Designing Job Profiles for the Swiss Armed Forces

Patrick Boss
University of Zurich, Dept. of Applied Psychology

1. The new Swiss Armed Forces recruiting process

In 2003, the Swiss Armed Forces will implement a new recruitment process. In the system used up to now, conscripts have to perform a physical test, undergo a brief medical examination, and take an intelligence test. To assign a conscript to a military function, the recruiting officer takes into account the conscript's abilities, skills, knowledge, school and job achievement, and hobbies as well as his military interests, any preparatory military training, and his military function requests. During the assignment interview, the recruiting officer has to find a best match between the conscript's requests, his abilities, and the requirements of the Armed Forces. The recruiting officer relies both on his own rich knowledge about the different military functions and on a handbook that describes each function on a separate page, listing requirements with respect to physical fitness, maximal body height, or suitable civilian vocational education.

In the new recruitment process, conscripts will undergo more detailed psychological assessment relating to:

- *psychological military capability:* an intelligence test and a questionnaire will assess psychological resources and stressors
- *assignment to military functions:* assessments will include an intelligence test, interest inventory, motor-cognitive test battery (mainly for the selection of drivers), and evaluation of some dimensions of personality like extraversion, conscientiousness, team ability, achievement motivation, and resilience
- *cadre appraisal:* assessed by leadership questionnaire and figural and verbal memory tests

This new recruitment process requires changes to the former military function assignment procedure: First, assignment will in future be computer-assisted: The recruiting officer will be supported by a computer system that replaces the handbook and will provide information about the conscript and his performance during recruitment. Second, as in every selection process, job specifications and job profiles will provide the basis for valid work assignments. This means that more precise job profiles of all military functions in the Swiss Armed Forces are required.

2. Methods for designing job profiles

Job analysis consists of defining a job in terms of its component tasks and then discovering what the job calls for in terms of employee abilities and behaviors. In the literature, various methods for obtaining job information are described:

- *direct observation:* This method is appropriate for jobs that entail a great number of manual, standardized, short-cycle activities.

- *interview:* Because of his thorough knowledge of the job, the worker himself can report information that might not be available to the analyst from any other source. But success using this method depends partly on the skill of the interviewer. A special method here is called the "critical incidents technique." This involves the collection of a series of anecdotes of job behavior (collected from supervisors, employees, or others familiar with the job) that describe especially good or especially poor job performance.
- *subject matter expert panels:* SMEs are encouraged to discuss work related issues and to reach agreement on job analysis. It is important that the experts have wide experience in their fields and that every possible field is covered by an expert.
- *task inventories and checklists:* These are used to collect information about a particular job. The job analyst completes a list of tasks or job activities either by checking or rating each item as it relates to the job in terms of importance of the item, frequency with which the task is performed, judged difficulty, and so on.

Because over 100 military functions had to be analyzed, the methods of direct observation and interviews were out of question. So in order to obtain job profiles, we decided to ask professional military officers, as experts, to rate the military functions in their areas with regard to certain psychological dimensions that are assessed during recruiting. The experts received a form listing all the dimensions, together with nine-step rating scales reaching from "hardly relevant" to "obligatory" to rate the relevance of the dimensions for each of the military functions. In addition, they were provided with definitions of each dimension in a military context. Examples are shown below:
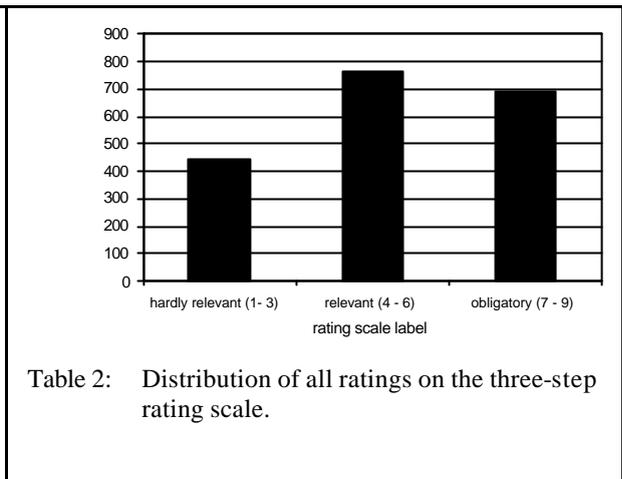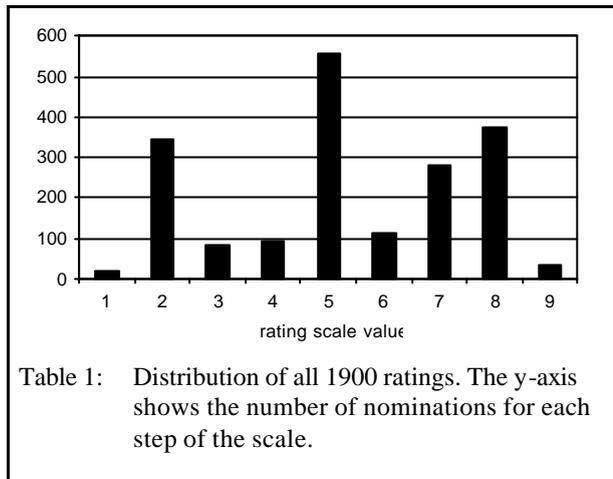
	Definitions of the dimensions	Meaning in the military context
C. intelligence / personality		
Conscientiousness	Conscientiousness is the type of self-control that is expressed in planning, organization, and execution of tasks. Conscientious persons are goal-oriented, ambitious, industrious, disciplined, reliable, orderly, and meticulous.	Soldiers entrusted with tasks that require immediate meticulous execution must possess a high degree of conscientiousness.

	Work profile								
	hardly relevant			**relevant**			**obligatory**		
	1	2	3	4	5	6	7	8	9
C. Intelligence / Personality									
Intellectual Capacity				x					
Conscientiousness							x		
Achievement Motivation						x			

3. Results of the expert rating procedure

Results revealed that the nine-step rating scale overtaxed the professional officers; they did not make use of the full range of the scale. Table 1 illustrates this finding: When looking at the summary of all 1900 separate ratings, raters hardly ever chose the extreme values 1 and 9 and chose 3, 4, and 6 only rarely. The most popular ratings were 2, 5, 7, and 8. As shown in Table 2, the ratings fit a normal distribution better when we take a three-step rating scale with the three main levels of relevance on the rating form (hardly relevant 1,2,3; relevant 4,5,6;

and obligatory 7,8,9). This table also provides an impression about the mean of all ratings, which lies slightly above the mean of the scale. (The calculated mean is 5.3.)

600 500 400 300 200 100 0 　　1　2　3　4　5　6　7　8　9 rating scale value	900 800 700 600 500 400 300 200 100 0 hardly relevant (1- 3)　relevant (4 - 6)　obligatory (7 - 9) rating scale label
Table 1: Distribution of all 1900 ratings. The y-axis shows the number of nominations for each step of the scale.	Table 2: Distribution of all ratings on the three-step rating scale.

A cluster analysis yields groups that cannot be interpreted in a meaningful way: One huge cluster contains all the engineering functions, which makes no sense, because this military branch comprises a lot of very different tasks, such as driving tanks, constructing bridges, or communications transmission. On the other hand, there is no cluster that contains similar functions from different branches of military service, such as communications transmission, driving corps, or intelligence. We have to conclude that there is a rater bias: The ratings of the different professional officers cannot be compared, because they base their ratings on different personal frameworks when rating the functions in their branches.

Another problem that resulted are high correlations between some of the dimensions: for example $r = .8$ between resilience and fearlessness, $r = .7$ between endurance and achievement motivation, or $r = .7$ between resilience and achievement motivation. This indicates that the definitions are not precise enough, that is impossible for non-psychologists to differentiate among such constructs, or that the chosen dimensions have a lot in common.

4. Implementation of the profiles in the recruiting process

Considering these findings, we have to ask whether the resulting job profiles can be used for assignment at all. It seems quite certain that the primary aim – having the computer compare the conscripts' achievement profiles with the various function profiles and indicate the best matches – won't work based on this database. It will even fail if we take the profiles resulting from the three-step rating scale: The main disadvantage of such a scaling is the lack of discrimination between different functions. So, did all the work we did prove to be useless? No, the findings indicate that this first approach will require revision once some practical experience is gained during the recruiting process. What has to be done to make the profiles useful for assignment to military functions?
First, the results indicate that we should drop the highly correlating dimensions, because they do not provide truly discriminating information.
Second, only a few personality aspects should be used for assignment, such as for example intellectual power, conscientiousness, aggression, or team ability.
Third, for some special functions, cut-off scores should be defined for dimensions that are very important for good performance. The underlying idea here is the following: Not every

dimension assessed during recruitment is of outstanding relevance to every military function. So we need to specify the functions that have special requirements as to some personality dimensions and determine cut-off scores. For example, to become a rifleman a conscript has to show excellent results on the physical examination and to score above percent rank 60 on the aggression scale. To identify the functions that have special requirements, it makes sense to look to the highest ratings given by the experts.

5. Lessons learned

The unsatisfying results mainly emerge from an unelaborated implementation of the expert rating procedure. We have concluded that:

- the rating scale consists of too many steps. Five to seven would be appropriate.
- some of the dimensions to be assessed are too similar. It is important to choose dimensions that can be better specified.
- the definitions of the dimensions are not detailed enough. More practical examples would help laymen to understand the concepts behind the psychological terms.
- experts often refer to a highly personal framework when rating the dimensions. This implies that non-psychologists should receive coaching on the rating procedure.
- if possible, every function should be rated by more than one expert. Moderated panels of experts are supposed to provide the best results.

And finally, we need to find an answer to a fundamental question:
Are we on the right path when we aim towards computer comparison of the conscripts' achievement profiles with the various function profiles in order to produce suggestions for assignments to military functions?
Perhaps it is will be more useful to define cut-off scores in important dimensions for specific military functions. After all, the most important criteria for assignment in a militia army are still school and job achievement – for many military functions, personality is of secondary importance. And as a new and very important tool, the results of the Swiss Army Interest Inventory should play an important role during the assignment interview.