

THE IMPORTANCE OF TECHNICAL EDUCATION IN THE FOOTWEAR INDUSTRY

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Ladies and gentlemen,

It has been impossible to qualitatively assess and analyze the twentieth century, which was full of rapid and momentous changes in practically all areas. Connected with the end of that century, the question was posed whether we have been able to influence the changes in the development of the footwear industry or to what degree those changes have influenced us.

The production of footwear at the beginning of the twentieth century was in presaged by the shift from craft manufacture to serial production. The Second World War complicated this development as manufacturers of footwear had to deal with an insufficiency of raw materials, but on the other hand this difficulty contributed to further decreases in production prices. Shortly after the war, there was again an intense development, primarily in mechanization and increasing use of chemicals in production. At the same time, changes were slowly forthcoming in production organization. The popular as well as the professional press are full of hope and non-critical celebration of the successes in chemical research, newly developed artificially manufactured materials and their application.

The main bearer of these advances was sports footwear as new types of shoes appeared and new materials and design solutions began to be used. Slowly, these tested modifications also began to be applied to walking shoes. If we carefully scan period brochures for the provided assortment of footwear, we find that very often customers were attracted to untested and unsupported „modifications“ or diversity, and these often appeared for only very short period of time (producers stopped using them after one season). Despite this, all sports footwear became a kind of „pacemaker“ that signalled changes and tried to ease the way for successors (footwear producers and customers). In the last quarter of the past century, there has been a great shift in production to areas with less expensive labour.

All of this is sufficiently well-known and certainly will also be carefully analyzed. In the meantime, the aspect for all evaluation and assessment remains **professional education focused on training specialists for the leather industry**. Today on the pages of Internet we can find about 30 references to schools and laboratories through secondary schools to polytechnical institutes and universities. Let's leave off those offering simple analyses, such as representatives of professional schools on individual continents, the number of students in individual countries compared with the number of shoes produced, the languages taught etc. From various periodicals and professional events, we can state that the demand for qualified, trained professionals has not been fully satisfied. On the other hand, particularly over the past decade, we have encountered the opinion that anyone can work in the footwear industry. In this context, there have been numerous discussions (more often than not local) about the quality of training and sufficient preparedness of graduates.

How did professional schools come about?

The rise of modern professional schools took place after the introduction of industrial serial production of footwear. Craft manufacture did not need to implement knowledge since long-term experience was enough and manual dexterity took precedence. Expanding industrial

production gradually called for the need of professionals with new knowledge. **In all cases, professional education developed in close proximity to prospering footwear enterprises, which as a rule presented or designated the direction of further research.** Initially, schools were business (private) but later (in the second half of the twentieth century), individual states began to regulate the education system and thus unified conditions and requirements were established (in some countries, the education period, range of professional and general subjects, work period etc. were determined by law).

As a rule, colleges developed in proximity of secondary professional schools and in the 1950s, the first attempts were made at founding universities. First, these were in tanning technology, which managed to organize individual schools with relative ease according to the requirements formulated by scientific advice. The level of science was based on complex chemical processes related to tanning, lubricating, dyeing etc. Generally, at these same schools (universities), professional departments were later expanded for the problems of mechanical technology of footwear production and haberdashery.

If we leaf through the chronicles of professional educational institutions (schools or institutes), we find several interesting facts:

- **Quality professional education originated in all places where successful, prospering enterprises, companies or at least groups of people already existed.**
- **Only successful people create successful (viable) professional education.**
- **Education is always a little behind industry.**

Unfortunately, the twentieth century also offered us a downside to educational development. We can find a series of examples of decline or even failure of several professional schools. The reasons are varied and it would take a long time to describe all of them. Without compromising the complexity of the issue, it is possible to state that failure can be linked with the following causes:

- **Doubt as to the necessity for special preparation of professionals for the footwear industry**
- **Over-emphasis on theoretical training (distance from real work)**
- **Over-emphasis on pragmatism (based only on practical skill)**
- **Great backwardness of instruction, well behind rapid development in practice**
- **Limited accessibility (or lack of interest) by teachers to innovation**
- **Financial problems**

A common factor in all school failures (closed or non-prospering) is **loss of contact with prospering companies, enterprises or groups of motivated people.** Similarly, this is valid for cases of newly established schools. If these are not supplemented by the above mentioned requirements, their successful development is endangered.

Currently, a new phenomenon has manifested itself. Development has become separated from production and a gap has opened not only across state borders, but also within different

economic systems. Unfortunately, professional education is predominantly located in countries in which footwear production has declined for several years and where institutions involved with development find it difficult to survive. In other words: professional education has become an orphan, whose parents are divorced and neither is interested in the offspring.

If the world changes, it must also rightfully change its education system (in volume and extent). One serious complication is that education was once financed, insufficiently as a rule, out of the state budget. Professional education focused on the footwear industry faced a complicated situation and began to become markedly delayed behind other industrial branches.

The higher the level of professional education, the greater the share of close cooperation with research. And the results of research must be continuously compared with the results of other work sites. Therefore it is necessary to publish professional periodicals, arrange professional seminars, conferences and congresses. These rules are necessary conditions for further development in all technological fields. Unfortunately, we must admit that in this direction, the footwear industry has also markedly stagnated.

If we seek inspiration for a solution in other fields, a series of examples offer themselves. For example, pedagogy, a field that publishes a series of professional magazines and regularly arranges professional meetings. In this regard, let's have a look at several of the most recently published conclusions, which originated from studies and research conducted in the field of pedagogical science.

From ACIIC's research (1) in international trends in innovation, technology and competitive strategy, it was concluded that the basis of international competitive advantage and sustainable development lies in our ability, as individuals, organisations and as a society, to learn fast and effectively, and to apply that learning appropriately. The basis of our ability to meet the political and cultural challenges of a global culture and economy will also require fundamental innovation in learning.

The design and organisation of learning throughout the life-cycle in schools, organisations and communities will be subject to the same scale of transformative change as that which has transformed manufacturing over the past decade.

This transformation will affect:

- technological platforms and management paradigms
- organisational restructuring and convergence between organisations and industries
- work re-design and skill formation for professionals engaged in providing learning, training and education services
- relationships with suppliers and customers
- the internationalisation of markets, and
- increased competitiveness in those markets.

In the some materials (1) it has been shown that future professional education will be influenced by three significant forces:

- **Globalization of the economy and production.** These general considerations need to be transformed into training conditions for the footwear and leather industry. No other field (production segment) is as globalized as the leather, footwear, and haberdashery industry. In a series of publication, countries of the world have been

divided into groups of footwear producing and footwear importing nations. For now, no analysis has been conducted to determine professional training for the footwear industry. And here, without pretension, we can accurately state that functioning professional schools have survived in countries where this industry prospered in the not so distant past, but for now none of these schools have changed to adapt to the subsequent globalization. In general, professional education is owned by the state and is thus not subject to the pressures of international competition and is not interested in globalizing its offer. On the other hand, such functioning schools have difficulty aligning themselves with the shift in footwear production to countries of the third world.

- **Technological changes in production organisation and pedagogical needs.** Development and research in technology for the footwear industry has slowed. At the beginning of the 1980s, interest in investing in labour-saving equipment declined because greater profits brought a shift in production to countries with cheaper labour. In these countries, however, professional education was not established for the leather industry since it hadn't existed previously and students could not be trained on the level necessary for the new, rapidly developing education system. Therefore, there have been only very short-term intensive training of those interested from the streets or retraining graduates from other fields. This has contributed to the spreading notion that the footwear industry can operate without professionally educated personnel.
- **The influence of applying other areas of research and the problem of applying the latest knowledge.** Institutional preparation of professionals for the footwear industry has been delayed to a certain degree behind the main technological innovations. Insufficiency and difficult acquisition of information about the latest technological trends, the impossibility of practical demonstrations incorporated into teaching (tours of actual operations, experimental verification laboratories), decreases the quality of professional training. The other problem area is the significant interdisciplinary aspect of education. Practically all successfully applied innovations introduced in the last decade developed as practical applications from other fields. For example:
 - Application of knowledge in macromolecular chemistry when converting classical materials for soles, heels, uppers and other footwear parts;
 - Using knowledge of physical chemistry when developing new adhesives;
 - Biomechanics when developing sports shoes and footwear for various types of illnesses;
 - Development of computer technology attached to the application of CAD/CAM/CIM technology;
 - Use of Internet for speeding up the transfer of data;
 - Understanding commerce, market research, the influence of advertisement from applied economic sciences;
 - New knowledge in ecology and health protection.

It appears that the content of knowledge about footwear production has changed from a simple description of craft rules to a multi-disciplinary educational foundation in a short period of time.

Research across the education sector indicates that there are eight defining principles:

- Lifelong learning has been verified in medicine and has gradually expanded into a series of other industrial fields as well. For now, this doesn't exist for the footwear industry, but it has been shown that it would be very advantageous to prepare educational courses in various skills (applied chemistry, adhesive technology, the problematic of stitching, cutting materials, biomechanics of the shod foot, ecological problems, health protection of workers in footwear production and a series of others).
- Learner-directed learning has again been successfully applied in the area of computer applications. In the area, this type of motivation for students is not employed in the footwear industry and not even direct teaching is possible due to the insufficiency of modern literature.
- Learning to learn is a methodological problem. It is known, however, that prospering fields (such as, for example, computer sciences), for which rapid growth of information is typical, attempts have been made to influence the intensification of instruction and also the method and improvement of teaching.
- Customised learning is more or less typical for flexible private or semi-private educational institutes, which need not be subject to accreditation proceedings. This means that preparation of educational programs is made to order. This should be very practical for the footwear and leather industry and bilaterally advantageous.
- Collaborative/co-operative learning is interpreted very generally. Co-operation in teaching for training conditions needs to be understood as co-operation of existing schools with preparation of newly established schools and institutions in countries with developing footwear industries.
- Just-in-time learning depends more or less on teaching organisation. Again, it is typical for non-industrial fields. If interpreted literally for the footwear and leather industry, with a slight exaggeration, this would mean that preparation of professionals in countries of the Far East should presage an industrial boom. And that is against existing experience, when it has been demonstrated that professional education without a base for industrial production cannot be qualitative.

Many of these principles are reflected, for example, in the changing model for a Masters in Business Administration (MBAs), as advocated in the Karpin Report (2).

A summary of the problematic of professional education at the beginning of the third millennium is not easy. For now, strong pressures on rentability and prosperity of footwear production has forced producers to abandon obsolete technology while education has not been affected by non-rentability and thus some educational methods still have their roots in the last century. Therefore, let us try to pose several more general questions once again.

Are ancient ideas about education still valid in today's globalised age? Are any notions about the ideal education for professionals applicable in the footwear industry? Does the current, heavily globalised footwear industry need qualified professionals?

An entire series of such questions could be posed. They have one answer in common:

It is impossible to answer in one word; it is impossible to find a universal answer and apparently the most successful in the globalised world will seek a solution respecting local conditions. Different answers can be expected from proponents of development centres of international companies and from proponents of production companies.

In the backdrop of the next decade, it is possible to expect that **footwear production will continue with globalisation trends and the division of development from production.** But if production is separated from research, then education, if it hopes to be successful, must respect this change and adapt to it.

Currently, professional education (predominantly locally oriented) has not been able to adapt to globalisation trends.

Therefore, our attempts to focus on saving professional education have become critical. Protection, however, cannot be merely administrative, but such that the entire footwear industry will prosper.

To close a school is very simple - it is merely a question of an administrative decision.

To build a quality professional school, however, an administrative decision is not enough. Allow me to quote a statement by Thomas Bata: „**Neither machine nor building, but people are the most important...**“

A functioning, prospering and, in practice, important school must concentrate three important conditions in one location:

- **Experienced and sufficiently motivated teachers;**
- **People interested in the possibility of prospectively good employment;**
- **Technical facilities.**

In today's globalised world, it is necessary to begin to globalise professional education as soon as possible:

- **One possibility is to enable the greatest number of interested parties to study at quality, international professional schools;**
- **To catalyse pedagogical activity by participation of pedagogues in feasible research and expose it to international professional debat;**
- **To compile modern, international textbooks in such a form that they could be used to make lifelong learning possible.**
- **To enable students working stays in top laboratories.**
- **To adapt schools to newly developing actualities (trends), not adapting students to schools.**