Guidelines for determining skill needs in enterprises

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The issue of skill-needs determination is the subject of debate on vocational training policies and theories. Recently, particular attention has been paid to the possibilities of determining the skill needs of small and medium-sized enterprises. The latter rely on external support for both the analysis of skill needs and the provision of skills.

Among those concerned with vocational training policies and theories there is an ongoing debate on how to determine skill needs and what methods should be used. Recently, interest has focused on ways to determine skill needs in small and medium-sized enterprises. Since investment in human resources, as well as incentives for capital investment, is becoming increasingly important for the market survival and competitiveness of small and medium-sized enterprises, it is argued that these enterprises should identify their skill needs at an early stage so that appropriate training can be devised in good time. The problem is that small and medium-sized businesses do not - or only rarely - have the capacity and resources to identify their skill needs, much less to cover them. These businesses must rely on external support both to analyse their skill needs and to provide training. To allow regional providers of continuing training to provide tailor-made training courses to meet the requirements of small and medium-sized businesses on the basis of the most precise data available, vocational training researchers have designed a number of catalogues and checklists for determining skill needs (cf. Bardeleben/ Stockmann 1993; Richter/Schultze 1997). Moreover, the determination of skill needs in enterprises has been part of, or even been the stated aim of several research projects in recent years - in particular those promoted by the European Structural Fund (ESF).

On closer inspection, determining company skill needs is much more complex than it would seem at first sight. Apart from obstacles related to labour policy and company structure, methodology presents the greatest problems.

Resistance from within the enterprise must be reckoned with

Before commencing a demand survey, close attention should be given to who initiated the research. Was it a certain group of enterprises or one enterprise, was it training providers wishing to improve the demand for their courses, or was the project commissioned by institutions such as Chambers or Labour Offices, or was it designed by a research group on its own initiative. If an enterprise has expressed a need for greater skills, it should be easier to convince management of the need to analyse requirements. Less time and fewer resources should be necessary since the need for skills is at least vaguely perceived and can be stated relatively clearly. Persuasion is called for if the initiative for a skill-needs analysis did not come from one or a group of enterprises.

It should also be borne in mind that awareness of qualifications and staff skill requirements differs considerably from one enterprise to another. While some enterprises - the bigger ones especially - have now accepted a 'skill orientation' (Mahnkopf, 1990), and systematically plan and organise qualification processes, small and medium-sized enterprises deal with qualification matters - if they deal with them at all - more in the course of the day's business, intuitively and situationally (cf. Büchter, 1998).

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For some enterprises the marginal signifi-
cance of skills poses no problem at all.
Some enterprises have found ways of solv-
ing skill shortages through job rotation,
impromptu training, etc. They do not in-
vest in staff training measures because
experience has taught them that they can
get by quite well with their customary
methods of coping with staff or skill short-
ages.

It is not only lack of interest or reluctance
to provide training which leads enterprises
to underestimate the importance of skills.
Organisational features or work-structure
patterns, for example lack of openings for
qualified staff or the use, due to a short-
age of resources, of obsolete technology
requiring lower skill levels, tend to ad-
versely affect the level of skills. A lack of
training courses can also be a factor.

Against this background no analysis of
requirements can be expected to supply
a large volume of sophisticated quantifi-
able data on future skill needs. It must
concentrate on consciousness-raising, in-
terest in staff skills, individual enterprises'
specific structures and social contexts in
which skills deficits occur or the applica-
tion of skills is hampered. Methods for
determining skill needs in an enterprise
must be chosen on this basis.

Methods of data collection should be thought through and compared before one is chosen

Even the most well-intentioned attempts
to establish skill needs in small and me-
dium-sized enterprises frequently amount
to nothing. An important reason for this
is the limited extent to which develop-
ments can be predicted and future train-
ing needs anticipated. Future skill needs
can usually only be established on the
basis of considerations of probabilities,
estimates, extrapolation of past experi-
ence or on the basis of general trends. It
does not pose a great problem where
there is a specific reason for defining skill
needs - for example because a new com-
puter program is being introduced which
requires specific skills, which the firm's
employees do not have, or because ac-
cess to foreign markets makes language

skills a new priority. It is much more dif-
ficult to define future requirements when
an enterprise is to be reorganised, but the
effects of reorganisation on skill needs are
still unforeseeable. Under these conditions
any forecast is speculative. Preventive
skill-demand analyses in the context of
business reorganisation often involve such
high error levels that they cannot serve
as a sound basis for planning training
schemes. Analyses of qualification defi-
cits become somewhat reliable only when
the lack of skills has already become ob-
vious. In this case, however, determining
skill needs is no longer a matter of fore-
casting. It reflects the status quo. This nec-
essarily entails a delay in the upgrading
of skills. In this situation, training pro-
viders are often under heavy pressure to
speed up planning and implementation
of training. This carries the risk that the
necessary skills only become available
when the skill shortages have already had
negative consequences. This time lag
sometimes forces enterprises to seek other
solutions, which at worst means abandon-
ing additional training requirements.

However, it would be wrong to assume
that skills can only be made available to
enterprises after a long delay. This would
imply that demands for skills are objec-
tively prescribed by conditions to which
personnel and skills have to adapt. In this
connection, however, it should be remem-
bered that technological and organisa-
tional changes interact with skills, as in-
dustrial sociologists have been pointing
out since at least the early 1980s (cf. Kern/
Schumann, 1984; Malsch/Seltz, 1987). In
the face of the different options in apply-
ing technology and patterns of work or-
ganisation, the existing skills potential in
an enterprise can suggest a certain con-
cept of technology and pattern of work
organisation. Seen in this way, skill needs
are an elastic quantity, susceptible to so-
cial policy.

Skill needs are most read-ily determined by discus-sion and analysis of prob-lems.

Theoretical debates on methods for de-
termining skill needs increasingly indi-

cate that skills can be determined best through dialogue (Richter/Schultze, 1997) since skill needs are neither constant nor self-evident. 'The demand is not simply there, but must be seen and defined (or delimited), and determined' (Neuberger, 1991, p.164). Skill needs are, therefore, a social construct in which the interests, perceptions and interpretations of those who define them play a significant role. When the social dimension of skill needs is made the focus of study, it becomes obvious that the process of determination is socially controlled and subject to social influences. From this point of view the determination of skill needs is not simply a matter of measuring facts, but also of discussing, interpreting, negotiating and perhaps even awakening a demand for skills.

Purely standardised questions about skill needs will not therefore provide the desired results. In the first place there is a tendency in this case to inquire about elements of skills which can only be based associatively and arbitrarily on general or abstract labour market, vocational training and skills forecasts. This happens, for example, when possible answers to common questions are provided. Thus the question 'which skills will your staff need in future?' is followed by choices such as 'computer skills' or 'social skills'. These questions can be leading questions. Who, in today's world, would not claim that computer skills or social competence are important for their staff?

In the second place, standardised questions can mean that other, equally important but less obvious, skills are neglected. Latent or informal skills, in particular, are difficult to formulate. In fact it is often assumed that the skills to be determined are fairly apparent and formal. For work processes to function, however, skills are needed which are not immediately observable. Sometimes they are not articulated, and sometimes they cannot even be articulated (cf. Staudt/Kröll/Hören, 1993). They include the so-called informal, mental pre-dispositions such as experience, subjective preferences in decision-making - the 'tacit skills'. Their analysis demands a special methodological approach.

Standardised surveys can only serve to 'open the door' in that they are limited to structural data and variables of organisation such as number of staff, etc. The main survey should include qualitative procedures which may be resource-intensive and unrepresentative, but which as a rule will provide more valid data and allow deeper insight into the problems of an enterprise, and into its constraints and potential. To gather reasonably valid data which can serve as a basis for drafting training schemes, comprehensive case studies and problem-oriented analytical procedures should be given preference over standardised methods.

Any analysis of skill needs should be limited to a small area of investigation

In view of the intense and time-consuming demands they make, qualitative analyses of company skill needs should be limited to a small section of the enterprise, such as a work team or a relatively small department. This section should be defined after detailed analysis of the situation and of the problems to be faced, before commencing the actual analysis of requirements.

Interviews and observation provide the best approach. Where enterprises can articulate clearly definable skill needs, a complex field analysis is superfluous. A research project, on the other hand, involving analysis of possible causes of problems in an enterprise to show whether they include skill deficits, demands a sophisticated analysis of the area of research. Priority should be given to observation of the following areas: activities (allocation of tasks, spheres of competence, room for decision-making, too much or too little responsibility), organisation (working procedures, division of labour, cooperation with other sections of the enterprise), working atmosphere (relations among members of staff, atmosphere and cooperation in the group), and the attitudes of supervisors (recognition, support, surveillance, motivation) (cf. Nieder, 1993).

Field analysis is worthwhile avoiding, assuming a priori that problems in an en-

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terprise are due to a lack of staff skills if they could be caused by other operational policies. Not every problem an enterprise faces is one of skill deficits. Problems readily attributed to staff skill shortages can very well stem from the application of technology, patterns of work organisation, decision-making processes or staff assignment. Personalities and styles of management can also cause an enterprise problems. Management based on a false assessment of people is often linked to the assumption that staff are chronically underqualified, whereas in reality management can also be prone to skills shortages.

The perspectives and interests of different members of the section under investigation must be taken into consideration

It is essential to supplement observations by interviews with all the members of the section under investigation. A field analysis of activities, organisation, working atmosphere and management style and of problems and the need for solutions in these areas cannot be accomplished merely by interviewing management or experts. These would show only part of the picture.

A survey of skill needs or of problems relating to a specific section only targeting management could aggravate the danger of refusing to acknowledge deficits or of linking problems to certain individuals in the enterprise. In order to avoid this, as many perspectives as possible should be included in the analysis. Different members of the section can be interviewed separately - which could provide more information thanks to the more confidential atmosphere of the interview - or in workshops, which can reveal different points of view in discussions about working procedures and working relations, and can also show up points of conflict and problems of communication among the members of the group. These can point to a need for continuing training among diverse people.

A problem-oriented analysis of skill needs resembles an action research process

Action research methods could be considered for this type of 'dynamic', 'dialogue-based' or 'problem-solution-oriented' procedure. Action research does not aim to confirm or refute previously defined hypotheses, such as 'there is a skill shortage in a certain enterprise or section of an enterprise', but aims, primarily, to establish unconditionally what problems exist, in order to achieve a solution acceptable to all concerned for the future organisation of structures, processes and skills demands. Action research is 'comparative investigation into the determinants and effects of various forms of social activity – investigation leading to social action' (Lewin, 1964, p. 280).

For a long time action research projects were applied mainly in educational fields such as schools, social work and adult education. In recent years, however, business management, including personnel management, which have traditionally been considered basically applied sciences, have been taking notice of this method (cf. Nieder, 1993). Sattelberger (1983) and Stiefel/Kailer (1982) explicitly mentioned the advantages of action research in their debates on methods of determining educational requirements. It increases intuition and sensitivity in perceiving and assessing problems, improves methods of problem-solving behaviour, and increases willingness to accept responsibility for implementing possible solutions.

Complex skill demand analysis procedures, which bind resources, require a high rate of acceptance

If a skill demand analysis is indeed to be carried out using this expensive method, it is important that the procedure be accepted by those involved. This is especially true when the project has been suggested to the enterprise by outsiders rather

than being commissioned by the enterprise itself. In the first place, the researchers are dependent on the approval of company directors and on the participation of the members of the section, its managers and employees. It should also be borne in mind that personnel managers, or supervisors usually responsible for personnel and skills, can view a large-scale investigation of requirements, involving the relatively frequent presence of outsiders, as interference in their spheres of competence and activity. This may put them under intense pressure to prove themselves.

In the second place, it is possible that, in the course of the analytical process, problems will be revealed which had been more or less suppressed in the everyday operation of the enterprise until then. Confrontation with such 'sore points' could cause defensive or blocking behaviour to impede the subsequent processes of problem solution or organisation. This could be the case, for example, where the problems are due more to management attitudes cause than to a lack of expertise or social competence on the part of the staff.

In addition, action research, conducted professionally, is always followed by changes in the whole or in part of the enterprise. This prospect can lead to feelings of insecurity, since those involved cannot foresee to what extent they may have to give up familiar structures or habits.

An essential pre-condition for acceptance and participation is that expectations aroused by the process of demand analysis should not be disappointed. These must be clearly defined and agreed on at the outset. It should be remembered that the more complicated the project and the larger the need for employee participation, the greater the expectations with regard to corrective measures. An analysis which comes to nothing, which does not result in any further action, makes the whole procedure seem a farce. For this reason it is absolutely essential to make provision at the outset for rectification of any skill shortages revealed by the analysis (e.g. to provide a venue and teaching staff). An exaggerated delay between the analysis of skill needs and delivery of the necessary measures could make the enterprise lose interest, and those involved could relapse into old structures or resort to traditional solutions.

Interviewers must be aware of their role and function.

Action research means that researchers give up their isolation and cooperate with the interviewees of an enterprise to initiate a process of reflection. The researcher thus participates actively in the process of identifying and solving problems. 'Researchers can themselves become players. They do not, however, enter a real situation just briefly. They accompany the process of change or problem-solving over a lengthy period of time, from the initiation of change or the identification of the problem to its solution or even to consolidation.' (Kirsch/Gabele, 1976, p. 20). Researchers are not mere gatherers of data or 'medicine men', any more than the members of the section under scrutiny are passive objects of research. While researchers accompany the process as observers and reflectors (i.e. reflexively and reflectively) (cf. Kappler, 1979, p. 48), the interviewees are aware of their responsibility for problems and their solutions. By definition researchers '1. do not enter a situation only to ask opinions - they follow a social process over a length of time as participants and help to stimulate it; 2. do not work with isolated individuals, but with groups in their social environment; and 3. not only inform these groups about the purpose of the investigations, but also involve them in evaluating and assessing the findings' (Haag, 1975, p. 65).

Researchers bear significant responsibility and must be competent to perform their task. They must weigh their approach carefully and adapt it to local constraints (time limits, resistance to modernisation, etc.). They must explain the project step by step to those involved and anticipate possible resistances and problems of acceptance. These must be addressed so that commitment and consensus are assured.

Finally, it should not be forgotten that a problem-oriented cataloguing of needs will take a relatively long time. Observation and interviews, discussions and feedback mean lost man-hours for the enter-

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prise. The amount of time needed for the investigation should, therefore, be negotiated and justified before it starts. Superfluous questions and mountains of information should be avoided as much as possible.

Feedback on results should be part of the process

Feedback on preliminary results is an essential part of the whole process of analysis. New data must be presented and discussed with groups of those involved. This is basically a question of feeding back information to the interviewees. 'In this way researchers can avoid misinterpretations by learning interviewees' interpretation of results. Results for which researchers lack background knowledge can be explained correctly. In addition, this procedure provides an opportunity to cover points which could not be included in the interviews' (Nieder, 1993, p.199). The purpose of survey feedback is above all for everyone to identify problems and to establish objectives. Well-compiled data make it possible to check where the problems arose and whether there is indeed a need to improve skills, where improvement is needed, to what extent needs can be defined, etc.

Survey feedback sessions should not be conducted at the end of the analysis, but repeated throughout the process. The introduction of rapid gradual feedback enables interviewees to influence what is recorded as significant. This active participation can increase willingness to cooperate constructively. 'When those involved see that they are not being exploited as mere conveyors of data, but that their input really does lead to changes to their advantage, they will take part with more enthusiasm in the next stage of the investigation' (Neuberger, 1991, p.248).

The determination of skill needs should be understood as a continual learning process

The aim of a skill demand analysis designed as an action research process should be to stimulate sensitivity in per-

ceiving and assessing work problems or the value of skills for problem-solving. This awareness should endure after the process of analysis is complete. The objective is not to initiate a one-off consideration of problems or isolated identification of deficits in a section of the enterprise or of its skill needs. Seen in this way, the analysis of requirements should immediately translate into a continual, long-term process of problem identification and change in sections of the enterprise. This can only work, however, when essential pre-conditions are fulfilled. The process of analysis initiated by the researcher(s) must proceed successfully and its purpose and usefulness be acknowledged. When the problems discovered jointly have been generally recognized as such, when the demand for skills been accepted as such, and when the subsequent process of change or the acquisition of skills has finally had a positive effect, it is to be expected that those involved will be ready and willing to take over control of problem-solving processes. The success of skill-needs determination designed as a learning process could be measured, above all, by the way in which the abilities of members of the section investigated are reinforced so that they can react to future challenges in a new, more independent and more competent way.

This only makes sense, however, when these abilities also provide inspiration for other sections of the enterprise. Even if the analysis is conducted in a small, delineated investigation of one section, it is never isolated from other bordering sections, i.e. other departments of the enterprise, or indeed the regional environment.

Analyses of skill needs should involve other players in the enterprise and in the region

It makes little sense to improve employees' sensitivity to company problems or to skill deficits in one small section of the enterprise if the working environment continues to function along the old lines of procedure, attitude and structure. Lessons are only remembered in the long

term if there is leeway for intervention to influence external factors which affect the section investigated.

Here attention should be paid to the interdependence of skills and technical organisation, i.e. to personnel capabilities affecting how technology and work patterns are organised. For this reason, it is worth considering the usefulness of including technical planners in the initial analytical process, or at least in the phase of feedback and discussion of results. For some years large enterprises in core industries have been utilising approaches and concepts to integrate and synchronise planning processes involving investment, technology and skills. One advantage of linking technical and skills planning is that staff are informed at an early stage of technical innovation projects. This gives them the opportunity to think about the effects of new technology and to articulate their own concerns.

In-company or regional education providers should have a chance to participate in the process of determining skill needs. Since small and medium-sized enterprises are dependent on regional education and training provision, it is necessary to provide opportunities at regional level for communication and the exchange of experience between enterprises and providers. In recent years several interesting projects have focused on improving communications and cooperation between small and medium-sized enterprises and training providers (cf. Gnahs, 1995; Wegge, 1995; Dobischat/Husemann, 1997). This is an essential pre-condition for remedying perceived skills deficits and demands for better qualifications in small and medium-sized enterprises.

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