
ANGLIA BUSINESS SCHOOL

**CLUSTER PROFILING
In Personnel Selection**

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Abstract

Finding the right person to fill a job vacancy is not an exact science. It is certainly illusory to suppose that a perfect candidate can be found, or even that the complete requirements of the job can be defined precisely. What can be done, however, is to compare patterns, or *clusters*, of job requirements with equivalent patterns of attributes identified in a candidate, using the simple matrix-based graphical methodology described in this paper. Where the clusters of job requirements and candidate attributes can be broadly mapped on to one another, the candidate is likely to be well-suited for the job.

Introduction

The selection of personnel to fill job vacancies may be characterised as a process consisting of six phases:

<u>Phase</u>	<u>Product/outcome</u>
1: Definition of the vacant job	Job Description
2: Description of the ideal candidate's attributes	"Person Specification"
3: Attraction of applicants	Formal applications
4: Assessment of candidates	Quasi-objective data about candidates
5: Comparative evaluation	Identification of preferred candidate
6: Job offer	Appointment

A considerable literature exists on the first four of these phases, and on the sixth, especially in regard to the legal aspects of employment. This literature will not be reviewed or summarised here, except where necessary to provide contextual detail. Instead, the focus is on describing a simple but very powerful method of comparing the information about individual candidates, which is collected during the *Assessment* phase, with the "Person Specification" which represents the hypothetical ideal candidate.

Preparation

Phase 1: Job Description

It would hardly be possible to begin the process of filling a vacancy without first defining that vacancy in terms of the job to be done: the *Job Description*.

Formal job descriptions are, inevitably, only partial accounts of the work which is actually performed (if the job already exists) or that the new incumbent will end up actually doing, in the case of a completely new post. A well-known study by Maier et al (1959) asked senior managers in a range of organisations to define the role of a subordinate whose work they knew well, in terms of major responsibilities, priorities and qualifications required. The subordinates were asked the same questions independently. Comparison between the two sets of answers found only 35% agreement. This should serve as a warning about how much reliance to place on job descriptions, but also as a pointer to ways of making them more robust. Clearly, asking someone who actually does that job, or has done so *very recently* (an important qualification) is likely to provide some valuable information. However, the fact that the formal documentation may not be a particularly accurate or comprehensive account of the actual job should not cause any despondency. Recruiters habitually look for qualities in candidates such as initiative, experience (by which we usually mean “has learnt more about the function than we can think of right now”), decision-making and problem-solving abilities. These qualities would be pointless, even disruptive or subversive, if the candidate would never be required to deal with demands which were unanticipated when the job description was drawn up.

A formal job description, therefore, should be regarded as indicative, rather than definitive, of the work the new recruit will be required to do. Nevertheless, it will be worthwhile to make this document as comprehensive as is possible or practical, and to base it on fairly rigorous analysis of the known requirements, since it will form the basis upon which the rest of the selection process depends. At the least, the job description should cover the following:

- ★ Conditions (Hours, pay, bonus, benefits, holidays, etc)
- ★ Job Content (Tasks, duties, responsibility levels, authority, etc)
- ★ Job Identification data (Title, department, location, etc)
- ★ Performance norms/ standards (A reasonably clear indication of what level of performance is expected)
- ★ Relationship Mapping (Reporting lines, subordinates, peers, customers, suppliers, matrix arrangements, etc)
- ★ Any other relevant details

Once the best available definition of the job to be done has been assembled, it becomes possible to move on to the next phase in the process; that of describing the person who would, theoretically, be the ideal candidate.

Phase 2: Person Specification

The person specification has been defined as “the specification of a job in terms of the human characteristics required in order to do the job” (Torrington & Hall, 1987). *Required* is a little too prescriptive here. It is fairly usual to divide the person specification into two columns: *Essential* and *Desirable*, and it is easy to get carried away at this point. Firstly, if the job could be performed adequately by someone who lacked a certain quality or characteristic (even if this is only possible by modifying the job or offloading/exchanging some of its duties) then that characteristic cannot justifiably be described as essential. There is probably no end to the list of characteristics which might be considered desirable in the ideal candidate. The probability, and the cost, of attracting the possessor of such a list will act as a natural restriction on over-enthusiasm here. It should also be remembered that over-qualified, or more accurately, under-utilised people are as susceptible to stress as the over-challenged or overworked, and certainly as likely to find their work demotivating (Fletcher, 1988; Cox & Griffiths, 1995). Stressed and/or demotivated people tend not to perform very well, no matter how highly qualified they seem to be. It must also be decided whether the ideal candidate must already possess the specified attributes, or have the potential to develop them after appointment

The contents of a person specification should cover the following points:

- ★ Contacts (If candidates will be selected on the basis of who they know, or the leads or introductions they can provide, we should acknowledge the fact, at least to ourselves).
- ★ Education (Level of education or specific educational attainments necessary or demonstrably desirable for good performance of the job)
- ★ Experience (See the remarks above)
- ★ Personality characteristics (Where relevant, definable and assessable)
- ★ Physical Requirements (Where these are clearly relevant)
- ★ Skills/Aptitudes (Specific definable abilities, whether formally assessed or not)
- ★ Vocational Qualifications (including statutory or regulatory requirements) (Assessed ability to perform certain functions identified as requirements of the job, and any "licence to practise" qualifications imposed from outside the organisation)
- ★ Any other relevant requirement

The person specification defines who will be excluded; ie, who will not be considered for the job. As such it has very real legal/anti-discriminatory implications. This is the formal side of something which is also a practical issue affecting the limitation of available candidates. Many of the terms used in the person specification arise from simple stereotyping, which is not to imply that this is necessarily unjustified. For example, if we specify that candidates must be educated to first degree standard, we assume that someone with a first degree will possess a package of qualities that we associate with graduates. This saves us from having to test for these qualities ourselves. Similarly, if we ask for 5 GCSE passes at grades A-C, including English and Maths, we expect to receive applications only from basically literate and numerate candidates (but how much algebra or geometry will be involved in the job? - Both of these are tested in GCSE Maths).

- ★ Networks Governmental, NGO or educational bodies, trade/professional organisations, informal contacts.

The outcome of this phase should be a manageable number of applications, which can then be reduced to a shortlist of candidates who *all* appear to be suitable for appointment to the job. The receipt of a large number of applications may indicate that inappropriate communications methods were used, that the attributes required were poorly expressed, or a degree of desperation in the labour market. Whatever the cause, it means a heavy workload for the recruiters in eliminating unsuitable and weak applications. On the other hand, the greater the number of ostensibly suitable applicants that are attracted, the greater the statistical probability of finding and appointing an excellent candidate.

The process of shortlisting applicants necessarily involves some assessment of their attributes, usually based almost wholly on what the candidates say about themselves in their applications. Where large numbers are involved, this may involve some fairly arbitrary decisions. However, the *Assessment of Candidates*, which is the next phase in the selection process, refers to a more direct and certainly more rigorous data collection activity.

Phase 4: Assessment of candidates

Perhaps the most widely-used method of candidate assessment is the interview, despite overwhelming evidence that interviews are highly ineffective in leading to sound judgements in this context (Herriot, 1989). Fortunately, structured interview techniques and trained assessors can improve the effectiveness of interviews considerably. Also, the fact that interviews have a "ritual" significance beyond their overt purpose of assessment should not be overlooked. (Torrington & Hall, 1987).

A modern selection process is likely to take a more varied approach to the task of learning about a candidate's attributes than simple reliance on the interview alone. A range of methods is available, each of which can provide partial information at various levels of accuracy, but several different methods taken together can build a comprehensive

and at least adequately accurate overall picture (Woodruffe, 1990). The methods available include:

- ★ Analytical exercises Test ability to identify and evaluate relevant data
- ★ Group exercises Test ability to function as part of a team, cooperative participation, social skills, leadership potential
- ★ Interviews (See comments above)
- ★ Literacy, Numeracy, Verbal ability Tests Test for basic skills (not necessarily restricted to low levels of attainment)
- ★ Practical tests Test specific psychomotor skills (eg, typing, driving, operating machinery)
- ★ Presentations Test competence at organising and communicating information
- ★ Psychometric tests Tests are available to measure a wide variety of attributes, including: general intelligence, personality characteristics, special abilities or aptitudes, values, attitudes, interests (Toplis, Dulewicz & Fletcher, 1991)
- ★ Reverse interviews The candidate has an opportunity to question senior organisation members: tests ability to gather information, interact with superiors
- ★ Role play Tests ability to perform a specific function, simulated for the exercise.
- ★ Work simulation exercises (Often called "in-tray" exercises) Test candidates' proficiency in simulated workplace situations

Publicly-recognised qualifications such as GCSEs/A-levels, degrees, NVQs, membership of professional bodies, etc., may be taken as evidence in some areas, obviating the need for the organisation to conduct its own tests (see comments above).

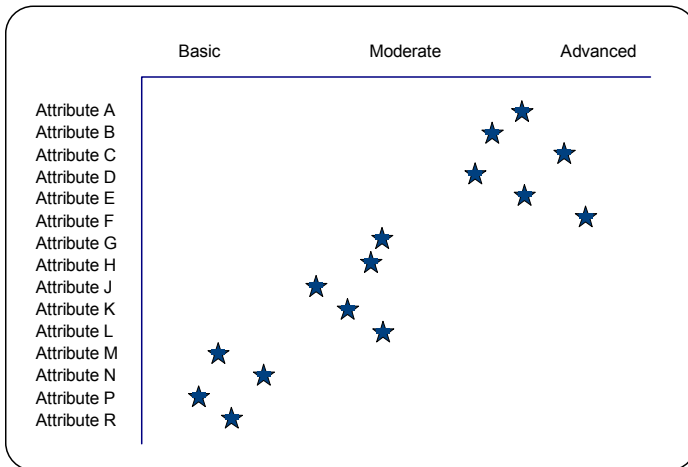
The purpose of all such assessments is to assemble a body of information about each candidate which can then be used to determine if, how and to what extent he/she matches the hypothetical model of the ideal appointee, as defined in the person specification. This comparative evaluation is Phase 5 of the personnel selection process.

Cluster profiling, which will be described below, is one approach to this phase.

Phase 5: Comparative Evaluation:

The process of cluster profiling

Cluster profiling is a visual matching methodology designed to show "goodness of fit" between graphical representations of two sets of attributes or qualities. It utilises a two-dimensional matrix to display the level or degree to which identified attributes are required for acceptable job performance, and a copy of the same matrix to display the level to which each attribute is possessed by an individual candidate.



This information is assembled in the following way:

Step 1

The list of essential and desirable attributes identified in the person specification will be used to populate the vertical axis of the matrix.

The order in which attributes are listed is a key factor in producing the graphical representation of cluster profiling. In the example on the right the attributes are listed alphabetically and must be sorted into a more suitable order using a process known as *affinity analysis*.

This is best done as a group activity, involving a team of perhaps 4-5 people with a direct interest in ensuring that a suitable candidate is appointed.

adaptable
budgeting/financial management
commercially aware
awareness of competition
awareness of compliance issues
computer literacy
conflict-handling ability
customer relations experience
able & willing to delegate
committed to the development of staff
high standard of written English
conversational French
initiative
innovation
management qualification
numerical analysis skills
personal impact
forward planning skills
product knowledge (operational)
product knowledge (technical)
knowledge/experience of project management
risk taking
staff management experience
team player
willing to travel
committed to TQM

The underlying principle of affinity analysis is that items which are similar to each other should be close together in the listing. There are several approaches to this which can produce satisfactory results but the following method has been found easiest to facilitate for people who are new to the concept of affinity analysis.

A review of the list of items above will suggest a small number of broad *groups* of attributes, such as:

Inter-personal skills
General education
Management technical skills
Personal situation/attitude

The first task for the team is to allocate each item to the most appropriate of these headings. (It will be found helpful to write each item in large print on a Post-It note®, which will make it easier to move the items around and keep them visible to everyone in the team.

Failing this, a whiteboard can be used, but frequent erasure and re-writing will be necessary.)

It is to be expected that there will be considerable debate about where any individual attribute properly belongs. For example, is "*able and willing to delegate*" a "management technical skill", an "inter-personal skill", or a manifestation of "personal situation/attitude"? There is no suggestion here that any of these is, in any meaningful sense, a "right" answer. The whole process is one of subjective judgements and if the participants believe the choices to be reasonable then satisfactory outcomes are highly probable.

Using the four groupings suggested above, and allocating each item to one of the groups in this way might produce a revised list similar to that shown below.

<u>Inter-personal skills</u>	<u>General education</u>	<u>Management technical skills</u>	<u>Personal situation/attitude</u>
conflict-handling ability able & willing to delegate committed to the development of staff personal impact presentation skills team player	computer literate high standard of written English conversational French management qualification numerical analysis skills problem-solving skills	Budgeting/financial management commercially aware awareness of competition awareness of compliance issues customer relations experience aware of equal opportunities issues experience in advertising/communications forward planning skills product knowledge (operational) product knowledge (technical) knowledge/experience of project management staff management experience committed to TQM	adaptable initiative innovation risk taking willing to travel

One item is selected as representative of each group. For example, it might be thought that "*high standard of written English*" was reasonably representative of general education. Similarly, "*budgeting/financial management*" might be taken as representative of management technical skills, "*team player*" could be taken to represent inter-personal skills, and "*willing to travel*" might represent personal situation/attitude. These items have little in common.

The selected items are then arranged in *affinity order*. To do this, one of the items is displayed prominently, eg:

budgeting/financial management

The team then agree which of the remaining three selected items is most similar to "*budgeting/financial management*". They might decide that "*team player*" came closest, so this is displayed next to the first item:

budgeting/financial management
team player

In this example, two items remain to be placed. One - perhaps "*high standard of written English*" - is chosen and the team agree whether it is more similar to "*budgeting/financial management*" or "*team player*". In this case they might decide that it had some affinity with financial management but little or none with human relations, so it will be placed as shown below:

high standard of written English
budgeting/financial management
team player

This judgement is, of course, open to dispute, but consensus among the team is sufficient to justify their subjective decisions. In this instance it might have been concluded that a "*high standard of written English*" had much the same degree of similarity to both the other items, in which case it would have been positioned between them.

The one remaining item is dealt with in the same way. The team ask themselves which of the three items on display is conceptually closest to "*willing to travel*". They might conclude that it has some affinity with being a "*team player*", but little or none with the other items.

The four representative attributes are therefore positioned thus:

high standard of written English
budgeting/financial management
team player
willing to travel

Each of the remaining attributes in each group is now transferred to the new list in the same way. For example, the team have already determined that "*committed to the development of staff*" is an interpersonal skill, and therefore belongs near to "*team player*" on the new list. Their decision now is whether it is conceptually closer to "*willing to travel*", or to "*budgeting/financial management*". Knowledge of the vacancy will influence their decision - for example, if it is known that the staff are geographically widely dispersed then willingness to travel might well be linked with commitment to staff development. Otherwise, it might be assumed that this attribute belongs somewhere between the management skills and the interpersonal skills:

high standard of written English
budgeting/financial management
committed to the development of staff
team player
willing to travel

This activity is repeated until all items have been transferred from the original list into the new one. A great deal of discussion and iteration should be expected, and it may be decided that some attributes should be moved from their original grouping to another, more appropriate group. This debate is an integral part of the process and can help to develop a deeper understanding of the attributes being sought in candidates. This will be valuable during the remainder of the selection process and especially when the time comes to make a decision about which candidate should be offered the job.

The new, affinity-sorted list can now be transferred to the vertical axis of the cluster profiling matrix:



Step 2

The team can now proceed to the next step, which is to determine the level or degree to which each attribute is required. These will be expressed on the horizontal axis of the cluster profile matrix.

The scale against which the attribute levels are positioned should be defined in fairly broad terms, such as:

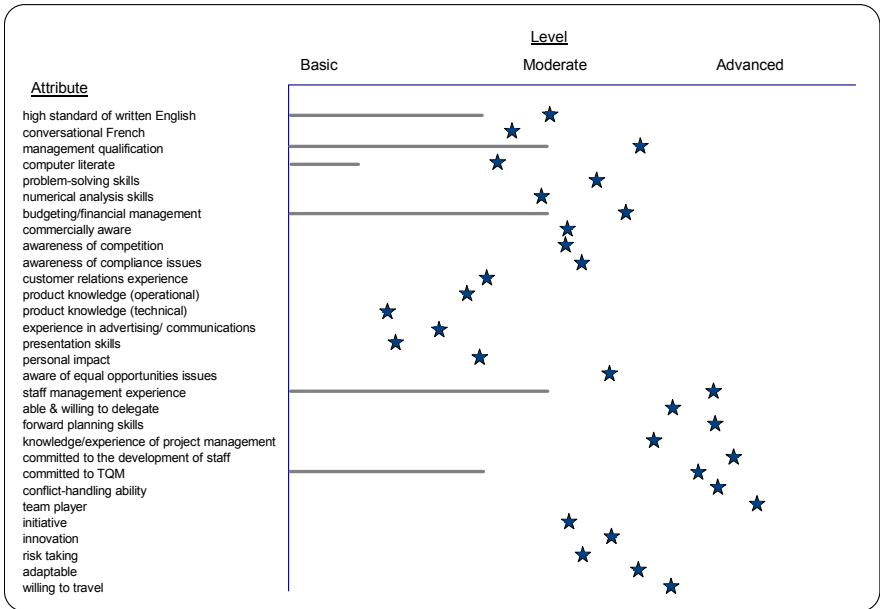
Basic *Moderate* *Advanced*

Between the two extremes lies an infinitely variable gradation and attribute requirements can readily be positioned at any point, eg "a little more than basic" or "between moderate and advanced". The scale will in any case be defined relative to the job requirements: levels of skill or knowledge which would be considered advanced in one context might be thought no more than basic in another. It has been found useful to extend the scale to allow for exceptional candidates.

It is usual to categorise attributes as "essential" or "desirable" (see above). By the time the comparative evaluation phase has been reached applicants who apparently lack any of the essential attributes should have been eliminated from the selection process. However, the concepts of *essential* and *desirable* and the distinctions between them are not absolutely straightforward. In particular, the fact that an attribute is considered to be essential for adequate performance of the job does not in itself define the *level* of that attribute which a candidate must possess. For example, computer literacy might be an essential attribute, but this could mean no more than familiarity with the keyboard and ability to use the simple functions of an industry-standard word processing package - a very basic level of attainment. Higher levels of skill and knowledge might make a candidate more suitable, but not necessarily so (see the comments above on under-utilisation). The concept of *essential* is therefore incomplete without a definition of minimum level of attainment, above which an *essential* attribute may transmute smoothly and seamlessly into something merely *desirable*, or may become irrelevant or even undesirable.

The level of attainment which is considered ideal for each attribute must be assessed and indicated on the cluster profile matrix, usually by means of a symbol. The minimum required level of *essential* attributes must be clearly indicated. This is often achieved by drawing a thick line from the left-hand edge of the matrix to the point on the scale regarded as the minimum acceptable level of attainment.

The fully-populated matrix will appear as the illustration below:



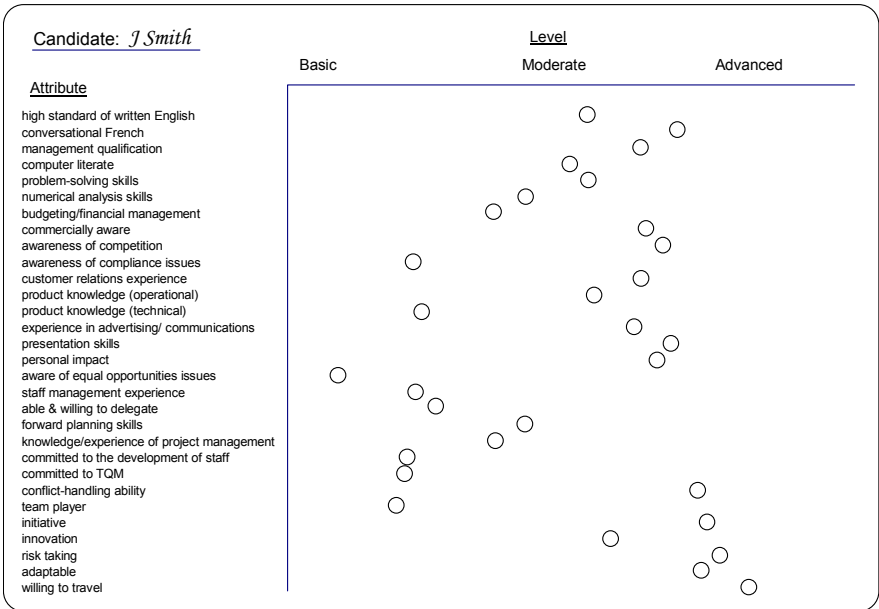
The populated matrix shown above - the Master Chart - is a graphical representation of the person specification for an ideal candidate. It will be found particularly helpful to print or photocopy this chart on transparent material, such as overhead projector film or acetate, which will facilitate the comparison process later.

Step 3

The selection team's next task is to prepare similar charts for each of the applicants, based on the information compiled during Phase 4 of the selection process: Assessment of candidates. Each candidate's chart will appear almost identical to the master chart (apart, of course, from the

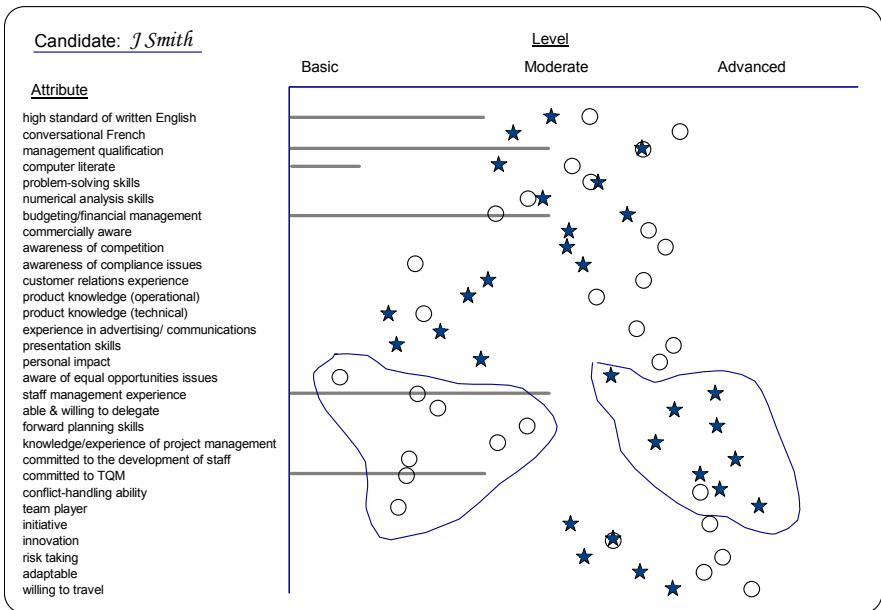
positions of the symbols), with two differences: different symbols are used for clarity, and the lines indicating minimum acceptable levels of essential attributes are omitted.

A typical candidate's chart might appear as illustrated below:



Viewed in isolation, the selection team might draw some quite valid conclusions about J Smith from this chart. S/he seems reasonable well-educated, is personally quite impressive, is commercially very able and has plenty of customer-friendly qualities. S/he is less strong in the areas concerned with staff management, and seems to score rather low on formal processes, regulatory affairs, etc., which could be a reason for concern in some types of job.

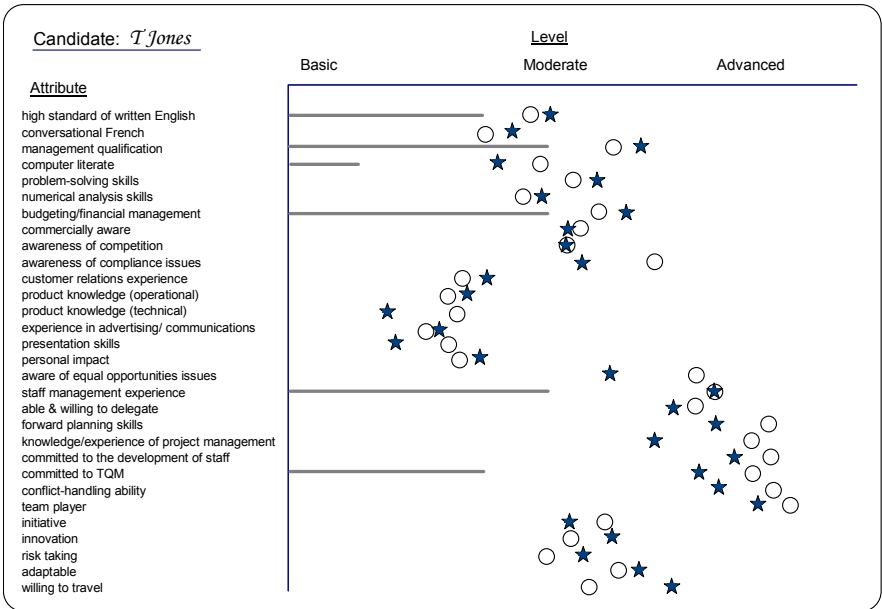
Whether J Smith is a serious contender for this specific job hinges on how well s/he matches the person specification, as depicted in the Master Chart. To find this out the transparent print-out of the Master Chart is taken and overlaid onto Smith's Candidate's Chart, as illustrated below:



From this, the selection team can see at a glance that Smith's "clusters" of attributes form different patterns from the clusters in the Master Chart. In several areas, s/he exceeds the requirements defined in the person specification. Crucially, however, one cluster (ringed) shows distinct inadequacies and there are three attributes where Smith fails to meet the minimum levels defined as *essential*.

Regrettably, then, J Smith does not appear to be a suitable candidate for this job.

The Candidate's Chart for another applicant, T Jones, produces different patterns (see illustration below). The clusters map fairly well onto those of the Master Chart, and whilst Jones is a little weaker in some areas s/he seems to be a little (but not excessively) stronger in others. Significantly, Jones shows up well in those attribute areas where more advanced levels are required.



There seems every reason to offer Jones the job, unless another candidate's chart suggests that he or she is even more suitable.

Conclusion

Cluster profiling provides a simple, clear and easily understood mechanism for making comparisons between candidates. It avoids undue weight being given to an applicant's particular strength of weakness in any individual attribute, but instead allows selectors to concentrate on the *kinds* of attributes candidates possess. In this way the candidate of "best fit" can be effectively determined.

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Author Profile

Dr Roderic Gray is a consultant working in the fields of organisational change and development and primarily concerned with the relationships between individuals and their organisations. His work extends to the applied fields of project management and new product development, where the ability of people with a diversity of skills and backgrounds to work effectively together is a vital success criterion. He has published numerous journal articles on project management and organisational behaviour topics, and has contributed a chapter on organisational climate to *Dimensions of Competitiveness*, (L Lloyd-Reason & S Wall, Eds., Edward Elgar Publishing, Cheltenham, 2000). He is a visiting tutor at Anglia Business School.

He developed Cluster Profiling as a personnel selection tool in the early 1990s, using concepts from the design tool Quality Function Deployment (QFD) and soft systems methodology.

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