

# FUNCTION ANALYSIS AND VOCATIONAL GUIDANCE FOR THE MENTALLY HANDICAPPED

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It is quite usual for a subnormal working in open industry to be dismissed from his job. These failures happen partly because the employer has not been informed properly or adequately about the subnormal's limited abilities, and partly because of the behaviour of the subnormal, who has never been confronted during his school life with his shortcomings when doing an actual job and as a result does not know his limitations.

If the subnormal is dismissed and it is impossible to find another suitable job for him, he can be temporarily put to work in a sheltered workshop. The sheltered workshop must be regarded as a rehabilitation centre and not as a place where the subnormal is kept pleasantly occupied. There we have to devise methods to improve his speed, his skill and his behaviour in such a way that we can place him again in a job in open industry (1). He works beside imbeciles, who also have to be trained in the sheltered workshop, and for them too the right kind of work is of the utmost importance.

A function analysis can help in finding appropriate work in the sheltered workshop, which will assist in making the subnormal's potential really effective by using his capabilities to the fullest extent.

A short account follows of some results of investigations which have been carried out in our workshop and in a factory with normal manpower. These experiments are still not completely finished, and no final results can be quoted, but it appears that this type of approach can assist considerably in placing the mentally handicapped in the workshop and in open industry.

Three factors have to be considered: the job, the trainee, and the relationship between the two.

## The Job

Each job can be analysed and reduced to its components. This is frequently done in industry, and analyses sometimes contain dozens of components. For the present purpose, however, only six factors have been selected which are present in each job. They are:

- (1) The degree of intelligence required.
- (2) The physical force required for the work.
- (3) The more subtle muscle movements necessary (co-ordination).
- (4) The rate of fatigue whilst working.
- (5) The co-operation required between the worker and his fellow-workers.
- (6) The degree of accuracy required.

An estimate is made as accurately as possible of each of these six factors with the help of experiments and mutual comparisons. Naturally no mathematical exact-

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ness is necessary. By comparing the work of normal workers an estimate is possible, which has to be adjusted as far as is necessary to get a fair result. The estimates range from 0 to 10. For instance, a certain job may be estimated as follows:—

(1) Intelligence (little required) .....	2
(2) Physical force (considerable) .....	8
(3) Co-ordination (few subtle movements required) .....	3
(4) Rate of fatigue (fairly high) .....	6
(5) Co-operation with fellow-workers (practically none) .....	1
(6) Degree of accuracy (moderate) .....	3

For each job a similar analysis can be prepared. In order to obtain a clear picture for practical use, the data can be presented in diagrammatical form. In a circle six radii are drawn, each of which represents a component, i.e., intelligence, physical force, co-ordination, fatigue, co-operation and accuracy. Each radius is divided into ten equal parts: the centre has the value 0 and the circumference the value 10. If the ratings of a certain job are plotted on the radii and the points thus found are connected, an irregular hexagon is obtained, which I would like to call an **aspects-diagram**, for it shows the aspects of a particular job (see figure 1a).

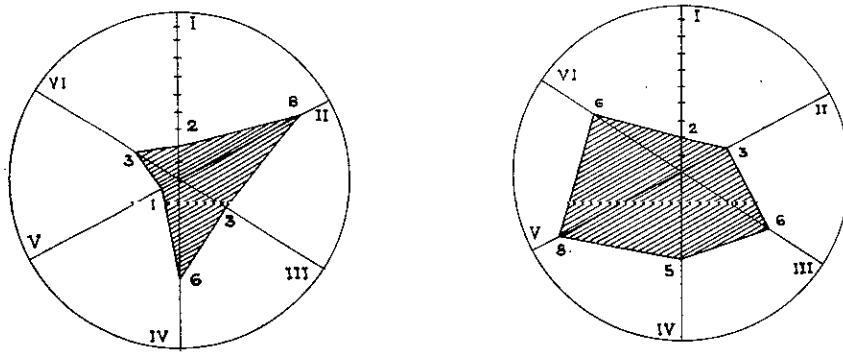


FIG. 1a: ASPECTS - DIAGRAM      FIG. 1b: CAPABILITY - DIAGRAM

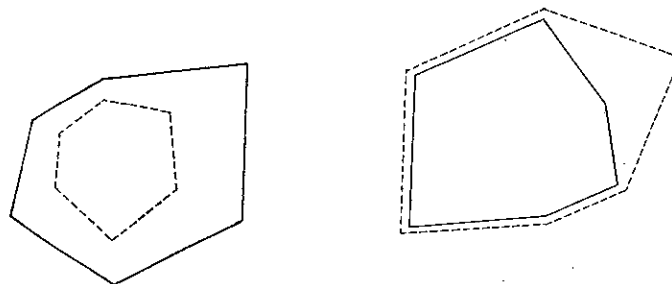


FIG. 2a

FIG. 2b

————— CAPABILITY - DIAGRAM  
 - - - - - ASPECTS - DIAGRAM

## The Trainee

Next attention is paid to the workers doing the job, whether they are "normal" or mentally handicapped, and irrespective of whether they are at work in a factory or in a sheltered workshop. To them something like a personality analysis is applied which is focused on the six factors already mentioned. The intelligence of the individual, his capacity for physical work and the more subtle muscle motions, how quickly he gets tired, to what extent he can co-operate with others, and his accuracy are determined. When these values are plotted on the six radii of a circle and the points are connected, the result is again an irregular hexagon. This I call the **capability-diagram** (see fig. 1b), as it indicates the capabilities of the individual.

## Relationship between job and trainee

The two diagrams for jobs and workers are placed side by side. On the one side we have the function analysis of a number of jobs (aspect-diagrams) and on the other side the function analysis of a number of workers (capability-diagrams). It would be tedious to go into details about the results obtainable from these comparisons, and only two specific examples will be discussed.

Let us take the first example. It may happen that somebody is engaged on work that is quite below his capabilities. In terms of the factors singled out for analysis, this could mean that the worker had more intelligence than was required for this type of work, that he had more physical strength and better muscle co-ordination, greater accuracy and co-operativeness, and was less easily tired than expected in the job. Graphically expressed, this will mean that the aspects-diagram falls entirely inside his capability-diagram (see fig. 2a).

It is interesting to compare the behaviour of the "normal" worker and the mentally handicapped in the same situation.

For the "normal" worker two solutions are possible; either he quits and finds himself another job more suited to his capacities and more satisfying, or he stays and does the work. If he stays, a very curious thing may happen — he may "shrink" mentally. He will not work as well as before because he does not need his surplus. His capability-diagram becomes smaller and will start to resemble the aspects-diagram. His performance may now be worse than that of somebody with lesser capacities (with a smaller capability-diagram).

Moreover, now that he no longer has to do his best and so is dissatisfied with his work, changes may occur in his behaviour. Moodiness, grumbling and bad temper may lead to his dismissal from work.

The mentally handicapped is usually put to work on an easy job by his employer because of his known disability. Sometimes this may result in the same situation in which the normal workman found himself in the first example. How will the subnormal react? In exactly the same manner as a normal person — he also "shrinks," starts to work badly, and becomes less adaptable. The employer with social feeling does not want to dismiss him and instead gives him **simpler work**. Lack of knowledge has led to a wrong decision, and what follows is that his work becomes even worse, he begins to be rude to others, difficult to handle, and unadaptable, and eventually he has to be discharged. The employer will tell the social worker "I have done everything possible to help him. He was not worth much. Each time he was in difficulties I gave him simpler work, but even that he was not capable of doing. At first he seemed quite a nice fellow, but in the end he became intolerable and unmanageable and I had to fire him."

Now take the second example. Let us consider a worker who in all but one factor fits perfectly into his work. Let us assume that his intelligence, co-ordination, co-operation and accuracy are average, that his fatigue factor is equal to the level

expected with this kind of work, but that his physical strength is inadequate. Graphically expressed, this would mean that his capability-diagram will run on five sides along the lines of the aspects-diagram (fig. 2b) but at one side will fall well inside it.

The normal worker will try, with the compensating mechanism each human being possesses, to neutralise his shortcomings as far as is in his power, either by working in a different way or by some other means. Hence nobody will notice that in one respect he is not up to standard. However, he is working in what we call a stress situation. The stress may be conscious, but often adaptation to the situation is subconscious. When the stress is increased by some coincidental extraneous event — difficulties in his marital or domestic life, trouble with relatives, misunderstandings with his superiors or fellow-workmen — he may develop a psychosomatic disease such as ulcers, headaches, intestinal complaints, asthma, or back-aches, or becomes accident-prone, either causing or suffering accidents in the factory. This again will have an entirely subconscious cause.

The mentally handicapped, on account of his personality structure, is less able to compensate for his shortcomings. He will not easily develop one of the psychosomatic diseases, but in most cases he will get confused. It is often said "He has been driven too hard; he has had too much to do and so he has got upset." But it is not the driving, but unsuitable work placement, that upsets him. Even the mentally handicapped has the power to compensate in his own way. He will start to work slowly, and his slowing down is thought to be due to his subnormality. He will be given easier work, with the results described in the first example. The aspects-diagram will fall entirely on the inside of the capability-diagram, and the end will be his discharge.

The situations described in the examples above can also be observed in the sheltered workshop, and the best way to avoid them is by a function analysis of the trainee and of the job. In this connection another phenomenon must also be mentioned. A trainee may work quite satisfactorily at the outset but after some time his work deteriorates, his behaviour grows worse and he becomes intolerable. It is often said that such things occur with the subnormal and the result is that easier work is given to him. It is possible, however, that the work is not too difficult for him, but that with practice he has improved some of his capabilities to a level higher than that required for the work. In this case the capability-diagram has outgrown the aspects-diagram, and the same situation as in the first example has developed.

Three points therefore have to be taken into account in the sheltered workshop. First, placing the trainee in the job for which his capacities are best suited; second, watching him carefully to see if he is capable of doing more complicated work; and, third, developing his capacities by letting him work in such a way as to encourage the development of these capacities. This last point — **the guided development** — is often neglected in the workshop: the staff may be too easily satisfied with good performance on an easy job.

It may be asked whether this function analysis can also be applied at all in the Special School. Investigations have shown that the approach might be useful. For instance, a pupil put to read passages which are too easy for him shows deterioration, so that simpler reading tasks are given to him, which leads to further difficulties.

Function analysis may be very valuable before placing in open industry. It enables us to give the employer something more than commonplace advice such as "He is willing, he works slowly, sometimes he is cheeky but he does not mean to

be rude, etc." We can give him a better insight into the structure of the personality, which will assist in placement.

It will be clear, then, that the mentally handicapped has to be kept under observation even when working in a factory, to find out if he is developing and, if he is, to arrange for him to graduate to more suitable work in due course to avoid the disastrous results described in our first example.

I am conscious of the fact that I have described the situation in black and white and that reality has more subtle nuances and is far more complicated. Furthermore, this is a preliminary communication. Much work has still to be done before definite results can be obtained, but it will not alter the trend of my conclusions.

It is only by analysis of the whole personality that correct judgments can be formed on which help can be based. This calls for team work between supervisor, educationalist, psychiatrist, psychologist and social worker.

The result of this teamwork and of function analysis is important. It can insure a suitable placing of the subnormal in open industry and correct training in the sheltered workshop.

#### References

1. N. Speijer: "Some views on Sheltered Workshops for the Mentally Handicapped." *Internat. J. Social Psychiatry* (1959), V. 142-145.

## THREE SHORT CASE HISTORIES

### Case 1

Low-grade imbecile boy, aged 17, from a special school for imbeciles. Put to work folding cardboard and giving the folded pieces to a boy sitting next to him at a wire stitching machine. Although he liked very much working with this boy, he worked much too slowly and had to be taken off the job. Function analysis was applied. The boy had low intelligence and he was slow and easily fatigued, but he had a good degree of accuracy and good co-operation, and the other factors were moderate. He had of course been placed on the wrong job because folding the cardboard and 'feeding' the other boy needed no special accuracy, high speed being more important than the amount of care taken. The boy could not work less accurately and compensated for his shortcomings by working even slower than his normal rate because he became confused by the persistent demand for more products than he was able to make within the time. He was subsequently placed at a transportation conveyor belt assembling radio parts — a job in which accuracy is of first importance. He now works fairly well and is clearly **much happier** than before. His speed is still low but is improving because the running belt improves the speed and reduces the fatigue factor. He is being observed carefully, and as soon as his speed has improved sufficiently, he will be placed in group work because of his ability to co-operate well.

### Case 2

Low-grade imbecile boy, aged 16, from a special school for imbeciles. His record stated that he was very clumsy and that he could work only on the lowest work level—glueing cork on caps. Function analysis showed that the muscular strength of the right hand was very poor (probably an after effect of poliomyelitis). The boy was right-handed, and as a result muscular co-ordination in both hands was low too. Special exercises were given to develop muscular strength and co-ordination, such as working with hammers of gradually increasing weights. After two years there was a great improvement and he could use a screw-driver in a normal way. He was now placed in a job of dismantling which required the use of a screw-driver with a certain amount of force. He is **much happier** and has shown more interest. His capacity-diagram improved not only in the physical force factor but also in the accuracy and co-operation factors. This was a good example of the fact, known to those with experience of sheltered workshops, that improvement in one factor can influence others. Exercises to improve muscular strength are still being given. He is being kept under careful observation and will probably be put on a higher work level in the future.

### Case 3

Low-grade imbecile boy, aged 18, from a special school for imbeciles. Was first put to work assembling ball-point pens. He worked very badly, had little interest, and day-dreamed a good deal. The foreman then put him on a simpler job making cardboard boxes. He showed even less interest, his work was worse, he made more mistakes, and he day-dreamed even more frequently. At this point function analysis was applied. His capacity-diagram showed that he was capable of more advanced work than either of these two jobs. He showed good accuracy, force and co-ordination, the fatigue factor was moderate, co-operation low, and intelligence much better than expected. He was a high-grade imbecile, not a low-grade one. After this he was placed at a rather complicated vulcanising machine, where the work required high accuracy but little co-operation, a low fatigue factor and a moderate degree of the other factors. To everyone's astonishment he brightened up, took a great interest in the work, and made fewer mistakes, although he was still slow, as of course training of imbeciles on a special job takes much longer than with normal people. It is to be expected that he will work fairly well in the near future and will earn good wages. He has already increased his earnings from £1.10.0 to £3.10.0. The boy had been heavily underrated not only in the workshop but probably at the special school as well.