

Features Arising from Research

In addition to the objective of providing comprehensive, high quality career guidance systems with high reliability and validity, other features of JIIG-CAL software need brief mention.

Level of Education and Training

Levels in Career Voyage and Career Compass relate to both current capacities and realistic aspirations. For some clients that's clear (eg most year twelve school students). For others there needs to be some significant discussion/interaction with the Counsellor/Adviser about what is suitable and realistic.

Many career resources gloss over the issue of Level. But that sells clients short. The fact is that the job activities which are of interest to high ability people are generally of little or no interest to non-academic people, and vice versa. It should be of little surprise that Interest Guide items such as the following are of little interest to non-academic people.

- Carry out research on the effectiveness of new medicines
- Write novels
- Diagnose and treat mental illnesses
- Estimate the risks involved in insurance schemes

Similarly, items such as the following are of little interest to academically high ability students.

- Build fences and gates
- Visit people who need help at home
- Greet customers in a restaurant and find them a table
- Arrange flowers for displays

Thus, Career Voyage has been specially crafted in five overlapping Levels with appropriate item content, reading level, and outcomes to suit users aspiring to (or achieving) professional, paraprofessional, trade, traineeship and direct entry to the workforce.

In a similar way, Career Compass is designed around different Levels, although in the spirit of more general career development objectives for younger students (10-14 years of age) there are just three Levels.

Both software systems enable users to change Levels, explore all options, and develop suitable career plans.

Both systems work best when users are supported by Accredited career practitioners.

LIKE vs PREFERENCE

There are basically two forms of response which are used in interest tests, viz Rating and Ranking. Ratings are expressions of liking or disliking which most commonly involve a three point 'scale' of 'Like - Indifferent - Dislike', but five, seven, and even nine point scales are also used. Ranking involves placing a number of items in order of preference, and in practice this varies from two to twelve items.

Rating scales have the advantage of showing how much the respondent likes or dislikes an activity but also have their drawbacks. In particular they are susceptible to what psychologists refer to as

response 'Sets' or 'Styles'. These are tendencies for people to give high proportions of particular responses. For example, some answer 'Dislike' to almost every activity. Others tend to 'Like' everything, or to answer 'Don't mind'. These response tendencies can complicate the process of interpreting the scores yielded by the Guide, of which more later in chapter 7.

Ranking items avoids this problem, since respondents are forced to put their choices into order from most to least preferred. A penalty has to be paid, in that this approach gives no indication as to whether an activity is preferred because it is liked more than another or because it is disliked less! For this reason, some people react negatively to making preference responses.

Two forms of response

The Occupational Interest Guide (OIG) asks for two forms of response - rating and ranking. People seeking career guidance are often unsure of their feelings, and this can be a particular problem with young people whose experience of job activities is minimal. For this reason the OIG uses the simplest form of rating and the simplest form of ranking.

The simplest form of rating is the three point scale of **Dislike, Not Mind, Like**. The simplest form of ranking is to give a **preference** between two activities.

When these two forms of response are used in combination, the paired comparison preference offers some control over response styles. At the same time, respondents can indicate their liking or disliking for each activity and this does much to help those who react negatively to forced preference choices.

Combining Activities in Pairs

The use of paired comparisons has important implications for the structure of the OIG with respect to the numbers of pairs required and the manner in which individual activities are combined into pairs. It is important that the framework which the OIG provides is unbiased. When people give their responses to the job activities, the resulting scores should give an accurate picture of their interests. There should be nothing in the framework which biases them towards particular Interest Types or distorts the picture in any way. For instance, if there were more activities of some Types than of others, there would be more opportunities to express interest in those Types.

It is therefore important that there is an equal number of activities of each Type, and that each combination of Types occurs an equal number of times. The procedure used for combining the items of the OIG into pairs is designed to ensure that the framework is unbiased.

Minimum number of pairs

To combine n items in pairs so that all possible combinations of items are covered requires $n(n-1)/2$ pairs. To combine each Interest Type with the other five Types therefore requires 15 pairs: $6(6-1)/2$. This is the minimum number of pairs which would be required for each Section of the Guide. It will give an equal number of items of each Type, and all possible combinations will be represented once.

In practice, this minimum number is too small. The reliability of a test, that is the degree to which it produces scores that will remain the same if the test is repeated on another occasion, is a function of the number of items. Generally speaking, the longer the test, the more reliable. This is because a longer test gives a better sample of the person's responses. If we used only the minimum of 15 pairs in each Section, this would make the Guide too short to be sufficiently reliable.

If we are to lengthen it, however, we can only do so by using multiples of 15 pairs. To use less than this or more than this would mean that we no longer had an equal number of each Type of activity

and so the framework would become biased. In practice, we use two blocks of 15 so that there are 30 pairs of activities in each Section.

Pairing for equal popularity

Pairing of activities In the OIG this is done so as to match items for popularity as closely as possible. The reasons for this need to be explained.

Suppose people were asked to choose between two items of which one was very pleasant and the other very unpleasant - eg earning a lot of money or spending a year in jail. There is little doubt that the vast majority would choose the money. In a similar way it is possible for unfortunate combinations of activities to arise in instruments like the Guide (though not as extreme).

If an activity which was very popular with most people was paired with one which was very unpopular, the majority would choose the popular one. If this happened in a lot of the pairs in the Guide, the framework could again become biased, since people might choose the more popular activities in preference to unpopular ones which were nevertheless in their areas of interest.

To avoid this, each activity used in the Guide is given a popularity rating. This is done before the items are selected for use in the Guide, by having a large sample of respondents rate their liking or disliking for each activity on a scale from 1 to 9, where 1 is the strongest dislike and 9 is the strongest like. The average of these ratings across the whole sample is then calculated and this acts as an indicator of the popularity of the activity. Items which are neither popular nor unpopular will have averages around 5. Popular ones will have averages greater than 5 and unpopular ones less than 5.

Of course it is not possible to ensure that every pair consists of two activities of exactly equal popularity. However, the Dr S J Closs developed an optimising procedure which gives the closest approximation to this ideal for any given set of items. When the activities to be used in the Guide have been decided, their popularity indexes are fed into a computer program which applies the optimising procedure to give the best combinations.

This procedure helps to avoid the occurrence of unfortunate combinations of activities in pairs. No psychometric instrument is perfect, but users may be assured that every effort has been made to make sure that the OIG provides as unbiased framework as possible, within which people can explore their interests

Equal Opportunities

All content and processes have been carefully and repeatedly examined to eliminate discrimination. This applies to gender, age, disability, race, religion, etc. Interestingly the systems have also been found to be culture fair, having been widely used across different countries and many ethnic groups.

“Normative” vs “Ipsative” Psychometrics

See the Intra-individual section of International Research Summary