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EDUCATION AND TRAINING 2010 WORK PROGRAMME

Cluster Key Competences-Curriculum Reform

Peer Learning Activity “Fostering Cross-curricular Key Competences for Creativity and Innovation.”

Vienna 10-12 November 2008

The European Parliament and of the Council adopted a Recommendation on key competences for lifelong learning on 18 December 2006 (Official Journal of the European Union on 30 December 2006/L394).

The Recommendation introduces a European Framework of eight key competences: 1) Communication in the mother tongue; 2) Communication in foreign languages; 3) Mathematical competence and basic competences in science and technology; 4) Digital competence; 5) Learning to learn; 6) Social and civic competences; 7) Sense of initiative and entrepreneurship; 8) Cultural awareness and expression.

The Recommendation is one of the outcomes of the joint work of the European Commission and the Member States within the Education and Training 2010 Work Programme. The Work Programme is the over-arching framework for policy cooperation in the area of education and training, and is based on commonly agreed objectives, indicators and benchmarks, *peer-learning* and dissemination of best practice.

The Cluster Key Competences-Curriculum Reform is a group established to support the implementation of the Recommendation on key competences.

For more information, please see: <http://ec.europa.eu/education> .

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EXECUTIVE SUMMARY

OVERVIEW OF THE PEER LEARNING ACTIVITY

The fourth stand-alone Peer Learning Activity of the cluster group for Key Competences-Curricular Reform took place in Vienna on 10th – 12th November, 2008. It was hosted by the Austrian Federal Ministry for Education, the Arts and Culture and addressed the topic “Fostering Cross-curricular Key Competences for Creativity and Innovation.”

The potential impact of creativity on personal, societal, economic and global well-being is increasingly recognised in recent policy statements on culture, education and training; and in the designation of 2009 as **European Year of Creativity and Innovation**. Creativity and innovation are also embedded in the eight Key Competences for Lifelong Learning which are necessary “for personal fulfilment, active citizenship, social cohesion and employability in a knowledge society.” Work accomplished in creativity therefore impacts on the Key Competences in general.

The Vienna PLA was attended by fifteen participants from nine countries: AT, BE (fl), BG, CY, ES, HR, HU, IE, LT; the Commission representative; an external consultant and by representatives of the Austrian Ministry for the Arts, Education and Culture. The programme comprised a series of presentations from key stakeholders in Austrian education, VET, business and the arts communities; a site visit to an arts organisation and one to a school. Discussions were held at the end of every day and also, during some of the presentations.

A significant feature of education in Austria is a systemic approach to supporting arts and cultural education through partnership between different government Ministries and agencies; and the promotion of collaboration between organisations and projects which connect arts practitioners and experts with teachers and pupils. Much of the PLA content focused on the activities of these organisations and the concepts and rationale underpinning their work. There were also presentations from the relevant Ministries clarifying the structure, curricula and assessment processes in the education and training systems. Cluster group participants from Flanders, Lithuania, Cyprus, Croatia and Hungary also gave presentations of projects from their own countries which promoted creativity, innovation and the Key Competences.

POLICY CONCLUSIONS OF THE PEER LEARNING ACTIVITY

One of the dominant themes of the PLA was that of change. Policy advances which promote holistic teaching do not necessarily result in significant, widespread changes in practice. The challenge is to draw on the good practice which already exists in all countries; and to bridge the gap between policy and practice on a wide scale. Insights from the PLA generated conclusions and recommendations (summarised below in italics) for action which address this.

1. Concepts: ‘Creativity’, ‘arts’, ‘culture’ and ‘cultural education’ are terms which can be defined and interpreted in many ways. In schools, the concept of art and culture is often bound up with self-expression, creation and production in different art forms, although experience of arts and culture is not so available in some VET courses, especially apprenticeships. Other initiatives conceptualise art and culture as a means to

address contemporary social issues; or as a vehicle to promote mutual understanding; or to promote employability and entrepreneurship.

All policy positions and implementation strategies relating to any element of the Key Competences, including creativity, should be underpinned by a clear concept and a robust theoretical framework which is transparent to all stakeholders; and by a set of guiding principles which provide a coherent and consistent basis for actions taken in pursuit of the aim.

2. Access: Council priorities highlight the need to develop capacities for innovation in the whole population in order to promote individual fulfilment and societal well-being, including social cohesion and economic prosperity.

Creativity is a central dimension of human potential and experience. Everyone has the capacity to be creative, and everyone has the right to have that capacity fostered by the education and training system. Creativity should be a normal part of the teaching and learning experience, for pupils and also for teachers, both in the processes of education, and in providing all learners with access to their artistic and cultural heritage.

3. Collaboration: Arts and cultural education in schools and vocational settings can be enhanced by external supports and collaboration at all levels.

Working in co-operation with others is a key competence for the teaching profession at all levels, including the leaders. Opportunities for promoting collaboration at all levels should be actively sought out, using all of the instruments and programmes available, including the European Year of Creativity and Innovation.

4. Teachers: are critical stakeholders in the change process. Creative teaching and assessment methodologies and multi-disciplinary organisational practices can greatly enrich the work even of single subjects. Support for creative teaching methods is also highlighted in recent Council conclusions. Many cluster group countries are already experimenting with creative teaching methods.

Teaching methods and the organisation of teaching to foster creativity need to draw on a wide range of strategies which are active, participatory and learner-centred, including, but not only, methods which are borrowed from the arts and which cater for pupils' individual learning preferences and needs.

5. Multi-disciplinary work: If schools are to prepare children effectively to meet the challenges and opportunities of adult life in a changing world, which is the view both of the Council and of this cluster group, then those creative methods also need to reach beyond the traditional subject boundaries to investigate cross-curricular themes that reflect the world outside the single-subject classroom and even, outside the school itself. All of this places many new demands on teachers.

In order to prepare young people adequately to meet the personal, social, economic and global challenges of the future, the organisation of teaching in schools should include strategies for interdisciplinary work which exploits links between school subjects; and also, between school learning and the world outside of school such as the local, national and global community and the world of work.

Teachers who are already implementing innovative practices are potential change agents for the whole system. Their work should be recognised and rewarded and, where possible, their skill and expertise should be harnessed and built on, as one strategy for promoting good practice amongst the profession.

6. Assessment: can have a powerful and sometimes negative, impact on the teaching and learning process, especially when high stakes assessments leading to qualifications are dominated by a narrow range of methods. Conversely, holistic assessment processes, which may be designed for formative or summative purposes, or both, can support teaching. It is possible to design formative holistic assessment methods that provide evidence of creativity, co-operation, decision making and the cross-curricular dimensions of Key Competence. These methods can also be effective for summative purposes, for all students. Assessment can be carried out for many different purposes and it is important to be clear about the purpose and context of any assessment process.

Given the decisive impact which assessment has been shown to exert on teaching and learning, any decisions made concerning the assessment of the process dimensions of competence¹ such as creativity, will be crucial in determining how far the spirit of the whole Key Competences concept is put into practice.

7. Teacher Education, Initial and Continuing: All of this has implications for initial teacher training. Also, the most important constituency from the teaching profession in the short-to-medium term, are practising teachers. For many, implementing the Key Competences will involve taking on new ways of working and re-orientating their professional identity whilst still facing all of the traditional expectations.

Implementation of the Key Competences requires a creative and flexible approach to classroom methods and organisation, and an openness to adapt to new ways of working in response to the challenges and demands of a changing society. Initial teacher training should promote a culture of lifelong learning in the profession. A range of actions should be researched and set in motion which will facilitate practising teachers and new entrants to the profession in continuously renewing their own competences throughout their careers, thus ensuring that they are equipped, now and in the future, to contribute to the goals of education and training.

8. Leadership: Teachers must be supported by an institutional and systemic environment which promotes creative ways of working. The quality of leadership within educational institutions can have a decisive impact on the motivation and creativity of staff and pupils.

Leaders at all levels need to understand the nature of proposed innovations, the rationale underpinning these, how those innovations relate to the whole system in which they work, the strategies and resources available to implement them and the practical impact and demands that those innovations will make on their own institution..

9. Systems: Leaders and teachers need other supports, including concrete resources such as staffing, equipment, premises; or organisational supports such as flexible time-tabling and especially, time and space for teachers and students to collaborate in the planning of

¹ Including attitude, critical thinking, initiative, problem-solving, risk assessment, decision-making, constructive management of feelings.

interdisciplinary work; or public recognition for achievements. Individual, highly-motivated teachers can accomplish a certain amount as a result of their own efforts. However, sustained innovations must be mainstreamed through policy development, the removal of obstacles and the provision of appropriate systemic supports at all levels.

School managers are key stakeholders in the implementation of the Key Competences. Specially-targeted development opportunities for leaders should be provided which support the competences they will use in promoting and facilitating implementation in their own institutions

10. Stakeholder Engagement: Successful implementation of policy depends on the support of the key stakeholders, including teachers, school managers and parents. Significantly, parents' own level of education and engagement with the education system has a significant impact on their child's performance at school. This supports the view of *adult* education as a prerequisite for the effective teaching of the children, especially in marginalised and disadvantaged communities.

To carry out policy on creative approaches and the Key Competences, it will be necessary to engage the understanding and support of teachers; teacher trainers; leaders, including school managers; and parents. Developing a strategy to accomplish this is one of the major tasks required, to translate the policy of Key Competences into practice. It will therefore be necessary to analyse the relevance of the Key Competences to each of the stakeholder groups identified and develop practical supports and tools for each group, in the form of Guidelines and promotional material and if possible, training in how to use these.

11. Dissemination: Depending on local structures and practices, certain dissemination strategies may not be effective in all countries. Also, countries are at different stages in their implementation of the Key Competences. All of this indicates that there is no one-size-fits all method of bridging the implementation gap between policy and practice. However, in many countries, the role of the Inspectorate is taking on an advisory function could assist with innovation in the Key Competences at national level.

The Reference Framework for Key Competences represents a consensus of desired learning outcomes of the initial education and training which is designed to be used as a tool in support of curriculum reform in working towards the Lisbon goals. Given the variety of circumstances prevailing in member states, the Key Competences framework will perform different practical functions in different member states.

Practical strategies for bridging the implementation gap and for managing the change process, need to be identified and set in motion.

12. Suggestions to hosts: During the final discussion, the following suggestions were made: to expand the remit of collaborative projects to integrate innovative methods and processes into the regular life of the school; to use awards, research grants and art and cultural events as opportunities for conscious dissemination of good practice; to include personal and social development and more emphasis on the cross cultural dimensions of the Key Competences in VET.

1. SECTION ONE: CONTEXT AND CONTENT OF THE PEER LEARNING ACTIVITY (PLA)

1.1 *Introduction and Background to the PLA*

This report gives an overview of the content and outcomes of a Peer Learning Activity of the cluster group for Key Competences-Curricular Reform which took place in Vienna on 10th – 12th November, 2008. It was hosted by the Austrian Federal Ministry for Education, the Arts and Culture on the topic “Fostering Cross-curricular Key Competences for Creativity and Innovation.”

The overall objective of peer learning is to help Member States develop their education systems, by enabling their experts to learn about other countries' policies and practices, to reflect critically on current arrangements, and to consider potential new approaches that may better address the issues in question.

This is the fourth stand-alone PLA held by this cluster, which was set up in 2006 to assist in the implementation of the Recommendation on Key Competences for Lifelong Learning, adopted by the European Parliament and the Council in December, 2006.² This work is carried out in the context of the Education and Training 2010 Work Programme, which is the framework for achieving the Lisbon strategic goal of becoming the most competitive and dynamic knowledge-based economy in the world, capable of providing its citizens with both jobs and social cohesion³. The reference framework of Key Competences is one of the central tools designed to support the reforms in education and training needed to accomplish the Lisbon goals.

Through a series of PLAs, seminars and meetings, the Key Competences-Curricular Reform group has addressed a wide range of policy and implementation issues relevant to achieving the Work Programme. The first PLA was held in Belgium, Flanders in January, 2007 and explored the topic of Learning to Learn; the second, which was hosted by Hungary in September, 2007, addressed policy issues relating to curriculum development, initial teacher education, leadership and especially, training materials. The third PLA was held in Greece in December, 2007 and explored the use of teaching materials to promote Key Competences. The peer learning from those events generated a number of common policy themes⁴, many of which were revisited and advanced during the Vienna PLA. The cluster also participated in a PLA on the theme of Adult Literacy, which was hosted in Dublin in collaboration with the Social Inclusion group. In April, 2008, a joint seminar was held with the Teachers and Trainers cluster.

Therefore, participants came to this event with a considerable amount of work done already and an awareness of the work accomplished by some of the other clusters. Conclusions arising from this PLA, which are based on participants' discussion during

² Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning (OJ L 394/30.12.2006.) 394 http://eur-lex.europa.eu/LexUriServ/sit/en/oj/2006/l_39420061230en00100018.pdf.

³ Presidency Conclusions Lisbon European Council 23 and 24 March 2000, http://europa.eu.int/comm/off/index_en.htm

⁴ European Commission (March, 2008) Cluster Key Competences-Curricular Reform: Synthesis Report on Peer Learning Activities in 2007.

the event, are informed also by key elements of this earlier work in which the cluster has engaged during the last two years.

1.2 Aims and Rationale for the PLA

The purpose of the Vienna PLA was to facilitate

*an exchange of views and experience of Member States concerning the promotion of creativity, soft skills and cross-curricular key competences through education and training.*⁵

The subject was timely, as the potential impact of creativity on personal, societal, economic and also global well-being is increasingly recognised in recent policy statements on culture, education and training.⁶ The potential of creativity to foster tolerance, mutual understanding and social cohesion amongst people from different backgrounds and ethnic groups has also been highlighted.⁷ The designation of 2009 as **European Year of Creativity and Innovation** foregrounds, among many other things, the question of access:

*The aim for 2009 is to promote creativity and capacity for innovation as key competences for all.*⁸

As well as this, several recent statements of European policy explicitly link creativity and innovation with the achievement of the eight key competences defined by the European Reference Framework for Lifelong Learning.

These eight competences are: Communication in the mother tongue; Communication in foreign languages; Mathematical competences and basic competences in science and technology; Digital competence; Learning to learn; Social and civic competence; Sense of Initiative and Entrepreneurship; Cultural awareness and expression. They are the competences which are necessary

*for personal fulfilment, active citizenship, social cohesion and employability in a knowledge society*⁹.

Creativity and innovation are deeply embedded in the Key Competences and are included in definitions of Sense of initiative and entrepreneurship¹⁰ and in Cultural awareness and

⁵ From the Draft Proposal for a Peer Learning Activity.

⁶ Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council, of 22 May 2008 on promoting creativity and innovation through education and training, page 2.

⁷ Council conclusions of 22 May 2008 on Intercultural Competences (2008/C 141/09)

⁸ Proposal for a DECISION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the European Year of Creativity and Innovation (2009), page 3.

⁹ Key Competences for Lifelong Learning – A European Framework, annex of the recommendation page 3

¹⁰ Page 11.

expression.¹¹ Creativity is also identified as one of the cross-curricular themes which is woven throughout the whole framework.¹²

The cross-curricular dimension is central to the concept of key competences, which are “a combination of knowledge, skills and attitudes appropriate to the context”. This cross-cutting application is considered to be particularly strong in the three competences which were the special focus of this PLA: the two already mentioned, and Social and Civic Competence. However, creativity is relevant to all of the Key Competences, which means that peer learning arising from examining this dimension can be relevant to the whole framework.

1.3 Organisation of the PLA

The PLA was planned by the Austrian representative on the cluster group, assisted by a small sub-group and by the Commission representative. In preparation for the PLA, participants completed a questionnaire about arts and cultural education in their own countries. On the basis of the information supplied, a background report was drawn up which provided an overview of arts and cultural education in the countries represented on the cluster group and introduced issues that would be raised in the course of the PLA. Some of the information provided by participating countries is drawn on in this report.

The PLA was attended by fifteen participants comprising cluster group members from nine countries: AT, BE (fl), BG, CY, ES, HR, HU, IE, LT; the Commission representative; and the consultant (See Appendix 1 for the list of participants). In addition, representatives of the Austrian Ministry for the Arts, Education and Culture accompanied the group for some or all of the activities during the three days.

The programme for the PLA (summarised in Appendix 1) comprised a series of presentations from key stakeholders in Austrian education, VET, business and the arts communities, and two site visits: one to an arts structure organisation, and one to a school to see an arts in education project in action. Discussions were held at the end of every day and also, during some of the presentations

1.4 Content of the PLA

Much of this PLA was structured around the theme of partnership as well as other forms of co-operation and gave participants the opportunity to see examples of the work of organisations involved in the arts infrastructure. The institutions and projects presented by the hosts are summarised in sections 1.4.1 to 1.4.8 below. Many sessions also provided a forum to explore different concepts and practices of art and cultural education. Powerpoint presentations of those sessions have been provided and will be accessible on the EU Knowledge System for Lifelong Learning (<http://communities.trainingvillage.gr/ks-III?go=2136047>) data-base shortly. As well as

¹¹ Page 12.

¹² The others are: critical thinking, initiative, problem-solving, risk assessment, decision-taking, constructive management of feelings.

this, five participants gave presentations describing projects in their own countries relevant to the PLA theme.

1.4.1 Cultural Education in Austria

Austria's education system is organised around the political federal structure, details of which are given in Appendix 3. In relation to cultural education in particular, this is the remit of the Federal Ministry of Education, the Arts and Culture. The main provision of the arts and culture in primary and secondary schools consists of art, craft and music with other arts, such as drama and dance, being optional. There are many extra-curricular options such as choirs, bands and performing arts. Provision of arts education in many vocational schools is optional.

Austria's strategy in supporting cultural education was developed over a period of several years which both contributed to, and was influenced by, participation in, or contact with, significant international initiatives. These included OECD research (DeSeCo, PISA); networking structures with neighbouring countries which responded to emerging national and international priorities, such as EU enlargement; and the development of the Reference Framework of Key Competences.

In recent years, Federal education policy has actively promoted interdisciplinary, holistic and action-orientated pedagogy. A key strategy in promoting cultural education and the use of creative pedagogies, which was set in motion by the Federal Ministry of Education, the Arts and Culture, was the creation of an infrastructure of arts and cultural institutions and programmes to provide and promote culture and the arts in a range of settings. Much of the work of these organisations directly supports arts education in the education and training system.

A key feature of this systemic approach to the support of arts and cultural education is partnership: many of the specific initiatives provided are jointly sponsored by several government Ministries and agencies; and the remit of organisations and projects rests on engaging collaboratively with teachers and pupils on the ground. The following examples describe those elements of the system that were demonstrated during this PLA.

1.4.2 Kulturkontakt Austria (KKA)

KulturKontakt Austria is a non-profit organisation which was set up under Austrian law to create connections between education and the arts. It does this by supporting initiatives which promote cultural dialogue and educational co-operation between different stakeholders. KKA's three programme departments¹³ provide sponsorship, promotion, networking and other services that support dialogue between artists, cultural organisations and administrations within Austria, and also, with neighbouring countries in Eastern and South Eastern Europe.

¹³ Educational Co-operation; Cultural Co-operation and Arts Sponsorship; Arts and Cultural Education.

The work of KKA has also supported artists in former Iron curtain countries and in countries where there had been conflict as a result of the Balkan war, thereby providing a medium through which contemporary social issues can be explored.

In its work with the education system, KKA's Department of Arts and Cultural Education provides consultation and development services, as well as funding, for all types of schools in Austria, and also for apprenticeship programmes and community initiatives. This covers a wide range of arts and cultural education activities which allow children and young people to explore contemporary arts forms. It also facilitates innovative approaches to teaching by connecting artists and their methods with the teachers and pupils. The three programmes which provide these experiences are: Dialogue Events (see 1.4.3 below); the School Culture budget which funds long-term cultural projects in state schools; and a new project. P[art] which creates partnerships between schools and cultural organisations is due to start in 2009.

The Federal Ministry of Education, the Arts and Culture provided the original impetus and permanent funding to set up KKA. Other sponsors include the State Secretariat for the Arts and Media, the Austrian Development Agency and the Ministry of Science and Research, and others. Partnership is therefore a key feature at all levels in the KKA structure and implementation strategies.

1.4.3 Dialogue Events (a KKA Programme)

Dialogue Events are the largest programme operating under KKA's Arts and Cultural Education Department. These are multi-disciplinary projects which provide a creative experience for teachers, pupils and artists by supporting process-oriented work in schools under several categories of art and culture: architecture, fine arts, film/video, music, new media, dance and theatre and interdisciplinary work. Teachers in state schools can apply for funding to collaborate with practising artists on projects which vary in length from two lessons up to a few months.

Dialogue Events link artistic experience with everyday life in ways which develop participants' cultural and artistic skills. They also aim to foster young people's creativity, personal and social competence by using participatory and action-oriented methods that facilitate collaboration between the practising artists, teachers and pupils. The pedagogical approach facilitated by Dialogue Events is therefore consistent with the project-orientated and interdisciplinary approach enshrined in key policy statements and guidelines published by the Austrian Ministry of Education.¹⁴

The artistic and cultural content of Dialogue Events, and their interdisciplinary and collaborative approach, are also consistent with the cross-curricular Key Competences, in particular Learning to Learn; Social and Civic Competence; Cultural Awareness and Expression. An evaluation carried out in 2006 reviewed the impact of Dialogue events on developing the Key Competences amongst participants. The study, which drew on the views of participating students, teachers and artists, reported that Dialogue Events had succeeded very well in promoting young people's development in the three cross-curricular Key Competences and that the creative process of the events had been a learning experience for all who took part.

¹⁴ Decree on Integral and Creative Education"; "Ordinance Governing the Principles of Project-Centred Teaching."

1.4.4 *Design mobil (Dialogue Events funded by KKA)*

Design mobil is a partnership project initiated and delivered by the University for Applied Arts, Vienna and supported by funding under the KKA Dialogue Events programme. Using the stimulus of design as a problem-solving activity, Design Mobil offers a choice of seven modules, each of which engages young people and teachers in taking on the role of designers in relation to the material world in a range of activity-based briefs that generate questions, innovation and collaboration.

Design mobil are usually invited to schools by the teachers of art and craft or home economics, although teachers of any subject can engage them. Projects last from 3 – 5 hours and involve cooperation between the teacher, the artist and the pupils. Design mobil provide advance training in their ethos and methods for collaborating teachers. They also model their range of projects and methods in some of the teacher training colleges, although these inputs are not accredited for the teachers' final qualification. Evaluations have shown that Design Mobil projects develop the Key Competences of Learning to Learn, Social and Civic and Cultural Awareness, as well as basic arts and craft techniques, and also entrepreneurship.

1.4.5 *Design Mobile Dialogue Events in Action*

PLA participants made a site visit to HIB Boerhaavegasse, which is a state school in Vienna with a special orientation towards the arts. Two Design Mobil Dialogue Events were running concurrently on the following two project briefs:

Project 1: Design a mineral water bottle for a conference that represents the host company's corporate identity.

Methodology:

- (1) Visiting artists give a presentation on corporate identity.
- (2) Students design bottle, in pairs or small groups, and cut out the shape.
- (3) The cardboard cut-out of the bottle is attached to a power drill, which is rotated at speed.
- (4) The rotating cut-out is photographed using a digital camera.
- (5) The resulting image is projected on to the screen and modified with Photoshop.

Project 2: Create a water-carrying receptacle using clay and any tool that is not a formal art tool and not the hand.

Methodology:

- (1) Visiting artists give a presentation to students on the project brief.
- (2) Students make the clay receptacle, using 'found' tools.
- (3) A small-scale model of a human figure is introduced to the receptacle, thus demonstrating change of scale and proportion.

- (4) Students discuss and reflect on the task and what they have learned.

Expert in-put was provided by the visiting artists, who also facilitated the session, in collaboration with the class teachers.

Both activities, which were observed by the PLA group, lasted about five hours and addressed many of the Key Competences. In the first project, Communication in the Mother Tongue was developed through the paired and group discussion about the design and also, through the experts' presentation on corporate logos. This could also be relevant to Initiative and Entrepreneurship and possibly also to Civic and Social Competence. Competence in science and technology was addressed in the creation of a computer generated image and in the use of digital camera equipment. The design of the bottle touches on Mathematical competence as well as on Cultural Awareness and expression. Pupils' reflections at all stages in the process develop competence in Learning to Learn. Similarly, the second project covered a wide range of competences, including science and mathematics. Both tasks also made demands on the young people's creativity, decision-making and negotiation skills.

These two examples demonstrate how a carefully-constructed activity-based task with application in the real world can provide holistic learning experiences which can impart knowledge and concepts – for example, the concept of scale and proportion, or knowledge of the corporate world; skills, such as manipulating tools, or using technology; and attitudes such as perseverance, attention to detail, co-operation with peers. They also demonstrate how a rich task can be the focus of interdisciplinary collaboration, and show how teachers of different subjects could use methods borrowed from the arts to explore the concepts and skills of many subject disciplines.

1.4.6 The K3 Programme: "Teaching culture to apprentices" A KKA Initiative

The K3 programme was set up by KKA in 1989 to encourage apprentices to undertake their own cultural activities, building on their own living and work reality.

It is one of the major inputs of cultural education for apprentices and is delivered within the dual system of apprenticeship training. This is significant because arts and cultural education are not included in the curricula for apprenticeships. Schools, companies and apprentices donate their time to participate in one of the wide variety of action-based projects which are facilitated by creative artists and other professionals in the arts field. Projects can last from four hours to three days and are approached in the context of small teams of facilitators working as equal collaborators with participants.

Project content draws on everyday culture such as fashion and cooking and also on high culture. One project creates links between the familiar world of apprentices and an unfamiliar world, such as the museum. The method in this case uses objects as cultural mediators: the young people are asked to bring an item from their own leisure time that represents something important to them, which they present to their peers. They then bring that article to a museum, find a painting that connects with it and reflect on the links. This activity enhances the young people's self awareness, critical thinking and decision-making skills, as well as promoting teamwork and communication. Other projects have included designing a magazine, creating and taking part in a performance event, writing a song.

K3 provide more than seventy varieties of projects under three different programmes. All make use of activity-based methods designed to promote apprentices' experience of the arts and culture and develop their own creative potential, competence in Cultural Awareness and Expression. These experiences also help apprentices to develop other Key Competences including Communication, Social and Civic competence and others.

The project design and methods implemented by the K3 programme show that it is possible to connect apprenticeship training with cultural instruction, which is significant, given that 40% of all 15 – 18 year olds in Austria are following apprenticeship programmes containing little or no cultural education. Underpinned by a concept of culture that highlights and validates popular, as well the formal, arts, the K3 programme consciously promotes the entitlement of all young people to cultural education, and works to have this right of access enshrined in educational policy.

1.4.7 *Jugend Innovativ (JI)*

Jugend Innovativ is a national schools competition which is organised and developed by Austria wirtschaftsservice on behalf of the Federal Ministry for Economics and Labour and the Federal Ministry for Education, the Arts and Culture. The aim of JI is to promote innovative ideas amongst school and college students in the fields of business, design, engineering and science; and to involve their teachers in making the transition from theory to practice.

The award is structured around multi-disciplinary project work. This requires engaging teachers and pupils in a wide range of pedagogical approaches which promote social competences and soft skills, as well as resulting in the translation of an idea into practical reality. The project idea may take the form of a need or a problem identified by a local business, who may make resources available to the school or college to support the project. For example, the winning project from the 2008 Engineering section developed a sensor for use in quality monitoring of the cleaning process of aluminium for a local engineering company, a practical invention which was also awarded a prize by the European patent office. Work on creating the sensor drew on physics, chemistry and technology and the winning student, who gave a presentation at the PLA, said that the experience allowed him to develop many of the Key Competences including teamwork and negotiation, time management and the ability to present complex ideas to a non-expert audience. An evaluation of the whole JI programme which investigated participants' views of the impact of the competition reported similar positive results: most of the young people said that the competition had had a very positive impact on their later working lives and had improved their motivation, discipline, teamwork and communication and problem-solving skills.

Significantly, 80% of submissions for the award come from the vocational sector, perhaps influenced by the summative assessment methods for the award of the Diploma from higher vocational schools, which require students to carry out a multi-disciplinary project. The winning JI project in 2008 described above was the student's final assessment project for the Diploma. Furthermore, 40% of the JI participants presented a project that was their final Diploma project.

1.4.8 *Forschung macht Schule/Research in Schools*

The Research in Schools programme in its current form is a very new project and has only been implemented since March 2008. It supports a multidisciplinary approach to science and innovation by connecting the work of schools at all levels, from

kindergarten, to primary and secondary schools and also in VET. Projects on the same topic can be organised at basic or more complex levels, depending on the age group. For example, a primary school science project on heat might investigate the experience of looking at the sun, experience of heat, effect of the sun. The same topic could be addressed at a much higher level with older children. In this way, the project supports early links to be made between education systems with the long-term goal of providing more engineers and researchers, and empowering girls and women in science and innovation.

This project is the result of collaboration between the Federal Ministry for Transportation, Innovation and Technology and the Federal Ministry for Education, the Arts and Culture. Development of the project drew on similar work done in Norway, and the Austrian version gives special emphasis to empowering girls and young women in gaining active experience of research, technology and innovation. Activities provided under the Research in Schools programme include: traineeships where young people get paid work experience over the summer in Austrian technology and research organisations and companies get a grant to cover wages and other support; ‘Research cheque’ which schools can apply for, worth between €300 and €1,000, to fund research projects in school in science and engineering using innovative teaching methods; and pilot regions where key stakeholders in an area are facilitated in networking through research topics that are designed to be suitable at all levels, from pre-school through to higher secondary.

2. CULTURAL EDUCATION AND KEY COMPETENCES: POLICY CONCLUSIONS OF THE PEER LEARNING ACTIVITY

The conclusions contained in this chapter are based on the response of PLA participants to the many strategies and structures presented by the hosts in support of creativity, arts and cultural education in Austria. Some are informed also by work carried out by the cluster at earlier PLAs and cluster meetings. Given that creativity is deeply embedded in the concept and ethos of the Key Competences, many of these conclusions have a wider application to the whole framework.

2.1 Overview: how can change be accomplished?

One of the dominant themes of the PLA, to which many other issues related, was that of change. A key question which emerged throughout was, how can change be accomplished?

The significance of this question was illustrated by examples from several countries. In Austria, the promotion of holistic teaching methods has been supported at policy level for several years¹⁵. The difficulty is, in translating these policies into practice. In other countries, innovative policies are already embedded in national strategy documents and

¹⁵ “Decree on Integral and Creative Education;” “Ordinance Governing the Principles of Project-Centred Teaching”.

in some cases these have already led to major structural changes, such as the introduction of new qualifications frameworks or the reform of the curriculum around the Key Competences. Yet these advances do not necessarily result in significant, widespread changes in practice – that is, in how schools actually organise and provide learning experiences for pupils.

However, creative and innovative practice is implemented in all countries. The challenge of harnessing that innovation and bridging the gap between policy and practice on a wide scale, has been a recurring theme in all of this group's PLAs¹⁶.

2.2 *What do 'creativity', 'cultural education' and 'the arts' mean?*

'Creativity', 'arts', 'culture' and 'cultural education' are terms which can be defined and interpreted in many ways.¹⁷ In all of the cluster group countries, including Austria, the arts and cultural education figure in national curricula in the form of specific subjects such as the visual arts and music, usually, though not always, delivered on a stand-alone basis.¹⁸ In these contexts, the concept of art and culture is bound up with self-expression, creation and production in those different art forms. In most countries, this subject-orientated concept of the arts also provides an opportunity for young people to experience the arts, develop a general interest in culture and learn to respond to it¹⁹. However, although there was not as much information available about VET, it seems clear that this experience of arts and culture is not so widely available to young people following some VET courses, especially apprenticeships.

- The work of the **K3 programme** in Austria in bringing cultural education to apprentices, described in 1.4.5 above, was designed to fill that gap.

Several countries also conceptualise the arts and culture as a vehicle for the development of personal and social and communication skills.

- The **"Talking Pictures"** project in Flanders works with marginalised children in the Royal Museum in Antwerp. Facilitators use the pictures in the museum as a stimulus for many activities: children dress up as portraits, create masks, talk about and enact the pictures and in doing so, develop the ability to recognise and communicate their own emotions, to understand different viewpoints and to develop a vocabulary to manage personal social relationships.

Another concept of arts and cultural education reflects

¹⁶ Education and Training Work Programme, Cluster Key Competences-Curriculum Reform: Synthesis Report on Peer Learning Activities in 2007, page 8.

¹⁷ See Appendix 3 for a summary of the Organisation of Cultural Education in Cluster Group Countries, from the Background Report for the Vienna PLA.

¹⁸ Key Competences-Curriculum Reform Cluster Group: Background Report for the Vienna PLA, page 6.

¹⁹ Key Competences-Curriculum Reform Cluster Group: Background Report for the Vienna PLA, page 2.

*The will to instrumentalise culture as a means of addressing contemporary social issues (environment, active citizenship, violence at school, drug problems, social problems) or issues more specifically related to education.*²⁰

- A series of cross-curricular projects in Croatia use the local culture as part of a process designed to promote mutual understanding between different groups, societal cohesion and democracy. One research project involved a group of students carrying out a detailed needs analysis and field study to research the obstacles faced by people with disabilities in accessing the local public buildings. Research tasks, included conducting surveys and interviews and processing the data, were divided up amongst the group.

The concept of arts and cultural education as vehicle for employability and entrepreneurship was not represented very strongly in most of the cluster group countries, but was clearly a very important theme in the projects demonstrated by the Austrian hosts:

- Jugend Innovativ, the national innovation award for pupils and students, connects schools with local entrepreneurs who may sponsor projects that solve real-life problems for them.

Clearly, there is a very great variety in the range of possible concepts of creativity, cultural education and the arts, and the purposes for which these may be mobilised. Yet each of the projects demonstrated by the hosts or presented by participants had its own internal coherence, in that it was consistent with a clear concept, explicitly-stated guiding principles and transparent goals, all of which provided the basis for each project's design and implementation.

All policy positions and implementation strategies relating to any element of the Key Competences, including creativity, should be underpinned by a clear concept and a robust theoretical framework which is transparent to all stakeholders; and by a set of guiding principles which provide a coherent and consistent basis for actions taken in pursuit of the aim.

2.3 Who is the target group for Arts and Cultural Education?

The importance of ensuring the widest possible access to creative experience, and to opportunities to develop personal creativity, in whatever way that is defined, was a key theme emerging from the PLA. The access issue is relevant both to social and economic status, and to gender.

- One of the aims of the work in bringing culture to apprentices (the K3 programme) was to ensure that all young people have access to culture and creativity;

²⁰ Study commissioned from Pôle Universitaire Européen (2006) « Réalisation d'une étude relative à l'inventaire des meilleures pratiques liant la culture et l'éducation dans les Etats membres, les pays candidates et les pays EEE : Executive Summary» page 7, http://ec.europa.eu/culture/pdf/doc905_en.pdf

- One of the aims of the Austrian Research in Schools programme is to promote the participation of girls and young women in innovation, science and technology.

These goals are also supported at policy level by Council priorities, which highlight the need to develop capacities for innovation in the whole population;²¹ and to promote the role of creativity in supporting individual fulfilment and societal well-being, including social cohesion and economic prosperity.

Creativity is a central dimension of human potential and experience. Everyone has the capacity to be creative, and everyone has the right to have that capacity fostered by the education and training system. Creativity should be a normal part of the teaching and learning experience, for pupils and also for teachers, both in the processes of education, and in providing all learners with access to their artistic and cultural heritage.

2.4 *Why collaborate?*

One of the key themes of the Vienna PLA was partnership. Arts and cultural education in schools and vocational settings can be enhanced very effectively by external supports. Teachers can complement their work by drawing on expert guidance in research, science and other disciplines:

- In Cyprus, the Young Researchers Programme connects schools with experts in research from universities and the Pedagogical Institute. Pupils choose their own research topic mainly in the area of maths, science and technology, they work collaboratively with teachers and external experts to design the project, then carry it out and provide final conclusions and suggestions for the future.
- In Austria, the Dialogue Events (described in 1.4.4 above) connect experts in the arts with school teachers and pupils to work on multi-disciplinary projects that provide a creative process for all the actors.

Therefore, creative teaching need not depend solely on the specific skills of individual teachers: it can be complemented by appropriate external inputs. To facilitate this, certain structures need to be in place, such as national awards, research projects or institutions set up for the purpose. This was clearly a great strength of the Austrian system, which provides permanent funding and structures. This facilitates sustained, long-term action on the ground.

Working collaboratively does not necessarily mean going outside the school. It is possible to work with other teachers of different subjects in the same school, and this is usually necessary for organising learning around multidisciplinary themes. There would be scope for external experts to have a longer-term effect in this way if their work also

²¹ Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council, of 22 May 2008 on promoting creativity and innovation through education and training, page 1.

consciously modelled examples of organisation and ideas for methods that teachers could explore together further and adapt when the experts have left.

Networking between institutions with a common interest can expand the possibilities for sharing good practice and peer support, both at the level of the individual, and the institution:

- Teachers in Hungary with a shared interest in social and environmental competences and innovative methodologies are facilitated in networking by SuliNova Kht in Budapest. The team of teachers and the pedagogical institute work together to develop and pilot teaching materials designed to support the Key Competences.
- The Austrian Research in Schools project facilitates networking between schools in the same area, especially schools at different levels. The aim is to allow teachers and children of different ages to explore similar scientific topics, but at different levels of complexity. On the theme of ‘heat’, primary school children could explore the experience of looking at the sun, the effect of heat; older children could study the movements of the planets around the sun.

Yet another level of collaboration is that which takes place between different government departments, agencies and Ministries. Most of the projects presented by the Austrian hosts demonstrated partnership at this level.

Partnership on the international stage can also facilitate national policy development. Collaboration with other countries, international co-operation in research such as DeSeCo,²² PISA and European projects and programmes, including Comenius, can all have a positive impact on national policy and practice.

Working in co-operation with others is a key competence for the teaching profession at all levels, including the leaders.

Interdisciplinary work on the ground should be supported by co-operation between relevant institutions and leaders at all levels in the system, including those working in national and international contexts. Many of the policy developments that have arisen in recent years have been influenced by co-operation at international level, including the development of strategies to enhance creativity and the Key Competences.

Opportunities for promoting collaboration at all levels should be actively sought out, using all of the instruments and programmes available, including the European Year of Creativity and Innovation.

2.5 *Innovative Teaching Methods: What are they?*

Teachers are critical stakeholders – and possibly, the most important actors - in the change process. Creative teaching and assessment methodologies and multi-disciplinary organisational practices can greatly enrich the work even of single subjects. ‘Creativity’ in teaching has already been identified by the cluster group as using a variety of active, experiential methods which focus on the development of the individual learner.²³ Support

²² OECD: Definition and Selection of Competences

²³ Synthesis Report, page 9.

for such methods is also highlighted in recent Council conclusions which recommend that teachers should exemplify creativity in their own teaching.²⁴

Many participating countries are already experimenting with creative teaching methods:

- In Lithuania, a new subject called Modern Arts, which combines music and the visual arts, has been developed and is currently being piloted in 26 schools with over 1,000 pupils. In order to creative activity, pupils are provided with an artistic stimulus, such as listening to music as inspiration for creative activity in visual arts;
- The Hungarian Sulinova project supplies boxes of practical materials to support co-operative learning in the classroom. Teachers and pupils can use role cards to structure group work; items such as sticks to use as an evaluation tool; and specially designed question-dice to stimulate discussion.
- The Flanders Talking Pictures project prepares children for their visit to the museum, and follows up on the activity by getting them to make a self-portrait, or create their own museum in the school setting.

Teaching methods and the organisation of teaching to foster creativity need to draw on a wide range of strategies which are active, participatory and learner-centred, including, but not only, methods which are borrowed from the arts and which cater for pupils' individual learning preferences and needs.

If schools are to prepare children effectively to meet the challenges and opportunities of adult life in a changing world, which is the view both of the Council²⁵ and of this cluster group,²⁶ then those creative methods also need to reach beyond the traditional subject boundaries. Arts and cultural education is relevant to all teachers. The methodology of the arts can be used to investigate cross-curricular themes that reflect more accurately the world outside the single-subject classroom and even, outside the school itself:

- In Lithuania, in the new Modern Arts programme, the topical personal, social, public and other problems serve as a stimulus for students' creativity, as a source of ideas for creative work. They implement these creative ideas by copying techniques used by professional contemporary artists. Contemporary techniques allow students to create and express their ideas more easily because the technical aspects are quite simple; students emphasize the concept of the work.
- The Croatian research project addressed a topic of contemporary relevance to the local community– access to public buildings for people with disabilities – and resulted in modifications to the public spaces being put in place;
- The Austrian innovation award, Jugend Innovativ, encourages projects which connect the work of the school with a real-world problem or task, often in the world of work;

²⁴ Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council, of 22 May 2008 on promoting creativity and innovation through education and training.

²⁵ Recommendation of the European Parliament and of the Council 18 December 2006.

²⁶ Synthesis Report, pages 9, 10.

- The Young Researchers Programme in Cyprus supports the school in addressing research questions mainly in science, technology and the environment.

In order to prepare young people adequately to meet the personal, social, economic and global challenges of the future, the organisation of teaching in schools should include strategies for interdisciplinary work which exploit links between school subjects; and also, between school learning and the world outside of school such as the local, national and global community and the world of work.

All of this places many new demands on teachers, although primary teachers may have more expertise in multi-disciplinary approaches and more opportunity to implement them. For teachers at secondary level, holistic methods and cross-curricular organisation involve working in ways for which their professional training, for the most part, has not prepared them. This is probably due to their being educated in universities as subject specialists and their professional identity being defined by their subject specialism. This is reinforced by the culture and management in schools. Even so, many teachers such as those working on the projects referred to above, do break out of the mould and overcome the obstacles they face in the system.

Teachers who are already implementing innovative practices are potential change agents for the whole system. Their work should be recognised and rewarded and, where possible, their skill and expertise should be harnessed and built on, as one strategy for promoting good practice amongst the profession.

Good practice can be found in every country where practising teachers work in innovative ways, within the constraints of the traditional system.

2.6 What can arts education teach us about assessment of Key Competences?

A very significant constraint which has been a recurring theme throughout the work of this cluster group,²⁷ is the prevailing assessment regime. In secondary schools in all countries this is largely dominated by summative assessment which focuses almost exclusively on the traditional specialist subject. Where competence-based curricula have been introduced, the standards set are mostly subject-based, too.

Although assessment was not addressed at this PLA as a stand-alone topic, in many of the presentations and discussions on programmes and structures the question of assessment was identified as a key topic for further exploration. In those contexts, several key observations were made concerning the functions which assessment should fulfil and how this might be accomplished. Whilst these do not represent firm recommendations

²⁷ Synthesis Report, page 19.

from this PLA, taken together with earlier work of the cluster, and following the logic of the Key Competences concept, certain preliminary conclusions may be inferred and presented for confirmation by the group.

The impact of assessment on the process of teaching and learning is well-documented.²⁸ This probably explains why qualitative processes and experiences that are difficult to measure, such as the arts and cultural competences and other cross-curricular, personal and social competences, often receive less attention in the teaching and learning process than the limited set of knowledge and skills that are more easily assessed. This is especially significant when high stakes assessments leading to qualifications are dominated by a narrow range of methods. Assessments that consist only of traditional, narrow testing instruments can have very negative effects on the process of teaching and learning.

Conversely, holistic assessment processes can support teaching and learning. These may be designed for formative or summative purposes, or both. The Austrian hosts demonstrated one example of a high stakes summative assessment process which supports a multidisciplinary approach to teaching and learning and has been proved to promote the Key Competences. The winning project for the national innovation award, *Jugend Innovativ*, was supported by the summative assessment regime in the Austrian senior vocational sector, because those students have to present an interdisciplinary project for the award of their final Diploma. The probable impact of that authentic assessment process is indicated by the fact that 40% of the projects submitted for the award are final Diploma projects from that sector; and 80% of all individual entrants come from those schools.

This shows that it is possible to design holistic assessment methods that provide evidence of creativity, co-operation, decision making and the cross-curricular dimensions of Key Competence, which are also effective for summative purposes, for all students, including those who aspire to and achieve, excellence.

Given the decisive impact which assessment has been shown to exert on teaching and learning, any decisions made concerning the assessment of the process dimensions of competence²⁹ such as creativity, will be crucial in determining how far the spirit of the whole Key Competences concept is put into practice.

Assessment policy and practice should:

- reinforce and support the holistic, multi-dimensional aspects of Key Competence;
- be underpinned by a set of guiding principles consistent with the spirit of the Key Competences;
- ensure that process dimensions of learning are accorded the same status in assessment as aspects of knowledge and skill that are more easily measured using traditional methods.

²⁸ Black PJ and Wiliam D (1998), Inside the Black Box www.pdkintl.org/kappan/kbla9810.htm “

²⁹ Including attitude, critical thinking, initiative, problem-solving, risk assessment, decision-making, constructive management of feelings.

This is significant because teachers are obliged to work within the system, and parents expect that schools will support their children in achieving their potential, within that system. If holistic methods of assessment can support good teaching and outcomes of learning that are beneficial for all students, across the ability range, this could help to resolve the conflict experienced by teachers who currently have difficulty in negotiating many competing priorities and expectations.

Assessment can be carried out for many different purposes and it is important to be clear about the purpose and context of any assessment process. Assessment of the Key Competences should fulfil both formative and summative purposes: to assist teachers, pupils and parents in judging progress in the Key Competences, and also, in making sure that the young people have achieved them before they leave school.

Moving from policy to implementation of the Key Competences offers an opportunity to identify and promote creative assessment practices that support teaching and learning of all elements of competence, for both formative and summative purposes. This opportunity should be pursued vigorously, using all available frameworks and instruments, including the European Year of Creativity and Innovation.³⁰

Measures should include the development of Implementation Guidelines to accompany the Reference Framework of Key Competences, to support member states in adopting creative strategies in relation to the following:

- The range of instruments which exist, or which could be developed, to assess all dimensions of competence, including the qualitative dimensions such as attitudes.
- Indicators of achievement and success appropriate for the assessment of Key Competences, and how these can relate to real-world demands, and not only to abstract constructs.
- Ways of assessing learning which takes place in cross-curricular contexts.
- The distinction between formative and summative functions of assessment - that is, assessment for learning and also assessment of learning – and which methods are suitable for each or both of these.
- How to link formative assessment methods with national standards and assessment mechanisms, and what tools need to be developed to make this possible.

The positive impact which certain types of assessment, including summative assessment, can have on the learning process has been explored in some contexts:

³⁰ “In addition to activities co-financed by the Community in accordance with Article 6, the Commission or the Member States may identify other activities as contributing to objectives of the Year and permit the use of the name of the Year in promoting those activities insofar as they contribute to achieving the objectives set out in Article 2.” Decision of the European Parliament and of the Council concerning the European Year of Creativity and Innovation (2009) 28 March 2008, Article 3.

- In Flanders, the work of the Research Development Centre for Experiential Education is currently developing holistic assessment techniques which provide information about both the outcomes and the processes of learning. Methods include: the use of portfolios, self-evaluation questionnaires, SWOT analysis, self-evaluation by children.

Authentic assessment methods are often underpinned by the constructivist³¹ view of knowledge. They also highlight the blurring of boundaries between assessment and teaching: rich activities which are useful for assessment purposes also tend to make rich, holistic teaching methods.

2.7 *Initial Teacher Training*

Innovation in the organisation of teaching, in delivery and assessment methodologies, has clear implications for initial teacher training, especially, but not only, in the training of secondary school teachers. This theme has arisen many times already in the work of this cluster group³² and in their joint work with the Teacher Trainers cluster.

Creative processes in teaching are already supported by training for specific projects. Some of the projects presented by the hosts provided examples:

- The collaborative methods used in the Austrian Dialogue Events, when visiting artists work with teachers and pupils in school, are preceded by preparatory training for teachers in methods which include using technology in digital design;
- the national innovation award in Austria, Jugend Innovativ, provides workshops for teachers and pupils in the organisation and planning of interdisciplinary work;

The teaching methodologies being used in these events could be applied in many other subjects across the whole curriculum, and thus provide a vehicle for promoting innovative and creative methodology.

However, to support the development of creativity and the promotion of Key Competences on a wide scale in schools, initial teacher training should address several competences and dimensions of the teacher's role. This should not be confined to the technical capacity to organise teaching in different ways and use a wider range of methods: it should also encourage teachers in forming a perception of their professional role as a facilitator of learning. Initial teacher training should therefore:

- prepare teachers to use a wide range of teaching methods, including strategies borrowed from the arts, to inform both single subject and cross-curricular teaching;
- equip teachers to assess the process dimensions of Key Competences, including, but not only, those associated with the arts and culture;

³¹ Constructivism = the view that knowledge and learning are jointly negotiated and created – constructed – in the process of the interaction between teacher, learner and environment; often contrasted with the 'banking' system of education where knowledge is transmitted, intact, from teacher to learner.

³² Synthesis Report, page 14.

- develop the competences needed to facilitate and assess participatory learning experiences in cross-curricular contexts;
- foster a broad understanding of the professional role of teacher that embraces facilitation of learning, and not only subject specialisation.

Implementation of the Key Competencies requires a creative and flexible approach to classroom methods and organisation, and an openness to adapt to new ways of working in response to the challenges and demands of a changing society.

Initial teacher training should promote a culture of lifelong learning in the profession. Good practice in methodology and organisation should be modelled during initial teacher training. This has implications for teacher-trainers in the institutes of higher education who prepare people to enter the teaching profession.

Staff and leaders in these higher education institutions are therefore key stakeholders in the implementation of Key Competences, as they need to have the capacity to model the appropriate ethos and methods. Appropriate developments and supports for that sector should be identified and put in place.

2.8 *Continuing Teacher Training*

The most important constituency from the teaching profession in the short-to-medium term, are practising teachers. For many, implementing the Key Competences will involve taking on new ways of working and re-orientating their professional identity whilst still facing all of the traditional expectations.

There are various ways of promoting innovations amongst the community of practising teachers, in addition to formal programmes of continuing training. One is the use of projects and new programmes. These can provide a vehicle for building teachers' capacity in different areas.

- In Hungary, the Sulinova materials development project is explicitly linked to particular pedagogical aims. It builds teachers' capacity by including them in the development and piloting of the materials. Materials help teachers to organise experiential group work, discussion, structured question and answer session and evaluation.

Sometimes, innovations can be under-resourced in the preparatory training made available to support them. Some innovations are introduced without practising teachers fully understanding them.

A range of actions should be researched and set in motion which will facilitate practising teachers and new entrants to the profession in continuously renewing their own competences throughout their careers, thus ensuring that they are equipped, now and in the future, to contribute to the goals of education and training.

These actions could include the following:

- Identify existing and new projects, at national and European level, which could be

used a vehicle to promote the Key Competences;

- Develop materials, in consultation with practising teachers, to support and promote holistic teaching methods and organisation;
- Develop and resource a system of incentives to encourage the participation of teachers in innovative practice; and to reward those who are already doing so;
- Engage with subject teacher organisations and the teachers' unions in promoting innovating teaching methods and organisation;
- Engage with all networks and processes that have a remit which touches on initial or continuing teacher training, bearing in mind that this relates also to institutes of higher education.

2.9 *How can organisations support good practice?*

Notwithstanding the crucial role of teachers in promoting creativity and the Key Competences, they cannot do this on their own. They must be supported by an institutional and systemic environment which promotes creative ways of working.

The Austrian hosts provided one example which demonstrated the positive impact of an organisational culture which is conducive to innovation.

- Team Octopus is a teaching team in an Austrian vocational college which is dedicated to the creative teaching of science. The teacher who supervised the winning project for the national innovation award, Jugend Innovativ, is a founder member of Team Octopus. He acknowledged the practical support and goodwill of the college managers, who facilitated teachers and students in operating outside the regular subject boundaries.

The quality of leadership within educational institutions can have a decisive impact³³ on the motivation and creativity of staff and pupils, a theme which emerged already in the work of this group. Leadership can have a decisive impact on the quality and outcomes of teaching and learning.

- A leadership programme in Austria has targeted over 1,000 headmasters throughout the country with professional development opportunities in the management of change.

Leaders at all levels need to understand the nature of proposed innovations, the rationale underpinning these, how those innovations relate to the whole system in which they work, the strategies and resources available to implement them and the practical impact and demands that those innovations will make on their own institution.

³³ Synthesis Report, page 14.

School managers are therefore key stakeholders in the implementation of the Key Competences. Specially-targeted development opportunities for leaders should be provided which support the competences they will use in promoting and facilitating implementation in their own institutions.

Leaders and teachers need other supports. These might include concrete resources such as staffing, equipment, premises; or organisational supports such as flexible time-tabling and especially, time and space for teachers and students to collaborate in the planning of interdisciplinary work. Support might also consist of public recognition for achievements or simply for a job well done, thus allowing teachers and pupils to gain status and respect in the eyes of their peer group. This offers an important incentive and reward to participating and experiment with creative ways of working:

- In Austria, the national innovation award, Jugend Innovativ, gives public recognition on the national and international stage for successful students, their teachers and their institutions.

Supporting creative ways of working might also mean removing barriers to creativity. These include lack of time for the planning, teamwork, co-ordination and reflection which multi-disciplinary and innovative teaching demands. Another is the assessment system, which has been discussed already. Effective implementation of Key Competences requires supportive and favourable conditions at all levels of the system and involving all of the actors. The importance of ensuring that these measures are addressed at a systems level, in a co-ordinated way,³⁴ has been highlighted in earlier work of the cluster group.

Individual, highly-motivated teachers can accomplish a certain amount as a result of their own efforts. However, sustained innovations must be mainstreamed through policy development, the removal of obstacles and the provision of appropriate systemic supports at all levels.

2.10 Engaging with stakeholders

Successful implementation of policy depends on the support of the key stakeholders. The influence of teachers in translating the policy into reality is clearly a crucial factor in accomplishing implementation of the Key Competences³⁵. Involving teachers in the process of development of new initiatives ensures that the work is rooted in practice and also creates a sense of ownership amongst the teachers who will carry out the new measures. Institutes of pedagogy, universities and often the Education Ministries provide the main focus of communication, contact and development to promote new initiatives among teachers. Representative bodies such as subject teachers' organisations and the teachers' unions provide another channel of communication and engagement.

³⁴ Synthesis Report, page 12.

³⁵ Synthesis Report, page 14.

Other stakeholders are school managers and leaders in the education and training systems who have a practical impact on the day-to-day running of schools and can motivate and facilitate teachers in their work.

The other major stakeholder group is parents. They are partners with the school in the education of their children and their priorities and expectations can have a major influence on whether change occurs or not. It would be difficult for teachers to adopt new practices if the parents of their pupils do not understand the reasons for these, and how they will benefit their children. Engaging parents' support is therefore a major task to be addressed in moving from policy to implementation.

As well as this, the parents' own level of education and engagement with the education system has a significant impact on their child's performance at school. This supports the view of *adult* education as a prerequisite for the effective teaching of the children, especially in marginalised and disadvantaged communities.

To carry out policy on creative approaches and the Key Competences, it will be necessary to engage the understanding and support of teachers; teacher trainers; leaders, including school managers; and parents. Developing a strategy to accomplish this is one of the major tasks required, to translate the policy of Key Competences into practice. It will therefore be necessary to:

Analyse the relevance of the Key Competences to each of the stakeholder groups identified: teachers, teacher trainers, leaders, parents, pupils and other potential stakeholders such as community leaders and employers.

Identify practical ways in which those different groups can use the Key Competences framework to promote implementation.

Develop practical supports and tools designed for each group, in the form of Guidelines and promotional material and if possible, training in how to use these.

Involve representatives of the stakeholder groups in the development and piloting of any initiatives designed to support the implementation of Key Competences which has an impact on their interests.

2.11 Dissemination

National structures and traditions in member states vary greatly, from highly centralised systems to those where schools and teachers have a great deal of autonomy. Consequently, certain dissemination strategies may not be effective in all countries: for example, top-down dissemination may be more difficult to implement in systems where the autonomy of teachers and schools is highly valued and protected. In those contexts, dissemination of programmes and methods from the central authority may be regarded as interference in the professional practice of the teacher. As well as this, countries are at different stages in their implementation of the Key Competences. All of this indicates that there is no one-size-fits all method of bridging the implementation gap between policy and practice.

Even so, some measures might be applicable on a fairly widespread basis. For example, in many countries, the role of the Inspectorate³⁶ is taking on an advisory function. It would therefore be useful to explore how national Inspectorates can assist with innovation in the Key Competences at national level, and what measures are needed to support this. Good practice examples of this approach do exist, as a previous PLA has shown, for instance in Flanders.

Overall, it should be possible to further develop - on the basis of the outcomes of the peer learning activities - a framework of actions and supports from which member states can choose, according to the priorities of the stage they have reached, and their national context. It is therefore important to put in place a wide range of dissemination methods which can be used by different countries, as appropriate to their context and to the stage they have reached in implementing Key Competences policy.

Practical strategies for bridging the implementation gap and for managing the change process, need to be identified and set in motion.

Several measures which could facilitate dissemination, such as the use of innovative projects and the engagement of leaders and other stakeholders, have already been identified in this report. A number of other measures could be added to those suggestions for action:

2.11.1 Develop strategies to share good practice

The reports of peer learning activities of all clusters established within the Education and Training 2010 work programme provide national experts with a wealth of ideas and good practice to be used for national developments. The Commission is also finalising a database –EU-Knowledge Base for Lifelong Learning, which will facilitate the exchange of information. Peer learning reports, as well as the overall policy context, are also available at the Commission website.

As Member States are all at different phases in policy development and implementation of the Key Competences it is useful that national databases containing support materials and guidelines are freely available and that stakeholders can access those of most use to them at any given stage. These data-bases should be relevant for different stakeholders at different levels: ministry, teachers, and other stakeholders.

A number of studies related to the development of the education and training systems are already available at the Commission's website. In 2009, a study on 'Cross-curricular key competences and teacher education' will be published. It will explore, inter alia, how teacher education has changed in order to support the competence-based curricula. Research at European level into the systems factors involved in the management of change could be a useful topic in the future.

The Recommendation on key competences for lifelong learning has been one of the key documents of the Education and Training 2010 work programme, having had an impact

³⁶ Synthesis Report, page 14.

on school education policies, VET and adult education. As it represent a major paradigm change from teaching to learning, from tacit knowledge to focussing on what the individual can do, it will be crucial to keep the momentum and support its implementation with all available policy instruments. Conferences to present examples of good practice should be organised at all levels: European, national, regional and local. These could bring the Key Competences stakeholders together, on a large scale, to explore and disseminate implementation.

2.11.2 Explore concrete ways of translating policy into practice

The Reference Framework for Key Competences represents a consensus of desired learning outcomes of the initial education and training which is designed to be used as a tool in support of curriculum reform in working towards the Lisbon goals. Given the variety of circumstances prevailing in member states, the Key Competences framework will perform different practical functions in different member states.

For example, countries whose curricula have already undergone recent changes, or already include national initiatives similar to the Key Competences framework, will find it useful as an auditing tool to assist policy makers and practitioners in complementing their national systems and practices by incorporating the innovations promoted by the Key Competences.

Member states currently in the process of designing curricula, creating national frameworks of qualifications or engaging in any other changes, may choose to use the Key Competences as a planning tool or a unifying framework around which national innovations may be organised. It would therefore be useful to:

- Investigate the potential of the ‘project approach’ in promoting dissemination and clarify what needs to happen to mainstream the good practice that such projects can introduce and support: for example, what kind of ignition tools and events are most effective in re-orientating established practice on a sustained, widespread basis.

Examples of the ‘project approach’ from this PLA include the K3 programme, which brings cultural education to apprentices, and Dialogue Events, which facilitate a creative process involving pupils, teachers and artists. These and similar projects could function as ‘ignition tools’ if they included measures to spark similar practice in the school, carried out by teachers and pupils, after the external experts have left.

2.12 Participants’ suggestions for their own education and training systems

In addition to the learning arising from this PLA which has general application to creativity and the key competences, participants also drew on the PLA experience to identify particular strategies which could be explored for implementation in their own countries. These included:

- Instigate partnerships between different Ministries and between the education system and external actors and agencies;

- Set up national awards and other incentives which give public recognition for valued achievements, including innovation and best practice in teaching; and good work done in challenging situations on behalf of marginalised groups;
- Promote the inclusion of arts education and experience in VET programmes;
- Promote networking between schools in the same locality whose teachers have a shared interest in innovation of different kinds;
- Support research in schools which bring a real-life learning perspective which investigate authentic problems and issues.

2.13 Participants' suggestions to the PLA hosts

One of the key functions of a PLA is to provide the hosts with an external perspective on their national policy and practice, as demonstrated to participants. During the final discussion, the following suggestions were made:

- Projects designed to support creative experiences in schools are very effective and add a great deal to the teaching and learning experience, both for teachers and learners. It is therefore worth exploring how to maximise their potential impact.
- The Austrian Ministry and the organisers of the various programmes represented should facilitate the integration of these methods and processes into the regular life of the school. This would involve building the capacity of teachers of the relevant arts subjects but also, of teachers in other disciplines. The events delivered and facilitated by these teams and awards could therefore provide a vehicle for the development of interdisciplinary work on a whole-school basis.
- Maximise the potential for using the training and preparation associated with awards, research grants and art and cultural events as opportunities for conscious dissemination of good practice.
- The curriculum in certain strands of the VET sector, as in most other countries, is strongly focused on the development of vocational competence. This should be broadened out to include more personal and social development and more emphasis on the cross cultural dimensions of the Key Competences.
- The challenge of providing cultural education and creative experiences is heightened when pupils are selected for one or other of two very different sectors an early age. Providing substantial creative and cultural education in the vocational schools and apprenticeships, as well as in the academic schools can help to provide a point of contact between the two sectors and ensure that all young people get the opportunity to develop their potential in this area. For example, Dialogue Events could be made available to secondary schools and apprenticeships, as well as to state schools.

3. NEXT STEPS

This PLA gave participants the opportunity to see and reflect on many strategies for supporting arts and cultural education, and generated many insights and conclusions in relation to the Key Competences. Arising from this experience, the cluster group is now in a position to identify future steps, and to draw up a work plan that will accomplish the immediate tasks required to advance implementation of the Key Competences.

ANNEX 1: PROGRAMME OF THE PLA

**Peer Learning Activity in Austria, Vienna
“Fostering Cross-curricular Key Competences for Creativity &
Innovation”**

10th -12th November 2008

PROGRAMME

<p>10th November: Policy Concepts and Supporting Structures for Cultural Learning</p>
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Morning Session: Policy Concepts and Structures Concerning the Promotion of Cultural Learning in Austria

Venue: Federal Ministry for Education, the Arts and Culture (BMUKK), Blauer Salon

08,30

Departure Hotel

09,00 – 09,30

Opening of the PLA

Dr. Anton Dobart, Director General for General Education,
Educational Planning and International Affairs, Federal Ministry
for Education, the Arts and Culture

09,30 – 10,00

Challenges of Cultural Education

Dimensions and Impact of Cultural Education, Teacher
Professionalism, etc.

Dr. Alfred Fischl, Head of Unit, Federal Ministry for Education,
the Arts and Culture

10,00 – 10,40

EDUCULT Study

“Diversity and Cooperation – Cultural Education in Austria”

Dr. Michael Wimmer, Director of EDUCULT

10,40 – 11,00

Coffee break

11,00 – 11,30

Options, Structures and Financing of Cultural Education in
Austria

Dr. Sirikit Amann, Advisor to the Minister for Education, the Arts
and Culture

11,30 – 12,30

Discussion

12,30 – 14,00

Lunch – Wirtshaus zum Leupold

Afternoon Session: Implementation and Institutions (KKA)
Venue: KulturKontakt Austria, Universitätsstraße 5, 1010 Wien

14,00 – 14,20

Presentation of KulturKontaktAustria

Objectives and Tasks of KulturKontakt Austria, structures, networks

Gerhard Kowar, Director of KulturKontakt Austria

14,20 – 15,30

The project level: „Dialogue Events“ and „Design°Mobil“

Ulrike Gießner-Bogner, KulturKontakt Austria

Nicolette Wallmann, KulturKontakt Austria

James Skone, Project Director of Design°Mobil

15,30 – 16,00

Coffee break

16,00 – 17,00 Statements of PLA Participants

17,00 – 18,00 Discussion, Summing up the Day

Rapporteur

18,00 – 19,00

Aperitif at KulturKontakt Austria

<p>11th November: Dimensions of Cultural Education in School and Vocational Training – the Project Level</p>

Morning Session: Dialogue Events, “Design°Mobil”

Venue: BG und BRG Wien 3 (HIB) School, Boerhaavegasse 15, 1030 Wien

08,00 Departure Hotel

08,45 – 10,30 School Visit – HIB Boerhaavegasse

Demonstration of a “Design°Mobil“– Workshop for Pupils

10,30 – 11,00 Coffee break

11,00 – 12,00 Discussion and exchange

12,00 – 13,15

Lunch at school

Afternoon Session: Cultural Education in Vocational Education and Training (VET)
Location: BMUKK, Meeting Room 120, Minoritenplatz 5, 1010 Wien,

14,00 – 14,20

Introduction – VET in Austria
Dr. Helene Babel, Federal Ministry for Education, the Arts and
Culture

14,20 – 15,40

The project level: Presentation of “K3”

Roman Schanner, KulturKontakt Austria

“lege_artis: Creativity and Innovation in Vocational Education and
Training”(European Comparative Study)

Walter Stach, Dr. Gabriele Stöger

15,40 – 16,00

Coffee break

16,00 – 17,00

Experiences and Expectations from an Entrepreneur’s Perspective

17 , 00 – 18, 00

Practices in Other Countries and Summing up the Day

Rapporteur, PLA-Participants

19,30 Departure Hotel

20h00 – 22,30 Dinner at “Heuriger Mayr am Pfarrplatz”

12th November: Promoting Innovation Skills at School

Morning Session: Promotion of Innovation Skills
Location: BMUKK, Freyung 1, 1010 Wien, Festsaal

09,00 – 10,15

Promotion of Innovation Skills at School

The Project Level: “Jugend Innovativ”

Film-Presentation

Doris Kölbl, Federal Ministry for Education, the Arts and Culture
Sabine Matzinger, Federal Ministry of Economics and Labour
Jana Zach , AWS

10,15 – 10,30

Presentation of a Winning-Project from “Jugend Innovativ”

Christoph Wiesinger, Alumni of HTL Braunau

10,30 – 10,45

“Octopus”

Dr. Josef Wagner, Teacher at HTL Braunau

10,45 – 11,00

Coffee break

11,00 – 11,45

Presentation of the Project “ Forschung macht Schule”
Judith Scheer, Federal Ministry for Transportation, Innovation
and Technology

11,45 – 12,30

Presentations from other Countries

Rapporteur, PLA-Participants

12,30 – 14,00

Lunch-Bufferet

Afternoon Session: Final Session

Location: BMUKK, Freyung 1, 1010 Wien, Festsaal

14,00 – 15,30

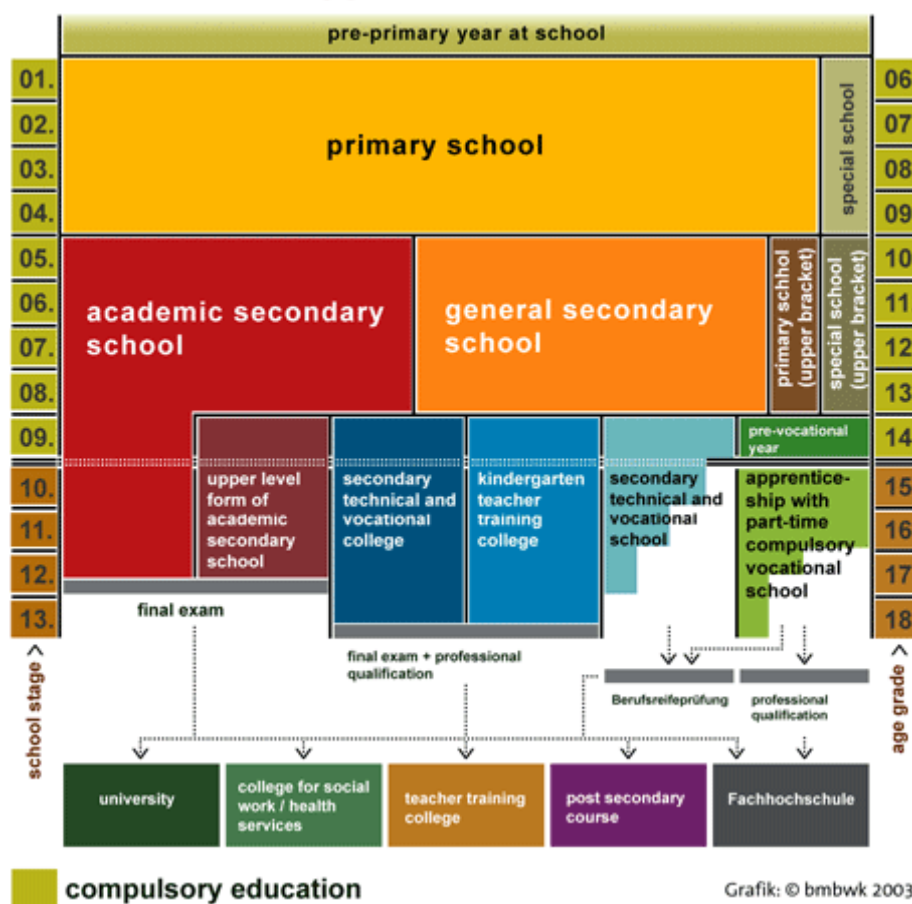
Conclusion, Summing up the PLA
Concluding Remarks, Final Discussion
Preparation of the Final Report
PLA -Participants

ANNEX 2: LIST OF PARTICIPANTS

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ANNEX 3: THE SCHOOL SYSTEM OF AUSTRIA – AN OVERVIEW

Educational opportunities in Austria



Compulsory education School attendance is compulsory for all children who are permanent residents of Austria. Compulsory schooling means attending the types of school listed below:

- In the first four school years: a Grundschule/Volksschule (primary school) or Sonderschule (special school);
- In the fifth to eighth school years: a Hauptschule (general secondary school), allgemein bildende höhere Schule (academic secondary school), Volksschuloberstufe (primary school - upper bracket) or Sonderschuloberstufe (special school – upper bracket);
- In the ninth school year: a Polytechnische Schule (polytechnic school), continued attendance at Volksschule (primary school), Hauptschule (general secondary school), or Sonderschule (special school), or attendance at a medium- or higher-level school.

Grundschule (primary school) (ages 6 to 10) All school-age children have to be registered by their parents or guardians at the primary school in the district where they live.

- Depending on the capabilities and needs of the child, he or she may require up to three years to master the material on the curriculum for grades 1 and 2. The following options are available: children who in the opinion of the school principal or class teacher will need three years for the first two grade (and in some cases nursery school) will either

be put into classes with children in first grade or first and second grade, or they will be put into separate nursery school classes at the beginning of or in the course of the first year.

- Starting in the school year 1998/99, the first grade curriculum has included required classes in a modern language, though without a grading requirement. After a transitional period ending with the school year 2003/04, required classes in “modern languages” are now compulsory in all primary school classes from first grade on.

Hauptschule (general secondary school) (ages 10 to 14) The Hauptschule (general secondary school) is incorporated in a community and is relatively flexible in meeting the different needs of students (depending on region, individual interests, talents, etc.).

- In German, mathematics and modern languages, the children are streamed according to their ability such that the individual needs of students can be met. In these classes instruction is mainly given in small groups. The top achievement group must meet the requirements of the *allgemein bildende höhere Schule* (academic secondary school).

- Additional tutoring is offered in all required subjects, and students frequently take advantage of this possibility for subjects in which they are grouped by ability.

- Within certain limits, each school can adjust the courses it offers to suit its specific situation. It may even be entitled to issue autonomous curricula. In this way a school may develop its own special profile or priorities (e.g. languages, music, art and design, sports, science, ecology, computer science, etc.).

- In addition, there are special types of general secondary school with a sports or music and arts bias. In the third and fourth forms, particular attention is paid to preparing students for working life. This is accomplished by means of required “career orientation” classes, through job-sampling days, and on excursions. If a student has reached a certain level of achievement at a Hauptschule (general secondary school) he or she may be transferred directly to *allgemein bildende höhere Schule* (academic secondary school) or to *berufsbildende mittlere and höhere Schule* (medium and higher-level secondary technical and vocational college).

Sonderschule (special school) (ages 6 to 15)

Special schools comprise eight grades, or nine if polytechnic schools or a career preparation year are taken into account. Austrian special schools comprise ten different branches. Students receive a basic education from specially trained teachers who use methods tailored to meet the child's individual requirements. This is designed to prepare the student for career training or further education.

The “career preparation year” in the ninth grade of special schools is yet another means of preparing young people with special educational needs for working and professional life. This is designed to enable students to develop their own personal perspectives for their lives and jobs by means of general education and career oriented classes.

Academic secondary school (ages 10 to 18) The academic secondary school comprises a four-year lower level and a four-year upper level terminating in the *Reifeprüfung* (matriculation exam). The matriculation exam is an entrance exam for universities, higher technical colleges and academies (students may be required to sit additional examinations in some subjects) as well as for the civil service.

Admission to the first form: successful completion of the fourth grade of Volksschule (primary school) with "very good" or "good" marks in German, reading and mathematics, or a statement from the primary school conference that in spite of a "satisfactory" grade in these required subjects, the student's overall achievement will probably meet the requirements of academic secondary school; or an entrance examination.

Polytechnische Schule (polytechnic school) (ages 14 to 15) Polytechnic schools can be attended after the eighth school grade and comprise only one grade. In the ninth, or a voluntary tenth school year, students are prepared for later life and especially for working with more in-depth general education classes, career orientation and basic vocational training. An orientation period at the start of the school year and career orientation as the basic goal of all courses create numerous opportunities for students to become familiar with working life. A programme of company visits and job-sampling days at companies, non-school institutions and workshops is designed to help students select their vocations. Students who pass the final examination are also entitled to transfer to the second grade of a medium-level secondary technical and vocational college of the same type, or to the first grade of a higher-level technical and vocational college without taking an entrance examination.

Compulsory vocational schools Compulsory vocational schools provide basic theoretical knowledge and specialist instruction to apprentices undergoing practical training; these schools enhance and complement students' on-the-job training and general knowledge. The number of school years is determined by the length of training required in a given trade or occupation. The period of training may last from two to four years depending on the apprenticeship, though the norm is three years. The instruction at a vocational school may be organized in any of the following ways: throughout the year, i.e. at least one full school day or at least two half school days per week; this may either be based on the apprenticeship, i.e. at least eight weeks solid, or by time of year, i.e. an instruction block for a specific period of the year. The wide variety of organizational forms is the result of an agreement between industry and the school authorities and takes the requirements of individual sectors and regions into account. Close co-operation between all those involved in vocational training at different centres of learning is one of the key factors behind the success of the dual system. A modern vocational training requires close links between theory and practice, between tuition at a vocational school and industrial practice.

Once an apprentice has achieved the educational objective of the final class of vocational school, the final apprentice examination consists only of a practical part. Apprentices who wish to take a university degree after taking their final apprentice examination may do so after passing a *Berufsreifeprüfung* (vocational matriculation examination) consisting of four parts (German, mathematics, a modern language, special subject). One part of this examination can generally be taken during the apprenticeship (after reaching the age of 17), and the final part taken on reaching the age of 19.

Medium-level secondary technical and vocational colleges Medium-level secondary technical and vocational colleges are attended for one to four years. Students at such colleges with a 1 or 2 year curriculum receive partial vocational training, whilst those at colleges with a 3 or 4 year curriculum receive full vocational training. To be accepted, students must have completed eighth grade at Volksschule (primary school), Hauptschule (general secondary school), or *allgemein bildende höhere Schule* (academic secondary school) (not including Latin, descriptive geometry and core required subjects). To gain admission to a *berufsbildende mittlere Schule* (medium-level secondary technical and

vocational college) with a three-year curriculum or longer, students from the fourth grade of a Hauptschule (general secondary school) must also pass an entrance examination in German, English or mathematics if they were in the lowest achievement group in the relevant subject. This entrance examination is not required if the student has successfully completed a polytechnic school. However, students wishing to enter a medium-level secondary technical and vocational school focusing on art or sports must take an aptitude test.

Higher-level secondary technical and vocational colleges Apart from deepening their students' general education, over a period of five years higher level secondary technical and vocational colleges give them an advanced vocational training, culminating in a Reife- und Diplomprüfung (matriculation and diploma exam). This entitles them to admission to university (additional tests may be required for some courses of study), to colleges (students who have completed higher level technical and vocational colleges may receive credit for this, thereby shortening their courses by up to two semesters), and academies. Completion of occupational training courses also entitles students to admission to the various trades (and to practise regulated trades independently) as stipulated by the Trades Act (see also qualifications from medium-level secondary technical and vocational colleges). In each case, the regulations on occupational qualifications specify any examinations that must be taken and the duration of specialized vocational activities that must be completed. Once they have worked in their field for three years, graduates of most höhere technische and höhere land- and forstwirtschaftlichen Lehranstalten (higher-level secondary industrial, agricultural and forestry colleges) may apply to the Federal Ministry of Economics and Labour or the Federal Ministry of Agriculture, Forestry, Environment and Water Management for authorization to use the professional title of "Ingenieur".