

First International Forum on Human Resource Management
 SENAC/ABNT Sao Paolo, 20th April, 2001

*Quality Training and Quality Human Resources:
 Key Factors of Competitiveness at National and Enterprise Level*

Dr Raymond Saner

Centre for Socio-Eco-Nomic Development, Geneva

March 2001



1) OVERVIEW

This article sets out to provide an overview of the field of national competitiveness studies and its relation to high quality human resources and correspondingly to high quality education and training. In particular, the author's goal here is to develop the reasons why countries increasingly need well trained and motivated human resources. Drawing on Michael Porter's pioneering work on national competitiveness and Christophe Koellreuter's application studies on regional competitiveness, the author highlights the importance of high quality human resources in general and of high quality education and training in particular. In conclusion, suggestions are made to establish a quality assurance systems of education and training based on the newly developed ISO 10015 Standard in order to guarantee high quality levels of learning necessary for sustainable economic development and successful enterprise performance .

2) PORTER'S NATIONAL COMPETITIVENESS CLUSTER

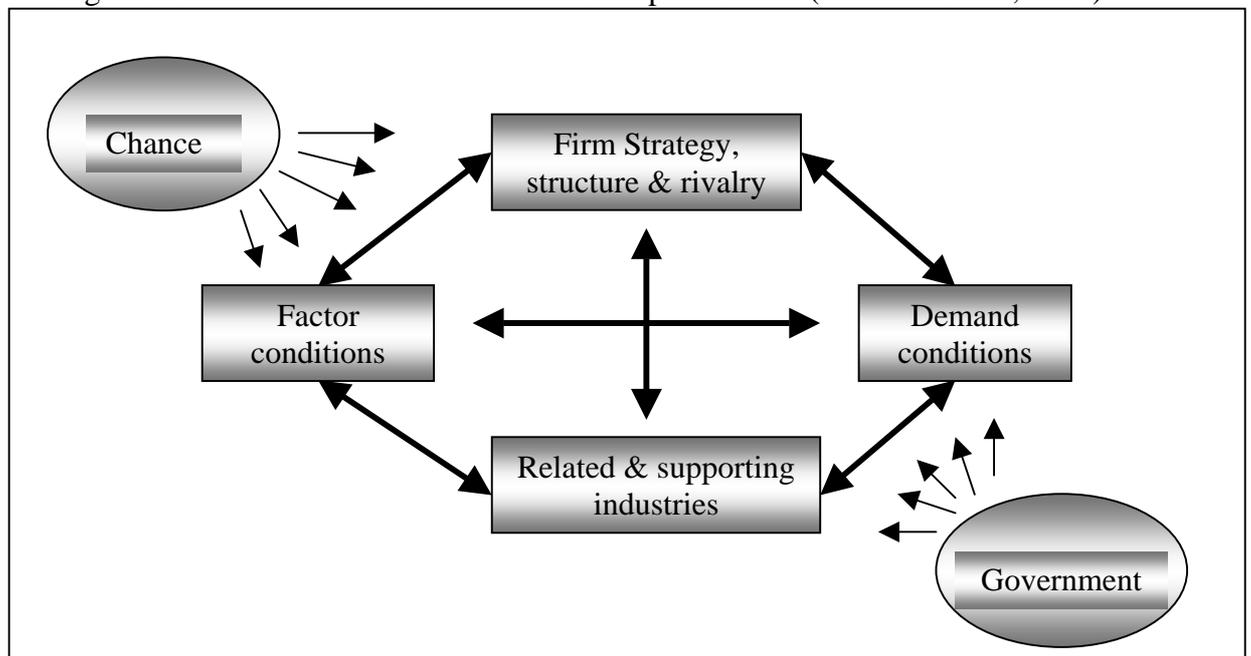
Porter (1990)¹ has conducted an extensive comparative research of ten countries and came up with reasons why some nations succeed in some industries but fail in others. According to Porter, the home base plays a critical role in that firms tend to build up competitive advantage in industries for which the local environment is the most dynamic and challenging. He has conceptualised his findings in his analytical "diamond" frame which consists of a) factor conditions (e.g. labour, capital, land), b) demand conditions, c) dynamism of related and supporting industries and d) firm strategy, structure and rivalry. In addition to the four factors, chance (e.g. inventions, war, etc.) and government also plays an important role in supporting a nation's aim of achieving economic success (see Figure 1 below).

¹ Michael E. Porter, "The Competitive Advantage of Nations", New York, The Free Press, 1990.

Concretely, a successful region according to Porter's Diamond would show the following features namely:

- several competing companies belonging to the same regional key industry or industries,
- a large dynamic and sophisticated internal market (Demand conditions)
- suppliers specialised in the activities of the regional key industry/industries
- qualified and highly qualified manpower specialised in the activities of the regional key industry/industries; educational and research institutes (Factor conditions) (Borner, Porter, Weder, Enright, 1991)

Figure 1: Successful Factors of National Competitiveness (Michael Porter, 1990)



Porter's original concept consisted only of the four diamond conditions. In later publications, Porter added more factors to his diamond model namely 1) chance and 2) government. Concerning the role of government and chance in Porter's model, Oez (1999)² interprets Porter's findings as follows:

"The proper role of the government should be reinforcing the underlying determinants of national advantage rather than trying to create the advantage itself. It is necessary to note that Porter anticipates a more direct but still partial role for the government in the early stage of development of a country since "the tools at its disposal, such as capital, subsidies and temporary protection are most powerful at these stages in a nation's competitive development" (Porter, 1990, p.671).

The role of government, and by extension the mandate and discretionary power of its civil servants, might hence vary according to the level of economic development of each country.

² Oezlem Oez, "The Competitive Advantage of Nations: The Case of Turkey", Ashgate, Aldershot-UK, 1999.

Role adjustments are necessary to help a country move up the developmental ladder as for instance has been the case in Singapore since independence in 1985

In recent publications, Porter (1998) offers a more holistic explanation of regional competitiveness. Discussing innovation and sustainable competitive advantage of firms, he states:

"... While some knowledge is embedded in materials, components, products and machinery, other knowledge is embedded in human capital, part of which is tacit (pp 447).

Expanding on some aspects of his previous work Porter (1990) further suggests that,

"(Furthermore), clusters are characterised by a specific set of tangible (firms, infrastructure), intangible (knowledge, know-how) and institutional (authorities, legal framework) elements. These elements make up a complex web of relations that tie firms, customers, research institutions, schools and local authorities to each other. The interaction between economic, sociocultural, political and institutional actors in a given location triggers learning and enhances the ability of actors to modify their behavior and find new solutions in response to competitive changes". (pp 443).

With this more complete multifactor and multidisciplinary point of view, Porter joins the existing school of institutional economists and sociologists and political scientists who have been studying the non-economic factors of regional competitiveness for quite some time and who see e.g. the emergence of new industries from the framework of a social system (Van de Ven, 1989), and from the perspective of social capital theory (Hollingsworth, 1997).

3) APPLICATION OF PORTER'S MODEL TO REGIONAL COMPETITIVENESS

Applying M. Porter's concepts, Koellreuter (1997) has organised comparative studies of regions in order to identify possible key factors which help a region become more competitive and prosperous. Summarising the results of a cross-regional survey covering 20 regions in Europe and North America, Koellreuter (1997)³ identified 50 factors, which have an influence on a region's economic advantage. The most decisive factors are listed below (table 1):

³ Christoph Koellreuter, "Increasing Globalisation: Challenge for the European Regions", BAK International Benchmark Report, 1997, Basle.

Table 1: Factors with the most decisive influence on comparative advantages of a region with a future

Ranking	Factors
1	Availability of highly skilled labour
2	Price/performance of highly skilled labour
3	Permits (legislation, processing)
4	Corporate tax system
5	Price/performance of skilled labour
6	Availability of skilled labour
7	Work permits of transnational labour
8	Telecommunication
9	Quality of life
10	Access to EEA (EU) market
10	Working Hours
11	Predictability of the politico-legal environment
.
24	Energy supply
25	Price/performance of unskilled labour

Many of the factors listed in Koellreuter's chart fall into the sphere of responsibility of the respective regional government (development of highly skilled labour force, efficient tax system and issuing of permits etc.). Creating the right mix of efficient economic factor conditions, effective (consistent and predictable) regulatory framework, transparent and efficient administrative services, and high quality social and cultural institutions and services all combined obviously constitutes the right ingredients for a truly competitive region.

The chart is even more significant in light of globalisation. Foreign companies investing in other regions of the world make investment decisions based on most of the factors listed in table 2. In other words, the ability of the respective government to design and sustain an appropriate policy environment is crucial. Equally crucial is the ability of the respective civil servants to apply the rules in a transparent, non-discriminatory manner to local as well as foreign investors. All this results in an increase of challenges to a region's government and civil servants who have to honour the by now increasingly global requirements of good government meaning transparency, accessibility, non-discrimination, customer orientation and predictability. Without these requirements, foreign direct investment will go to more promising pastures and local investors might "vote with their feet" and invest elsewhere

4) APPLYING THE ANALYSIS OF COMPETITIVENESS TO QUALITY OF HUMAN RESOURCES.

Competitiveness of companies in world markets rests on three bases: quality of goods and services offered, their price and delivery times. Developing country industries may have a comparative advantage in price, especially, if they use local raw materials. However, according to Dr. E.-Tawil (1996), a lot needs to be done to bring the quality of their products and services to competitive levels. No matter what attractive prices they offer, they won't make the deal if the quality of their products is way below the level acceptable in their target markets may this be domestic or international.

This progression from rudimentary customer demands to more sophisticated demands of today's world markets accelerates once a country opens its borders to international trade. Brazil as well as other developing countries have started to industrialise and to integrate their economies into the world economy but at the same time they have to live with a increasing erosion of its traditional comparative advantages (cheap production due to low labour costs). Brazilian companies hence benefit from opportunities provided by the globalising world economy but at the same time they experience growing pressure to meet international competition both at home and abroad. The need for world class human resources will be required to be a world class economic power.

Cheap labour and production costs will not suffice to guarantee continued economic development. This is even true for Hong Kong, a very advanced economy compared to China. In the words of Mr Donald Tsang, the new Chief Secretary of Hong Kong, Hong Kong needs to find ways to compete in world markets by raising its quality, he stated:

*"We are not the Wild West anymore. We must compete on quality"*⁴

In developed country markets and increasingly in today's global markets large-scale buyers require from their suppliers, not only a satisfactory quality of the products and services they buy, but also some assurance of the long term consistency of the quality. Dr Tawil concludes in stating that to provide this assurance, suppliers are increasingly required to demonstrate that they operate adequate systems for quality management and quality assurance.

Quality of products and services in turn depends on the availability of well trained and educated human resources. Pointing out that economic growth rate cannot not be achieved without access to world markets and without a country's ability to to make products that can be sold abroad, Lester C. Thurow, former Dean of MIT's Sloan Business School, states:

*In today's economic world, countries without educated work forces simply cannot set sail economically- what ever their desires. This leads to a simple conclusion. If countries cannot organise good educational systems, there is no such thing as catching up economically.*⁵

⁴ Thomas Crampton, "New Hong Kong Official Stresses Competitiveness", International Herald Tribune, March 9, 2001, p.13

⁵ Lester C. Thurow, "Catching up economically through excellent education systems", Basler Zeitung, Basle, 5th March 2001, p.15.

5) **STRATEGIC IMPORTANCE OF HIGH QUALITY EDUCATION AND TRAINING.**

Putting this into the context of globalisation and WTO membership, it means that the future of Brazil's economic development will rest on the shoulders of its managers, entrepreneurs and labour force. They will succeed or fail to seize the opportunities of better access to foreign markets and at the same time they will be prepared or not to meet foreign competition in Brazil's home markets.

Training and educating Brazil's workers and managers is therefore of strategic importance which in turn means that Brazil's training providers have to be at sufficiently high quality in order to supply high quality training and education. The crucial role of education and training in fostering economic growth, personal and social development, as well as reducing inequality is well recognised. Countries therefore in general seek to ensure that their whole population is well equipped to contribute to, and participate in, the process of social and economic development. Education enables them to face the challenges of technological change and global commercial integration. Through its capacity to provide skills and enable effective participation in the work force, education is crucial to economic adjustment.⁶

Although the demands change, education and training providers remain traditional in many developing countries. Of 59 countries ranked on competitiveness by the World Economic Forum, Brazil's position on several key indicators does not appear adequate for the coming challenges of increased global competition. For instance, the following results pertaining to Human Resources, Training and Qualification of Managers need to be taken into account for future remedial action:

⁶ Council for Trade in Services, WTO, "Education Services: background Note by the Secretariat", 23 September 1998, p.2-3

Table 2: Brazil's Competitive Position on key HR indicators (Source: World Economic Forum, Geneva, 1999)

Dimensions & Questions surveyed	Ranking (59 countries total; lowest ranking country equal to Nr. 59)
1. Approach to Human Resources (Q: Managers attract, develop and motivate high-quality staff)	Brazil: Nr. 32
2. Staff Training (Q: Staff training is heavily emphasized)	Brazil: Nr. 34
3. Overall Management Quality (Q: Overall, the quality of management is truly world class)	Brazil: Nr. 23
4. Total Quality Management (Q: Total quality management is strictly applied)	Brazil: Nr. 31
5. Management Education (Q: Management education is locally available in first-class business schools)	Brazil: Nr. 29
6. Foreign Experience of Managers (Q: Managers generally speak some foreign language and have good international exposure)	Brazil: Nr. 28

Inefficient and ineffective systems of education and in-service training exist in many developing and developed countries (Saner, Strehl & Yiu, 1997). It would be misleading to look at the education and training sector as if it were a beauty contest. What matters are the results or outputs (skills acquisition, know-how acquisition and increased behavioural competencies of students and trainees), not input figures (number of teachers and schools subsidized). At the final end it is the outcome measures which determine whether or not a given education and training system is effective or ineffective (increase of economic and social development at national level or increase of productivity at enterprise level).

6) PROVISION OF HIGHER EDUCATION AND TRAINING SERVICES

Provisions of needed training and education could come from national or international sources. Countries with low quality education and low quality training services will face increasingly competition from foreign service providers. WTO membership also includes agreement to open markets in services. Education is one of the services sector covered by the WTO. Hence, it can be expected that the next WTO Round of Liberalisation of Trade in Goods and Services will also include opening of educational markets world wide.

International trade in education services has experienced important growth in particular at the tertiary level. This is demonstrated by the increasing number of students going abroad for study, exchanges and linkages among faculties and researchers, increased international marketing of curricula and academic programmes, the establishment of “branch campuses”, and development of international mechanism for educational co-operation between academic institutions in different countries. By 1995, according to WTO reports, the global market for international higher education was estimated at US \$27 Billion.

High quality training and education are needed for sustained economic development of countries whether they are developed or developing. Switzerland, a developed and industrialised country, has recently embarked on a total audit of its higher educational system particularly of its Technology Institutes but also now including its main universities. The goal of the audit is to analyse current quality levels of education, measure the current state with expected future needs and to improve the current educational sector accordingly. Swiss and foreign experts team up to form so called Peer Review teams who visit all the higher educational institutions of Switzerland in order to assess the quality level of their teaching services. This author has been part of such a Peer Review team and found the auditing exercise a most fruitful, courageous and stimulating step towards a total overall reform of the Swiss educational system.⁷

Concerning Brazil’s current challenges in regard to education and training, substantial financial and human resources need to be invested over the next 10-20 years. Taking into account the scarcity of financial resources and technical know-how, it is of paramount importance to guarantee sufficient quality control of education and training. Different quality methods and instruments exist in the field of education and the same is true for enterprises. Complementary steps need to be taken to improve Brazil’s formal educational system and at the same time, on a more immediate level, steps need to be undertaken to help Brazil’s enterprises improve their current quality level of in-service training.

7) INSTRUMENTS FOR CONTINUOUS QUALITY IMPROVEMENT.

The next paragraphs offer a closer look at Quality Management Standards and how they might be of use for Brazilian organisations and enterprises. Building on observations made by Giuseppe Maggioli⁸, the following points could be made:

⁷ For more information see “Support for Quality Management”, Swiss Peer Review, Newsletter, Nr. 1, December 2001, www.swiss-science.org

⁸ Giuseppe Maggioli, “Similarities and Differences between ISO 10015 and other Quality Management Systems”, paper presented at Conference organised by Centre for Socio-Eco-nomic Development, Geneva and Nanjing Aerospace University, Department of Management, 2001.

A) Quality Management Standards

Quality Management Standards define the “Guidelines” of a quality system. In order to build and maintain the system there are many different instruments. An airplane needs instruments in order to navigate. Like an airplane the quality manager may choose its instruments in a jungle of Methods Tools and techniques to run its quality system.

Quality Management Methodologies generally take the name of their inventor like Juran, Deming, Kaizen, Hoshin, Shinin, Weibull, and many others. There are other methodologies as well but the most important issue is to use the right tool at the right moment for the right problem.

One of most important things to understand is that all these instruments have to be used to measure process performance, not people. People will take advantage from the “LEARNING PROCESS” using these instruments in order to achieve superior performance.

This is a non-exhausted list of references of Quality Management Methods:

- VOC – Voice of the Customer
- SPC – Statistical Process Control
- FMEcA – Failure Mode and Effect Analysis
- DFM – Design for Manufacturing
- DOE – Design of Experiment
- 5S – Good Housekeeping Practices
- TPM – Total Productivity Maintenance
- TQCT – Seven Quality Control Tools
- 7QM&PT – Seven Quality Management and Planning Tools
- QFD – Quality Function Deployment
- TEAMWORK – Team_Based Organization
- SQA – Software Quality Assurance
- BPR – Business Process Reengineering
- DMS – Document Management System
- PPAP – Production Part Approval Process
- APQP – Advanced Project Quality Planning
- Quality Initiatives in Educational & Training Institutions

B) QUALITY INITIATIVES IN EDUCATIONAL & TRAINING INSTITUTIONS.

Several initiatives have attempted to improve Quality of Training and Educational Institutions over the past few years. Most of them represent individual initiatives, mainly by private universities and high schools.

These initiatives focus on the following aspects of training and education:

- Quality of personnel
- Quality of Training Organizations infrastructures
- Quality of Products
- Quality Measurements and Metrics
- Quality Methodologies, Tools and Techniques
- Learning Methodologies
- Certificates Recognition (Systems, People, products)

- Sectorial Standardization approaches
- Accreditation and Certification of:
 - Systems (training organizations)
 - People (certificates)
 - Products

National and Supranational Governments (Italy and European Commission, “EC”) and National Certification Bodies (USA and AUS) have started Pilot projects and Forum debates to prepare future standards in Training and Educational Institutions. Similarly, the ISO organization has supported the development of ISO 10015. The EC has sponsored several pilot projects in this area.

There is no doubt that there is urgency for a harmonized and international Quality approach for Training and Education sector. Reflecting this growing importance of Training and Education is the fact that studies show that the value of the Quality business worldwide is approximately 1000 billion US\$ of which an increasing 10-15% are spent per year on Training and Education.

The list below identifies four initiatives in various domains at national and international level in accreditation/certification areas around the world (Italy, EU, USA, AUS, NZ).

- [Accreditation of Training Companies](#) (An Italian Government Approach for Quality Assurance accreditation and certification of professional Training and Educational Institutes)
- [ENQA – European Network for Quality Assurance in Higher Education](#) (European Pilot project for evaluating quality in Higher Education. - Forum platform for exchanging ideas, information, good practices, and new development)
- [INQAAHE – International Network for Quality Assurance Agencies in Higher Education](#) (International Forum for collecting and disseminating Experiences, Practices and Theories of Quality in Higher Educational Institutions)
- [Guidelines for Training and Education Organizations](#) (There have been few attempts to adapt ISO 9000 standard to Training and Education Institutions e.g. in USA, NZ and Australia, but the results remain uncertain due to interpretation difficulties and cultural change factors).

C) ISO 10015 ACCREDITATION AND CERTIFICATION MODEL

The Academy of Quality in Training and Education (AdeQuaTE), a subsidiary of the Centre for Socio-Economic Development, developed an Accreditation and Certification concept for ISO 10015. This model includes the following processes

- Process for ISO 10015 Training Licenses
- Process for Accreditation (EN 45013) of a Training and Education Institution
- Process for Certification of ISO 10015 Quality Management System in a Training and Education Institution.
- Process for certification of Qualified Personnel for ISO 10015
- Process for Maintaining Certification Records

- Process to Assess and Evaluate Quality Systems and Personnel

Installing ISO 10015 Quality assurance system within an enterprise would offer the needed quality measures to ensure higher return on investment in human resource development and in-service training.

8) CONCLUSION

Globalisation and WTO membership will speed up competition for Brazil abroad and at home. The challenges of competition have to be taken up by today and tomorrow's managers and workers. WTO members like Singapore and South Korea have rapidly replaced illiterate work forces with well-educated work forces. A similar path has been undertaken by Brazil but needs to be further deepened and accelerated. The strategic question is how to support the rapid build up of high quality education and training in order to guarantee long-term success of Brazil's membership in the world economy. In light of limited financial resources, quality assurance of training and education has increasingly become a task of strategic importance for Brazil. The same is true for all the other countries who want to become or remain successful partners and players in the world economy

Bibliography,

Borner, S; Porter, M.; Weder, B.; Enright, M.; Internationale Wettbewerbsvorteile: Ein strategisches Konzept für die Schweiz. Frankfurt, Zürich, Campus Verlag, S. 62. Cited in Koellreuter, Ch. (1997)

El-Talwil, Anwar, "Role of ISO 9000 in Improving Quality in Developing Countries", in Best Management Development Practices: A Benchmarking Conference, CSEND-Geneva, 1996.

Hollingsworth, J.Rogers, Boyer, Robert; "Contemporary Capitalism: The Embeddedness of Institutions", NY, Cambridge University Press. 1997.

Koellreuter, Christophe; Increasing Globalisation: Challenge for the European Regions., Basler Schriften zur Europäischen Integration, Nr. 26, pp 16-27, Europa Institut, Universität Basel. 1997.

Porter, M.; Sölvell, O., "The Role of Geography in the Process of Innovation and the Sustainable Competitive Advantage of Firms", pp.440-457, in Chandler, A.; Hagström, Sölvell,O, (editors), The Dynamic Firm: The Role of Technology, Strategy, Organization and Regions", Oxford University Press, Oxford, 1998.

Saner, Raymond; Strehl, Franz; Yiu, Lichia; "In-Service Training as an instrument for Organisational Change in Public Administration", International Institute of Administrative Sciences, Brussels, 1997.

Van de Ven, A.; Garud, R.; "A Framework for Understanding the Emergence of new Industries", Research on Technological Innovation, Management and Policy, Vol. 4, pp 195-225, JAI Press, Michigan, 1989.