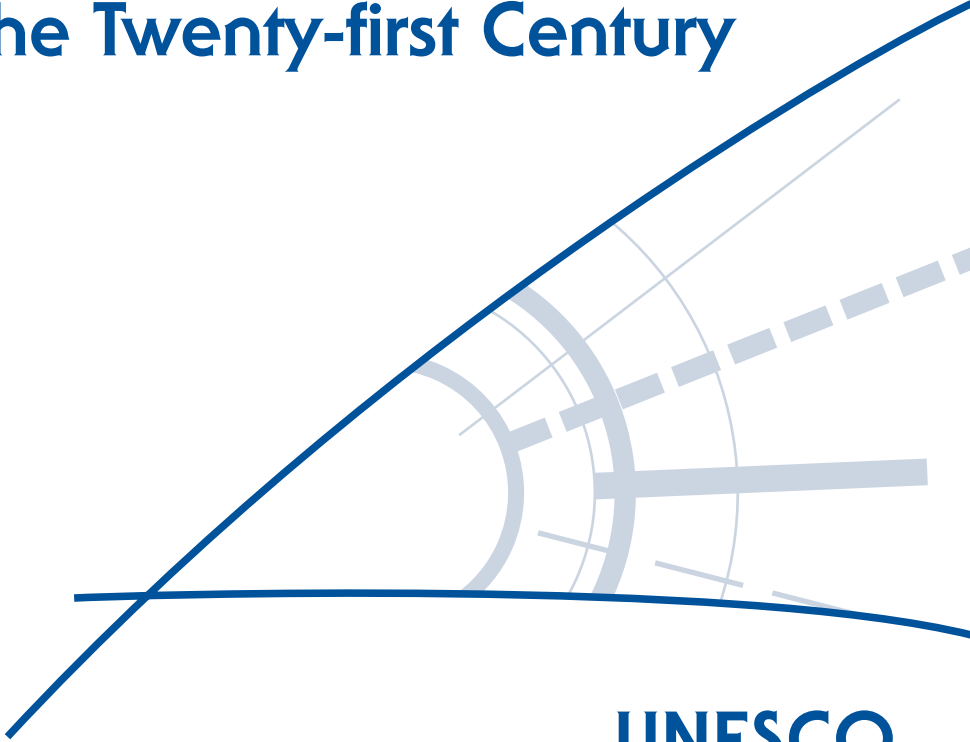


Technical and Vocational Education and Training for the Twenty-first Century



UNESCO Recommendations



United Nations
Educational, Scientific and
Cultural Organization

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The General Conference,

Recalling 154 EX/Decision 4.3 (May 1998) to incorporate the major themes originally envisaged for the third consultation on the implementation of the Revised Recommendation concerning Technical and Vocational Education into the agenda of the Second International Congress on Technical and Vocational Education,

Recognizing the value of the recommendations of the Second International Congress on Technical and Vocational Education (Seoul, April 1999) reflecting the emerging challenges of the twenty-first century, an era of globalization and revolution in the field of information/communication technology, and that these recommendations will therefore guide a new orientation of “technical and vocational education and training (TVET) for all throughout life” so as to meet the new demands of achieving the objectives of a culture of peace, environmentally sound sustainable development, social cohesion and citizenship of the world,

Recalling also 30 C/Resolution 14, which invited the Director-General to prepare an updated version of the Revised Recommendation concerning Technical and Vocational Education taking into account the new trends identified by the Second International Congress on Technical and Vocational Education, to submit the new draft version to all Member States during the 2000-2001 biennium for consultation, and to submit it together with a proposal for the modalities of future consultations on its implementation to the General Conference at its 31st session for approval,

Having examined document 31 C/22 and the draft Revised Recommendation concerning Technical and Vocational Education (2001) annexed thereto,

1. Adopts the Revised Recommendation concerning Technical and Vocational Education (2001) this second day of November 2001;

2. Invites the Director-General to conduct future consultations with Member States concerning its implementation, together with the five-yearly assessments of the follow-up to the Seoul Congress;

3. Recommends that when developing and improving technical and vocational education, Member States should take whatever legislative or other steps may be required to give effect, within their respective territories, to the principles set forth in this Recommendation;

4. Further recommends that Member States should bring this Recommendation to the attention of the authorities and bodies concerned with technical and vocational education;

5. Also recommends that Member States should submit to it, together with the five-yearly assessments of the follow-up to the Seoul Congress, reports on the action they have taken to give effect to the Recommendation.

Annex of the Revised Recommendation concerning Technical and Vocational Education (2001)

Revised Recommendation concerning Technical and Vocational Education (2001)

I. Scope

1. This Recommendation applies to all forms and aspects of education that are technical and vocational in nature, provided either in educational institutions or under their authority, by public authorities, the private sector or through other forms of organized education, formal or non-formal, aiming to ensure that all members of the community have access to the pathways of lifelong learning.
2. For the purposes of this Recommendation “technical and vocational education” is used as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Technical and vocational education is further understood to be:
 - (a) an integral part of general education;
 - (b) a means of preparing for occupational fields and for effective participation in the world of work;
 - (c) an aspect of lifelong learning and a preparation for responsible citizenship;
 - (d) an instrument for promoting environmentally sound sustainable development;
 - (e) a method of facilitating poverty alleviation.
3. Technical and vocational education, being part of the total educational process and being a right as described in Article 26 of the Universal Declaration of Human Rights, is included in the term “education” as defined in the Convention

and the Recommendation against Discrimination in Education adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization at its 11th session (1960) and the Convention on Technical and Vocational Education adopted by the General Conference at its 25th session (1989). The provisions of these documents are therefore applicable to it.

4. This Recommendation should be understood as setting forth general principles, goals and guidelines to be applied by each individual country according to its socio-economic needs and available resources in a changing world, with a view also to enhancing the status of technical and vocational education. The application of the provisions and the timing of the implementation will depend upon the specific conditions, and constitutional provisions existing in a given country.

II. Technical and vocational education in relation to the educational process: objectives

5. Given the immense scientific, technological and socio-economic development, either in progress or envisaged, which characterizes the present era, particularly globalization and the revolution in information and communication technology, technical and vocational education should be a vital aspect of the educational process in all countries, and in particular should:
 - (a) contribute to the achievement of the societal goals of greater democratization and social, cultural and economic development, while at the same time developing the potential of all individuals, both men and women, for active participation in the establishment and implementation of these goals, regardless of religion, race and age;
 - (b) lead to an understanding of the scientific and technological aspects of contemporary civilization in such a way that people comprehend their environment and are capable of acting upon it while taking a critical view of the social, political and environmental implications of scientific and technological change;
 - (c) empower people to contribute to environmentally sound sustainable development through their occupations and other areas of their lives.
6. Given the necessity for new relationships between education, the world of work and the community as a whole, technical and vocational education should exist as part of a system of lifelong learning adapted to the needs of each particular country and to worldwide technological development. This system should be directed to:
 - (a) abolishing barriers between levels and areas of education, between education and the world of work, and between school and society through:
 - (i) the appropriate integration of technical/vocational and general education at all levels;

- (ii) the creation of open and flexible educational structures;
 - (iii) the taking into account of individuals' educational needs, the evolution of occupations and jobs recognizing work experience as a part of learning;
- (b) improving the quality of life by creating a learning culture that permits individuals to expand their intellectual horizons, to acquire and to constantly improve professional skills and knowledge, and to engage positively in society to utilize the fruits of economic and technological change for the general welfare.
- 7.** Technical and vocational education should begin with a broad base which facilitates horizontal and vertical articulation within the education system and between school and the world of work, thus contributing to the elimination of all forms of discrimination, and should be designed so that it:
- (a) is an integral part of everyone's basic general education in the form of initiation to technology, the world of work, and human values and standards for responsible citizenship;
 - (b) may be freely and positively chosen as the means by which people develop talents, interests and skills leading to an occupation in various sectors or to further education;
 - (c) allows access to other aspects and areas of education at all levels, including institutions of higher learning, by being grounded in a solid general education and, as a result of the integration mentioned in paragraph 6(a), containing a general education component through all stages of specialization;
 - (d) allows transfers from one field to another within technical and vocational education;
 - (e) is readily available to all and for all appropriate types of specialization, within and outside formal education systems, and in conjunction or in parallel with training in order to permit educational, career and job mobility at the minimum age at which the general basic education is considered to have been acquired, according to the education system in force in each country;

- (f) is available on the above terms and on a basis of equality to women as well as men, and where the learning and working environment is made suitable for the participation of girls and women by removing overt and covert bias and discrimination and seeking strategies for motivating girls and women to take an interest in vocational and technical education;
- (g) is available to people with disabilities and to socially and economically disadvantaged groups such as immigrants, refugees, minorities (including indigenous peoples), demobilized soldiers in post-conflict situations, and underprivileged and marginalized youth in special forms adapted to their needs in order to integrate them more easily into society.

8. In terms of the needs and aspirations of individuals, technical and vocational education should:

- (a) permit the harmonious development of personality and character, and foster spiritual and human values, the capacity for understanding, judgement, critical thinking and self-expression;
- (b) prepare the individual for lifelong learning by developing the necessary mental tools, technical and entrepreneurial skills and attitudes;
- (c) develop capacities for decision-making and the qualities necessary for active and intelligent participation, teamwork and leadership at work and in the community as a whole;
- (d) enable an individual to cope with the rapid advances in information and communication technology.

III. Policy, planning and administration

9. Policy should be formulated and technical and vocational education administered in support of the general objectives adopted for the educational process as well as for national and, if possible, the regional social and economic requirements of the present and the future, and an appropriate legislative and financial framework adopted. Policy should be directed to both the structural and the qualitative improvement of technical and vocational education as stipulated in Article 2 of the Convention on Technical and Vocational Education (1989) and further described in the recommendations of the Second International Congress on Technical and Vocational Education (1999):

- (a) Although governments carry the primary responsibility for technical and vocational education, in a modern market economy technical and vocational education policy design and delivery should be achieved through a new partnership between government, employers, professional associations, industry, employees and their representatives, the local community and non-governmental organizations (NGOs). This partnership must create a coherent legislative framework to enable the launching of a national strategy for change. Within this strategy the government, apart from actually providing technical and vocational education, can also provide leadership and vision, facilitate, coordinate, establish quality assurance and ensure that technical and vocational education is for all by identifying and addressing community service obligations.
- (b) Technical and vocational education is best served by a diversity of public and private providers. The appropriate mix can be found in many ways, with the responsibility of governments being to facilitate choice while ensuring quality.
- (c) Government and the private sector should recognize that technical and vocational education is an investment, not a cost, with significant returns, including the well-being of workers, enhanced productivity and inter-

national competitiveness. Therefore funding for technical and vocational education should be shared to the maximum extent possible between government, industry, the community and the learner, with government providing appropriate financial incentives. Furthermore, the governments of least developed countries in particular should seek bilateral and multilateral capacity-building cooperation in technical and vocational education.

- (d) Within governments, there are often shared and overlapping responsibilities for various elements of technical and vocational education among departments and agencies. It is desirable that governments streamline their own public institutional framework to the maximum extent possible to coordinate the national technical and vocational education effort, create an effective partnership with the private sector, and promote technical and vocational education for the benefit of all stakeholders.

10. Particular attention should be given to planning the development and expansion of technical and vocational education by:

- (a) giving high priority to technical and vocational education in national development agendas as well as in plans for educational reform;
- (b) evaluating national short-term and long-term needs;
- (c) providing appropriate current and future allocations of financial resources;
- (d) establishing a national body responsible for coordinating planning in technical and vocational education based on analysis of statistical data and projections to facilitate complementarity between educational policy planning and employment policy.

11. Planning should respond to national and, if possible, regional, economic and social trends, to projected changes in demand for different classes of goods and services, and for different types of skills and knowledge in such a way that technical and vocational education may easily adapt to the evolving scientific, technological and socio-economic changes. This planning should also be coordinated with current and projected training action and the evolution of the world of work in both urban and rural areas.

12. While the education authorities should have primary responsibility, the following groups of relevant stakeholders should be actively associated in policy formulation and in the planning process; corresponding structures, both national and local, taking the form of public agencies or consultative or advisory bodies, should be created to permit this:

- (a) public authorities responsible for planning economic and social policy, labour and employment, and for the manufacturing and service sectors;
- (b) representatives of non-governmental organizations within each occupation sector from among employers and workers as well as of the informal economy, small enterprise owners and entrepreneurs;
- (c) authorities or bodies responsible for out-of-school education and training;
- (d) representatives of those responsible – both in public education and in State-recognized private education – for executing educational policy, including teachers, examining bodies and administrators;
- (e) parents', former pupils', students' and youth organizations;
- (f) representatives from the community at large.

13. Policies for the structural improvement of technical and vocational education should be established within the framework of broad policies designed to implement the principle of lifelong education through the creation of open, flexible and complementary structures for education, training and educational and vocational guidance, considering the provisions of modern information technology in education regardless of whether these activities take place within the system of formal education or outside it. In this respect, consideration should be given to the following:

- (a) multi-purpose secondary education offering diversified curricula linking education to the world of work;
- (b) having institutions of higher learning offering flexible admission and programmes ranging from short specialized ones to longer full-time programmes of integrated studies and professional specialization;
- (c) establishing a system of equivalencies whereby credit is given for completion of any approved programme, and recognition is granted to educational and/or professional qualifications and work experience;

- (d) providing articulation and pathways between technical and vocational education and programmes of higher education for the benefit of those learners who may wish to continue their education.
- 14.** Policy should be directed to ensuring high quality so as to exclude discrimination between the different educational streams. In this respect, special efforts should be made to ensure that national technical and vocational education seeks to meet international standards.
- 15.** In order to ensure quality, responsible national authorities should establish criteria and standards, subject to periodic review and evaluation, applying to all aspects of technical and vocational education, including, to the greatest extent possible, non-formal education for:
- (a) all forms of recognition of achievement and consequent qualification;
 - (b) staff qualifications;
 - (c) ratios of teaching and training staff to learners;
 - (d) the quality of curricula and teaching materials;
 - (e) safety precautions for all learning and training environments;
 - (f) physical facilities, buildings, libraries, workshop layouts, quality and type of equipment.
- 16.** National policy should foster research related to technical and vocational education, with particular emphasis on its potential within lifelong learning, and directed to its improvement and relevance to the prevailing socio-economic context. This research should be carried out at national and institutional levels, as well as through individual initiative. To this end:
- (a) special emphasis should be placed on curriculum development, research concerning teaching and learning methods and materials, and, where the need exists, on technologies and techniques applied to development problems;
 - (b) financial resources and physical facilities from public and/or private sources should be made available to institutions of higher education, specialized research institutions and professional organizations for applying the results of this research on an experimental basis in representatively selected institutions for technical and vocational education;

- (c) the positive results of research and experimentation should be widely disseminated using all available media, especially information and communication technology;
 - (d) the effectiveness of technical and vocational education should be evaluated using, among other data, relevant statistics including those concerning part-time enrolments, drop-out rates and placement in wage- and self-employment;
 - (e) research efforts to humanize working conditions should be emphasized.
- 17.** Administrative structures should provide for evaluation, supervisory and accreditation services to ensure the rapid application of new research findings and to maintain standards:
- (a) evaluation services as a whole should ensure the quality and smooth operation of technical and vocational education by continuous review and action directed to monitoring progress and maintaining standards through constant improvement of staff, facilities, programmes and, most importantly, student achievement;
 - (b) supervisory services for the staff should encourage improvement in the quality of teaching by providing guidance and advice and recommending continuing education;
 - (c) all technical and vocational education programmes, including those offered by private bodies, should be subject to approval by the public authorities;
 - (d) individual institutions should have the autonomy to design their programmes with the involvement of business and industry to suit local needs.
- 18.** Particular attention should be given to the material resources required for technical and vocational education. Priorities should be carefully established with due regard for immediate needs and the probable directions of future expansion in consultation with representatives from the world of work:
- (a) institutional planning should be directed to ensuring maximum efficiency and flexibility in use;
 - (b) the planning, construction and equipping of facilities should be carried out in collaboration with specialists from industry, teachers and

educational architects, and with due regard for the purpose of the facilities, prevailing local factors and relevant research;

- (c) adequate funds should be allocated for recurrent expenditure for supplies and maintenance and repair of equipment;
- (d) institutions should be given greater autonomy in their administration and financial management.

IV. Technical and vocational aspects of general education

19. An initiation to technology and to the world of work should be an essential component of general education. An understanding of the technological nature of modern culture and an appreciation of work requiring practical skills should thereby be acquired. This initiation should be a major concern in educational reform and democratization. It should be a required element in the curriculum, beginning in primary education and continuing through the early years of secondary education.
20. Opportunities for general technical and vocational initiation should continue to be available to those who wish to avail themselves of it within the education system and outside it in places of work or the community at large.
21. Technical and vocational initiation in the general education of youth should fulfil the educational requirements of all spheres of interest and ability. It should mainly perform three functions:
 - (a) to broaden educational horizons by serving as an introduction to the world of work, and the world of technology and its products through the exploration of materials, tools, techniques, and the process of production, distribution and management as a whole, and to enrich the learning process through practical experience;
 - (b) to orient those with the interest and ability in technical and vocational education towards preparation for an occupational field or training outside the formal education system;
 - (c) to promote in those who will leave formal education with no specific occupational aims or skills, attitudes and thought processes likely to enhance their aptitudes and potential, to facilitate the choice of an occupation and access to a first job, and to permit them to continue their vocational training and personal development.

22. General technical and vocational studies in schools, having great importance for the orientation and education of youth programmes, should include an appropriate balance between theoretical and practical work. Such a programme of studies should be drawn up in collaboration with the professional community and with those responsible for technical and vocational education. These programmes should:

- (a) be based upon a problem-solving and experimental approach, and involve experience in planning methods and decision-making;
- (b) introduce the learner to a broad spectrum of technological fields and to productive work situations;
- (c) develop a certain command of valuable practical skills such as tool use, repair and maintenance and safety procedures, and a respect for their value;
- (d) develop an appreciation of good design, craftsmanship and quality;
- (e) develop the ability to function as a team member and to communicate technical information;
- (f) be closely related to the local environment without, however, being limited to it.

23. Technical and vocational initiation programmes in general educational enrichment for youth and adults should be directed to enabling those engaged in working life to:

- (a) understand the general implications of technical change, its impact on their professional and private lives, and how to adapt to these changes;
- (b) use practical skills for improving the home and community environment, and thus the quality of life and productive leisure-time activities;
- (c) inculcate an awareness of the possible impact of technology on the environment, and of the concept of sustainable development.

V. Technical and vocational education as preparation for an occupational field

- 24.** Given the disparities that may exist between formal education, whether secondary or tertiary, and the employment and career opportunities available, the highest priority should be given to technical and vocational education. Consequently the structure and content of traditional education, whether general or technical and vocational, should be adapted accordingly through:
- (a) the diversification of secondary education in the later stages so that it may be pursued in conjunction with employment or training, or may lead to employment or to higher education, thereby offering to all youth educational options corresponding to their needs and abilities;
 - (b) the development of educational structures and programmes on all levels centred on organized and flexible interchange between educational institutions (including universities), training institutions and the world of work.
- 25.** Technical and vocational education as preparation for an occupational field should provide the foundation for productive and satisfying careers and should:
- (a) lead to the acquisition of broad knowledge and generic skills applicable to a number of occupations within a given field so that the individual is not limited in his/her choice of occupation and is able to transfer from one field to another during his/her working life;
 - (b) at the same time offer both a thorough and specialized preparation for initial employment, including self-employment, and also training within employment;
 - (c) provide the background in terms of knowledge, skills and attitudes for continuing education at any point in the individual's working life.

- 26.** Premature and narrow specialization should be avoided:
- (a) in principle, the age of 15 should be considered the lower limit for beginning specialization;
 - (b) a period of common studies providing basic knowledge and generic skills should be required for each broad occupational sector before a special branch is chosen.
- 27.** Technical and vocational education programmes should be designed as comprehensive and inclusive systems to accommodate the needs of all learners with special emphasis on motivating girls and women. Their equal access and participation should be ensured by:
- (a) appropriate legislative measures;
 - (b) widespread dissemination of information concerning opportunities;
 - (c) gender-sensitive guidance and counselling;
 - (d) other incentives relevant to the local context.
- 28.** Special provision should be made for out-of-school and unemployed youth and children of socially disadvantaged groups such as minorities, migrant workers, refugees, etc. with little or no primary education, as well as for those not entering education or training programmes after completion of compulsory schooling, in order that they may acquire skills for wage- or self-employment.
- 29.** Given the necessity of integrating people who are disadvantaged due to physical and intellectual disabilities into society and its occupations, the same educational opportunities should be available to them as to those without disabilities in order that they may achieve qualification for an occupation to realize their potential and optimize their participation in the work force; special measures or special institutions may be required.

Organization

- 30.** Technical and vocational education as preparation for an occupational field should be organized on a national or provincial/local basis, so as to respond positively to overall social, economic and educational requirements and to the needs of different groups of the population without discrimination.
- 31.** Several organizational patterns of technical and vocational education, including full-time, part-time, open and distance learning options, could exist within each country. The following patterns should be considered:
- (a) full-time programmes including general education and practical training, provided in an educational establishment, either comprehensive or specialized;
 - (b) part-time programmes such as the following, in which general education and theoretical and broad practical aspects of the occupational field are given in an educational establishment, while specialized practical training is acquired during work in the chosen occupation:
 - (i) the day-release system, providing for workers and apprentices to attend an educational establishment one or two days a week;
 - (ii) the sandwich system, under which periods in an educational institution alternate with training periods in a factory, farm, business establishment or other undertaking;
 - (iii) the block-release system, whereby workers are released to attend courses of 10 to 15 weeks per year;
 - (c) open and distance education programmes provided through:
 - (i) correspondence;
 - (ii) special radio and television broadcasting;
 - (iii) the Internet and other computer-based media.

- 32.** The responsible authorities should encourage part-time education; therefore:
- (a) these programmes could be available after completion of minimum compulsory or required schooling, and should continue to be available throughout life;
 - (b) the qualifications acquired by this means should be equivalent to those acquired by full-time education;
 - (c) the practical training conducted by employers should be as broad as possible, and should aim to meet international standards.
- 33.** In view of the increasing requirement for qualified middle-level personnel and the increasing numbers completing secondary education or its equivalent, the development of technical and vocational programmes at a tertiary level should be given high priority, by both public and private providers. The following patterns should be considered:
- (a) a period of one to two years of guided work experience followed by part-time or full-time programmes of specialization;
 - (b) part-time and/or evening programmes;
 - (c) full-time programmes as an extension to those given in specialized secondary or tertiary institutions;
 - (d) programmes offered through open and distance learning.
- 34.** In view of the high cost of equipment, its usage should be organized to yield optimum benefit. This could be achieved as follows:
- (a) centralized or mobile workshops and libraries could be used to serve several educational institutions;
 - (b) when educational institutions close for the evenings and vacations, their classrooms and workshops should be utilized for continuing education and non-formal training programmes;
 - (c) workshops and laboratories should also be used to instil the culture of maintenance and respect for safety standards;
 - (d) enterprises should be encouraged to make their equipment and facilities available for practical training.

35. Enterprises should be actively involved in the theoretical and practical training of those preparing for occupations in their particular sector, and should interact with educational institutions regarding the organization of such training.

Programme content

- 36.** All programmes of technical and vocational education as preparation for an occupational field should:
- (a) aim at providing scientific knowledge, technical versatility and a cluster of core competencies and generic skills required for rapid adaptation to new ideas and procedures and for steady career development;
 - (b) be based on analyses and forecasts of occupational requirements by national education authorities, employment authorities, occupational organizations and other stakeholders;
 - (c) include an appropriate balance between general subjects, science and technology, as well as subjects such as computer literacy, information and communication technology, the environment and studies of both the theoretical and practical aspects of the occupational field;
 - (d) stress developing a sense of values, ethics and attitudes to prepare the learner for self-reliance and responsible citizenship.
- 37.** In particular, programmes should:
- (a) be interdisciplinary in character, as many occupations now require two or more traditional areas of study;
 - (b) be based on curricula designed around core knowledge, competencies and skills;
 - (c) include studies of the social and economic aspects of the occupational field as a whole;
 - (d) include an interdisciplinary perspective to equip students to work in the changing employment environment, and incorporate a multicultural perspective, which may include the study of a foreign language as preparation for international employment;
 - (e) include the study of at least one foreign language of international use, which, while conducive to a higher cultural level, will give special emphasis to the requirements of communication, the acquisition of a

scientific and technical vocabulary, and the need to prepare for international employment and multicultural working environments;

- (f) include an introduction to organizational, planning and entrepreneurial skills;
- (g) emphasize instruction in safe and environmentally sound procedures relative to the materials and equipment used in a given occupational field, the importance of safe working conditions, and the health aspects relative to the occupation as a whole, including emergency and first-aid training.

38. While based on the above general principles and components, and thus pursuing in all cases broader educational aims, programmes in their practical aspect should be designed taking into account special occupational requirements, especially in “new” professions and those undergoing change, and particularly the use of the new information and communication technology as a tool for enhancing the effectiveness of all vocations, including those considered traditional.

39. Technical and vocational education programmes leading to university qualification, while encouraging research and offering high-level specialization, should be developed with particular attention to:

- (a) the inclusion of components directed to developing attitudes whereby those with broad responsibilities in technological fields constantly relate their professional tasks to broader social and ethical goals;
- (b) preparing the learner more generally for life and the world of work bearing in mind that technical and vocational education is for economic, personal and social benefit.

40. Programmes of technical and vocational education as preparation for occupations within the agricultural sector should be designed in accordance with the overall social and economic requirements of sustainable development in rural areas.

41. Where lack of resources is a serious constraint, priority should be given to developing programmes for areas experiencing skilled human resource shortages, taking into consideration the projected needs for national economic development and the corresponding labour market growth.

- 42.** Programmes preparing for occupations in small industry, individual farming or the artisan trades, particularly for self-employment, should include entrepreneurship and elementary information and communication technology studies to enable those engaged in such occupations to take responsibility for production, marketing, competent management and the rational organization of the enterprise.
- 43.** Programmes leading to occupations in the business, commercial and service sector, including the tourism and hospitality industries, should consist of:
- (a) training in the methods and skills developed as a result of the application of computer-based technology to business and office management, and particularly to the acquisition and processing of information;
 - (b) training in the organizational and management skills required for the smooth operation of enterprises;
 - (c) an introduction to marketing and distribution procedures.
- 44.** Special attention should be given to developing programmes for preparing personnel at all levels for the social services system (e.g. community and family work, nursing and paramedical occupations, nutrition and food technology, home economics and environmental improvement). Those programmes should:
- (a) orientate the special occupational field to raising standards of living in terms of nutrition, clothing, housing, medical services, the quality of family life and that of the environment;
 - (b) be adapted to the special requirements of local conditions, in particular those of climate and geography, materials available, community organization, and social and cultural patterns.

VI. Technical and vocational education as continuing education

45. The development and expansion of technical and vocational education as continuing education, both within and outside the formal education system, with either public or private funding, and within the framework of lifelong learning, should be a priority objective of all educational strategies. Broad provision should be made for allowing everyone, whatever their prior qualifications, to continue both their professional and general education by facilitating seamless pathways for learners through articulation, accreditation and recognition of all prior learning and relevant work experience.

Technical and vocational education should develop close interfaces with all other education sectors to facilitate seamless pathways for learners with an emphasis on articulation, accreditation and recognition of prior learning. Within this spectrum, technical and vocational education has a responsibility to ensure a sound initial education and training aimed at learning to learn, the most precious skill for all citizens, both young and adult.

46. In addition to permitting adults to make up deficiencies in general or vocational education, which has often been its sole objective, continuing education should now:

- (a) offer possibilities for personal development and professional advancement by providing flexibility in programme administration and curriculum design to facilitate smooth lifelong learning and ensure continuous entry, exit and re-entry points;
- (b) permit the updating and renewal of knowledge and practical abilities and skills in the occupational field;
- (c) enable individuals to adapt to technological changes in their occupation or to enter another occupation;
- (d) be available throughout the individuals' working life without restriction with regard to age, sex, prior education and training or position, recognizing work experience as a substitute for prior learning;

- (e) be available to the increasing numbers of the aged population;
 - (f) be broad in scope, including general education elements and contemporary cross-cutting areas.
- 47.** The appropriate authorities should be encouraged to provide the basic conditions for continuing technical and vocational education, such as providing for paid educational leave and other forms of financial aid.
- 48.** Continuing technical and vocational education should be actively encouraged through:
- (a) widespread dissemination of information concerning the programmes available and ways of taking advantage of existing opportunities, including full use of the mass media and the Internet;
 - (b) recognition of successful completion of programmes by increased remuneration and professional advancement, with the involvement of employers and professional associations.
- 49.** Organizers of continuing technical and vocational education should consider the following flexible forms of delivery:
- (a) courses and training offered during working hours at the workplace;
 - (b) part-time courses utilizing existing secondary and tertiary technical and vocational education institutions;
 - (c) evening and weekend courses;
 - (d) correspondence courses;
 - (e) courses on educational radio and television and the Internet;
 - (f) short professional “refresher” courses.
- 50.** The following forms of study/training leave from work should be considered:
- (a) day release;
 - (b) block release of varying lengths;
 - (c) release for one or more hours during the working day.
- 51.** Programmes of continuing technical and vocational education should:
- (a) be designed and delivered to suit the special requirements of adults using flexible teaching methods that recognize already acquired expertise;

- (b) be designed for individually paced learning;
 - (c) be programmed to accommodate the potential that information and communication technology has to offer.
- 52.** Provision should be made for the particular requirements of special groups:
- (a) to enable women completing maternity leave to update their knowledge and professional skills for re-entering the workforce;
 - (b) to enable older workers and the unemployed to adapt to new occupations;
 - (c) to provide minorities, foreign workers, migrants, refugees, indigenous people and people with disabilities with training programmes to help them to adapt to working life;
 - (d) to enable other marginalized and excluded groups, such as early school leavers, out-of-school youth and demobilized soldiers in post-conflict situations to re-enter the mainstream of society.
- 53.** Continuing technical and vocational education programmes through the distance learning mode should be promoted for the benefit of those disadvantaged by distance and location, such as individuals in rural communities and those engaged in seasonal work.

VII. Guidance

- 54.** Guidance should be viewed as a continuous process spanning the entire education system, and should be directed towards aiding all to make conscious and positive educational and occupational choices. It should ensure that individuals are provided with the prerequisites:
- (a) to become aware of their interests, abilities and special talents, and to help them frame a plan for life;
 - (b) to pursue courses of education and training designed to realize their potential and fulfil their life plans;
 - (c) to acquire flexibility in decision-making concerning their occupations, in the initial and later stages, for developing a satisfying career;
 - (d) to facilitate transitions back and forth as needed, between education, training and the world of work.
- 55.** Guidance should take into account the needs of industry, the individual and the family while preparing students and adults for the real possibility of frequent career changes, which could include periods of unemployment and employment in the informal sector, to be achieved through:
- (a) close liaison and coordination between lifelong learning, training, the workplace and placement services;
 - (b) ensuring that all necessary information concerning the world of work and career opportunities is available, and actively disseminated using all available forms of communication;
 - (c) ensuring that those engaged in work have access to information concerning continuing education and training as well as other work opportunities.
- 56.** While emphasizing the needs of individuals, guidance should be accompanied by information that gives them a realistic view of the opportunities

available, including trends in the labour market and employment structures, the environmental impact of various occupations, and what may be expected in terms of remuneration, career advancement and occupational mobility.

- 57.** Particular attention should be given to guidance for girls and women to ensure that:
- (a) guidance is gender-inclusive and covers the whole range of education, training and employment opportunities;
 - (b) girls and women are encouraged and motivated to take advantage of the opportunities available;
 - (c) girls and women are encouraged to pursue subjects such as mathematics and science, which are prerequisites for vocational education and training programmes.
- 58.** Guidance in the formal schooling context should promote technical and vocational education as a viable and attractive choice for young people. It should:
- (a) cover a broad range of occupations, include supplementary visits to workplaces, and make the student aware of the eventual necessity of choosing an occupation and the importance of ensuring that this choice is made as rationally as possible;
 - (b) assist students and their parents/guardians in making a positive choice concerning educational streams, and encourage learners to keep open a wide range of options so as to increase their learning and occupational flexibility.
- 59.** Guidance in technical and vocational education as preparation for an occupational field should:
- (a) inform students of the various possibilities open in the particular field of interest, the educational background required, and the subsequent possibilities for continuing education and further training;
 - (b) encourage students to choose educational programmes that will not limit their later employment options;
 - (c) follow the students' progress through their educational programmes;
 - (d) supplement the programmes by short periods of work experience and study of real work situations.

- 60.** For individuals engaged in continuing technical and vocational education as a part of their lifelong learning, guidance should:
- (a) help them to choose the programme best suited to their needs;
 - (b) enable them to make effective choices regarding their entry into suitable levels of specialization.
- 61.** Guidance should take into account:
- (a) economic, social, technological, cultural and family factors influencing the learners' attitudes, expectations and choice of career;
 - (b) results of testing, including aptitude tests;
 - (c) educational achievements and/or work experience;
 - (d) opportunities and prospects in the occupational sector of interest;
 - (e) individual preferences and special needs, including medical conditions, physical limitations and disabilities.
- 62.** Guidance systems need to be accountable to the beneficiaries and sponsors of the service. Quality assurance and long-term results should be continually monitored at national and institutional levels through:
- (a) accurate records of clients, needs addressed, programmes and interventions used and resultant employment including self-employment;
 - (b) a system of evaluation both of staff performance and of the methods used to determine the long-term effects of guidance and the degree of self-reliance of beneficiaries.

VIII. The learning process

- 63.** The challenges facing technical and vocational education in the twenty-first century demand learner-centred innovative and flexible approaches including a reoriented curriculum to take account of new subjects and issues such as technology, the environment, foreign languages and cultures, entrepreneurship and the requirements of rapidly growing service industries.
- 64.** Theory and practice should form an integrated whole and be presented in a manner that motivates the learners. Experience in the laboratory, workshop and/or enterprises should be linked to mathematical and scientific foundations, and conversely, technical theory, as well as the mathematics and science underlying it, should be illustrated through their practical applications.
- 65.** Full use should be made of contemporary educational technology, particularly the Internet, interactive multimedia materials, audiovisual aids and mass media, to enhance the reach, cost-effectiveness, quality and richness of programmes, especially in the promotion of self-learning.
- 66.** The methods and materials used in technical and vocational education should be carefully adapted to the learners' needs. In this respect:
 - (a) where the language of instruction differs from the native language, teaching materials should make maximum use of numerical and graphical representation, written material being kept to a minimum;
 - (b) where materials developed in one country are adapted for use in another, this adaptation should be carefully made with due regard to local factors;
 - (c) considering, however, the increasing mobility of labour, the acquisition of foreign language skills should be considered a vital aspect of the curriculum.

- 67.** Machines and equipment used in workshops in educational institutions should be geared to the needs of the workplace, and should simulate it as closely as possible. Learners should be capable of operating and maintaining the equipment.
- 68.** Evaluation/assessment should be an integral part of the teaching and learning process, and its major function should be to ensure the availability of appropriate programmes for the development of learners in accordance with their interests and capacities, and competence in the world of work.
- 69.** The learners' performance should be evaluated/assessed on an overall basis that considers class participation, interests and attitude, aptitude for acquiring practical skills and competencies, and relative progress, allowance being made for aptitudes and examinations and other tests.
- 70.** Learners should participate in the evaluation/assessment of their own progress, and this system should have an in-built feedback mechanism to identify and correct learning problems.
- 71.** Continuous evaluation of the teaching and learning process, including formative assessment, should be undertaken with the participation of teachers, supervisors, learners and representatives from the occupational fields concerned to ensure that the programme is effective and that the knowledge and skills imparted meet the needs of the workplace, and include recent developments in the field of study.

IX. Staff

- 72.** To ensure the high quality of technical and vocational education, priority should be given to the recruitment and initial preparation of adequate numbers of well-qualified teachers, instructors/trainers, administrators and guidance staff, and to the provision of continuous professional upgrading throughout their career, and other facilities to enable them to function effectively.
- 73.** The emoluments and conditions of service which are offered should compare favourably with those enjoyed by persons with similar qualifications and experience in other occupational sectors. In particular, promotions, salaries and pension scales for technical and vocational education staff should take into account any relevant experience acquired in employment outside the educational sector.

Teaching staff

- 74.** All teachers in technical and vocational education, including instructors/trainers who teach practical skills, should be considered an integral part of the teaching profession, and should be recognized as having the same status as their colleagues in general education. In this regard:
- (a) the Recommendation concerning the Status of Teachers adopted by the Special Intergovernmental Conference on the Status of Teachers on 5 October 1966 is applicable to them especially as regards the provisions concerning preparation for a profession, continuing education, employment and career, the rights and responsibilities of teachers, conditions for effective teaching and learning, teachers' salaries, and social security;
 - (b) arbitrary distinctions between teachers in specialized technical and vocational institutions and those in general education institutions should be eliminated.
- 75.** Technical and vocational education teachers, on a full-time or part-time basis, should possess the appropriate personal, ethical, professional and teaching qualities, and a strong initial preparation that will enable them to operate in and adapt to an ever-changing scientific, technological and social environment.
- 76.** Teachers of technical and vocational subjects in general education should:
- (a) be familiar with a broad range of specialities;
 - (b) develop the ability to relate these to each other as well as to the larger social, economic, environmental, historical and cultural context;
 - (c) where these subjects serve primarily an occupation or educational orientation function, be able to give guidance.

- 77.** Teachers of technical and vocational education for occupational fields should have relevant qualifications so that:
- (a) if the occupational field requires primarily practical skills, they should have significant experience in the exercise of these skills;
 - (b) if learners are to be prepared for technician or middle-management positions, teachers should have a thorough knowledge, preferably acquired through appropriate practical experience, of the special requirements of this type of position;
 - (c) if the occupational field requires research and theoretical analysis, e.g. an engineering field, teachers should have a background in research methods.
- 78.** Teachers in technical and vocational education as continuing education should, in addition to the special preparation for teaching adults, have an adequate knowledge of the working environment of the learners, and be able to provide distance and individually paced education and training.
- 79.** Skilled professionals working outside education should be invited to teach in schools, universities or other educational institutions in order to link the world of work more closely to the classroom.
- 80.** Teachers of general subjects in technical and vocational education institutions, in addition to qualifications in their own field, should have an appreciation of the nature of the learners' specialized technical and vocational education programme.
- 81.** Preparation for technical and vocational teaching should preferably be offered as a tertiary programme, requiring completion of secondary education or its equivalent for entrance. All programmes should be designed with the following objectives in mind:
- (a) to maintain standards of education and professional preparation in effect for the teaching profession as a whole and to contribute to raising these overall standards;
 - (b) to develop in future teachers the ability to teach both the theoretical and the practical aspects of their field, with special emphasis on the need to use, whenever possible, the information and communication technologies;

- (c) to develop in future teachers the responsibility for keeping up to date with trends in their field, as well as with the related work opportunities;
 - (d) to develop in future teachers the ability to guide learners with special needs;
 - (e) to ensure that future teachers are equipped, by means of supplementary training, to teach other subjects related to their primary subject.
- 82.** Flexible training and retraining programmes, combining instruction on the campus and in the workplace, must be adapted to suit the concerned subjects and the needs of the learners and the workplace by developing new and appropriate instruments of assessment, accreditation and articulation, and certification standards.
- 83.** When local conditions prevent future teachers from receiving practical work experience in their training, the teacher-training institution should attempt to simulate workplace conditions as part of the curriculum.
- 84.** The professional preparation of all technical and vocational teachers should include the following elements in pre-service training and in-service upgrading programmes:
- (a) educational theory in general and particularly as it applies to technical and vocational education;
 - (b) educational psychology and sociology relevant to the subjects/fields to be taught by the future teachers;
 - (c) classroom management, special teaching methods appropriate to the subjects/fields of the future teachers and methods of evaluating/assessing the students' work;
 - (d) training in the choice and use of contemporary teaching techniques and aids, including information/communication technologies;
 - (e) training in how to create and produce appropriate teaching materials, including modular and computer-aided instructional materials, whenever such materials are in short supply;
 - (f) a period of supervised practice teaching before appointment to a post;
 - (g) an introduction to educational and occupational guidance methods as well as to educational administration;

- (h) planning the instructional environment of practical classes and laboratories and managing/maintaining these facilities;
 - (i) a sound training in safety, with emphasis on teaching safe working practice and setting a good working example.
- 85.** Staff responsible for the preparation of technical and vocational teachers should have obtained advanced qualifications in their field:
- (a) teacher-educators responsible for special technical and vocational fields should have qualifications in their field equivalent to those of special subjects staff in other higher education institutions and programmes, including advanced degrees and employment experience in related occupational fields;
 - (b) teacher-educators responsible for the pedagogical aspect of teacher preparation should themselves be experienced teachers in technical and vocational education, and should possess advanced qualifications in education.
- 86.** Staff responsible for the preparation of technical and vocational teachers should be actively engaged in technical research and analyses of work opportunities in their field. Provision should be made for this in terms of a reasonable teaching load, and access to appropriate facilities.
- 87.** Teaching staff should be encouraged to continue their education and training, whatever their specialized field, and should have the necessary means to do so. Lifelong learning should be made available in a wide range of facilities, and should include:
- (a) continuous review and updating of knowledge, competencies and skills;
 - (b) continuous updating of specialized professional skills and knowledge;
 - (c) periodic work experience in the relevant occupational sector.
- 88.** When questions of promotion, seniority and status are considered, teachers' achievements in continuing education and training as well as relevant work experience should be taken into account.

Administrative and guidance staff

- 89.** Administrators of technical and vocational education programmes should be equipped with the following qualifications:
- (a) teaching experience in a field of technical and vocational education;
 - (b) some work experience in one of the fields taught in the programme;
 - (c) a broad vision of technical and vocational education as a vital element in personal, social and economic development;
 - (d) knowledge of administrative techniques and procedures.
- 90.** The heads of technical and vocational education establishments should devote a significant portion of their time to the educational and scientific aspects of their work. Sufficient staff should be available to provide the following services:
- (a) counselling and guidance for candidates and students;
 - (b) the preparation, supervision and coordination of all practical work and experiments;
 - (c) the maintenance of instruments, apparatus and tools in workshops and laboratories;
 - (d) academic support services such as libraries, information and communication technology centres and information resource centres.
- 91.** Administrators should keep up to date with new administrative techniques and trends, especially through relevant lifelong learning programmes. They should receive special training in the methods and problems associated with the specific features of technical and vocational education programmes, such as flexible entry and re-entry patterns, continuous training in the workplace, and relevance to the needs of the world of work. This preparation should include:

- (a) management methods appropriate to educational administration, including techniques that utilize information and communication technologies;
 - (b) financial planning methods that facilitate the allocation of available resources, given the objectives and priorities of the various programmes, and ensure their efficient utilization;
 - (c) contemporary human resources management and development methods.
- 92.** Guidance staff should receive special preparation for their tasks. They should be equipped to make objective assessments of aptitude, interest and motivation, and have up-to-date information concerning education and work opportunities. They should acquire a direct knowledge of the economy and the world of work through systematically organized visits to enterprises and training periods in enterprises. Guidance staff should be provided with facilities – including the opportunity for practical experience – to keep up with new information and methods of guidance. Most importantly, they should bear in mind the concept that technical and vocational education must be available to all as part of the lifelong learning process. It must contribute to personal and economic development and responsible citizenship.

X. International cooperation

- 93.** Member States should give priority to international cooperation between the North and South, as well as between countries of the South, with the assistance of concerned international organizations, to renovate and sustain technical and vocational education systems, with particular emphasis on the following:
- (a) the need for developing countries to take ownership of technical and vocational education and to increase their budget for this sector of education;
 - (b) the efficient coordination, within any given country, of international assistance activities;
 - (c) enhancing the sharing of intellectual property, including through research and development, for the benefit of learners in all countries and situations;
 - (d) recognition by all stakeholders, including international financial authorities, of the contribution of technical and vocational education to the maintenance of peace and stability and to the prevention of social dysfunction, and the need to incorporate support for this sector of education in their assistance to recipient countries.
- 94.** Member States should take special measures to make technical and vocational education accessible to foreigners (in particular migrants and refugees) and their children living within their territory. Such measures should take into account the special needs of such persons in the host country, as well as in the event of their return to their country of origin.
- 95.** There is significant scope for countries to share their experience in technical and vocational education. There is a need for mutual cooperative assistance between all countries, regardless of their state of development. Provision should be made at the national, regional and international levels for the regular exchange, making use of contemporary information and

communication technologies, of information, documentation, and materials obtained from research and development, in particular:

- (a) publications concerning comparative education, psychological and pedagogical problems affecting general and technical and vocational education, and current trends;
- (b) information and documentation concerning curriculum development, methods and materials, study opportunities abroad, and employment opportunities, including human resource requirements, working conditions and social benefits;
- (c) ideas, innovations and new teaching/learning/training materials;
- (d) mass media programmes of an informational or pedagogical character.

96. Regional cooperation should be encouraged among countries having a common cultural heritage and/or facing common problems in the development or extension of technical and vocational education through:

- (a) periodic meetings at the ministerial level and the establishment of a mechanism to review policies formulated and actions taken;
- (b) the creation of joint facilities for higher level research, the development of prototype materials and equipment, and the preparation of staff for the training of teachers where the costs of such facilities are too high to be sustained by any one country.

97. The development of teaching and learning materials which use the information and communication technologies and are suitable for international or regional use should be considered a priority area. These materials should contribute to the progressive establishment and recognition of common standards for professional competencies/qualifications acquired through technical and vocational education. Moreover, such teaching and learning materials should encourage deliberate international collaborative teaching and learning among institutions.

98. Member States should encourage the creation of a climate favourable to international cooperation with a view to capacity-building in developing countries, especially in the areas of acquisition, adaptation and application of technology, through:

- (a) fellowship and exchange programmes for teachers/trainers, students and administrators/managers;
- (b) establishing sustained cooperation between similar institutions in different countries, such as through twinning arrangements;
- (c) provision of work experience abroad, particularly when opportunities at home are limited;
- (d) encouraging countries to present and make known their educational programmes outside their national boundaries.

99. To facilitate international cooperation, Member States should, through the exchange of good practices and methods, aim to apply relevant and appropriate internationally recommended standards and norms relating in particular to:

- (a) systems of assessment/evaluation;
- (b) scientific and technical symbols;
- (c) occupational qualifications and certification;
- (d) equipment and technical standards;
- (e) information processing;
- (f) equivalencies of qualifications implying standardization of curricula and testing, including aptitude tests;
- (g) occupational safety and security through testing of materials, products and processes;
- (h) environmental protection and conservation.

100. Internationally recommended standards and norms should be continuously evaluated through sustained research on and monitoring of the effectiveness of their application in each country, with a view to enabling countries to use lifelong technical and vocational education as a means of narrowing the disparities between the North and the South and as a bridge to a more prosperous and peaceful future in the twenty-first century.

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