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Modularisation of Apprenticeship Training Status quo Analysis and Expert Survey

The current study consists of two parts. The first part deals with the effects modularisation has on the enterprise-based and school-based parts of apprenticeship training. Among others, the question will be examined as to which of the currently existing apprenticeships (as of Nov. 2005) can be modularised. Attention will also be given to the questions of how the apprenticeship examination should be organised and of how the *Berufsreifeprüfung* can be accessed within the framework of the training (research brief 20). The second part of the study summarises the results of a company survey in which the findings from the first part of the study were discussed with experts involved in apprenticeship training (research brief 21).

Part 1: Status quo analysis

1.1 Modularisation concept

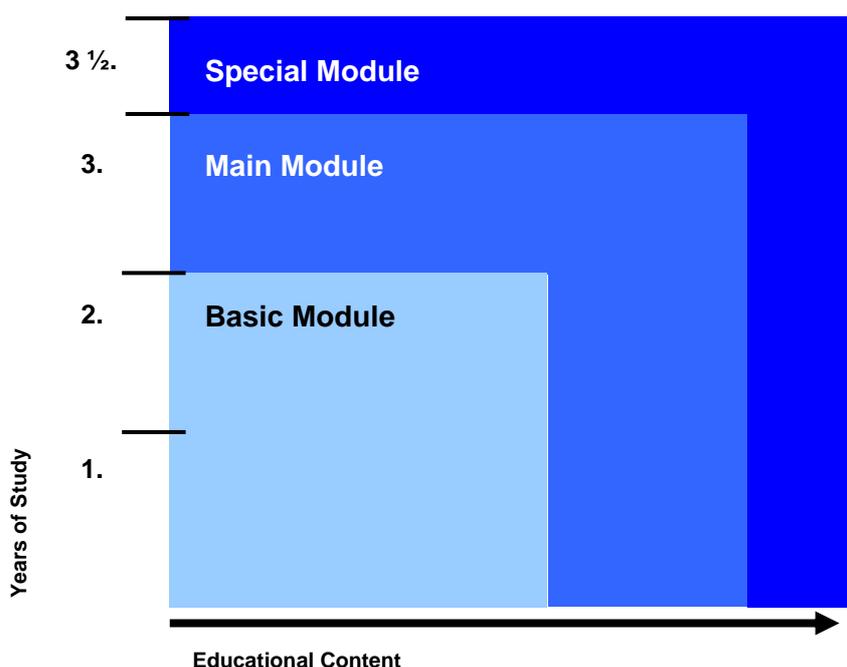
The modularisation concept provides for a sequencing of the teaching content by creating three modules in which the knowledge and skills to be taught are clustered according to their complexity:

- The **basic module**, which lasts for at least two years, consists of the basic knowledge and skills that

are necessary to practice one or more apprenticeships in a specific vocational sector.

- The **main module**, which lasts for at least one year, covers the knowledge and skills that go beyond the basics and are specific to one or more apprenticeships.
- Further knowledge and skills corresponding to special production methods and services are concentrated in a half- or full-year **special module**.

Illustration 1: Structure of a modular apprenticeship



For some years now, new apprenticeships have been decreed that display modular structures to some degree or another (e.g. the commercial-administrative apprenticeships). Anchoring the modularisation concept in the Vocational Training Act would therefore not be a completely novel idea, but rather set down in legal terms a **method that is already in practice**. It is expected that by doing so, more apprenticeships will be created in the future that implement a modular form and, above all, will be able to better exploit the **advantages of the special modules**:

- Special modules should serve as **modular alternatives to individual apprenticeships** with varying training periods (e.g. similarly oriented apprenticeships for a vocational sector that last for three, or three and a half years). Instead of decreeing individual apprenticeships that cover much of the same, and in some cases identical, content and further “splintering” the apprenticeship landscape and making it even more convoluted, the advanced knowledge and skills of longer apprenticeships should be taught within the framework of a special module.
- Special modules should also serve the purpose of **enabling a dual** training in those vocational branches in which the basic training is too “thin” to justify the introduction of an individual apprenticeship. With the help of a basic module that serves as the foundation for several apprenticeships, apprenticeship training could be more strongly established also in new and booming service sector branches.
- Furthermore, training content catering for the **urgent qualification needs** of a branch within the framework of IVET can also be quickly and easily integrated into the apprenticeship in the form of a special module. The flexibility as well as the up-to-datedness of the training regulations would thus be increased since only small training units would have to be exchanged or supplemented.

1.2 Modularisation of the enterprise-based training

When applying the modularisation concept to the current apprenticeship landscape (as of November 2005) under consideration of certain criteria such as degree of overlap of the occupational profile, duration of the apprenticeship, year of the update or introduction of the training regulation, number of dual apprenticeships etc., possible modular apprenticeships can be divided into **three groups**:

1. **Modular apprenticeships without additional new elements**: This group includes those apprenticeships where the modularisation leads to an adjustment of the training duration for the sake of conformity. This adjustment does not require additional new elements, but rather a restructuring of the existing apprenticeships.
2. **Modular apprenticeships with new elements in special modules**: In this group modularisation leads

to the integration of new knowledge and skills into the training in the form of special modules. Instead of incorporating these elements into the job profile of each individual apprenticeship and thus lengthening the training period accordingly, special modules will be developed to cover a range of apprenticeships.

3. **Modular apprenticeships with new elements in main and special modules**: The third group of proposed modular apprenticeships contains new elements in both the main and special modules. The resulting reduction in the number of individual apprenticeships would help to increase the transparency of the apprenticeship landscape.

The successful implementation of the thirteen modular apprenticeships proposed in this study would be a first step in “cleaning house” in the apprenticeship landscape.

When applying the modularisation concept to the current apprenticeships it becomes evident that the proposed concept can substantially achieve the primary goals of modularisation, i.e. making the apprenticeship landscape more transparent by reducing the number of individual apprenticeships, as well as increasing the flexibility of the training by introducing new educational content. Nevertheless, a few problem areas were also revealed which should be included in the further discussion process. The following suggested solutions can be considered in this process:

Content of special modules

The definition of the content for special modules has proven difficult for numerous apprenticeships. In many cases, it is simply not possible to differentiate as to which knowledge and skills belong to IVET and which to CVET. In other cases, possible training content such as event management, project management or web technology and design, do not justify an own half or full-year special module.

Suggested Solution

Apprenticeships should only be modularised if it is possible to set a reasonable focus. Special modules that are too general not only contradict the goal of the modularisation concept, which is to take into consideration the special production methods and services of a professional sector, they also lend a modular apprenticeship a rather “alibi-like” character. In such cases it is therefore recommended to leave the apprenticeships as individual apprenticeships or to examine the possibility of forming a special-focus apprenticeship.

Duration of the Modules

The current Vocational Training Act amendment provides that basic modules should last for a minimum of two years and main modules for at least one year. Under certain circumstances this relationship can be reversed. One-year basic modules are therefore rather the exception to the rule. However, the degree of overlap of some

job profile positions of possible apprenticeships often only make a basic module with a duration of one year possible.

Suggested Solution

The exception-like character of this regulation should be rescinded. This would also prevent two-year basic modules from being formulated with a basic training that is too “thin“. In particular, the increasing specialisation in enterprises that the modularisation concept is intended to address, contradicts the idea of an overly long and generalised basic training.

Administrative costs and cost expenditures due to the numerous possible combinations

Should the enterprises provide an appropriate selection, apprentices in modular apprenticeships can combine a variety of modules like “building blocks“. This results in numerous possible combinations for the apprentices. The creation of individual examinations for every possible combination, the calling of individual examination committees and the organisation of a multitude of examinations would noticeably increase the administrative costs and cost expenditures above all for the apprenticeship offices as well as for the Federal Ministry of Economics and Labour.

Suggested Solution

In order to limit the number of possible combinations, and thus the administrative costs and cost expenditures, access requirements for special modules should be stipulated in the training regulation. Not every main module should automatically entitle the apprentice to attend every special module. The possibility to complete two main modules, which corresponds to the current dual apprenticeship, can also be limited. This would reduce the number of final apprenticeship examinations that need to be prepared. Furthermore, as mentioned earlier in this paper, it is recommended that special modules should only be introduced if it is possible to set a reasonable focus.

The **final apprenticeship examination** should also adopt a modular structure. Thus it would be possible to separate the practical examination (work examination and professional discussion) for basic and main modules (= the current apprenticeship) from the examination for the special modules. The **work examination for the special module** could be conducted within the framework of an **enterprise-specific work project**. In such a case, the authorised apprenticeship trainer could, in cooperation with the apprentice, devise an assignment based on a real-work situation that the apprentice would then have to complete practically and independently. The apprenticeship office/examination committee must be duly notified before the start of such an assignment. Within the framework of the professional discussion, the apprentice should present his/her work as well as explain and justify his/her approach.

These performance-oriented examination assignments would not only conform to a modern and contemporary performance assessment system, they would also carry with them the advantage of reducing the number of final apprenticeship examinations that need to be prepared. According to this mode, it would not be necessary to prepare individual work examinations for special modules.

1.3 Effect of the modularisation on the vocational school

The modularisation of the apprenticeship could also result in **changes for the vocational school**, namely with respect to the curriculum, the duration of the vocational school, the number of students per class as well as the costs for equipment and teachers.

If one analyses the possible changes of the modularisation based on the three modular apprenticeship groups presented in this paper, it becomes clear that the first group - modular apprenticeships without additional new elements - would not lead to any changes in the criteria named above. Since in this group apprenticeships are merely restructured for the purpose of creating a uniform training period for all of them, there would be no effect on the curriculum, the duration of the vocational school, the class size or the costs.

The introduction of new main and special modules, as provided for in groups 2 and 3, would not only require new curricula to be prepared, but the scope of the special modules would also increase the duration of the vocational school training. The number of students per class and thus also the costs for teachers and equipment would, on the one hand, depend on whether or not the enterprises actually offer the (special module) training, and, on the other hand, on how many apprentices choose the entire module training. It must, however, also be taken into consideration that other variations, such as the introduction of new, or the expansion of existing apprenticeships, would also result in changes to the named criteria.

This also applies in terms of **costs**. The personnel and equipment costs incurred by the creation of new main and special modules are not necessarily intrinsic to the modularisation. The introduction of individual apprenticeships or the expansion, and thus increased duration, of existing apprenticeships would incur extra costs as well. To remain as objective as possible when discussing the modularisation costs, it is absolutely necessary to take the financial effects of these alternatives into consideration.

An **exact calculation of the modularisation costs** has, however, proven to be difficult since it is necessary to consider the following parameters:

- the number of apprenticeships that will adopt a modular structure,

- the number of new main and special modules per modular apprenticeship,
- the duration of the new main and special modules,
- the number of apprentices that choose new main and special modules in order to calculate the number of classes.

The costs of the modularisation can therefore only be profoundly estimated to some degree, and consequently compared with alternatives, where concrete models for modular apprenticeships already exist. Considering the development in the numbers of apprentices and the demographic changes, the additional personnel costs for the new main and special modules of the thirteen modular apprenticeships suggested in this study amount to approximately 2.9 to 3.9 million euros.

In order to maintain the attractiveness of apprenticeships in the future it will be necessary to introduce new apprenticeships or modernise existing ones in order to adapt to the changing economic circumstances. These measures also incur costs. Only through a comparison with costs incurred by these changes, will it be possible to elicit any additional costs that may be incurred by modularisation. Due to the amalgamation of apprenticeships with similar content, initial comparisons have shown that the module alternative for possible modular apprenticeships such as electrical engineering for example, would even be less expensive in regards to personnel costs than any other conceivable alternatives.

In order to **reduce the costs** that could result from modularisation, it is worth considering the following measures:

- A **reasonable focus should be set** when creating new main and special modules. The goal should be a qualitative rather than a quantitative expansion of the existing apprenticeships.
- Furthermore, it is recommended that main and/or special modules are **not offered at every school**. The students can be assigned to schools for the main/special modules irrespectively from where they attended vocational school before. This could result in a reduction in class size and **lower personnel costs**.
- Offering instructional content at specific schools would also have a **positive effect on the material costs**, which are borne 100% by the individual provinces.

It is recommended that **experts from every field of apprenticeship training are included** already during the planning stage for modular apprenticeships in order to keep the additional costs for the vocational schools, and thus the public authorities, to a minimum, or in optimal cases to avoid additional costs altogether.

A broad panel including representatives from the business sector, the social partners, the vocational schools and the school administration should be held to discuss and vote on the introduction and structure of modular apprenticeships. This should ensure that right from the start of the planning process consideration is given as to how to design the modular apprenticeships, and in particular the special modules, with the most reasonable content and the highest cost savings.

During the course of the modularisation it would also be possible to strive for a **stronger link between the apprenticeship and the *Berufsreifeprüfung* (BRP)**. This can above all be achieved with the help of two measures:

- creating the possibility to complete the ***Fachbereichsprüfung* (FBP) at a higher level within the framework of the final apprenticeship examination** for apprentices in every apprenticeship regardless of the duration of instruction,
- stronger integration of the preparation for the *BRP* in the vocational school.

The integration of the *FBP* would fit particularly well with modular apprenticeships. Apprentices in modular apprenticeships should thus be able to choose whether or not they wish to complete *the FBP* within the framework of a special module examination.

As mentioned earlier in this paper, the final apprenticeship examination of a modular apprenticeship could also adopt a modular structure. After the practical and theoretical examination for the basic and main modules (= the current apprenticeship), an individual examination should be established for the special module. This could consist of a written examination in the form of a project report that the examinee would have to present during the oral examination. The third part of the examination would be a professional discussion relating to the occupational field of the apprentice. Should the apprentice decide to complete *the FBP* at the same time, the examinations would remain the same, but would be defined in such a way that content and duration would correspond to the required **higher level of a *Reifeprüfung* at a secondary school**.

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