

Education feature

A training and development concept for the field of Orthopaedic Technology

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Introduction

For many years now there has been no doubt as to the need for a course of training which is comprehensive and above all structured and appropriate for the conditions of each individual country. It has finally been realised that a professional development process requires a specialised foundation.

In Germany the specialised/professional development in technical orthopaedics did not take on clear contours until 1880, when vocational training became controlled by law. By that time it had become necessary to take into account the growing demands of the industrial development process and society's need for social security. The introduction of the training vocation of "orthopaedic mechanic" and the creation of a vocational image made orthopaedic technology attractive, career-oriented and capable of expansion.

Consequently, countries in which the need for orthopaedic care exists, but which lack structured vocational development and therefore a career pattern, have no, or only little, opportunity to develop the necessary orthopaedic care structure in a sustainable manner. Short-term aid campaigns, such as the secondment of an orthopaedic treatment expert or donation of orthopaedic appliances, usually survive only as long as they are backed by external support, guaranteeing finances as well as vocational and specialised assistance.

As the executing organisation of Technical Co-operation of the Federal Republic of Germany with other countries, the GTZ has, in addition to a current crash aid programme, incorporated this realisation into its development projects in the orthopaedics sector.

A professionally recognised foundation resulted in social standing and prospects for the future which were the logical godparents of today's training system for "orthopaedic technologists" or, as identified by the ISPO and WHO the Category II professional.

Even today, very often the Category II professional must replace the CPO, the "Meister" (master craftsman), in many parts of the world. For many reasons, this person often does not exist at all in the countries of the Third World or, if he does, can only be available for training measures. Furthermore, the social aspect of orthopaedic treatment for the physically handicapped is not to be ignored. The orthopaedic technologist must be prepared for the fact that, in most countries, the social worker, so necessary for the work with the handicapped, does not exist and therefore the orthopaedic technologist must often take over his work, too.

Today's training, the form and contents of which have been undergoing constant adaptation in recent years, is the result of the recognition of this situation and takes into account the changing demands related to various development stages and cultures.

The entrance requirement

Completion of at least ten years of general education is the prerequisite in almost every country for further vocational qualification and its subsequent recognition and social classification. Hence:

successful completion of ten years of school (equivalent to the German "Mittlere Reife") is an entrance requirement for all GTZ training schemes.

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Duration and content of the training

The training is based on a balanced interplay of scientific and practically oriented segments:

- of the 1330 periods of instruction per year approximately 800, i.e. about 60%, are practically oriented.
- focal segments such as biomechanics, pathology and workshop technology underline the practical application.

It must also be pointed out that, unless other topics dominate in certain countries, the GTZ focal areas of training generally lie in the treatment of the lower limbs. It is seen as a central task of the training to impart the skill in producing and fitting the appliances for the individual patient — giving due consideration to the necessary handling and management skills.

Training sequences

During the three years the following training is carried out:

- 1st year: basic training in metal/plastics processing, orthotics techniques.
- 2nd year: wood and plastics processing, prosthetics techniques.

For both years the clearly defined learning targets and contents for the necessary theoretical instruction are described in detail right down to the individual instruction periods.

- 3rd year: According to a catalogue of compulsory topics, the students perform treatment in orthotics, and in prosthetics, under the guidance and supervision of the practical instructors.

The remainder of approximately 200 instruction periods can be used for optional exercises as needed, and possibly for specialisation. The theoretical instruction in this year serves the purpose of accompanying and supporting the practical instruction.

Contents and demands of the final examination

The contents and demands of the final examination reflect the future tasks of the "orthopaedic technologist". In addition to the conventional examinations of knowledge in the theoretical subjects, the focus here is on knowledge in the practical area of application:

- the candidate makes two appliances,
- takes measurements from the patient,

- fits the appliances to the patient,
- and submits the finished appliances to the examination team,
- together with:
 - a clinical assessment, an illustrative technical drawing, and a realistic calculation of costs.

The demands placed on a professional in the Third World countries are often more comprehensive and more extensive than those placed on his colleagues in an existing and functioning technical environment.

Unless a course of training takes these facts into account, its result will fall short of the expectations. A comparative study has shown that the learning targets for "orthopaedic technologists" are more comprehensive in many sectors than, for instance, those for their German counterparts.

International recognition

The final examinations in the individual training centres should be compatible with those found in other systems and training courses. This is essential for students aiming towards further training as a Category I professional in order to improve their qualifications. Until now, the training projects of the GTZ have been tied to the German system in order to permit further training to "Meister" if necessary and when possible. For this reason, all the examinations held included a certain number of external examination questions and were marked by external examiners.

However compatibility always has its limits and often requires very great additional efforts. The writer now believes that the training should be more international. The international professional organisations are called upon to continue on a hitherto successful path and to create a professionally oriented examination for "orthopaedic technologists" and, if the candidate passes the exam, to guarantee him the professional title and recognition.

GTZ has proved at their various training centres that training contents and the imparting of knowledge can be steered by the examination contents.

As a result of all this work a specialised, practically oriented final examination has also been developed. This structured final examination is offered as the foundation for the

necessary specialised international examination for "orthopaedic technologists", the Category II professional.

Expectations and perspectives

It is intended to use the same, examination-oriented philosophy in future for the further training of the orthopaedic technologists to Category I professional. The experience to date in the further training of the graduates from Third World countries in established systems, e.g. in Germany, tends to be frustrating and far from satisfactory. Although more than 60 specialists from Africa, Asia and Latin America have qualified as "Meisters" in Germany in recent years, the efforts are often extremely great and are out of proportion to the result.

In addition, some of the subjects which have

to be learnt within the further training are often totally unrelated to the demands placed on the profession in the various home countries. The writer therefore suggests that:

- ISPO/INTERBOR draw up an examination profile and examination regulations for the Category I professional.
- an international "Certification Board" hold and recognise examinations for candidates from all countries.
- the technical competence and the right to use the professional title be certified and recognised for the individual candidate after passing the examinations.

Such a step would be future-oriented, enhance development and is therefore urgently needed. GTZ will bear this path in mind for future activities in the training sector and incorporate it in the activity profiles of the projects.