrete measurement across

many of its scales. That is, most of the items in the test are not only contributing to their own scale measures but also to many others in the same test, thus making it impossible to ascertain exactly which trait is being indexed by any one item.

Table 33: TQIs & TCIs for a Number of Different Tests

	TQI	TCI (%)
SHL OPQ Concept 5.2	0.60	27.84
Psytech's OPPro	0.71	15.98
Kline & Lapham PPQ	0.64	17.65
Eysenck EPQR	0.79	5.00
Eysenck I7	0.80	0.00
Gordon SIV	0.73	15.56
Cattell 16PF (N=1898)	0.12	75.84
Cattell 16PF (N=922)	0.08	69.01

ADMINISTRATION INSTRUCTIONS

BEFORE STARTING THE QUESTIONNAIRE

Put candidates at their ease by giving information about yourself, the purpose of the questionnaire, the timetable for the day, if this is part of a wider assessment programme, and how the results will be used and who will have access to them. Ensure that you and other administrators have switched off mobile phones etc.

The instructions below should be read out verbatim and the same script should be followed each time the OPPro is administered to one or more candidates. Instructions for the administrator are printed in ordinary type.

Instructions designed to be read aloud to candidates incorporate a grey shaded background, italics and speech marks. If this is the first or only questionnaire being administered, give an introduction as per or similar to the following example:

> " *From now on, please do not talk among yourselves, but ask me if anything is not clear. Please ensure that any mobile telephones, pagers or other potential distractions are switched off completely. We shall be doing the Occupational Personality Profile which has no time limit, however most people take about 15 minutes. During the test I shall be checking to make sure you are not making any accidental mistakes when filling in the answer sheet. I will not be checking your responses.* "

WARNING: It is most important that answer sheets do not go astray. They should be counted out at the beginning of the test and counted in again at the end.

Continue by using the instructions **EXACTLY** as given. Say:

DISTRIBUTE THE ANSWER SHEETS

Then ask:

> " *Has everyone got two sharp pencils, an eraser, some rough paper and an answer sheet.* "

Rectify any omissions, then say:

> *Print your surname, first name and title clearly on the line provided, followed by your age and sex. Please insert today's date which is [ ] on the 'Comments' line*

Walk around the room to check that the instructions are being followed.

WARNING: It is vitally important that test booklets do not go astray. They should be counted out at the beginning of the session and counted in again at the end.

DISTRIBUTE THE BOOKLETS WITH THE INSTRUCTION:

> *Please do not open the booklet until instructed*

Remembering to read slowly and clearly, go to the front of the group and say:

> *Please open the booklet and follow the instructions for this test as I read them aloud.*

(Pause to allow booklets to be opened).

> *This is a questionnaire concerning your interests, preferences and feelings about a range of things.*
> *You are asked to rate yourself on a scale from 1 to 5 on each question. When you have chosen the answer appropriate for YOU, record this by blackening the corresponding box on the answer sheet.*
> *For example:*
> *Ratings:*
>
> | *1* | *2* | *3* | *4* | *5* |
> |---|---|---|---|---|
> | *Strongly Agree* | *Agree* | *In between* | *Disagree* | *Strongly Disagree* |
>
> *1. I like to watch the news on TV.*
> *If you strongly agreed with this statement, you would fully blacken box 1 against question 1 on your answer sheet.*

Check for understanding of the instructions so far, then say:

> *When answering the questions, please remember the following:*
> *1. Do not spend too much time pondering over the answer to each question. The information given in a question may not be as full as you would wish, but answer as best you can.*
> *2. Please try to avoid the middle (In between) answer wherever possible.*
> *3. Be as honest and truthful as you can. Don't give an answer just because it seems to be the right thing to say.*
> *4. Make sure you answer every question, even those which do not seem to apply to you.*
> *5. If you wish to change an answer, please erase it and insert your new answer.*

Then say very clearly:

> *Is everybody clear about how to do this test?*

Deal with any questions appropriately, then say:

> *Please turn over the page and begin*

Answer only questions relating to procedure at this stage, but enter in the Administrator's Test Record any other problems which occur. Walk around the room at appropriate intervals to check for potential problems. When everybody has completed the questionnaire:

COLLECT ANSWER SHEETS & TEST BOOKLETS, ENSURING THAT ALL MATERIALS ARE RETURNED (COUNT BOOKLETS & ANSWER SHEETS)

Then say:

> *Thank you for completing the Occupational Personality Profile.*

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