Handbook
Management for TVET Institutions
# Content

**Preface** 1

**Chapter 1: Introduction – School Management/ Management of Colleges** 2
  1.1 Future visions of vocational education and training (VET) 2
  1.2 Changes in the operating environment of education and training 3
  1.3 Internal pressures to change 4
  1.4 Teachers 7
  1.5 Leaders 11
  1.6 Building a new education System 12

**Chapter 2: Structural innovation in vocational school systems** 14
  2.1 Introduction to structural innovation 14
  2.2 Processes of structural innovation 16
  2.3 SWOT analysis, or: How to reflect on structural innovation 17
  2.4 Best practice: More than a decade of change at a German vocational college 19
  2.5 As solid as a rock: Guiding principles 20
  2.6 Where structural innovation meets quality development: Q2E 22
  2.7 Hard work: Dimensions of structural innovation and change 23
  2.8 A part of self-determination: Organizational structures now and then 24
  2.9 From past to present: A college on its way to legal independency 26

**Chapter 3: Human resource management and development** 28
  3.1 Human resource management and its instruments 28
    3.1.3.1 Personnel requirement determination 29
    3.1.2 Personnel status analysis 29
    3.1.3 Recruitment 30
    3.1.4 Lay-off 30
    3.1.5 Personnel use (planning) 30
    3.1.6 Personnel Management 31
    3.1.7 Personnel cost management 31
    3.1.8 Core task = Human resource development 31
    3.2 Human Resource Development (HRD) 31
    3.2.1 Personnel management in the sense of HRD 32
    3.2.2 Instruments of human resource development 33
    3.2.3 Leadership development 38

**Chapter 4: Project Management** 42
  4.1 History 42
  4.2 Principles of project management 43
  4.3 Project phases / steps 44
    4.3.1 Project definition 44
    4.3.1.1 Description of the phase 44
    4.3.1.3 Concrete example 49
    4.3.2 Project planning 50
    4.3.2.1 Description of the Phase 50
    4.3.2.2 Tools 52
    4.3.2.3 Examples 55
    4.3.3 Project execution phase 56
    4.3.3.1 Description of the phase 56
    4.3.3.2 Tools 57
    4.3.4 Project conclusion phase 58
    4.3.4.1 Description of the phase 58
    4.3.4.2 Tools 62
Preface

The consolidation and continuation of economic reforms in the countries of Southeast Asia is highly dependent on adequate availability of qualified specialists and executives who drive these reform processes. Thus the ministries and institutions responsible for vocational training and education in the partner countries make great efforts to promote the reform and engage in modernization of TVET systems and the capacity development for these processes of change.

Through capacity development activities (training, networking, dialogue) the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH contributes to empower TVET institutions in Indonesia, Laos and Vietnam institutionally and professionally to provide need-based training and education offers in the field of leadership in TVET institutions as well as the development, adaptation and application need-based training concepts.

Beside well qualified multipliers on teachers or trainers level especially principals and leaders are needed with a deep understanding of strategic development, project management as well as change management in order to initiate, organise and support reform efforts at selected TVET institutions. Such activities refer not only to curriculum development, media development and the related knowledge transfers in collaboration with the qualified teachers/trainers in order to develop the quality of teaching services. It considers especially the analysis, evaluation and adaptation of structures, processes and projects in regard of school management and school organisation as the basis of the provision of innovative and market-oriented teaching services.

As part of the programme “Regional Leadership and Capacity Development in TVET in Indonesia, Laos and Vietnam” Component 2 (Didactical-methodological training of multipliers/Training of Trainers) the GIZ’s international training Management for TVET Institutions in Indonesia, Laos and Vietnam focused on the support of the professionalization of educational staff and the optimisation of management processes within the TVET systems of the three countries. By the intended effects of the training programme – capacity development as well as multiplication of knowledge and experience – the participants were enabled to contribute to change processes at their TVET institutions as well as their environment sustainably. Therefore the training concept focused on two target groups – regional and national core groups as multipliers as well as principals and young potentials – and provided with the module Modern School Management an introduction into the subject. For the implementation of numerous trainings in the target countries during the year 2013 a large compilation of presentation slides and working papers were created. Out of this source of knowledge, information and practical examples the current handbook was developed.

The edition follows the curriculum of the training programme and provides an introduction into the field of management for TVET institutions. It bases on the applied training materials and the experiences of the German experts which implemented the trainings in the three target countries. As a compact summary it depicts the thoughts and perceptions of the trainers to the several aspects of managing TVET institutions. The different chapters are completed with practical samples from the daily business at German vocational schools and links to further sources of information as well as links to the relevant presentation materials. Due to this approach the handbook can be involved as working material in any future training activities. In combination with the existing training curriculum and the developed training materials the handbook forms an entire training package.

Furthermore it can be applied as information source in order to familiarize executives and decision makers from TVET institutions with the subject, to give suggestions for their daily work and to identify whether there is an interest in the basic training or a demand on any specialized training.

To manage a TVET institution professionally, innovatively, sustainably and in a cooperative way needs of course more than this book can cover. Thus we also consider it as starting point for future publications in this subject. Multipliers and participants may provide further specialist knowledge to selected topics, report about successful adaptations of existing models to their own working environment or publish best practices from their countries. We’d like to invite all those persons which actively contribute to the development of the national TVET systems around the world by their daily work to share their expertise and experiences with us.

Finally I’d like to express my sincerest thank to the team of German experts and trainers that supported GIZ’s international training Management for TVET Institutions in Indonesia, Laos and Vietnam.

Jochen Sonntag
Programme director
Part 1
Introduction – School Management/Management of Colleges

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1.1 Future visions of vocational education and training (VET)
The future is always difficult to predict, particularly in the light of the progresses made in technology. We can, however, to a certain degree foresee some essential changes within education and training, both in training institutions and work-based training.

In future there will be more:
- recognition and emphasis on informal learning
- collaboration within and between educational institutions and the world of work
- networking of institutions and with local and regional stakeholders
- focus on international perspectives in training
- use of ICT (Information and Communication Technology) and digital networks
- need for a holistic perception
- need for learner autonomy and self-directed learning
- competence requirements for pedagogical, networking and
- requirements for communication skills for teachers and trainers using new media in education and training
• interaction between education and the society
• organizational competence development

In future there will be less:
• formal training
• fixed and inflexible systems
• hierarchy
• classroom teaching
• differences and lower barriers between general, vocational and higher education and training

Unfortunately, the majority of today’s educational institutions are too inflexible and traditionally organized to be able to provide new learning approaches. At the same time, also many companies are structured in such a hierarchical way that it is almost impossible to allow a modern approach to training. This is especially true for sectors with a long historical tradition. For example, new learning environments place challenges on both students and teaching staff. A learning environment is a place, space, community or activity that aims at promoting learning. Examples of new learning environments are eLearning, mobile learning and collaborative learning. The emphasis on the openness, flexibility, individuality of learning and the freedom to choose when and where to learn require new ways of thinking and approaches from the facilitators of learning, the teachers, trainers and leaders. The adoption and development of new learning environments may be a precondition for raising the attractiveness of VET and assuring that VET systems develop according to the general societal development and does not become obsolete and inferior to other educational pathways.

Many changes in the operating environment of the educational institutions force the institutions to change their existing ways of operating. The most notable changes have been the advances in technology and the consequent explosion of information available. The fast changes have also made it necessary for individuals to adapt to new situations for example in their jobs. We can talk about a completely new paradigm where education and training tied to one place and time will diminish and the students will participate and learn in different kinds of networks and learning environments. This poses a challenge for recognizing and validating learning.

The visions of future are of a system of learning where the learner can acquire learning in a variety of networks, including virtual networks beside formal education. Particularly, eLearning provides new opportunities for studying and for personalizing and individualizing the studies. The objective of personalization has become pivotal in discussions on the future of education and education policies. Today it is recognized that “one size fits all” ideology applied to learning and the structure of the education institutions does not correspond to the needs of the individuals and a knowledge-based society. A traditional education and training system provides individuals with almost identical competences, while at the same time the labour market would need professionals with varying skills and knowledge. Thus the education and training should produce professionals who, within the requirements of their qualifications, have been able to specialize and personalize studies to suit their capabilities, interests and future aims.

The short reflection on the future of training, its operation environment and the challenges arising from these serve as a background for an analysis of the competence descriptions of the professional within vocational education and training.

1.2 Changes in the operating environment of education and training

When we consider the competences of VET professional and how these have evolved, we must also look at the changes that have enforced the renewal of expertise. Both initial and continuing education and training must renew itself to correspond to the demands of a knowledge-based and networked society. The changes are global. Globalization is a multi-layered phenomenon that has economic, political, social and cultural dimensions.

For workers working life is becoming more and more complex as working patterns diversify and an increasing number of transitions need to be managed successfully throughout the career. With the rapidly changing economies and restructuring, the workers must cope with new ways of working, including enhanced exploitation of ICT and changes in their working status, and be prepared for lifelong learning.

Problem-solving autonomously or in teams, managing and further enriching information and knowledge as well as the need to have up-to-date skills and knowledge become more important in all jobs. Organizations are becoming less integrat-
ed and work more and more mobile and more distributed. Work can be done almost everywhere: in the customer’s premises, while travelling, in café’s and at home.

The development is not only technological, there is also a shift towards new models of valuation and the adoption of new operating models. The key word is partnership. Partnerships, networking and cooperation will bring added value to operations as knowledge is shared and innovated. Professionalism and expertise are no longer understood as personal properties, but closely tied to communities, organizations and networks. Consequently also interpersonal and social skills become more essential.

An international perspective has become more prominent in the last decades. The new way of thinking in society at large and in all kinds of organizations today is that change is a continuous process. This requires flexible organizations and working cultures that are based on trust and professionalism. Such cultures are challenging for both management and staff. They are particularly challenging for the world of education and training, where the individuality and autonomy of the teaching and training professions have been obvious. At the same time the operations have been characterized by strict procedures and processes.

The developments in the surrounding world require changes also in the valuations, conception of the human being, operations, management and staff policies. Thus, current questions are related to new professionalism and competences, continuous change, being in control of one’s work, intensification of work, physical and psychological well-being and need for change in leadership cultures. The reorganization of work has further led to the social dimension of work communities. Today we talk about learning organizations and participatory leadership.

**Internal pressures to change**

Cultures of operation change slowly. During history, educational institutions, such as VET institutions and training centres have settled into certain ways of working. Today, however, change is inevitable. Like other public organizations these institutions need to network with each other and other stakeholders in VET, in particular with the labour market. The new pedagogical trends emphasize the learner’s role in the organization of learning. Virtual networks and eLearning are part of the enormous change that education needs to cope with. Educational institutions are no longer places where learning is facilitated, but rather a place to learn meta-skills such as learning to learn, acquiring information, problem-solving as well as innovative and collective ways of working. This requires that educational institutions become creative, innovative and intelligent organizations, that is, that they renew themselves continuously, can anticipate changes and learn quickly.

The pressure to change the institutions and their way of working is closely linked to the change in the conception of learning. The new conception has meant a shift from a teacher-centred to a learner-centred approach. The learner learns by constructing knowledge from the information and experiences he or she has acquired. The world around us changes fast and with it also information becomes outdated and is replaced by new information. Thus, it has become more important to understand than to remember things by heart. Important skills are related to retrieving information and to master meta-skills such as problem-solving, understanding how things are connected, critical thinking and learner autonomy. Learning is lifelong and life-wide, taking place all the time and in a multitude of contexts.

The new contexts, such as virtual environments and learning in teams, mean that skills needed for collaborative ways of working become more important for both the learners and the facilitators of learning. Thus for example teachers in intelligent and learning organizations need expertise that differs drastically from that in a traditional school. They need to be able to adapt to changing contexts and to develop their professionalism also through sharing their expertise with colleagues.

Also the more extinctive role of the world of work and the different professional fields in vocational education and training has an impact on the work and competence requirements of VET professionals. To be able to answer to the needs of the labour market, vocational education and training is expected to be future-oriented, that is, to be able to foresee changes and developments in the different fields and in society. This is only possible if there are close links and cooperation between the educational institutions and the enterprises. VET professionals must be familiar with the realities in the workplace and the people in the enterprises must be aware of what is going on in education. (Source: Competence Framework For VET professions, by Kristiina Volmari a. o., 2009, Sastamala, p. 10ff)
1.3 Managing Colleges

The management of colleges faces the same challenges and implications as any other management task. However, the majority of trainers, teachers and supporting staff still believe that managing education is something very exclusive and special to such an extent that the economic findings and rules are not appropriate and do not apply to the education sector. Yet, if we take a closer look at various management processes of the business sector we have to recognize that the majority of tasks and objectives have many similarities to vocational education. Every single employee with his or her attitudes, views and mind-set is important for the success of modern companies and as an important resource should show commitment, responsibility, creativity and ideas not only for his or her own benefit but also for the company's success. Thus, an employee is no longer one who just takes orders. Whether we try to manage distribution, logistics, construction or service we will always find the same tasks, elements, processes and duties – even in education. Beyond that, management of colleges provides a more holistic view and is based on values of pedagogy and humanism. These basic values and the relationship between the teaching and managing staff have an important influence on the education of students. Particularly, the relationship between the teaching staff or the relationship between teaching and managing staff is a role model for the relations between teachers and students and later between employers and employees.

Ethics, pedagogic, didactic and management are linked together to create what we call management of vocational colleges as a holistic process. In this way successful management of vocational colleges can be described by the following: a communication that is open minded, respectful, marked with esteem, willingness to help and support each other, the will to understanding, fair negotiations and the will to discourse.

The students should become goal-oriented, motivated, responsible for themselves and others, self-learning individuals and social competent people.

In order to achieve this goal, teachers need to be willing to bring in all their different competencies, constantly improve them and be open for internal and external evaluation. The managing staff should act in the same way as the teaching staff and together they ought to work towards a transformation and establishment of the college as a learning organization by caring and taking responsibility for appropriate cooperation, professionalism and quality in the college.

A college is an organization in which learning is the main and uppermost goal. Thus, the focus must be on the students. But what about the teaching or the managing staff? They are a role model for the students. The highest impact of teachers is reached when both teachers and students are learning together. The student is learning the subject and the teacher learns and trains teaching, coaching and support of the students.

To develop a college it is significant to look first at the development of staff, then to put the right members together in teams, and to encourage them to develop the lessons, the teaching, the coaching and the support techniques. This is part of Human Resources (HR).
Sitting alone at the home desk, preparing the next lesson is not what we call lesson-development. Teamwork is needed and a common vision on the colleges development. It is also important to establish a stable team-organization. In this context it is not very helpful to constantly change the team members, instead, they should work together for some years to establish stable relationships.

To start such a long but interesting change process in an organization it is necessary to establish an appropriate communication system, which can be used offline and online. Direct and face to face contact is the most appropriate and respecting way of communication. However, especially in large colleges it is very difficult to put it into practice at all times. Therefore it is very important to introduce offline contact systems using emails or social networks like LinkedIn, Facebook, collaborative internet portal like boxes ([www.box.com](http://www.box.com)) or a learning portal like Moodle or Mahara. All staff should use these helpful tools frequently (daily).

In order to achieve a new learning system in which every student gets the chance to develop his or her personal, social, technical and organizational skills in the best way possible, everybody in the learning institutions must be convinced that this high goal is possible and reachable. However, a special mind-set is needed to support both the teaching and managing staff in working and fighting for it. This is shown in an impressive study by Carol S. Dweck, Ph. D. and her colleagues (Mindset – the new psychology of success, New York, 2007). Several hundreds of students, mostly adolescents, were given each ten fairly challenging problems from a nonverbal IQ test. Then they were praised for their performance — most had done pretty well. But Dweck and her colleagues offered two types of praise: some students were told “Wow, you got [X many] right. That’s a really good score. You must be smart at this,” while others, “Wow, you got [X many] right. That’s a really good score. You must have worked really hard.” In other words, some were praised for ability and others for effort. The findings, at this point, are unsurprising yet jarring: The ability praise pushed students right into a fixed mind-set, which lead to a point at which they rejected a challenging new task from which they could learn. They didn’t want to do anything that could expose their flaws and call into question their talent. Whereas the students praised for their efforts were still open for new unpredictable challenges.
1.4 Teachers
When we talk about teachers in VET, we generally refer to teachers of vocational subjects, such as electronics, construction or nursing. The framework can, however, also be used for teachers of common core subjects such as languages, mathematics or science. The latter types of teachers are commonly thought of as experts only in their own subject matter without a connection to the vocational fields. These common core subjects, however, need to be taught taking into account the vocational context. Thus, for example the language teachers need to have an understanding of the field or fields in question, although the depth differs from that of the teachers of vocational studies.

In this handbook “teacher” refers to teaching professionals, who work in educational institutions providing both initial and continuing vocational education and training. They are responsible for the learners and their overall progress. In some countries trainers in training centres have a similar professional profile and thus “teacher” in this handbook also refers to such trainers.

A formal qualification, professionally and pedagogically, is generally required of VET teachers in most European countries. Particularly, for permanent teacher positions the pedagogical qualification is becoming a legal requirement. Routes to qualified teacher status can be pedagogical training taken before entering the profession or during employment as a teacher. The latter route seems to be the most common for VET teachers.

Teachers’ careers are generally “flat”, as there is no career progression within teaching. It is common that teachers with career ambitions become leaders or administrators.

Being a teacher is very challenging. A good teacher needs to possess a wide and deep knowledge and understanding of the professional field, of human growth and development, and how to steer this growth by means of education and training. Further, teachers need to have adopted the ethical responsibility of the profession. Finally, a teacher operates in a multi-dimensional context and must understand the dialogue and interlinkage between education, labour market and society to be able to promote the learners progress.

The main responsibility of VET teachers and trainers is to train the students for a profession. Thus, they are required, in addition to mastering learning-related matters, to be able to foresee future competence requirements. A prerequisite for this is a strong knowledge of the development in the labour market and the ability to analyse these. The training is nowadays often done in collaboration both within the organization and the world of work. Consequently it is not enough anymore that the teachers and trainers can teach. The competences include for example the skill to analyse phenomena within work, the society as well as development trends and integrate these into their training tasks. In future, teachers are also likely to operate more and more in different networks and utilize information networks in their work. For example, tutoring and guiding the students can take place in a virtual environment. (Cited from Competence Framework For VET Professions, by Kristiina Volmari a. o., 2009, Sastamala, p. 19ff)

The expertise that a teacher needs
The expertise a teacher needs in order to be very successful with his students is described by John Hattie (Visible Learning for Teachers, 2014). His stunning and breath-taking study: “Visible Learning” has given teachers all over the world new ideas and new power for teaching as he pointed out that “the thinking of teachers about learning and their attitudes make the difference”.

Since March 2011, Professor John Allan Clinton Hattie, ONZM (Officer of New Zealand Order of Merit) has been Professor of Education and Director of the Melbourne Education Research Institute at the University of Melbourne, Australia. Previously, he worked as Professor of Education at the University of Auckland.

His research interests include performance indicators and evaluation in education, as well as creativity measurement and models of teaching and learning. He is a proponent of evidence based quantitative research methodologies on the influence of student achievement. Prior to his move to the University of Melbourne, Hattie was a member of the independent advisory group reporting to the New Zealand’s Minister of Education on the national standards in reading, writing and maths for all primary school children in New Zealand.

Across more than 800 meta-analysis, more than 50,000 studies and more than 200 million of students the typical influences are shown in typical diagrams (see below). Only the zone above .40 is interesting. In this zone we find the desired effects.
The typical effect size is $ES = 0.40$. At this point the zone of desired effects is starting. All of what is beneath 0.40 it is not worth to try. The costs and the efforts that are invested will not have a desired outcome.

According to Hattie, for an appropriate achievement a special mind set of the students is necessary:

- Understand learning intentions
- Are challenged by success criteria
- Develop a range of learning strategies
- Know when they are not progressing
- Seek feedback
- Visibly teach themselves

Teachers need a special mind-set, too:

- Clear learning intentions
- Challenging success criteria
- Range of learning strategies
- Know when students are not progressing
- Providing feedback
- Visibly learns themselves
Hattie’s findings has to be consired, when we make decisions for the future of designing lessons and learning environment. Effects has different meanings as expected. Two examples: the winners and the disasters are shown in the next charts.

### The Winners ...  

<table>
<thead>
<tr>
<th>Rank</th>
<th>Category</th>
<th>Influence</th>
<th>Studies</th>
<th>Effects</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Self-report grades</td>
<td></td>
<td>209</td>
<td>305</td>
<td>1.44</td>
</tr>
<tr>
<td>2</td>
<td>Absence of disruptive students</td>
<td></td>
<td>140</td>
<td>315</td>
<td>.86</td>
</tr>
<tr>
<td>3</td>
<td>Classroom behavioural</td>
<td></td>
<td>160</td>
<td>942</td>
<td>.80</td>
</tr>
<tr>
<td>4</td>
<td>Quality of teaching</td>
<td></td>
<td>141</td>
<td>195</td>
<td>.77</td>
</tr>
<tr>
<td>5</td>
<td>Reciprocal teaching</td>
<td></td>
<td>38</td>
<td>53</td>
<td>.74</td>
</tr>
<tr>
<td>6</td>
<td>Prior achievement</td>
<td></td>
<td>3387</td>
<td>8758</td>
<td>.73</td>
</tr>
<tr>
<td>7</td>
<td>Teacher-student relationships</td>
<td></td>
<td>229</td>
<td>1450</td>
<td>.72</td>
</tr>
<tr>
<td>8</td>
<td>Feedback</td>
<td></td>
<td>1276</td>
<td>1928</td>
<td>.72</td>
</tr>
<tr>
<td>9</td>
<td>Providing formative evaluation to teachers</td>
<td></td>
<td>21</td>
<td>21</td>
<td>.70</td>
</tr>
<tr>
<td>10</td>
<td>Creativity programs</td>
<td></td>
<td>658</td>
<td>814</td>
<td>.70</td>
</tr>
</tbody>
</table>

### The Disasters ...  

<table>
<thead>
<tr>
<th>Rank</th>
<th>Category</th>
<th>Influence</th>
<th>Studies</th>
<th>Effects</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Mobility (shifting schools)</td>
<td></td>
<td>181</td>
<td>540</td>
<td>-.34</td>
</tr>
<tr>
<td>99</td>
<td>Retention</td>
<td></td>
<td>207</td>
<td>2675</td>
<td>-.16</td>
</tr>
<tr>
<td>98</td>
<td>Television</td>
<td></td>
<td>31</td>
<td>235</td>
<td>-.14</td>
</tr>
<tr>
<td>97</td>
<td>Summer vacation</td>
<td></td>
<td>39</td>
<td>62</td>
<td>-.09</td>
</tr>
<tr>
<td>96</td>
<td>Open vs. traditional</td>
<td></td>
<td>315</td>
<td>333</td>
<td>.01</td>
</tr>
<tr>
<td>95</td>
<td>Multi-grade/age classes</td>
<td></td>
<td>94</td>
<td>72</td>
<td>.04</td>
</tr>
<tr>
<td>94</td>
<td>Inductive teaching</td>
<td></td>
<td>24</td>
<td>24</td>
<td>.06</td>
</tr>
<tr>
<td>93</td>
<td>Reading: Whole language</td>
<td></td>
<td>64</td>
<td>197</td>
<td>.06</td>
</tr>
<tr>
<td>92</td>
<td>Perceptual-motor programs</td>
<td></td>
<td>180</td>
<td>637</td>
<td>.08</td>
</tr>
<tr>
<td>91</td>
<td>Out of school experiences</td>
<td></td>
<td>52</td>
<td>50</td>
<td>.09</td>
</tr>
</tbody>
</table>
As we look at Hatties results and the expected effects that he has shown in his stunning report, it seems that Mark Twain was right when he stated:

“What gets us into trouble, is not what we don’t know. It’s what we know for sure that just ain’t so.” (Mark Twain)

Hattie describes the expertise of teachers in 7 dimensions (Visible Learning for Teachers, 2012, p. 28). He called it the “7Cs”. The following picture illustrates these 7 dimensions and one additional, which I would suggest as a further important expertise called the “Cooperation with other teachers”:

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Differences in students’ view of high-value teachers: Example Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Care</strong></td>
<td>My teacher in this class makes me feel that s/he really cares about me. My teacher really tries to understand how students feel about things.</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>Students in this class treat the teacher with respect. Our class stays busy and doesn’t waste time</td>
</tr>
<tr>
<td><strong>Clarify</strong></td>
<td>My teacher has several good ways of explaining each topic that we cover in this class. My teacher explains difficult things clearly.</td>
</tr>
<tr>
<td><strong>Challenge</strong></td>
<td>In this class, we learn a lot almost every day. In this class, we learn to correct our mistakes.</td>
</tr>
<tr>
<td><strong>Captivate</strong></td>
<td>My teacher makes lessons interesting. I like the ways in which we learn in this class.</td>
</tr>
<tr>
<td><strong>Confer</strong></td>
<td>Students speak up and share their ideas about class work. My teacher respects my ideas and suggestions.</td>
</tr>
<tr>
<td><strong>Consolidate</strong></td>
<td>My teacher checks to make sure that we understand when s/he is teaching us. The comments that I get on my work in this class help me to understand how to improve.</td>
</tr>
<tr>
<td><strong>Cooperate</strong></td>
<td>Teachers are working effectively together with each other teacher that is involved in the class.</td>
</tr>
</tbody>
</table>
1.5 Leaders

Leaders are understood as one or several persons in charge of VET institutions and organizations, such as vocational upper secondary institutions and further education colleges or training centres providing continuing vocational education and training. The leaders have the overall responsibility for their institutions or organizations.

The work and responsibilities of principals in VET institutions and directors in organizations providing continuing training are very similar. The main differences lie in the level of autonomy and responsibility. Thus, directors of “Continuing Vocational Education and Training” (CVET, VET after entering the working life) organizations are generally more autonomous regarding finances. Their work also tends to be more market-oriented with responsibility for marketing the training provision as well as assessing client needs and satisfaction. Moreover, CVET directors are commonly steered less by legislation and policies than the principals in initial vocational education and training.

The ideology of leadership in education and training has changed. It became clear in the interviews of principals and directors of training institutions that there is a clear shift from the ideology of the captain steering a ship towards one of shared expertise and leadership and learning organizations, like schools or colleges. Traditionally, the role of a manager was to manage things and his central concepts and goals were connected to the goals and tasks of the organization along with the related administration, regulations and actions. The new ideology of leadership means management that empowers people. It is not possible to anticipate all changes anymore, and thus, people have to be able to act independently in different situations for which they must be empowered. Principals and directors with a leadership orientation have a personal and active role in dealing with concerns and situations. They ought to be visionaries, encouragers and innovators.

The leaders are very much affected by the overall developments in the societal context. This leads to a situation where, for example, changes in policies, organizational structures, labour market or paradigms of learning mean that the leaders in education and training need to have “their ear constantly to the ground” and react to these developments. Flexibility and autonomy in organization and education is on the increase in Europe and in some other countries in the world. This means that also the possibilities of changing something in VET are increasing, in some particular countries. Thus, leaders and their organizations are becoming increasingly free to decide on investments and the contents of training. This gives more room for experimenting with new approaches and thus opportunities to contribute to pedagogical innovation. This is not a global paradigm in the presence but a recommendation for the future.
To maintain a balance in a changing world and under the increasing pressure on the educational institutions places great demands on the leadership.

As a result of these trends and factors, school leadership has changed dramatically across OECD countries. It is now increasingly defined by a demanding set of roles including administrative and managerial tasks, financial and human resources, public relations, quality assurance and leadership for improved teaching and learning.

How do leaders cope with that many changes? It is quite certain that no one person can have all the competences to fulfil what is required from a leader in education and training. Instead, a new type of leadership is required. We talk about distributed and empowering leadership when the whole organization takes responsibility for the different parts of the organization. In learning organizations the core competencies and expertise residing in the organization must be lead and nurtured. The above-quoted OECD report concludes that the increased responsibilities of the leaders have created the need for distributed leadership within and in between schools. The authority to lead should not be limited to one person but distribute to persons with different roles. Therefore, leadership should be delegated more to the middle management and set up leadership teams.

The importance of leaders in managing change and development has been recognized. Supporting innovation and development also means that leaders need to provide opportunities for the whole organization to network internally and externally. Recognizing and managing competence are success factors in networked and learning organizations. As there are many kinds of knowledge and skills in organizations, managing competence means matching the right responsibilities and activities with the right competencies. Competence is combined and reconstructed in an organization. Further, mobility within the teaching profession is increasing, meaning that the leaders also have to make sure that there is a development continuum, a “corporate memory” and transfer of tacit knowledge, so that expertise and innovation do not disappear with changes in the staff. (Source: Competence Framework For VET Professions, by Kristiina Volmari a. o., 2009, Sastamala, p. 40ff)

1.6 Building a new education System

In the remarkable and extraordinary movie “Alphabet” by Erwin Wagenhofer about education and childhood of children in many countries Sir Ken Robinson, an educationalist and a worldwide accepted expert, shows his opinion about education:

“We do have this extraordinary power. I mean the power of imagination. Every feature of human culture is the consequence of this unique capacity, a capacity that produced the most extraordinary diversity of human culture, of enterprise and innovation. 6,000 languages are spoken on earth and we are, therefore, the species that did produce Hamlet and the work of Mozart and industrial revolution and Jazz and Hip Hop and Quantum mechanics and the theory of relativity and the jet engine and all the things that characterize the extraordinary ascent of human culture.”

But I believe that we systematically destroy this capacity in our children and in ourselves. I pick my words carefully. I don’t say deliberately. I don’t think it is deliberate. But it happens to be systematic. We do it routinely, unthinkingly and that’s the worst of it. Because we take for granted certain ideas about education, about children, about what it is to be educated, about social need and social utility, about economic purpose. We take these ideas for granted. And they turn out not to be true.

There is a great study from Beth Jarman and Georg Land on divergent thinking. Divergent thinking is not the same thing as creativity but it is an essential capacity for creativity. It is the ability to see lots of possible answers of a question and lots of ways of interpreting a question - not to think in linear or convergent ways. The tests were given to 1,500 people. And on the protocol of the test, if you scored above a certain level, you were considered to be a genius in divergent thinking. What was the percentage of the people tested of the 1,500 scor at genius level for divergent thinking?

- At the age of 3 - 5 years: 98% genius level
- At the age of 8 - 10 years: 32% genius level
- At the age of 13 – 15 years: 10% genius level

As a control group 200,000 adults 25 years and older were tested, just once as control. Only 2% of them reached the genius level.

This tells an interesting story. It shows two things. One is: we all have this capacity, and two: it mostly deteriorates! Now what are the things that have happened to these kids since they have grown up? The one of the most important things that I am convinced is that by now they have become educated. They spent 10 years in school being told that there is only one answer. This isn’t because teachers want it that way it’s just because it happens that way because it’s in the gene pool of education systems.
People do their best when they do the thing they love, when they are in their element. Evidence is absolutely persuasive: when people connect to this powerful talent in themselves, discover what it is they can do, they become somebody else. And that to me is the premise of building a new education system. It means a shift from the industrial metaphor to what I think of is an organic metaphor.

Death Valley is the hottest place in America. Not so much grows in Death Valley, because it doesn’t rain. In the winter of 2004 something remarkably happened. 7 inches of rain came down. In the spring of 2005 there was a phenomenon: The whole floor of Death Valley was coated with spring flowers. What it demonstrated is that Death Valley wasn’t death, it was only sleeping. Right beneath the surface were these seeds of growth waiting for the right conditions.

And I believe it’s the same way with human beings. If we create the right conditions in our schools, if we value each learner for themselves and properly – growth will happen.

Benjamin Franklin once notably said that there were three sorts of people in the world, those who are immovable, those who are movable and those who move. And I encourage you to move and get to move on.” (Sir Ken Robinson, 2013, Alphabet, movie by Erwin Wagenhofer)

To reach all these goals and fulfil all described tasks we need a very versatile, competent and value-oriented management of vocational colleges, which we try to describe in the following chapters.

We hope you enjoy this edition, find a lot of suggestions to improve your own work, and many interesting things worth arguing.
Chapter 2: Structural innovation in vocational school systems

2.1 Introduction to structural innovation

Structural development needs four things: time, time, time, and persistence. I have been accompanying this development at my college for over 14 years now, and I must admit never having expected it would take these amounts of time and patience. If you want to succeed in changing your school, the attitude of your teachers and, what might be most important, the success of your students, you have to change slowly and follow a general but raw plan:

So called guiding principles mark a first step on the way to successful structural change at your institution.

To reach a status of development comparable to the mind-map above might take a very long time and patience.

Since I finished my examinations as a teacher, more than 14 years ago, I’ve been working permanently in a group to forward structural innovation at my school: Within the next pages you can, as an example, follow the aspects of structural innovation through the last decade, from the roots to nowadays at the Oskar-von-Miller-Schule in Kassel, Germany.

Structural innovation comes from the inside...

Requirements

A rich and colorful bunch of flowers is needed to start structural innovation at your institution or school:

To overcome fears and prejudices against proclaimed changes you have to provide a solid ground you can rely on when thinking of your colleagues:

Involving all participants

First, an involvement of all participants is inevitable. Terms like trust, transparency and acceptance should be your best mates, which accompany the structural development you intend to spread.

Spreading and practicing transparency in all your work at school provides the ground of good cooperation and trust. With an involvement of all participants at the beginning of this process you minimize the danger of unfortunate developments on the verge of structural innovation. Every change is accompanied by mistrust, fear and antipathy. By working transparently and spreading decisions when they are made to those involved you will minimize fears and convince more critics than it is the case vice versa.

Adapt structures to colleagues, people and institutions

Do not care about what others find a suitable way for their schools or institution: It’s your responsibility and you and your colleagues have to find a way making things better than before. Structures vary in countless options and are as unique and individual as the number of institutions or schools. In Latin language a proverb states: “omnes viae ferunt Romam”, all ways lead to Rome. Best practice is only needed as long as you work on basic ideas. When it comes to concrete structures you need to adapt and mind your individual circumstances. If you do not have the capacities in personnel, you cannot follow even the best and simple ideas, you have to develop different ones.
Work on complexity, do not reduce
A structure of a school is a complex and organic, somehow biodiverse area with sometimes partial structures, which might appear to be far off any logical explanations. If these parts work, keep them chiefly but implement the seed of change as well. Involve the ones being responsible for these structures and announce them to stakeholders of a new plan.

Start with concrete motives, troubles or weaknesses
When we started our structural innovation more than 15 years ago, we experienced the illuminating power of a SOFT-analysis: Strengths, Opportunities, Faults and Threads, got brainstormed and named in a circle of interested colleagues, were collected roughly, mediated and sorted by our psychologist in several settings, each lasting more than two hours. The SOFT-analysis revealed some certain patterns of our internal difficulties, so we were able to cope with opportunities for changes in different ways. We then started to divide the work into groups. The more real your troubles and motives are, the easier you find ideas for solutions.

Learn in groups and develop your working teams
Learning alone, without support and mental enrichment of others does not lead to better results nor does it save time. Two or three brains working on the same partial problem offer opportunity to see weaknesses and strengths as well as faults and opportunities from a different angle. Your part in this step will be to promote team-building processes and to encourage these teams in their work as well as you strengthen their feeling to be important for the complete structural innovation process.

Practice change management in every small unit of a team, don’t accept frozen confessions
Change management is a great option to improve your style of leading others. You take a close look at yourself and turn old habits bit by bit into new opportunities and attitudes. You should not be afraid of seeking supervision and sharing experiences with other leaders. But do not forget to practice change with your staff as well: Some of them might use a fork to eat soup just because they never had the courage to try it with a spoon. Least aspect to fight with is a frozen confession, and you can only convince if you prove success finally.

Mind the process structure rule: The aim is to be on the way for change
You cannot hold on tight to your aims looking neither left nor right. If you lose sight of your colleagues, all was in vain. Change is also a change of you and your leadership. Small steps have to be taken and convincing colleagues does not work simply by being the administrative of them. Keep open minded as well as you change your team’s attitudes slightly.

Understand: all occurrences, mistakes and resistances are a part of the whole process
It is not usual, more than that, it’s fiction or utopia, to believe, structural innovation and development might be planned in any way kind of straightforward. All small disturbances, resistances, damages and interferences are only an expression of the unique process you and your colleagues are part of. A true innovation changes its face, changes directions, changes beliefs, because everyone grows with the task. Give them the chance to be a chance for your progress within the process.

Start with your own work, be a lighthouse to your colleagues
Look at yourself first, start with the woman or man in the mirror. You cannot change a school, if you do not change or at least look at yourself and your mission, because you would not convince anyone. A good leader tips towards a high level of leading. Therefore it is crucial that all leading personnel live to be good examples. But you can only be a lighthouse for others, if you stick to values like respect for your personnel and trust in their performances, and finally believe in mankind as a good conception.

Think in a systematic way (“systemic theory”)
School processes follow ancient or new paths, but they are paths. Systemic theory explains from a holistic angle. This prevents you from losing yourself in details. In short: Systemic theory as a meta-theory integrates different aspects from different sciences to be applied again in different areas. School as a system can be seen as a unit requiring certain elements but without being simply the sum of these. By interaction and interrelation between the elements new elements, structures, units and thoughts arise, which cannot be referred to being part of the properties of the participating elements.

Best Practice: What is a good school?
In earlier years the setting of standards, the composition of rules to obey in both planning and creation of lessons built up the central focus of “good school”. Recently we have to see it as a unit, as a complex of different aspects lead by guiding principles which close a circle. Our focus within this chapter will therefore be to explain some of the processes of structural innovation.
2.2 Processes of structural innovation

First, each structural innovation is composed by the participants, the people who are shaping an organization. They fulfill positions and tasks in diverse parts of the organization. You, the responsible person, have to take them with you. Every colleague left on the way will work against your ideas or, at least, block innovation silently. But if your steps are small and slow, most of them will follow, because they feel understood in their contributions, no matter if these are doubts or approval.

Secondly, we have to speak of the organization itself and its structure: An organization's structure can be both, hierarchical or flat, continuously changing, even changing its shape. There are many possibilities and it depends on where you are located, who you depend on, which circumstances in cultural, political, technical or sociological sight enclose you and the organization you lead, or say: you would like to lead when it has changed its shape, so that you agree with the processes. Each organization relies on common values, norms, rules and shared beliefs, making up its culture.

By checking a school's quality development processes and progresses, you also keep in mind these values and focus them, as well as you scrutinize them, too.

For instance, in our case, the organization's main objective was to establish guiding principles. School is quite different: because you work with human resources you cannot work with industrially measurable parameters for quality. This will as surely fail as you lose your colleagues' trust.

School is so much more than input vs. output

If we refer to development of school in the light of structural development it is crucial to regard it as a long-term process, for which you ought to take probably even more than a decade. Fast input can only result in benefits when there is enough time to cope with change. Subtle resistances emerge among staff, when only input/output-driven concepts lead structural development.

Structural development should always be accompanied by someone looking from the outside and guided from above by specialized staff (e.g. commissions, rating agencies for schools). It might be helpful to seek mediation and supervision. When we started our process of structural development at the Oskar-von-Miller-Schule the school's psychologist accompanied and mediated the first two years. He demanded on a very intense review on our status quo, weaknesses, strengths and opportunities before we got started into any kind of movement.

You first start with team development and creation of a common spirit. This takes time, too. To develop this spirit in the beginning you need the external source as a neutral element between you and your staff. A Mediator collects points of views, uncertainties, chances, restrictions, doubts. E.g. our mediator, nearly 15 years ago nowadays, collected the items in a SWOT-analysis, which we found very helpful and whom we referred to a lot of times later on in the ongoing process.
2.3 SWOT analysis, or: How to reflect on structural innovation

A SWOT-analysis is a brilliant tool to evaluate any situation. You take some time, a handful of colleagues, critical ones, friends, disorganized and organized ones, creators and straight-forward ones. It is important to have such a bunch of individuals because this leads you to best results: All different types of brainwork are in.

**Strengths**

We might start the introduction in the way you ought to start as well: With the strengths of a situation, problem or task. By issuing the strengths you keep clear sight on your internal performance. Focusing strengths first puts a positive light on the start of your attention paid to developing new structures, ideas, or concepts.

**Weaknesses**

Internal sight on structural resources discloses failures and lacks of processes, personnel, material or spatial options. Efficiently hided frozen confessions among your staff are typical examples for internal road blocks in personnel sight as well as jealousy. Identifying weaknesses hurts, but as soon as you get to know them, you will manage them in future.

**Opportunities**

External conditions should be viewed first as an overview on opportunities for your institution and the surrounding strategic network (see chapter 6). This provides a broad overview on potentials outside the school, especially focusing cooperation forms and existing activities where your students benefit from, recently.

**Threats**

Dark clouds announce mostly rain, as it is the case with dangers of future steps to be taken. You’ll never know whether you win or lose, you take chances, but reflecting on risks before damage is done avoids falling into traps. Especially competitive situations provide threats for effective development of networks with other institutions. The following page illustrates the questions to be asked within a SWOT-analysis.
- What are you doing particularly well?
- Is there something unique in the “marketplace”?
- What do your customers/clients/patrons ask to do over and over again?
- Do you have the right tools/resources to accomplish the task?

- When do you feel uncomfortable at work?
- Which resources, staff, or skills do you miss most?

- Are there new options you could use (new programs offered, new manpower in the department, new organizational or structural tools available)?
- Does the educational market submit an interesting offer?
- Are there options on partnerships which might get seminal?

- Who is competing with your products and services, which other offers you cannot afford do they submit?
- Are there environmental changes or difficulties for your operational network?
- What other roadblocks bar your way to progress?
Of course, you do not alone start by analyzing with SWOT. The following timetable may give you a glimpse of imagination of how much this change and structural development process has been a long and winding road, that led us – the school I work for since 1998 and me – to today's knowledge and status quo of self-determination: A bit more than decade of structural change.

2.4 Best practice: More than a decade of change at a German vocational college

Timetable of the structural innovation process at Oskar-von-Miller-Schule, Kassel, Germany:

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 2002</td>
<td>Foundation of a group of teachers to promote our schools development processes</td>
</tr>
</tbody>
</table>
| 2002 | • First school development program is written.  
      • Many aspects of nowadays guiding principles were included in this program.  
      • Teacher’s conference: Decision to choose a quality-management system, which sharpens expectations and forms a structural shape. |
| 2005 | • February: After full completion of a first school development program, The Oskar-von-Miller-Schule took part in a development program of the Hessian government, called “Selbstverantwortung Plus”, which means something like self-government at school. Therefore decisions had to be made which measurable quality-management-system to follow:  
      • ISO 9000 (industrial standardization) and  
      • Q2E (quality concept for pedagogical purposes).  
      • October: After a long process of discussion about pros and cons, enduring conferences about the core concept, a majority decided clearly for Q2E. |
| 2006 | • February to July: It took three months of preparation on guiding principles in the leading teams of our school (headmaster, vice and heads of departments as well as the coordinative group for structural innovation).  
      • Pedagogical day: All colleagues spent two days together to work on our guiding principles. |
| 2007 | • January to March: Working on the results of the pedagogical day: the newly founded Q2E-team and the group for structural innovation reduced the output to at least six guiding principles.  
      • June: In an inaugural congregation most of the colleagues signed our six guiding principles.  
      • May–August: A focussed evaluation of our first guiding principle (atmosphere inbetween colleagues) was worked out.  
      • October: Our first evaluation questionnaire was spread to all colleagues.  
      • December: The results of the first focussing evaluation were published. |
| 2008 | • After a period of evaluation we decided to forward activities for a sustainable improving of guiding principle one. Then we determined the next guiding principle to be evaluated.  
      • May–July: We worked on the questionnaire for an evaluation of the next guiding principle.  
      • August: We started our next focussing-evaluation by spreading it to the colleagues |
| 2009 | • Since then we constantly focus our guiding principles. Each year one of these six principles is elected and examined by the Q2E-team, results are presented afterwards to the Plenum. |
| 2012 | • Selbstverantwortung Plus is running out. Change into an independent vocational education college |
| 2014 | • Preparations for a further change into a legal independency have been completed: Plenum, school managing board, and magistrate of the city of Kassel agreed to change from indepency to legal independency, which starts in January 2015 |
2.5 As solid as a rock: Guiding principles

Developing Guiding principles may take a long time and needs a lot of contributors. But finally having them, means to rely on these constantly, and to develop new ground of change for your school or institution. They will be, if they are real principles, standing up time and you will walk on secure ground, when promoting school development.

But as it is with everything: A good principle needs a plan before you start (probably a SWOT-analysis), a lot of different (and deviant) minds participating, someone who holds on tight to the objective, and again: time.

Finally these principles have to be internalized and carried by everyone at school or institution or they will fail, because if only externalized, your staff will still follow own and secret plans, won’t respect a common development or, in worst case, would undermine your and the leading teams efforts and work against. So every colleague has to be convinced and hopefully agrees with some simple but important rules to keep in mind at day-to-day-work.

When designing guiding principles for your institution or school you should also describe qualified objectives as well as indicators, and which method to use for evaluative purposes.

At Oskar-von-Miller-Schule, we developed the six guiding principles in six different teams, each made up of three or four colleagues, maximum.

The following diagram displays some of the thoughts and ideals behind the wording of our first guiding principle going back to the year 2006.
At the Oskar-von-Miller-Schule the guiding principles nowadays are present in many places, so each student or teacher, as well as parents or other visitors can see them. Furthermore, the teachers and students are permanently reminded to act and behave according to the principles.

The illustration below roughly describes the guiding principles of the Oskar-von-Miller-Schule in English language:
2.6 Where structural innovation meets quality development: Q2E

Structural innovation is an intermingling area on the edge of science, technology and philosophy, forwarding an organizational structure process with the contribution of social sciences. Its results have to be evaluated constantly.

To provide sustainable and measureable quality in structural innovation the Oskar-von-Miller-Schule used Q2E as a quality management system, as the following management principles illustrate (see also chapter 5):

Though Q2E as a quality management system lacks of recognition it is worth being regarded as a comparable idea focusing the will to provide quality in the field of educational purposes: Just because you deal with humans you need a system which treat them like humans. An ISO quality management system is always designed for industrial purposes and therefore difficult to adapt to educational or, generally speaking, human resources. But truth always lies inbetween: There has not been found an adequate quality management system yet to deal with human purposes, ideally. One should always keep a good eye on individualized frames of the school’s landscape before deciding, which path to follow. And sometimes even the chosen path then is not individualized enough and you have to pick up some other flowers on the way, which suit more to the specific situations of your institution.

A part of Q2E: Individualized feedback

In case of the Oskar-von-Miller-Schule, we built up a team to figure out the best fitting management system and, by decision of the majority of all colleagues, we chose Q2E some years ago, and there is less regret. What teachers at this college practice most successfully according to Q2E is individualized feedback: The students do feedback the teachers annually. The result is
kept secret by the teacher, so he/she knows what to improve without fear of being sanctioned. The teacher afterwards signs a registration sheet that documents the feedback activity for the responsible person at school. By this, each colleague has got an opportunity of improving his/her personal style and eliminate weaknesses one by one. Going further one can as well beg other colleagues for feedback among colleagues, which is fruitful as well.

**task 3:**
- Inform yourself and your team carefully and intense about quality management systems for educational purposes.
- Which one, according to your attitudes and philosophies, suits best?
- Create a table of pros and cons and decide afterwards.

### 2.7 Hard work: Dimensions of structural innovation and change

So finally one could state that structural innovation means to work on three different levels:

As the illustration below shows, these factors are interdependent: They cannot be seen as absolute parts.

![Diagram](image)

But doubtlessly, these three aspects represent the core of change processes. Speaking of change at colleges, this may lead to the most important field of professional interaction, teaching:

In the long run one can only change a complete school’s structure by changing the teaching and learning habits. This goes alongside with the staff understanding the inevitability of change in a modern society. Modern, educated students have to cope with several situations e.g. in media, they can only cope when having learnt self-education processes. We as teachers have to recognize this and change: We have to strengthen their abilities in working and learning alone, self-regulated, framed in competency-based settings of teaching. The learning process starts at least as the below illustrated triangle:
As a leading person you ought to secure your teaching staff’s attitude and ability concerning the inevitable change of teaching and learning style. They really should be convinced that this change is needed. Also, the leading staff of a school has to provide the knowledge for this change for its teaching staff: E.g. at Oskar-von-Miller-Schule, we train our colleagues or let them be trained in new teaching methods, in team development, in communicative aspects and how successful evaluation can be realized. (see presentation sheets on Self-Regulated-Learning (SRL)) This happens according to guiding principle no.5, “improving proficiency”. Furthermore we provide teaching quality for our students: We hand over methodological, communicational and team-building knowledge to develop these skills in a prestart-training.

The next part of the core is the change of staff: As mentioned above, you can only change a convinced person. Everyone with responsibility has to secure the development of worthwhile attitudes and practice a thoroughly planned HR-management and HR-development (see chapter 3).

**task 4:**
- Think about real persons in your staff, you could convince of promoting change at your institution or school. Write down their names and list up, which tasks for structural work you can offer to them.
- Think also about the ones who might stop progression or undermine it. Why are they doing this? List up some criteria they might name and make a list of points you could state.
- Before you provide a change of teaching, you should create a self-regulated lesson by yourself and invite others (open minded colleagues) to participate in the development of further lessons.

### 2.8 A part of self-determination: Organizational structures now and then

Last but not least, we, once again, put light on organizational development, but this time in relation to internal structural change:

A school or college changing its teaching and learning attitudes needs, as well, a change of the organization of the inside.

#### school’s conference
( according to German law: HSchG),
- decides on school program
- decides on internal budget
- Min. 11, max. 25 members
- Headmaster is chairman
- half of the seats teachers, parents and students
- each two representatives of employers and employees with consultative voices
- approx. twice a year

#### teacher’s council
( according to German law: HSchG)
- decides on suggestion about distribution and application of financial
- decides about suggestions for a school program
- includes all teachers
- Headmaster is chairman
- includes all social working staff
- approx. three times a year
Decisive bodies need to be flexible in their ability to react or better: to act as protagonists. Whenever things have to be changed, you cannot wait until government prescribes, but you have to take the active part. When Oskar-von-Miller-Schule started we had decisive structures like all other vocational colleges in Hesse, Germany, basing on German law, inflexible and only twice a year (see illustration above). Nowadays, as we are on the way to legal independency, things have changed dramatically, as you can see on the graphical representation below:

Teacher teams, so called fractals make up the smallest decisive unit, a fractal. They meet regularly, at least four times a year. Each fractal has its own chairman. Coordinated after classes or professions they decide what to demand from their department board.

The Department board, as the next unit, consists of the chairmen of one department. They meet twice a year to decide, together with the Head of Department, over the department’s financial resources.

The Plenum, formerly the school’s conference, discusses strategic aims, organizational changes, new tendencies, and makes suggestions about future paths. They meet four to six times a year.

After nearly every Plenum’s meeting the Managing Board constitutes and decides over the suggestions of the Plenum.

So far, the Oskar-von-Miller-Schule has experienced a much more flexible management in all situations of day-to-day-work, including the benefits of a deeper participation, widened responsibilities for the teaching staff and therefore a better motivated and progressive community of teachers and students.

The following graphics might illustrate the depth of organizational change within the last decade: We started out of a typical, hierarchically-based structure and meanwhile achieved a complex level, oriented towards the demands.
Though you might not understand the graphic of nowadays structure completely, because it’s in German language, you nevertheless can see the change of influences of the several units with decisive power. Since 2007 we carry our common loads together: From hierarchy in departments carrying all loads in almost one hand to fractals and teams where colleagues participate, all carry the burden of development together, and achieve the objectives quite easier.

2.9 From past to present: A college on its way to legal independency

In the last part of this chapter recent development shall be presented, demonstrating an ongoing change of structure and participation. By taking the next step, the application for legal independency, the Oskar-von-Miller Schule faces a joint-venture-like activity with the city of Kassel, just to promote further development and to be less dependent from the state of Hesse, and, by the way, more independent from decisions made for the school’s development, but made from outside. The Ministry of Culture, Education and Science of Hesse allows its schools to change into legal independency, if the associated city agrees and takes care.

Legal independency goes several steps beyond self-determination: It allows nearly autonomous budgeting, providing extra courses within a regional education network, so called “Hessen Campus”, gives opportunity for the principal to employ non-teaching staff, and, to a certain extent, employ short-term lectureships.

The illustration below shows the recent development, and by January, 1st 2015, the Oskar-von-Miller-Schule will be appointed to being legally independent, in terms of self-determination.
The school’s community, most of the teachers, companies, parents and the magistrate of the city of Kassel, as well as the students are looking forward to achieve this status.

**task 5:**
Which organizational structures, according to legal possibilities, are realizable in your country? Are you informed precisely enough, or is the path to other options to steep, expensive or narrow? Can you abolish some of the roadblocks in the way? Collect a team of four or trusted colleagues to explore.
Chapter 3: Human resource management and development

This chapter consists of two main topics: the management and the development of human resources. It starts with the human resource management (HRM), because this subject is the basis for the human resource development (HRD). In actual fact HRD is one of the core tasks of the HRM, but it is so important for our topics school management, organizational development and quality management, as it is easier to qualify the available employees than replacing a person. So HRD is described in detail.

3.1 Human resource management and its instruments

The human resources of an organization are composed of all efforts, skills and capabilities of all the people who work for that organization. According to this human resource management is the sum of all measures concerning the personnel to contribute to the realization of the organization’s targets. Referring to school it is a function designed to maximize employee performance in service of their school management team’s strategic objectives, and it is primarily concerned with how teachers are managed within schools, focusing on policies and systems of the school. The principal and the heads of departments are supposed to manage its human resource in the most effective manner so that the staff works well in the best interests of the school, and in their own interest, too.

What is the placement of HRM in the training scheme and in modern school management?

Modern school management needs ... 

...organizational development (chapter 2); and organizational development can not take place without personnel management and particularly personnel development, because every organization is reliant on its personnel. An organization is just as good as its staff. Following this formula, the quality of school depends on the “quality” of the teaching personnel respectively on the qualifications, skills and especially the mind-set and motivation of each teacher. Only by recruiting those teachers who have the required "quality" and by qualifying others schools can determine their concept of quality. In other words “The quality of teachers makes the difference.” (John HATTIE, see chapter 1). As results of this correlation there are theses eight tasks of human resource management:
In the following passage there are only seven of these tasks shortly described. Human resource development has its own subchapter (as mentioned before).

### 3.1.1 Personnel requirement determination

The personnel requirement determination provides the number and the qualifications of teachers needed at school or needed to achieve the desired quality of school and of teaching. Indeed the term qualification means in the first place for what subjects a teacher is qualified, but it can also mean (special) pedagogical qualifications, experiences in practising a profession, experiences from studying and/or living in a foreign country, many personal contacts to companies, and so on. For being able to do this the principal must have a very clear picture of the school’s quality concept, and the vice principal and the heads of departments should share this picture and support all processes. They all have the responsibility for the learning success of the students what is the success of the school and this success can be achieved especially by a well-considered personnel requirement determination, a detailed personnel status analysis (see 3.1.2) and recruiting suitable teachers (see 3.1.3).

In addition to this the activity of personnel requirement determination is concerned with forecasting and estimating the future demand for teaching at a certain college. It depends on many different factors like the demographic development, the labor market and its development, new curricula or political decisions about types of school. So the HRM has to try to answer the question, how many teachers for what subjects and with which other qualifications at what time will be required, and moreover, how many teachers for what subjects at what time will not be required any more. Hence it has to consider prematurely what is the best it can do with these teachers; maybe further training could be a good solution (see 3.2.2).

For example the IT branch has boomed in the last twenty-five years. In the nineties a principal had to anticipate this development and that there will be more and more students of IT professions. Consequently he knew the college needs more and more IT teachers – at best everyone is a specialist for a certain IT subject at least. But the principal or his successor have had to anticipate also that this development would stagnate and the number of students even will decrease in the next years. In 1998 there were four classes of IT specialist students at the Oskar-von-Miller-School, since twelve years there are nine classes and probably there will be only six or seven classes in five years. Of course the requirement of IT teachers varied and varies also.

From all these considerations and the personnel status analysis (see 3.1.2) the individual requirement results in the form of new requirement, replacement requirement, temporary requirement and lay-off.

This illustrates that especially the analysis of demand is a very complex and difficult activity.

### 3.1.2 Personnel status analysis

The personnel status analysis is for getting clear about the sorts of present qualifications, skills and capabilities and also their respective quantities. For this you have to begin with identifying the qualifications, skills and capabilities of the employees. Besides screening the personnel records and documents you could reflect teaching with the teachers after watching them during any lessons and you could lead appraisal interviews with them (see 3.2.2). It is essential that all information will have to be categorized and recorded carefully. -Absatz- dann Folgendes einfügen:

The personnel status analysis is so important, because only if the HRM (the principal and the school management team) knows the personnel status of the college and its personnel requirement, it can act and recruit expediently and responsibly.

The following example shall make plain this declaration. In the year 2000 the principal of the Oskar-von-Miller-School hired a teacher who was qualified for the subjects economics, accountancy and business informatics. But he was deployed only for
teaching economics and accountancy, because there was no need of business informatics at that time. In 2005 the principal retired. About two years later a teacher for business informatics was needed, but the new principal did not know that there already was such a teacher at school, so he began to look for someone. It was mere chance the implied teacher heard about the searching, he clarified the situation and since that time he teaches business informatics also. – Such cases would be avoid if colleges do a personnel status analysis continuously.

3.1.3 Recruitment

After the personnel requirement determination and status analysis maybe you have to lay-off employees (see 3.1.4), and/ or you have to recruit employees with other qualifications. Also you have to recruit new teachers for those who will retire. At first you need requirement profiles and a conception of personnel use, then the recruitment process could be initiated in two ways.

One way is the internal recruitment. It is particularly suitable for promotion. A vacancy may be filled by a person who is already working at the college. This may provide an opportunity for promotion for an existing employee who might be interested in this position. Amongst others the advantages of such internal promotion are:

• The skills, attitudes and potential of internal candidates are already known to the principal, and it is easier to promote such a teacher without going through the whole process of recruitment.
• An existing employee has a good knowledge about the college. Hence the induction for such employees would be shorter than for a newcomer.
• Employees are aware that hard work may be rewarded through promotion. This leads to greater job motivation among the employees.

However, there might be certain disadvantages of internal recruitment such as:

• The college will lose the opportunity of getting teachers who might bring new ideas and innovations with them.
• Other teachers who are not considered could develop feelings of jealousy and resentment and maybe they are not willing to cooperate with the promoted employee.

In order to overcome these disadvantages the principal and his/ her management team must ensure that:

• details of vacancies are circulated to all;
• selection is to be made in a fair and impartial way;
• selection should be based on merit and performance.

The second way is the external recruitment. This involves the filling of a vacancy from a source outside the college. These sources may include other local schools or colleges and universities, advertisements in newspapers and posting on recruitment websites or the college’s homepage.

Methods of selection are structured employment interviews, presentations by the applicants and teaching rehearsals. The aims of all these methods are to confirm the information already provide by the applicant, to assess the applicant’s knowledge, behavior, mind-set, attitude etc. and vice versa to enable the applicants to seek relevant information about the job and the college.

(Source: Joshi, Manmohan (2013): Human resource management, bookboon)

3.1.4 Lay-off

Lay-off should be last solution, but if it is necessary, because personnel development did not or the management team knows that it would not work, you have to take care that everything is carried out correctly and you should help the discharged teacher on his/ her reorientation.

3.1.5 Personnel use (planning)

Personnel use has to be managed so that each teacher can give his/ her best performance in certain circumstances of the college.

The specific example of the “Oskar-von-Miller”-School shows what to consider for the personnel use. One detail is the list of potential teachers and teaching persons. A list of those who could probably work at school in the short term, if there sudeny is a substitute needed because of – for example – a long-term illness or a pregnancy of an employee. A VET college can get to know such potential teaching persons by the co-operation with universities or other teacher training centers and with companies too (see chapter 6).

In addition to this the personnel use planning has to take into consideration the further training of the employees. Often after further trainings teachers should be appointed to more or even new (teaching) activities, so that the further training
will not be useless. On the other hand the further trainings can be used as a very selective measure for ensuring the personnel use fit to the (long-term) requirement based on the dynamic development of student population and technical progress.

3.1.6 Personnel Management

First of all an explanation: Personnel management is not the same as human resource management, it is only a special element of it. Most of the tasks of the human resource management take place on a factual and objective level. In contrast to this personnel management is more personal, it also takes the personalities and the characteristics of the employees and the relations to each other into consideration. The personnel management is not only a task of the principal but also of the vice principal and the heads of departments. They are responsible for a number of activities relating to the entire workforce of the college and therefore it is their goal to integrate all employees in the school’s activities. So the personnel management bases on the personnel status analysis and the personnel use. But in order to perform human resource functions effectively, it is particularly important that managers have to be above personal belief, prejudices and attitudes. They must make an effort to be impartial in various conflicting situations. Moreover, they must be able to bring about an acceptable compromise between conflicting viewpoints of the school management team and the teachers. This needs strength of character, and a deep understanding of human behavior.

Besides, to achieve the integration the teachers have to be motivated and trained in order to perform in the best interests of the college. Hence the principal and the heads of departments should be skilled in maintaining good human relationships.

3.1.7 Personnel cost management

Last but not least a college or school has to manage the personnel costs. The aim of this management is to minimize the costs. But giving advices is only useful for a private college because it uses and administrates its own not state-founded budget.

3.1.8 Core task = Human resource development

In actual fact the human resource development is not only one of the tasks of HRM, it is more. It is the core task of it because all other tasks depend on the HRD and vice versa.

3.2 Human Resource Development (HRD)

Human resource development is a particular function of the management concerned with organizational activity aimed at improving the performance of teachers and teams in school’s settings. There are several names for this function: training and development, sometimes education. Generally, these terms are even used as though they are synonymous, but there are differences in the contexts and techniques of employee training and development. Training is the act of increasing the knowledge and skills of an employee for doing a particular job. It imparts specific skills for specific purposes. It is mainly job-oriented. Training is given both old and new teachers throughout their activity at the college. In contrast, development includes the process by which principals and heads of departments acquire not only skills and competency in their present job but also capacities for future positions and circumstances at the college.
To look at human resource development you have to look at it in its entirety:

By this the connections with the other subjects of this manual organizational development, project management and also quality management become evident.

The function of HRD in school
Referring to the definition of the human resource development, its function in schools or colleges is identifying the skills and interests of the teachers and developing these together with the teachers. In doing so the HRD has to accommodate this to job requirements and school requirements in consideration of personal goals of the teachers.

3.2.1 Personnel management in the sense of HRD
With regard to the control of the behavior of the employees the personnel management is vitally important because amongst other things personnel management means the direct influence on the behaviour of each employee and on the interaction in and between teams of employees for achieving determined aims of the organization. In consideration of this human resource management is linked to the personnel management and it can be used very specifically.

Examples of personnel management at OvM-School
At the Oskar-von-Miller-School the management team wants the teachers to collaborate and to have or to get team spirit. For achieving this there are different ways used:
• Of course there are regular meetings. For example on every Monday two teams of one department have a meeting in the
and every member can participate in the meeting because no one has to teach at this time.

- Besides there are many school projects (see chapter 4). In some of these only teachers of one department have a share, in some other projects, that are independent of subjects, teachers of all departments participate. One example of such a project is “Planning the renovation and redesign of the staff room”, another one is “Promotion and preservation of our teachers’ health”.
- One day in every year the school is closed for the students and all teachers have a whole day (called pedagogical day) for working together. Usually they plan lessons and create learning situations and jobs (exercises) together in small teams. Besides they interchange teaching materials.
- Another chance to promote collaboration and team spirit on the one hand and to realize human resource development at the same time is organizing and realizing internal further training.
- But there are also some unusual ways to achieve collaboration and team spirit. So the management team promotes the formation of a teacher chorus and of teams for relay races at the city marathon.

Because personnel management especially depends on the vision statement of a college (see chapter 1 and 2), its management principles, communication structures and decision-making structures, the human resource management depends on these aspects too, and it can be used as a special tool for realizing the visions.

In the following text there is described an example for this connection and the use of HRD based on the vision statement of the Oskar-von-Miller-School.

One of the guiding principles of the Oskar-von-Miller-School’s vision statement is: “Leadership in the sense of our school means for the heads to lead our school in a cooperative, innovative and effective manner.” At school personnel management is the task of the management team, so this guiding principle means for the management team to moderate development processes and lead the school to ensure the proper functioning and safety of all school’s operations and activities. For realizing this each member of the management team (the principal, the vice principle and the heads of departments) has to have decision-making and management skills.

“We systematically develop the teaching quality, the learning situation of the students and the working conditions of the employees” is another guiding principle of the OvM-school. So the management team supports the designing of learning and educational processes to develop the quality of the educational working.

Looking at both guiding principles and the consequential management team actions, the human resource management is a connecting link between these guiding principles and their implementation.

### Human resource development at the OvM-School

The principal has got the most important part in the human resource management. He has got the main responsibility. According to this the principal at the Oskar-von-Miller-School is actively engaged in the HRD. So he has developed a specific school concept of HRD in the sense of the school program. Therefore he uses instruments of personnel development and has to perform many tasks like potential use, integration of new teachers, detecting and promotion of leadership potential, promoting the feedback culture, promoting team development, and so on. Of course the other members of the management team support him.

### 3.2.2 Instruments of human resource development

Usually five instruments of development are used at the Oskar-von-Miller-School. The most important instruments are the appraisal interview, target agreements and the (individual) feedback.

#### Appraisal interview

An appraisal interview or performance appraisal means the systematic evaluation of the performance of an employee by his/her superior. It is a tool for discovering and analyzing qualifications, skills, opinions, vision and mind-set, and it is for using of potentials. Appraisal interviews are always based on the vision statement and the school program. The results of the appraisal are target agreements what are wrote down. Generally, appraisal is made once or twice in a year.

The appraisal interview is an import tool of the HRM and HRD, and it is also used for a variety of purposes:

- It is used to appraise the quality of performance of different teachers. It includes knowledge of the work, ability to do the work efficiently, spirit of coordination, dependability, punctuality, enthusiasm, self-confidence, leadership qualities etc.
- It may be used for training of the teachers.
- It is also useful in determining the type and nature of training programs for the teachers.
Maybe an employee would like to prepare for an appraisal interview. For preparing he/she can think out questions or sometimes there is a guide for the appraisal interview (see below: An example). The answers will help him/her to get clear about own strengths and weaknesses. A head of department could want to prepare himself/herself for an appraisal interview too. There are also questions which answering would help him/her.

An example: The guide for the appraisal interview at the OvM-School

At the Oskar-von-Miller-School there is a small guide for the appraisal interview. It contains questions like:
- What did I achieve … for teaching?
  … for the school?
  … for the development of the school?
  … with a view on my personal development?
- How often and in which classes did I ask for individual feedback?
- What special jobs did I do for my subject teams and for my department?

The head of department gives it to the teacher two weeks before, so he/she can prepare for the appraisal interview. One week ago the teacher has to give the filled in questionnaire back to him/her, so he/she can prepare too.

Besides it is a form for writing down new target agreements and the status quo of the last ones during the appraisal interview (see next subchapter). Also you make a note of further trainings the teacher is interested in and at last of the reflection on the appraisal interview itself.

This filled in guide is kept in the personnel records for checking back.

Methods of appraisal

There are various methods of appraisal you can use exclusively or in combination. So the following three methods are only a selection. More you can find at: http://www.humanresources.hrvinet.com/performance-appraisal-methods/.

A method of appraisal is the grading method. By this method, the teacher and/or the superior consider features and mark them accordingly to a scale. Certain categories of worth are first established and carefully defined. The selected features may be analytical ability, cooperativeness, dependability, self-expression, judgment, leadership and organizing ability and many more. The rating scale may be: A – outstanding; B – very good; C – good or average; D – fair; E – poor. The actual performance of a teacher is then compared with these grade definitions and he/she is allotted the grade which best describes his/her performance.

Also there is the method of the graphic or linear scale: This is the most commonly used method. A printed form is used for each person to be rated. The factors to be rated are teacher characteristics and teacher contribution. Teacher characteristics include qualities such as initiative, cooperativeness, dependability, industriousness, attitude, enthusiasm, loyalty, creative ability, decisiveness, analytical ability, emotional ability and coordination. In teacher contribution are includes the quantity and quality of work, the responsibility assumed, specific goals achieved, regularity of attendance, attitude towards superiors, versatility etc. These traits are then evaluated on a continuous scale wherein the rater places a mark somewhere along a continuum.

This could be a scale for the factor decisiveness:
Within the **forced choice description method**, the rating elements are several sets of phrases or adjectives (usually sets of four phrases, two of which are positive, two negative) relating to proficiency or personal qualifications. The superior and the teacher are both asked to indicate which of the four phrases is the most and least descriptive of the teacher.

As an example the following statements illustrate of the type of statements that are used:

- Organizes work well.
- Lacks the ability to make people feel at ease.
- Makes little effort.
- Has a calm, well-balanced, even temperament.
- Is dishonest and disloyal.
- Is a hard working teacher and cooperative.


After using one of these three methods the superior and the teacher have to make their own selection. These selections have to be compared by both as the comparison provides the basis for further of conversation and counseling.

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**Task 1: Appraisal interview**

This task could be an interesting experience for the participants of the workshop because it is not so easy to talk about people and to give them feedback in a sensitive way. (Therefore you find a check list “How to criticize constructively” at the enclosure of this chapter 3; see also: [http://www.wikihow.com/Criticize-Constructively](http://www.wikihow.com/Criticize-Constructively); for the documentation of the interview there is the log sheet “Log of appraisal interview” at the enclosure.)

After the simulated interviews there has to be an exchange about the experiences the participants made in the different parts.

Now let us have a closer look at the very important personnel development instrument **target agreements**.

**Target agreements**

Target agreements are one of the most important instruments of the HRD because it is very purposeful. This instrument is adopted from business management where it is an approved practice.

At the end of an appraisal interview the head of department and the teacher agree on targets to achieve. These are the objectives of the appraisal interview and have to be SMART (see chapter 4.3.1.1). In the first place the targets are the targets of the teacher and you have to define these targets from the organizational targets (see chapter 2). The targets of target agreements have to make sense for the teacher, so that he/she is motivated to achieve them. But of course the targets also have to be expedient for the personal and the personnel development. So achieving his/her targets is always useful for the college too, for its human resources, its organizational development and in conclusion for its quality. Hence there will be a benefit for both. Besides a target is not the same as a task. A task is a certain job what is assigned to a teacher or what a teacher accepts. At best performing a task conduces to the achievement of his/her target.

For example a teacher wants to expand his coaching skills, so that his students will have more success, and the head of department and the teacher agree on this target: “At the end of the next term my coaching skills are expanded.” After clarifying and documenting how to measure the growth (maybe by an improvement of the grade point average of his classes) they also have to consider what will be the steps to achieve this target. One step among others could be the task spending two hours every week on practising and training the coaching.

Another target could be: “I will have made teaching materials for exponential functions including a problem set for the students of electrical engineering in the next two month.” This means for the teacher that he has to prepare those materials; that is his/her task.

Or a teacher and the head of department agree on the successful attendance of a certain further training, what will be on in the next month.

So every target is an individual target of a teacher; by achieving it he/she will develop him-/herself. And if teachers develop themselves, it is always a development of the organization too.

Such a target agreement shall be a mutual agreement, so that it can become a real commitment. After an agreed period of time the head of department and the teacher do a further short appraisal interview to control the status quo. If the teacher did not achieve his/her target, they have to clarify why and if needed they have to change or to adapt the target.
Task 2: Target agreements

This task is based on the first one, because here the teams (three participants each) shall put the objectives together in concrete terms now. It is the task of all three persons, not only of the participant who has had the part of the teacher before.

For this the teams need the form “Five steps to target agreements with the teacher” (see the enclosure of this chapter 3).

After the concretization there has to be another exchange about the experiences the participants has made.

Feedback

Feedback is one of the most important instruments of personal development, therefore of personnel development. There are several forms of feedback. The most usual form is the individual feedback, but the peer review as a cooperative and collegial feedback and the 360 degree feedback are used at the Oskar-von-Miller-School (further information about 360-degree feedback: http://humanresources.about.com/od/360feedback/a/360feedback.htm).

Because of its importance and frequent use the individual feedback is described more detailed here.

Components of individual feedback

In actual fact teachers get feedback every day, from their students, from their colleagues, from their head of department, from their principal. But this feedback is not specific and not structured. It is the teacher himself/herself who has to ask for feedback, so that he/she can learn from it. Hence there are components of individual feedback and these are necessary to benefit from the feedback. One special benefit is to uncover blind spots of the Johari window by contrasting self-perception with perception of others and by talking about the differences. (See: http://en.wikipedia.org/wiki/Johari_window) Basically the responsibility and especially the results have to be retained by the teacher.

For some years a structured feedback culture is established at the Oskar-von-Miller-School. For developing such a culture a collection of tested questionnaires was generated. Besides there were internal further trainings on feedback and the principal promoted this process by asking for feedback from the teachers. In addition to this some students or whole classes began to ask some teachers if they may give the teachers feedback because they had made good experiences by doing that with other teachers who had asked for it themselves.

Institutionalized individual feedback

With regard to the human resource development individual feedback shall be one of the target agreements (3.2.2), and it can make it easier for a teacher to prepare for the appraisal interview. Besides there is a special reference to the organizational development by including questions that are based on the vision statement into the questionnaire. For example the Oskar-von-Miller-Schule has the guiding principle: “We systematically develop the teaching quality, the learning situation of the students and the working conditions of the employees.” (see chapter 3.2.1). On the basis of this guiding principle you could generate items like the following:

- My teacher discusses current subjects with us.
- My teacher uses modern equipment.
- Teachers of this class talk together and arrange things with each other for the class.

A questionnaire is not the only instrument of individual feedback. If you have not much time for feedback, you can also use a feedback target with only a small selection of main items. Then the persons who give feedback have to mark dots on it. For example:
Or you let the students do a “flash-light”-round. In this case you ask only one question which can be very open like “How did you like the workshop?” Everyone has to answer it shortly one by one. The one who is answering has got an object from you, maybe a pen or a small ball, which he/she has to give or even throw to the next person who shall answer.

Before giving a feedback the teacher should answer some questions, because without answering the feedback would not be specific and its benefit could be only small.

The next task could be based on the last ones. Maybe the participants have done more exercises before which could provide a basis too. So at first everyone has to decide which situation or activity he/she wants to get feedback about. Then he/she has to answer the questions for himself/herself.

**Task 3: Individual feedback**

> After finishing the preparation the participants begin the proper task. The participants have to do this task several times, so that each one has to ask for feedback once and each one has to give feedback at least once. There is a list of simple rules for giving feedback in the right way. The participants need this list “How to give good feedback – 11 simple rules” for preparing the task and during the exercise (source: http://www.leadership-expert.co.uk/how-to-give-good-feedback-employees-team-colleagues/).

After this phase there has to be an exchange about the experiences the participants has made.

**Further training**

For the sake of completeness further training is quoted here again on the one hand. On the other hand, further training is the most direct measure for personnel development, because it increases the knowledge and the skills of the teachers and it can be used by the management team systematically and specifically on the basis of the vision statement and the school program. At this the further training has to be adapted to job requirements and school requirements, and of course in consideration of personal goals of the teachers.

**Example:** The Oskar-von-Miller-School has the guiding principle “We permanently improve our proficiency.” in its vision statement. This guiding principle means nothing else than personnel and personal development. An important instrument of the HRD is (individual) feedback (see chapter 3.2.2). Hence the school management team searched for a teacher who was interested in this subject. The teacher who wanted to get to know more about feedback has got further trainings on it, its instruments, how to evaluate it, how to arouse interest for it and how to establish it in schools. After these trainings he con-
ducted workshops at his school (= further trainings for the other teachers) and he generated questionnaires which can be used by all teachers. By the time a culture of feedback has been established at the Oskar-von-Miller-School.

At the Oskar-von-Miller-School each year the training planning is created and maintained with the participation of teachers and on the basis of the school program. In addition, the management team generates a list of experts and institutions. Also there is a wish list where each teacher can enter.

There is a second effect of further training. It does not happen infrequently teachers get impulses for school development or pedagogical developments by trainings, though the primary content of the training was anything else. Back in school they offer new ideas to the other teachers and the management team too, and often they change their teaching. Besides all teachers have to distribute always training contents in an appropriate manner to colleagues. That is a commitment they enter into when they do further training.

In addition teachers acquire qualifications by further training which enables them to offer training courses themselves for obtaining industry certificates. So the teachers actively improve education the OvM-School as a competent partner for technical occupations.

**Induction of a new teacher**

The induction of new teachers has to be well-considered. For this there is a special reason. Generally new teachers are very motivated, they are still in a learning process and they have not found their position and finished their mind-setting already. So they have a special potential what has to develop and to be used carefully, so that their (personal) development is and will be positiv for themselves and for the college.

Some aspects you should take into consideration:

- Of course he/she has to get to know the college, its teaching staff and its organization: Who teaches what subjects? Who has special functions? Who is responsible for what? Who can and would help? What rituals are there? What are the rules for using computers? Where is the equipment? What is the copy procedure? and so on. Things you take for granted are not obvious for a new colleague.
- He/she should experience socialization by working in teams, cooperation with the head of department and also the employees of the school’s office.
- The starting period of a new teacher should be designed with a focus on teaching. He/she should get time for watching other teachers during their lessons and for talking with students about teaching. In addition he/she could do team teaching with a colleague or he/she teaches while a colleague is watching him/her and after the lesson they talk about the teaching experiences.
- New teachers need feedback, even if they do not ask for; feedback how he/she perceives his/her mission; feedback how he/she copes with classes and teaching; feedback how he/she is integrated in the college.
- A special help a new teacher gets from the tutoring by an expert teacher. A tutor can be named by the principal or the head of department. But there is also the possibility that, after a while, the new teacher asks someone for being his/her tutor. So he/she can come to know the colleagues at first and select someone he/she does like. Tutoring is a special task which can become very laborious on the one hand, on the other hand the tutor can learn by the tutoring and from the new teacher too. So the tutor does personal development by himself/herself. And also it is personnel development.

Besides recruiting a new teacher can be a good chance to get an employee who agrees with the management team about the school program from the very beginning or who even gives impulses for pedagogical developments. Hence before recruiting a new teacher the principal has to consider which requirements he/she should comply with. So recruiting a new teacher can become a measure of human resource management and development.

**3.2.3 Leadership development**

Last but not least human resource management at school includes leadership development too. Indeed heads of department and principals are already leaders and superiors, but that does not mean that they have finished learning. In contrast, they have a special potential because of their big basis of qualifications, skills and capabilities they can develop further. For example they can do further training in modern school management. Often heads or principals have the qualifications for managing a department or college, but they lack in qualifications and skills for leading personnel. There are training courses for many different qualifications of leadership and management. For example at the University of Kassel there is even a postgraduate course which takes half a year. The content of this course is very many-sided, from quality management to building networks, from establishing team work to advising students and parents.
For the Task 1:

Check list: How to criticize constructively

<table>
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<tbody>
<tr>
<td>Put a critical conversation when your arousal has ceased.</td>
<td>□</td>
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<tr>
<td>Let the criticism talk yet promptly follow on the occasion.</td>
<td>□</td>
</tr>
<tr>
<td>Get complete information about the facts to categorise.</td>
<td>□</td>
</tr>
<tr>
<td>Criticism only under 4 eyes.</td>
<td>□</td>
</tr>
<tr>
<td>Strengthen the trust from the criticism by the confirmation: „Are you okay“.</td>
<td>□</td>
</tr>
<tr>
<td>Score some points with which you are very satisfied.</td>
<td>□</td>
</tr>
<tr>
<td>Follow the 3 “steps”: perception, action, desire.</td>
<td>□</td>
</tr>
<tr>
<td>Describe the facts, your perception, exactly, rather than to comment on the allegations.</td>
<td>□</td>
</tr>
<tr>
<td>Give opportunity to comment on the criticized circumstances.</td>
<td>□</td>
</tr>
<tr>
<td>Point to the effect on various groups, for example on pupils, teachers and parents if necessary.</td>
<td>□</td>
</tr>
<tr>
<td>Join colleagues in the solution; often, he knows what is right.</td>
<td>□</td>
</tr>
<tr>
<td>Come with the colleagues about the desired behavior in a dialog box.</td>
<td>□</td>
</tr>
<tr>
<td>Clearly, point to what behavior you will expect from your colleagues.</td>
<td>□</td>
</tr>
<tr>
<td>Close the conversation with a clear target agreement.</td>
<td>□</td>
</tr>
</tbody>
</table>

Source: BECKER, Britta (Hrsg.): Praxishandbuch Personalführung und -entwicklung in der Schule. VNR Verlag für die Dt. Wirtschaft, 2011.
## appraisal interview

<table>
<thead>
<tr>
<th>School manager: _____________________</th>
<th>Teacher: ______________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td></td>
</tr>
</tbody>
</table>

### task / working situation

- teaching / classroom management
- commitment
- school development

### future development

- teaching / classroom management
- commitment
- school development
- personal development

### leadership and cooperation

commitment: follow up meeting

_______________________________  ________________________________

signature teacher              signature school manager

Source: Becker, Britta (Hrsg.): Praxishandbuch Personalführung und -entwicklung in der Schule. VNR Verlag für die Dt. Wirtschaft, 2011.
Five steps to target agreements with the teacher

<table>
<thead>
<tr>
<th>Step</th>
<th>Plan</th>
<th>Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>derive from the vision statement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>agree on targets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>formulate <strong>SMART</strong> goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>set indicators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>wrap-up/ evaluation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Becker, Britta (Hrsg.): Praxishandbuch Personalführung und -entwicklung in der Schule. VNR Verlag für die Dt. Wirtschaft, 2011.
Chapter 4: Project Management

The implementation of projects gains more and more important for our students. Learning or study on different levels is possible by intensive, autonomous analysis with tasks. Project works offer the possibility for young people within the context of the school routine to learn self-initiative, commitment, teamwork and creativity for concrete settings of tasks.

This chapter “Project management” is not only intended for vocational teachers, but also for trainers, who wants to train their colleagues and students in structured, independent and successful project work. The chapter 4 follows a constant structure: First there are theoretical descriptions of the project phases. Then the helpful tools will be explained at the example of the planning and implementation of an open day.

4.1 History

Until 1900, civil engineering projects were generally managed by creative architects, engineers, and master builders themselves, for example Vitruvius (Roman Empire, first century BC) and Christopher Wren (England, 1632-1723). It was in the 1950s that organizations started to systematically apply project management tools and techniques to complex engineering projects.

As a discipline, project management developed from several fields of application including civil construction, engineering, and heavy defense activity. Two forefathers of project management are Henry Gantt, called the father of planning and control techniques, who is famous for his use of the Gantt chart (see chapter 4.3.2.1) as a project management tool, and Henri Fayol for his creation of the five management functions that form the foundation of the body of knowledge associated with project and program management. Both Gantt and Fayol were students of Frederick Winslow Taylor’s theories of scientific management. His work is the forerunner to modern project management tools including work breakdown structure (see chapter 4.3.2.1) and resource allocation.
The 1950s marked the beginning of the modern project management era where core engineering fields come together to work as one. Project management became recognized as a distinct discipline arising from the management discipline with engineering model. In the United States, prior to the 1950s, projects were managed on an ad-hoc basis, using mostly Gantt charts and informal techniques and tools. At that time, the “Critical Path Method” (see chapter 4.3.2.2) was developed as a joint venture between DuPont Corporation and Remington Rand Corporation for managing plant maintenance projects. At the same time, as project-scheduling models were being developed, technology for project cost estimating, cost management, and engineering economics was evolving. In 1956, the American Association of Cost Engineers was formed by early practitioners of project management and the associated specialties of planning and scheduling, cost estimating, and cost/schedule control (project control). AACE continued its pioneering work and in 2006 released the first integrated process for portfolio, program and project management (Total Cost Management Framework).

The International Project Management Association (IPMA) was founded in Europe in 1967, as a federation of several national project management associations. IPMA maintains its federal structure today and now includes member associations on every continent except Antarctica. IPMA offers a Four Level Certification program based on the IPMA Competence Baseline (ICB). The ICB covers technical, contextual, and behavioral competencies.

In 1969, the Project Management Institute (PMI) was formed in the USA. PMI publishes A Guide to the Project Management Body of Knowledge (PMBOK Guide), which describes project management practices that are common to “most projects, most of the time.” (see chapter 4.3.2.1).

4.2 Principles of project management

What is a project?
Projects arise out of problems or possibilities. They can be animated by the school management, parents, teachers, students or external peoples. Project work is a teaching method which is applied in schools more and more often. But every teacher has a different understanding of the word “project”. There are very different meanings in extent, contents, duration, size or methodology of a project. Many students and teachers understand project lessons as a relaxed change. Often this teaching form lacks the structure and liability of lessons. This chapter orientates itself by definitions and approaches which are usual in the economy and also very well usable in schools. In the following a project is defined as a unique sequence of processes, characterized by:

• a clear target which is measurable in the dimensions time, costs and quality
• a clear cost specification and restricted resources
• a specific project organization
• a temporal limitation (start appointment and completion date)

A project does not run off as a matter of routine. Duties of the daily business are often defined mistakenly as projects. Therefore the following basic questions of project management should be always considered for a successful project work:

• Is this project for the upcoming job the right organization form?
• Are there clear project targets?
• Is there a clearly defined project order (including completion date)?
• Does the project manager have the necessary competences?
• Which employees and resources are required for the project?
• Are there project plans, which were coordinated by all project partners (e.g. project structure plan, expiry plan and schedule)?
• Does the cooperation within the project team work?
• Is the project evaluated permanently and steered?
• Is there an adequate documentation?

What is the benefit of Project Management in schools?
The experiences in economy, science and public administration shows, that often better, quicker and more creative results are achieved by the project work and the employee’s motivation rises. These experiences are also relevant from the educational view. Project lessons can be used to train the students’ action and responsibility readiness and independent learning as an innovative and activating method. Therefore, the recognizing of problems, the efficient data processing, structuring of subjects and the development of solution strategies has to be in the foreground. The students should learn to understand connections and to form their environment. They must learn team working and collecting an extensive repertoire for the world of tomorrow. Project management and project work can provide the following contributions:
• Designing environment
• Understanding connections
• Working in teams
• Learning method repertoire
• Structuring problems
• Operating target-oriented
• Recognizing problems or problematical situations
• Making exercises transparent

Project management encloses the control and check of a project expiry and is a systematic process to carry out complicated plans. Project management tries not to leave the solution of the upcoming duties to chance or the ingenuity of individuals. The solutions should be achieved completely straight at a firm time.

Project management consists of the totality of executive functions, leadership organization, leadership technologies and leadership means. As a general rule, only the project managers with assistance of the teacher or coach do this. Project management can be learnt, but an active and intensive discussion with the method is necessary.

There are many possibilities to carry out project management at school. No limits are set to the creativity of teachers and students.

Project management should be shown here with all its phases at an example: the realization of an open day in a vocational school (see chapter 4.3.1.3 and following).

4.3 Project phases / steps

We distinguish four phases in the course of a project:
Project definition, Project planning, Project realization and Project conclusion.

4.3.1 Project definition

4.3.1.1 Description of the phase

The Project Definition Phase is the first phase in the Project Management cycle. You can start a new project by defining its objectives, scope, purpose and deliverables.

The phase of the project definition contains the finding of ideas on a subject up to the formulation of a concrete project order and the appointment of a project manager.
Project idea:
There are a lot of different possibilities to start a project at school. The project idea can be brought to school by different sides:
• by a company or a public institution (e.g.: planning of an exhibition)
• by parents (e.g.: reorganization of the lunch)
• by principal, teacher (e.g.: establish a school library)
• by students (e.g.: planning of a final celebration)

Finding alternatives:
The project idea is mostly formulated very openly and offers different alternatives. For the project idea “final celebration” there is, e.g., the possibility to organize a celebration in a rented hall. In this creative collection process all proposals are allowed.
Very important in this phase is not to discuss and evaluate the proposals. At this point creative technologies like brainstorming are very helpful. This step should be documented with help of a card query.
The result of finding alternatives is a comprehensive representation of the main topic. Indeed, meaningful and less meaningful ideas still stand equally side by side. In the following steps you must try to select the best alternative from the huge number of alternatives. Afterwards the best alternative should be carried out.

Target formulating:
To choose which alternative is the better one, you have to understand the targets you want to achieve with this project. And don’t forget the frameworks like the maximum of time and costs.
Finally we define three different target dimensions of the project idea:
• quality target (What will be achieved? And in which quality?): It should be helpful to formulate keywords for the project.
• cost target (What does it cost?)
• time target (In which time everything should be achieved?)

All three targets influence each other. This is the reason, why an isolated view of the similar target dimension is not practical. During the formulation of the targets it is important, that you consider all important parts and avoid overlapping. Pay attention to achievability, measurability and independence of the targets. They also must be succinct and simply formulated. The important targets should be fixed and be apparent to all team members. Also pay attention that all targets fulfill the five criteria that define a real goal. They must be SMART: specific, measurable, attainable, realistic and time bound.
Make a choice:
At first, the separate alternatives have to be checked for feasibility.
For this, you have to assess the requirement of costs, time, resources and staff for every alternative idea. If you figure out that some of the alternatives are not practicable, delete them. If there are different meanings in your team, set evaluation points (see below).
After that, you have to choose the best idea out of the alternatives that can reach the target. It is necessary to judge the alternatives by the targets. This evaluation of alternatives must be well-founded and comprehensible to all team members.
It must be clear, who make the decisions. If a real client exists (e.g. an employer), the students present him their proposal and the client decides. If the activities concern the complete group of students (e.g. final celebration), the group has to choose the alternative.
Special techniques of alternative evaluation are able to help in reaching efficient decisions.

Formulating of the project assignment, appointment of the project leader:
Is the decision taken, the project assignment must be formulated. During the execution of the project “Open Day” it is necessary to give the students a generally overview about project management before you fix the leadership of the project. For example you can visit a company to give an introduction about project management there. By fixing a project leader it is important, that this student is responsible for the project. He must lead, coordinate, control and steer the project. The project leader can be selected by the client, by the teacher or choose by a group of students. During all phases of the project, the teacher has to coach the project leader.

Pitfalls:
Difficulties and problems in this phase can be circumvented by using the following measures.
• Involve the students in the decision process of finding ideas.
• Separate the finding of alternatives from valuation.
• Set realistic and verifiable targets.
• Make objective choices and analyze group dynamic processes.
• Formulate the project order careful and clear. A correction in a running project process is not easy and need time and energy.
• Find suitable project leader in cooperation with the students. A rotation of this job is possible.
Creativity techniques:

**Brainstorming:** Collect spontaneous ideas. Collect ideas of other people too and develop them further.

Please note the following basic rules:

- Everybody can say everything.
- No one should comment the ideas of each other.
- Make notes on the board, pinboard or poster.

Because mostly the steady students are restrained in finding own ideas it is recommendable to begin with a card inquiry: Every student writes at least two ideas about a subject on separate cards. He pins them on the board and gives a short explanation about his idea. More ideas should be developed from this proposal (spontaneous association).

Collecting ideas on cards has the benefit, that they can be arranged in thematic groups easily (metaplan method).

**Further information:**

**Brainwriting (also known as the 6-3-5 method):** The technique involves six participants who sit in a group and are supervised by a moderator. Each participant thinks up to three ideas every five minutes. The ideas are written down on a worksheet and passed on clockwise to the next participant. The participant reads the ideas and uses them as inspiration for more ideas. Participants are encouraged to draw on others’ ideas for inspiration, thus stimulating the creative process. After six rounds in 30 minutes the group has thought up a total of 108 ideas. All ideas should be written down on a poster, without repetition of an idea. After that, every group presents her results in a plenary meeting.

Further information: [http://www.thinkthru.info/methods/6-3-5-method.aspx](http://www.thinkthru.info/methods/6-3-5-method.aspx)

Video about the method: [http://www.youtube.com/watch?v=TR1i1PPd8ZU](http://www.youtube.com/watch?v=TR1i1PPd8ZU)

**Blueprinting:** This is a tool for spatial planners, who like to see visual representations where the relationships between elements are clear. Draw the spaces for your project as if you were doing a floor plan for a house. Experiment with number of rooms, links between rooms and sizes until you feel it is right. More important aspects of your project will have a bigger ‘room’ and areas that link together should be placed next to each other. Each room represents a core aspect of your project. So, if your goal is to support yourself from writing, a core aspect will be to write your novel! Put these in words in the centre of each room.

In another color and smaller print, put in known aspects of the core, medium term goals and ongoing elements. If you know there is more, but don’t know what it is, use question marks. From here, you can either make monthly or weekly ‘to do’ lists for each room, or copy your plan with just the room names so you can write in week-to-week tasks (or monthly for slower projects). One week, for example, your writing blueprint might have ‘teach writing course at local school’ in the ‘Money’ room and ‘ring Susan from literary agency’ in the ‘Networking and Contacts’ room.


**Storyboarding:** This is a tool if you know lots of tasks you need to do, but aren’t yet sure how they fit together. Put each task you can identify onto separate 3x5 card (or even a post-it note). If you are at the stage of knowing quite a bit, you can write down lots of info about your task. If not, you can add more details later. If you know there is more to do, or an element that isn’t clear, but don’t know what it is, use question marks. Pictures or diagrams can be useful.

Once you have a big pile of cards, organize them in the way that works best for YOUR project - either in modules or timelines, or? Spread them out and move them around until some sense of order emerges. You can stick them on a cork board (or on the wall if they are post-it notes) so you can have them both in modules and timelines at the same time, a bit like a graph chart with modules down the side and time frames across the bottom. Or you can organize them in piles based on when they need to be done, then just work through each pile in its allotted time frame.

Further information: [http://www.usabilitynet.org/tools/storyboarding.htm](http://www.usabilitynet.org/tools/storyboarding.htm)

**Techniques to assess alternatives:**

**Set evaluation points:** All alternatives will be check about their fundamental practicability. For this, everybody can give the individual alternative zero, one or two points. If you mean that an alternative is not practicable, it gets zero points. All alternatives which reached a predetermined number of points are available for further votes.
Example for a project assignment (target definition and benefits):

**Project Assignment – Target definition and benefits**

**Summary of all relevant information and clear statement on the agreement of the process during implementation.**

**Top fields with project information:**

- **Project Name / No.:** Insert name of the project here (PM 12/2013)
- **Account / Order:** 300
- **Client:** Project Placeholder (Position)
- **Project Manager:** Eva Example (Position)
- **Date:** 01.01.2013

**Question and Answer Form (Part 1):**

- **Problem / Actual Condition:** Description of the current and problem description. Strategic purpose and vision for the project.
- **Target Description / Expected Results:** Result of the project! Detailed description of the target state / Correct expectations and approach (if the impossible)
- **Task:** What needs to be done?

**Project Assignment – Target definition and benefits**

**Question and Answer Form (Part 2):**

- **Indicators for Achievement:** Quantitative target indicators, measurements of the target properties, in which the project’s success can be measured.
- **Expected Benefits:** Concrete benefits (quantitative, qualitative, strategic, target group)
- **Expected Benefits:** List of agencies that need to be integrated.
- **Expected Benefits:** Available time and resources.
- **Expected Benefits:** Result, beyond the scope of the project. Should not be reached, (out of scope)
- **Expected Benefits:** Problems and risks if the project is not carried out.
- **Conditions and Critical Success Factors:** Criteria to evaluate the success of the project afterward. What needs to be considered? What limits should not be exceeded?

**Project Assignment – Target definition and benefits**

**Question and Answer Form (Part 3):**

- **Note Organization and Responsibilities:**
  - **Goals:** Insert, duties, profile, responsibilities, and competencies
  - **Committee:** Definition of steering committee of project
  - **Project Manager:** Insert, duties, profile, responsibilities, and competencies
  - **Project Team:** Insert, duties, profile, responsibilities, and competencies

- **Reporting:** Who will report in which form? To whom in the company will reports be expected?

- **Risk Management:** Risk assessment, prevention and mitigation. Later detailed in risk analysis.

- **Indicators for Achievement:** Quantitative target indicators, measurements of the target properties.
4.3.1.3 Concrete example

Project idea:
The open day is mostly a yearly recurrent subject in vocational schools. Parents, pupils and other external people can see which attainments and abilities are needed in five different occupations. The students receive the order to plan this day. Client is therefore the school administration, replaced by a liaison teacher.

Target formulating:
Quality target: practical information about five selected occupations has been given
Cost target: no costs
Time target: autumn (time enough for pupils to apply)

Make a choice:
The customer (e.g. liaison teacher as a client) makes a choice in agreement with the school administration.

Example of the concrete project order:
4.3.2 Project planning

Project planning is the second phase in the project cycle. Project planning is indispensable for the project. At this point, the course of the project will be determined. It involves creating a set of plans helping to guide your team through the management and conclusion phases of the project. It gives safety in the further development to do the right thing at the right time. At this point you have to be sure to invest enough time, because mistakes can let the project fail. The rule of thumb is: spend ca. 2/3 of project time for the preparation and the project planning!

4.3.2.1 Description of the phase

Project structure plan:

In the project planning phase the whole project is broken down into its components and a project structure plan (PSP) is generated. A PSP has as general rule a process-oriented work breakdown structure. A work breakdown structure is a key project deliverable that organizes the team’s work into manageable sections. The Project Management Body of Knowledge (PMBOK, http://www.pmi.org/) defines the work breakdown structure as a “deliverable oriented hierarchical decomposition of the work to be executed by the project team.” The work breakdown structure visually defines the scope into manageable pieces that a project team can understand, as each level of the work breakdown structure provides further definition and detail.

The PSP contains all necessary steps to reach the project target. These steps will be divided into sub-steps. Therefore PSP starts with the project as the top level deliverable and is further decomposed into sub-deliverables. The advantage is, that the risk to forget important steps is minimized.

Finally the project planning with the three dimensions quality, costs and time is based on the PSP. These dimensions are interdependent, they influence each other.


Quality planning:
Based on PSP the quality characteristics can be defined. They included all things, which are important and measurable for the quality of the project, like tests or reachable standards. Quality planning has to be planned with the client closely.

The results of quality planning are the Market requirements document (MRD) and the Product requirements document (PRD), here are all specifications of the project are determinate. It is important for the controlling and the acceptance of the project.

Further information and examples about MRD: http://www.birds-eye.net/definition/acronym/?id=1357741964&abbreviation=MRD&meaning=Market Requirements Document
Time planning:
It is advisable to begin backwards; it means to start planning at the deadline.

Way of proceeding:
• Fix the expenditure of time for every (sub-)deliverable in the PSP.
• Decide about the time, which is needed (e.g., it depends on intensity and number of students who are involved with the project).
• Decide the sequence of the separate units (Which of them can run simultaneously?)
• Planning of all other appointments which can influence the project (e.g. holidays, work placements, exams etc.)

The results from that are the following three time parameters:
• Duration of every step
• The earliest time to start a step / unit
• The last possible time to start a step

The forms of expression are bar charts (Gantt charts), but in difficult cases you could also use network plans:

Further information about Gantt charts: http://www.gantt.com/
Cost planning:
A project mostly has a defined budget (e.g., the costs of the final celebration are limited to 100 €). If the expected project costs exceed the budget, you have to clarify the situation with the project customer. In this case, remember you have also a change in the dimensions quality and time.
The base of cost planning is the PSP. You have to find out the expected costs for every sub-deliverable. As a rule it is necessary to estimate the costs. The summary of all these separated costs are the planned project costs.

Sharing of responsibility:
From the beginning you have to think about sharing tasks between the team members.
• Who is the project leader?
• Who writes the protocol?
• Who gives the information about plans, changes and unexpected turns to the students and teachers which are not involved in the project?
• How do the single groups communicate together?
• Is there a rotation of functions in the single groups or retains one of the students e.g., the leadership during the complete project time?
After the sub-deliverables in the PSP are determined, you have to fix the responsibles for every sub-deliverable. Therefore it is important to make the decisions with nearly all team members together. Otherwise, the motivation could decrease.

Pitfalls:
• Don’t formulate the PSP with too many details.
• The teacher must be acting as a coach, not as a project leader.
• The quality awareness in teams must be sharpened.
• Every student is responsible for the success of the project.
• If you are under time pressure or under pressure to perform, don’t neglect the principles of project management.
• Plan enough time!
• In projects at school also budgets could be needed.
• Students can be overstrained, if they are project leaders/members at the same time.

4.3.2.2 Tools
Project structure plan:
The graphical representation of the PSP provides the basis for an easy overview about the entire project with its maybe very complex structure.
At school you can select between two different forms of expression: Mind mapping and tree diagram. Mind mapping enables a quick overview about the entire structure. By using different symbols the overview will be simplified in addition.

Further information:
• Mind mapping: http://litemind.com/what-is-mind-mapping/
• Tree diagram: http://asq.org/learn-about-quality/new-management-planning-tools/overview/tree-diagram.html
The tree diagram has in addition to clarity the advantage that it is very simple to derive a numerical outline from it. This is also helpful for presentation and documentation.

**Market requirements document / Product requirements document:**
In terms of content, MRD and PRD specify the project:
- What does the customer want (MRD)?
- What can we do (PRD)?
- How can we limit the content of the project?
- How detailed shall the result be?
- Which sub-deliverables in the PSP have to be worked out more detailed?
- What are our priorities? What is unimportant and what is dropped?
- How is the project documented?

MRD and PRD are often used in business. But in school it is worse to use because there in project work the process is more important than the result of it.

**Bar chart:**
The scheduling is a focal point. Here the networking and dependencies of the parts are clear:
If a certain section of the project is not ready in time, the next cannot be started.

**Network plan technique:**
There are different variations of network plan techniques. The Critical path method (CPM) is presented here. This method is used preferred in more complex projects with many interdependencies between the individual work steps. The critical path is a sequence of those work packages, whose delay is delaying the entire project. This means that there are also work packages where buffer times are possible.
In the CPM, operations are represented as nodes and sequence relationships as arrows. Above the arrows, stands in the simplest case the time required. For clarity, it is also useful to develop the representation along a timeline. Further information: [http://asq.org/learn-about-quality/new-management-planning-tools/overview/arrow-diagram.html](http://asq.org/learn-about-quality/new-management-planning-tools/overview/arrow-diagram.html) and [http://www.mycoted.com/Critical_Path_Diagrams](http://www.mycoted.com/Critical_Path_Diagrams)

**Organization plan:**
It is helpful to write down who has to do which tasks in which time:

**List of Activity / Work package** – Toolbox

<table>
<thead>
<tr>
<th>No.</th>
<th>Work package</th>
<th>Employee</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>'name of activity'</td>
<td>'name of employee'</td>
<td>10 days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Work package</th>
<th>Employee</th>
<th>Completed by:</th>
<th>Completed by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>'name of activity'</td>
<td>'name of employee'</td>
<td>05.01.2019</td>
<td>05.10.2019</td>
</tr>
</tbody>
</table>
4.3.2.3 Examples

Pictures below: a simply project structure plan and work packages of the Open Day

List of Activity / Work packages

<table>
<thead>
<tr>
<th>No.</th>
<th>Work package / Activity</th>
<th>Employee</th>
<th>Remarks</th>
<th>Duration</th>
<th>Completed by (target)</th>
<th>Completed by (actual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Selection of speakers</td>
<td>Eva Example</td>
<td>pay attention to a balanced choice</td>
<td>15 Days</td>
<td>05.10.2015</td>
<td>05.12.2018</td>
</tr>
<tr>
<td>1.2</td>
<td>Organise speakers</td>
<td>Jenny Jeker</td>
<td>Q&amp;A with possible appointments</td>
<td>6 months</td>
<td>05.10.2015</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>Schedule</td>
<td></td>
<td></td>
<td>18 Days</td>
<td>01.02.2016</td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>School organisation / Q&amp;A</td>
<td></td>
<td>Close coordination with school administration</td>
<td>15 Days</td>
<td>05.02.2016</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>Communication</td>
<td></td>
<td></td>
<td>constant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6</td>
<td>Catering</td>
<td></td>
<td>Inclusive / Council and PTA</td>
<td>15 Days</td>
<td>05.02.2016</td>
<td></td>
</tr>
<tr>
<td>1.7</td>
<td>Documentation</td>
<td></td>
<td></td>
<td>constant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.3.3 Project execution phase

The Project Execution Phase is the third phase in the project cycle. In this phase, you will build the physical project deliverables and present them to your customer for sign off. The Project Management Phase is usually the longest phase in the project cycle and it typically consumes the most energy and the most resources.

4.3.3.1 Description of the Phase

During the implementation of the project the project manager coordinates all elements of the project. This includes many areas, the project manager is responsible for. For example:

- The project has to be actively influenced and steered.
- The originally planned and the current course of the project have always to be matched (target-performance comparison). If discrepancies arise, it is crucial for the project leader that he not only defines but also initiates the counter measures.
- Everyone who is involved in the project has to get a feedback.
- Different opinions and interpretations of the team members have to be brought to a common denominator.
- Teachers cannot withdraw from the project implementation because the routine and the overview of a competent and mediating expert are always required.

Control of the project implementation in three stages:

The control is an active process during the implementation. The following levels must be considered:

1. Setting the standards in qualitative and quantitative terms (already defined standards can always be verified in the PSP or network plan)
2. Observation of the work results
3. Feedback and corrective action

Control of standards:

The project progress can be defined with already presented tables like network plan, bar chart, organization chart and project structure plan (PSP). Here you can check the compliance with the three parameters time, costs and quality. In these plans you can enter any undesirable developments and derive counter measures.

Pitfalls:

- Convert project structures completely!
- Beware: a project team is also an emotional and social system!
- Identify overload symptoms such as diving off, fallback behavior and blame. Initiate appropriate actions!
4.3.3.2 Tools

Milestone plan:
The milestone plan is a rough plan of the project. If you seriously and clearly design it, it is very useful by its exact summary of all steps and progresses of the project.
In no case he should have too many milestones.
Example of a milestone plan:

<table>
<thead>
<tr>
<th>Description/Phase</th>
<th>Note</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Start</td>
<td></td>
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<tr>
<td>Project Decision</td>
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<tr>
<td>Preparation Phase</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>Project Conclusion</td>
<td></td>
<td></td>
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</tbody>
</table>

Conference proceedings:
The project manager must ensure that the team meets regularly and communicates according to fixed rules. These meetings of the project team must be documented by the project management in addition to the milestone plan. Simple protocols have to be made about the progress of the project.

Interim report:
At regular intervals the project manager must ask the individual working groups to report on the “State of affairs”.
Two focal points should be handled:
• the contemplation of reached achievements in comparison to the plan
• the problems which have been identified and solved
The project manager is very important in such a discussion. The job is e.g. lead the team, listen to the team members, countersteer, taking himself back, putting together the needs and the observations of the project participants etc. The project manager is the “motor of the team”.

Project Organization - Project Manager
Role of Project Manager
• Moderation of objective and goal process with client
• Responsible for the achieving of agreements of project results and goals
• Responsible of operative planning and controlling of project terms of structure, process, schedule, capacity and cost.
• Make substantive decisions
• Give instructions or job orders to staff members with in the project.
Corrective intervention
If the project left behind the schedule, there are various methods to intervene effectively, but not too early:
- Discuss and renegotiate
- Contemplation of the last steps and comparison with the budget / time frame
- Exact analysis of the possibilities and limitations of the project
- Examine possibilities of replacement
- Search for alternative sources
- Accept partial successes
- Push new motivation
- Request new tools / financial support

Feedback:
The project manager must offer feedback in an adequate way. Bad results or setbacks can be corrected.
Feedback is valid, if the following is observed:
1. Contemporary:
   The less time passes between event and the feedback, the more learning effect can be achieved.
2. Clear and concrete information:
   Paraphrase nothing vaguely. Let the individual person know what he or she did.
3. Descriptive, personally, behavior-oriented and not condemning:
   The feedback giver should unbiasedly describe it’s own personal impression. You have to avoid supposing bad intentions or denouncing character defects of the interlocutor. The effect can be that the person concerned must defend itself and does not accept the feedback.
4. Give feedback, where change is possible:
   If you criticize non-modifiable aspects, the practical possibility of implementation is missing and the individual person will react with frustration and resignation.
5. Accept feedback:
   - Listen!
   - Do not explain your own behavior, not justify!
   - Ask, if the feedback is too unspecific!
   - Think about, how you get the maximum benefit from the feedback!
   (See also chapter 5: Feedback as a part of quality management)

4.3.4 Project conclusion phase
The Project Conclusion Phase is the fourth and last phase in the project cycle. In this phase, you will formally close your project and then report its overall level of success to your customer.

4.3.4.1 Description of the phase
Each project is time-limited and has therefore a clearly defined end. The project completion gives the opportunity to make a review in a structured form.
Through a successful project, students get recognition and motivation. Important learning outcomes for future projects are often achieved by problematic projects.

Acceptance of the project:
The acceptance of the project will vary widely depending on the project idea. If the idea is posed by external to the school, the client controls the successful implementation of the project contract and the achievement of the defined targets. In teaching projects the manufactured products are less tangible. These can be used to perform product tests. Here the target-oriented procedure and choice of appropriate measures in the project process are in the foreground.
If the project idea has been initiated by the students themselves, the achievement of targets is made in the form of self-assessment or the supervising teacher of the project assesses them.
The goal of project acceptance is the official completion of the project and the discharge of the project manager. The result will be recorded in a certificate of delivery or in an inspection report.
### Project Conclusion Report – Performance Analysis

**Date**
- Start: <Date>
- End: <Date>

**Client:** <Name>

**Project Manager:** <Name>

<table>
<thead>
<tr>
<th>Planned Project Objective (Target)</th>
<th>Actual Project Result (Actual)</th>
<th>Deviation / Cause</th>
<th>Resource and Causes of Deviations and Responsibilities</th>
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<tbody>
<tr>
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<td>&lt;Details&gt;</td>
</tr>
</tbody>
</table>

### Project Conclusion Report – Project Organization

#### Development
- Structural organisation during project:
  - <Details>

#### Procedure
- Project procedure during project:
  - <Details>

#### Alteration
- History of alterations including filed and approved applications:
  - <Details>

### Evaluation of development and structural organization:
- Additional notes and comments:

### Evaluation of influential factors / problems:
- Additional notes and comments:

### Project Conclusion Report – Deadlines / Milestones

<table>
<thead>
<tr>
<th>No.</th>
<th>Deadline / Milestone</th>
<th>Date (Plan)</th>
<th>Date (Inc.)</th>
<th>Deviation / Causes</th>
</tr>
</thead>
<tbody>
<tr>
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<td>&lt;Date&gt;</td>
<td>&lt;Date&gt;</td>
<td>Reasons and Causes of Deviations and Reseponsibilities</td>
</tr>
<tr>
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<td>&lt;Date&gt;</td>
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<tr>
<td>1.4</td>
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<td>...</td>
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</tbody>
</table>
With the project conclusion report, the project manager gives account about progress and results of the project. There is also the possibility for a personal opinion from the individual project members.

The following structure is recommended:

- Project order
- Project targets
- Overview about the project course
- Target-performance comparison in relation to quality, time and cost planning
- Description of occurred errors
- Proposal for further procedure

**Presentation:**

The students get the opportunity, to present their work done to external (e.g. companies, parents) or other student groups. They learn to represent themselves positively and to communicate their results clearly.

Among other things an excellent project presentation accomplishes the following tasks:

- Communicating of knowledge and experiences
- Dissemination of the project idea
- Self representation of the school (e.g. during an open day)
Different forms are suitable for the representation of results and processes:

- Video recordings
- Exhibitions
- Experiments
- Objects / models
- Played scenes
- Foil or power point presentations
- Documentation on CD / DVD
- Internet presence

Evaluation:
The evaluation of the project is essential for the further development of quality in future projects. It is performed usefully, if the formulated targets are reviewed on the basis of collected data and resulting consequences are drawn.

To distinguish is:
- What is evaluated? (Result or process evaluation)
- Who is evaluated? (Pupil, teacher, project leader)
- How do you evaluate? (Evaluation methods)

During the evaluation, all stakeholders should have opportunities for reflection. There is a review of work done and experiences. Experiences of students are collected, discussed and evaluated. Appropriate tools for reflection are role-playing games or flashlight method. In the latter case, each participant is asked to give a spontaneous terse statement about the project.

An important target of the evaluation is to get a reasonable assessment on basis of data.

The following methods are appropriate for this:
- Analysis of strengths and weaknesses (SWOT analysis, see chapter 3 and chapter 4.3.4.2)
- Questionnaires
- Interviews
- Evaluation target (see chapter 2)

The following questions must be answered in the final evaluation:
- Did we achieve our targets?
- Where occurred problems?
- What has run well?
- What do we learn for future projects?

Feedback:
The feedback is one of the most effective means to influence or change the behavior of the project participants. This can be done with each other by the teacher, students or external within the framework of an informal conversation. The feedback recipient is informed by his interlocutor about how its behavior and its performance are perceived by the others.
Pitfalls:
- Work done is to appreciate sufficiently!
- Request the documentation even after project completion!

4.3.4.2 Tools
Role play as a means of the reflection:
In the role play, students have the opportunity to play several other roles, peoples or functions and to represent different points of view and arguments. The emotional and social level is also mentioned deeply apart from the intellect. Different behaviors and values are understandable.

For a role play, the following procedure is recommended:
- Characterization of the roles on the chalk board or flip chart
- Distribution of roles ideally by agreement otherwise by drawing lots
- Description of roles on role cards
- Recording of the role play on video

For the preparation of a role play you need approximately 30-45 minutes. The implementation takes nearly one hour.

The evaluation of the role play and the video recording is very important. During the follow-up meeting the following questions should be answered:
- What did you think about the game (realistic / unrealistic)?
- Why did you choose your role?
- Why is the achieved result occurred?
- What was particularly remarkable?
- What insights and findings arise for you out of the game?

The framework for a role play might be a typical meeting of the project team. It is important that everybody slips in the role of another team member.

Evaluation target (cobweb):
The evaluation target is especially to get a first assessment of certain aspects.
The basic structure is equivalent to a dartboard. The designation of the pieces of the cake is adapted to the evaluating question.

A possible question might be:
How happy I am with...
Functioning:
- Each respondent answered the question by placing a sticky point. The closer the point is placed to the center, the more positive this aspect is evaluated.
- All participants should perform the point distribution hidden by using an own target. By this an interference is excluded. This procedure is especially recommended for students, because they often tend to the opinion of their classmates without making their own reflection.
- After that, the resulting image will be analyzed (matches, discrepancies, optimum, deficits)

Finally, the project participants should be asked about their assessment by using questionnaires or interviews.

Strengths, weaknesses, opportunities and threats analysis (SWOT):
Here, the project participants are prompted to rethink the entire project.
On a prepared table or wall are for example the following questions:
- What has run well?
- What has caused difficulties?
- Which are the targets that we have achieved?
- Which are the targets that we have not achieved?
- What positive experiences we had?
- Which negative experiences we had?

Conversation about the final image:
- Which main emphases are there?
- What are similarities in the evaluation of the project members?
- Where are different perceptions and opinions?
- Which consequences are pulled out of it?


4.3.4.3 Example
Project conclusion reports can vary, because they often depend on individual experience and local conditions. Therefore a fictitious example is renounced here. This also applies to the evaluation. You will find a concrete example at the power point presentation of chapter 4.

4.3.5 Project documentation and project communication
The documentation is an ongoing process that runs through all phases of the project.

The following documentation tools are offered:
- Protocol
- Photo protocol (e.g. for the documentation of a map query)
- Project order
- Mind maps
- Minutes of proceedings
- Organization plan
- Milestone plan
- Network plan
- Bar chart
- Project structure plan (PSP)
- Market requirements document / Product requirements document (MRD / PRD)
- Feedback / barometer of public opinion / flashlight
- Project presentation
- Project acceptance by customer
- Process evaluation
- Result evaluation
- Assessment / evaluation by the teacher
- Questionnaires
- Project conclusion report
The project documentation can be a basis for public relations of a school. Here, you should take care that all the information going to the outside are edited by the teachers and the principal. You can use successful projects for the school profile (public relations).

**External communication:**
- Annual report
- Newspaper / press
- School homepage

**Internal communication:**
- Screens
- Bulletin board
- Library
- Chronicle
- Submission for competition
- Student newspaper / school magazine
- Session of the respective section
- Teacher Conference: short result report
- Announcement: Short result report
- Copy of the final report to the parents / PTA
- Documentation for the customer / client

### 4.4 Tasks
Finally some examples of project training tasks for multipliers, as we have given in our training in Indonesia:

- Find and collect ideas (that are related to the school mission statement)
- Define a precise project assignment!
- Nominate a project manager
- Please define your own project assignment for a project idea at your school / college
- Create a project structure plan for your project and set milestones.

Please formulate additional tasks of your own!
Chapter 5: Quality Management

Author: Dipl.-Ing. Hans Bernd Richter, Oberstudiendirektor, Principal of the “Independent Vocational Education Radko-Stöckl-College” in Melsungen, Germany

5.1 Introduction
The first steps towards a quality management (QM) go back as far as to the middle age where guilds in the emerging cities were in duty for the quality of products and services. Vocational education was established and the Master Craftsman Diploma became a seal of quality.

“European guilds imposed long standardized periods of apprenticeship, and made it difficult for those lacking the capital to set up for themselves or without the approval of their peers to gain access to materials or knowledge, or to sell into certain markets, an area that equally dominated the guilds’ concerns.” (Wikipedia: guilds).

The best way to improve quality is to establish an appropriate quality management system in your college.
Centuries later, in the year 1887 the label called “Made in Germany” was created. The initial aim was to protect the British economy by keeping out German imports. The British should buy British. But unfortunately for the British economy German products had a very high quality, at that point in time even higher than British goods. So the label, which was developed to obstruct German imports became a quality label for German products, instead.

At the beginning of the 20th century, Frederick W. Taylor invented the transformation of craft production into mass production; and knowledge transfer between workers and from workers into tools, processes, and documentation. Manufacturing processes became more complex with larger numbers of workers being supervised. To counter bad workmanship, full-time inspectors were introduced to identify, quarantine and ideally correct product quality failures. In 1924, the American physicist Walter A. Shewhart introduced a control chart to determine the quality of a manufacturing or business process and thus work on its continuous improvement. His work came to the attention of W. E. Demings, who further developed Stewharts methodological approaches and called them the Stewhart cycle. Later on, he was involved in the planning of the Japanese Census in 1951 and trained hundreds of engineers, managers, and scholars in statistical process control and concepts of quality. His work was honoured by the Japanese, who introduced the Deming Prize, which still exerts considerable influence on the disciplines of quality control and quality management. Deming’s work resulted in launching the Total Quality Management; his “Deming Cycle” (Plan-Do-Act-Check) is still in use today.

Definition of Total Quality Management: It is an organization wide program that integrates all functions and processes of the business so that design, planning, production, distribution and services are focused on maximizing customer satisfaction through continued improvement. (Gary Dressler, 9th Ed. pg. 266)

A more detailed look at TQM is displayed in the next chart.

In 1948, the International Standardizing Organization (ISO) was founded and in 1987 the ISO 9000 standards, which define, establish, and maintain a quality assurance system for manufacturing and service industries, was published in the United States of America (USA). One year later, Europe answered with the EFQM-System (European Foundation of Quality Management). The reason for the fast process of founding different QM standards in many parts of the world can be found in the process of globalization and the competition of economies. Depending on the used quality management system model a variety of different definitions for the term quality can be found. All of them are focused on customer satisfaction, which leads to the conclusion that colleges should aim at the satisfaction of the students, their parents and the companies who are engaged in the vocational education.
Some quotations may illustrate the different views on QM

- Quality is never an accident; it is always the result of intelligent effort (John Ruskin).
- Quality means doing it right when no one is looking (Henry Ford).
- The quality of teachers makes the difference (John Hattie).

The research done by John Hattie shows some important results and findings that can help to improve the quality management in schools and colleges. The professionalism and the attitudes of the teachers will define whatever is possible in quality management. The quality of the teaching staff is the key factor. In chapter 3 we will present some important aspects and take a closer look at the education of VET-teachers (Vocational Education Training), who will need all the support the organization could give, so that teaching and learning remain the key-processes in colleges. All staff should be involved in establishing a quality management system to support ownership, share responsibility and create a common sense of customer orientation, i.e. student orientation. Otherwise all efforts might be in vain and could lead to frustration and disappointment.

To measure the quality of processes and the provision of services such as teaching and the support of a learning environment all teachers and the complete staff has to be involved in the so called “QM-Pyramid” as an integrative management philosophy for the continuous improvement of product and process quality.

**Total Quality Management - Pyramid**

TQM is an integrative management philosophy for the continuous improvement of product and process quality

In this context, the expression “product” may seem to be confusing in the field of education. However, the results, reports and certificates that vocational organizations produce can be interpreted as products. The term “product” can be used as an equivalent for the output of the vocational college.

The quality of services should not depend on people and their experience, knowledge and competencies but on the knowledge and competence that lies within the system. Staff members may leave an organisation but the quality of the education should remain the same and not deteriorate. Thus, service quality must be described in the form of different characteristics and attributes as part of the organization and its core management task, as it is visualized in the next chart.
To establish a continuous improvement of processes and products and to become a constant learning organization it is necessary to implement a specific process cycle: the Deming-Cycle or Plan-Do-Check-Act-Cycle.

The next figure shows the main topics of Deming’s transformation process. All of these 14 principles should be considered as core items and used in every company or college all over the world that wants to become a learning organization, as they are universal and don’t depend on culture, political system, financial background, e.g.
The next figure illustrates that quality management is a process, which needs constant effort to improve the quality of products and services. As soon as there is a standstill and a stagnation in the further development of quality improvement, even the achieved level can get lost, if there is no defined set of standards.

The illustration demonstrates the complicated process of continuous quality improvement as a ball, which will run down the ramp without an obstacle to stop it. A standard that is set could keep the ball from running down the ramp, i.e. a decline of quality. However, clearly defined milestones make it possible to improve quality step by step and serve as new starting points to set a new standards and increase quality yearly.

The action part of the process cycle of quality improvement starts at the beginning of every college year. However, the planning has to be made before. At the end of each college year the processes and products should be checked seriously. The
results of this controlling (evaluation, feedback, checklists, interviews, data-analyzing) should be used for planning the next cycle. A quality management system that is reduced to big files standing on the desk or in the shelves of the director is not the appropriate tool to achieve a high level of either product or service quality. Only with periodically conducted process cycles there is a chance of good outcome, continuous improvement and continuous consolidation.

When the president of the Harvard University was once asked why education is so expensive, he answered: “When you think education is too expensive, try ignorance.” This is an excellent example of what to say when somebody asks why good quality takes so much intelligent effort. Good quality leads to many positive results.

**Importance of Good Quality**

Good Quality leads to higher customer satisfaction and is rewarded by increased reputation, numbers of students and lower costs

The next figure demonstrates the outcome of poor quality and its consequences for the education system Poor quality can lead to a loss of students, a loss of reputation and an increase of costs. A study report shows that bad experiences are talked
about much more often to much more people than good experiences. As a result, it takes much more time and effort for an organization generally known for its poor quality to change its reputation. It is a rough road from poor good quality.

To reach continuous improvement for an organization it is necessary to include many different aspects of change management. The most important of these aspects is to involve all employees right from the beginning and to make them understand how beneficial a change process will for the future of their organization, as it is described in the next chart.

„Success is the ability to go from one failure to another with no loss of enthusiasm“ (Winston Churchill). Normally, companies or colleges with a long history or strong traditions don’t make big mistakes. However, sometimes it is the small mistake or a wrong decision that makes the difference and defines the direction towards failure or success. The question is not, whether we make mistakes or not, but how we deal with them and learn from them.

The next figure is showing which elements and aspects are involves in the process of quality improvement in a college.
5.2 Certificates and models

On the market there are many different models and certificates for quality management. Not all of them are appropriate for a vocational college, but the majority is quite useful. It is not so much a matter of the type of the model but of the way it is going to be introduced. For instance, it is necessary to take a look at the organization, its specific culture and processes first and then try to establish a bottom-up-process rather than deciding for a specific model and to use its manual to establish it in a top-down approach. It is much more realistic and promising if employees develop and start their own change process and take ownership of the whole quality management system.

The most popular QM model is developed and published by the International Standardizing Organization (ISO) and is called the ISO 9000 QM system. It sets standards for the definition, establishment, and maintenance of an effective quality assurance system for manufacturing and service industries. In fact, it is a whole package of different standards to cover most of the demands of companies in all branches.

ISO is the world’s largest developer of voluntary international standards. It was founded in 1947, and since then has published more than 19,500 international standards covering almost all aspects of technology and business. Today, ISO has members from 162 countries.

The standards are available through national standards bodies. In Germany, the “Deutsche Industrie Norm (DIN)” is responsible for ISO standards. These standards are grouped in so called families, one of which is the ISO 9000 family focussing on the requirements organizations have to fulfil. Within this family ISO 9001 deals with the requirements of quality management systems.

According to the ISO (http://www.iso.org/iso/home/standards/management-standards/iso_9000.htm) the ISO 9000 family includes:

- ISO 9001:2008 - sets out the requirements of a quality management system
- ISO 9000:2005 - covers the basic concepts and language
- ISO 9004:2009 - focuses on how to make a quality management system more efficient and effective
- ISO 19011:2011 - sets out guidance on internal and external audits of quality management systems.

To ensure an independent certification third-party certification bodies are commissioned and authorized to audit over a million companies and organizations worldwide. This makes ISO 9001 one of the most widely used management tools in the world today. Despite widespread use, the ISO certification process has been criticized for not being useful for organizations such as the vocational education system. However, we have learned that the success of a QM process depends on how it is being started and developed. The ISO standard is not more than a management tool, which can be used in different ways. So the way the process is managed is more important than the tool itself. For instance: you can use the internet to cooperate and collaborate or to spy out somebody. The internet is not good or bad in itself – what counts is the way it is used.

ISO 9000 was first published in the year 1987. The standards of the ISO 9000 family are further developed persistently with the latest update from the year 2008. The next one will come up in 2015.

As an interesting source to find more details, please have a look at: www.iso.org/iso/ims-alerts_9001_14001_overview.ppt

In the next figure shows a certificate of a British company.
The world coverage of the ISO 9000 standard is shown in the slide below:

According to this source [http://econpapers.repec.org/paper/wzbwzebiv/spii2006-22.htm]:

“The effects of ISO 9000 diffusion on trade and FDI (Foreign Direct Investment) have gone understudied. We employ panel data reported by OECD nations over the 1995-2002 period to estimate the impact of ISO adoptions on country-pair economic relations. We find ISO diffusion to have no effect in developed nations, but to positively pull FDI (i.e., enhancing inward FDI) and positively push trade (i.e., enhancing exports) in developing nations.”

According to an ISO survey from 2011, the number of companies with an ISO 9000 certificate had increased from 510,349 in 2001 to 1,111,698 in December 2011.
The complex structure from starting the process to receiving the certificate is shown in the next diagram:

**T&P Methodology for Implementation of Quality Management System based on ISO9001:2008**

1. **Phase 1**
   - Step 1: Project start
   - Step 2: Management commitment
     - Definition of scope
   - Step 3: Understanding the business
   - Step 4: GAP Assessment
     - GAP assessment report
   - Step 5: Definition of Policy, roles and responsibilities
   - Step 6: Business process modeling
     - Business process model
   - Step 7: Development of QMS
     - QMS Manual
   - Step 7a: Development of core procedures and records
     - Policies and core business procedures
   - Step 7b: Development of supporting procedures for QMS
     - Supporting procedures and records
   - Step 8: Plan for implementation of the documented QMS

2. **Phase 2**
   - QMS Manual
   - Implemented QMS
   - Step 9: First Internal Audit
     - Internal Audit Plan
     - Internal Audit Report
   - Step 10: First Management Review
     - Management Review Report
   - Step 11: Implementation of Corrective / Preventive Actions
     - Corrective / Preventive Action Report
   - Step 12: Preparation for Certification
     - Pre-certification assessment report

3. **Phase 3**
   - QMS Manual
   - Implemented QMS
   - Internal Audit Report
   - Management Review Report
   - Corrective / Preventive Action Report
   - Pre-certification assessment report

Source: [http://www.standards.org/images/standards_content/iso%209001_implementation_methodology_for_qms.png](http://www.standards.org/images/standards_content/iso%209001_implementation_methodology_for_qms.png)

Another ISO standard, which is very appropriate for vocational colleges is the ISO 29990 for “learning services for non-formal education and training - basic requirements for service providers” and is published in 2010.
The DIN ISO 29990:2010-12 (E):
Learning services for non-formal education and training - Basic requirements for service providers (ISO 29990:2010) describes in detail the following topics: scope, terms and definitions, learning services (learning needs, design, provision, monitoring and evaluation of the delivery of learning service) management of the learning service provider (general management requirements, strategy and business management, management review, preventive actions and corrective actions, financial management and risk management, human resources management, communication management (internal/external), allocation of resources, internal audits, feedback from interested parties) and other informative aspects just as examples of core competencies for learning service providers.

The introduction of the ISO certificate 29990 shows what it is intended with this particular standard:

„The objective of this International Standard is to provide a generic model for quality professional practice and performance, and a common reference for learning service providers (LSPs) and their clients in the design, development and delivery of non-formal education, training and development. This International Standard uses the term “learning services” rather than “training” in order to encourage a focus on the learner and the results of the process, and to emphasize the full range of options available for delivering learning services.

This International Standard focuses on the competency of LSPs. It is intended to assist organizations and individuals to select an LSP who will meet the organization’s needs and expectations for competency and capability development and can be used to certify LSPs.

This International Standard shares some similarities with many of the management system standards published by ISO, particularly ISO 9001.”


This new standard closes the gap between the demand of standards for production, the basic requirements of ISO standardization and the special demands of learning environments and organizations like schools or colleges. ISO 29990 is particularly focused on the special needs and demands of formal or informal education.

In 1988 the European Union published another model, which differs from the IOS standardisation in its specific structures, described processes and audits and can be viewed more like a benchmarking system rather than a typical standardizing process. It is based on eight “Fundamental Concepts of Excellence”. Today, the EFQM Excellence Model is used by more than 30,000 organizations in Europe and in more than 60 countries in the world.

“EFQM (the European Foundation for Quality Management) is a not-for-profit membership foundation in Brussels, established in 1989 to increase the competitiveness of the European economy. The initial impetus for forming EFQM was a response to the work of W. Edwards Deming and the development of the concepts of Total Quality Management.”

(Wikipedia: EFQM)

“All European organisations, both in the public and private sectors, are facing new challenges. The increasing pressure to compete on a global stage with limited resources means we all have to work together to secure our future prosperity, and that of generations to come. The EFQM Excellence Model provides a framework that encourages the cooperation, collaboration and innovation that we will need to ensure this goal is achieved.”

(Herman van Rompuy, President of the European Council)

Whilst there are numerous management tools and techniques commonly used, the EFQM Excellence Model provides an holistic view of the organisation and it can be used to determine how these different methods fit together and complement each other. The model can therefore be used in conjunction with any number of these tools, based on the needs and function of the organization, as an overarching framework for developing sustainable excellence.

Excellent organizations achieve and sustain outstanding levels of performance that meet or exceed the expectations of all their stakeholders. The EFQM Excellence Model allows people to understand the cause and effect relationships between what their organization does and the results it achieves.

All organizations strive to be successful, some fail, some achieve periods of success but ultimately fade from view, and a few achieve sustainable success, gaining deserved respect and admiration. The EFQM foundation was formed to recognize and
promote sustainable success and to provide guidance to those seeking to achieve it. This is realized through a set of three integrated components, which comprise the EFQM Excellence Model:

- The Fundamental Concepts of Excellence
- The Model Criteria
- The RADAR Logic™ (www.efqm.org)

Yet another kind of QM certificate is used only in some German and Austrian colleges. The Q2E (Quality through Evaluation and Development) differs from the previously presented models in several aspects. Firstly, it does not use the PDCA or Deming cycle, but is based on a specific feedback culture, the so call 360 degree feedback. Secondly, there is no strategic development structure, which is why it is neither accepted by craft working companies nor in the industrial sector. The lack of recognition of the Q2E system leads to an extensive need of explanation and often creates difficulties for vocational colleges to cooperate with companies in the field of apprenticeships. And thirdly, it is very expensive to get audits, as there are only a few specialized auditors. In Germany, only 3 vocational colleges have received a certificate up to now. Thus, we don’t recommend the Q2E system for Asian colleges, even if some colleges in Germany like the Oskar-von-Miller-Schule use this system. But there are some reasonable elements that can be quiet useful to improve quality in colleges such as the feedback system.

The components of Q2E are shown in the next slide. The school’s quality vision statement at the centre of this system has to be evaluated in a special feedback and evaluation system, which includes feedback from students to each teacher and from teachers to the management staff. Another important part of Q2E are internal and external evaluations. The management is in charge of the whole process, but there is no specific process outline. Each college has to develop its own process steps and structure, whereas the ISO standards provide a clear structure and process description.
The last example of a kind of quality management system for schools is the “Hessen Framework for School Quality”. It is used as an inspection tool for the government of the German federal state Hessen. The system itself looks like EFQM-Model and in fact has quite a lot in common with it. It includes and describes quality criteria, quality fields, quality dimensions and hundreds of different items, questions and indicators for good quality. The checklists and questionnaires of this model are universal for external evaluation and could easily be transferred to different contexts and different countries all over the world.

Hessen is the name of the federal state of Germany where we come from. In Germany the 16 federal states are in charge to running the education system.
5.3 Feedback as a part of quality management
The last example of a kind of quality management system for schools is the “Hessen Framework for School Quality”. It is used as an inspection tool for the government of the German federal state Hessen. The system itself looks like EFQM-Model and in fact has a lot in common with it. It includes and describes quality criteria, quality fields, quality dimensions and hundreds of different items, questions and indicators for good quality. The checklists and questionnaires of this model are universal for external evaluation and could easily be transferred to different contexts and different countries all over the world. Feedback as a part of quality management.
As John Hattie in his famous study “Visible Learning For Teachers” (John Hattie, 2012) has pointed out: the feedback as an instrument in the learning process is very important for both the teacher and the student. “Feedback is among the most common features of successful teaching and learning. But there is an enigma: while feedback is among the most powerful moderators of learning, its effects are among the most variable. (…) To make feedback effective, therefore, teachers must have a good understanding of where the students are, and where they are meant to be (…). Feedback can be provided in many ways: through affective processes, increased effort, motivation, or engagement; by providing students with different cognitive processes, restructuring understandings, confirming to the student that he or she is correct or incorrect, indicating that more information is available or needed, pointing to directions the students might pursue, and indicating alternative strategies with which to understand particular information.” (Hattie, 2012, p. 115)

According to John Hattie there are three major questions providing feedback:

1. Where am I going? What are my goals?
2. How am I going? What progress is being made towards the goal?
3. Where to next? What activities need to be undertaken next to make better progress?

In the light of quality management the word “feedback” is often associated with another perception. Here, the word stands for a summary evaluation at the end of each college year. Teachers should provide a questionnaire to receive appropriate feedback from their students to revise and enhance the learning environment for the next term. For this reason the questions should be formulated carefully.

Formulation of the questionnaire items:
• Use clear statements, avoid ambiguous terms,
• Avoid generalizations in the formulation,
• Formulations should be neither too long nor too short,
• Advice for the direction of questions: It is better to make positive expressions, because such questions implicate an intended practice quality,
• Every formulation has been selected in a way that the answer can express a quantifiable level of the approval or of the presence of the attribute,
• The formulation of the question has to match with the selected answer format.

Feedback is not only a matter of technique; it is a matter of attitude. The willingness to give and receive feedback is a precondition for real and efficient learning. Feedback is not a duty. It is an opportunity to optimize self-dependent actions of the individuals. The aim should be that feedback as a culture is established as a social standard in the college. Feedback is able to offer many items to improve learning. Some of them are shown in the next slide.

**Good Practice Example: Quality Management in a College**
**QM-Support and selection of an appropriate model**

*If you want to go fast – go alone!*
*If you want to go far – go with others!* (Sambian wisdom)
5.4 Good Practice Example: Introducing a QM system at the Radko-Stöckl-College

The story of the development and implementation of a quality management system at the Radko-Stöckl-College in Melsungen is described to give an example and to show possibilities of selection, construction and implementation of a QM system in a specific social and cultural environment.

The Radko-Stöckl-College in Melsungen has become an independent vocational education college. In this case independence means, that the Radko-Stöckl-College has gained the freedom to manage its own budget, its human resources and its networking, cooperation and collaboration activities. Yet, it is still part of the public school system.
It exists for almost 175 years. In 1969 it was placed on a hill overlooking Melsungen as a greenfield development with brand new facilities. Since then it has continuously grown in size and number of students. Today, more than 1400 students attend the college and about 80 teachers work together as a team. Half of the students go to full-time-classes, the others are part-time students in apprenticeships in companies around Melsungen. Because of the demographic change in Germany and particularly in Hessen there is a slow drop of students. Some industrial firms are lamenting over the shortage of possible students for an apprenticeship - the famous Dual system. They register a loss of applicants and suspect an increasing attrition rate. The college is well known in the region for its pedagogic performance and its good outcome. Some of the students come from far away only to attend to specific courses just as the Fachoberschule (full-time college of further education with the possibility to attend a university afterwards). There are three vocational colleges in the Schwalm-Eder-District, one of which is the Radko-Stöckl-College in Melsungen. In the larger area around Melsungen more than 14 other colleges are in competition with the Radko-Stöckl-College.

In 2012, after a long process full of discussions, different decisions, coping and hoping the Radko-Stöckl-College attained its independent status through the decision of the Ministry of Education and Cultural Affairs in Hessen (Hessisches Kultusministerium). With this decision quality management became an important and essential issue and the process of establishing a new quality management system started in the summer of the very same year with the goal to get it certified in 2015.

Even though most of the other colleges considered the Q2E-Model as the appropriate model for the education system, the management team of the Radko-Stöckl-College decided to go a different route. The College Development Group (CDG) together with the principal looked for external support on this difficult task for various reasons:

- Any change process creates anxieties and is only accepted if an external expert presents the need.
- For the introduction of a quality management system a lot of work has to be done and not everybody favours this idea.
- “No prophet is accepted in his own country.” Therefore the support has to come from an external, qualified consultancy.
- The whole college environment (parents, students, the chambers of handicrafts and the chamber of commerce, and the government) should accept and appreciate the chosen quality management system.
- The reputation of the college should rise and gain attention by the government and the industry sector alike to strengthen future development and possible cooperation.

Through a tender procedure a consultancy with the following requirements was chosen: the consultancy was experienced in the field of quality management systems and eligible in identifying the right model and establishing the process, the system and the documentation up to the certification.

Philipp C. Gonon is a famous Swiss educationist, who was born in Germany. His main focus lies on vocational education, training studies and continuing education.

He suggests some interesting issues, which should be addressed in the selection process for a QM model. Source: http://en.wikipedia.org/wiki/Philipp_Gonon

1. Clarify the motives of the school.
2. Prepare an overview of the offered quality management
3. Deal intensively with two or three chosen quality management systems.
4. Decide for the system that’s suits best.

In addition to these suggestions the following aspects might be helpful as well:

- Besides clarifying the motives of the college find out about the needs of your environment and network.
- It is not necessary to prepare the overview of the offered quality management by yourself. You can ask if an experienced person or company can do that for your college.
- To deal intensively with the three chosen quality management systems means also to ask others about their experiences with those systems.
- Before your decision take a closer look at the outcome of organizations that have chosen these systems.

After many discussions and meetings and workshops the Radko-Stöckl-College has chosen to implement the ISO 29990 standard, because it fits well to the education sector and leads to a widely accepted ISO certificate.
ISO 29990 was prepared by the Technical Committee ISO/TC 232 Learning Services for non-formal education and training. The objective of this International Standard is to provide a generic model for quality professional practice and performance, and a common reference for learning service providers (LSPs) and their clients in the design, development and delivery of non-formal education, training and development. This International Standard uses the term “learning services” rather than “training” in order to encourage a focus on the learner and the results of the process, and to emphasize the full range of options available for delivering learning services. This International Standard focuses on the competency of LSPs. It is intended to assist organizations and individuals to select an LSP who will meet the organization’s needs and expectations for competency and capability development and can be used to certify LSPs. This International Standard shares some similarities with many of the management system standards published by ISO, particularly ISO 9001. (ISO paper, www.iso.org, introduction to ISO 29990)

Some organizations that have received an ISO 29990 certificate can be found on: http:/ /www.iso29990.biz/iso29990-certificate.html For more details on the ISO 29990 standard please visit: WWW.ISO.ORG.

QM visions
When a former German chancellor was asked what he thinks about visions he answered: “When somebody says that he has visions I will suggest to go to a doctor!” But that was long ago. Today, the power of visions is widely recognized. One of the first things that any external observer or auditor asks the management or executive board is if the company or organization has a vision and mission statement. In addition, one of the first things that are taught at business school is the importance of vision and mission statements.

Some of the benefits of having a vision and mission statement are discussed below:

- Above everything else, vision and mission statements provide unanimity of purpose to organizations and imbue the employees with a sense of belonging and identity. Vision and mission statements are embodiments of organizational identity and carry the organizations creed and motto. For this purpose, they are also called as statements of creed.
- Vision and mission statements spell out the context in which the organization operates and provides the employees with a tone that is to be followed in the organizational climate. Since they define the reason for existence of the organization, they are indicators of the direction in which the organization must move to actualize the goals in the vision and mission statements.
- The vision and mission statements serve as focal points for individuals to identify themselves with the organizational processes and to give them a sense of direction while at the same time deterring those who do not wish to follow them from participating in the organization’s activities.
- The vision and mission statements help to translate the objectives of the organization into work structures and to assign tasks to the elements in the organization that are responsible for actualizing them in practice.
- To specify the core structure on which the organizational edifice stands and to help in the translation of objectives into actionable cost, performance, and time related measures.
- Finally, vision and mission statements provide a philosophy of existence to the employees, which is very crucial because as humans, we need meaning from the work to do and the vision and mission statements provide the necessary meaning for working in a particular organization. (cited by http://managementstudyguide.com/importance-of-vision-and-mission-statements.htm)
The next figure shows the result of a very long process (17 years) of developing a program for the Radko-Stöckl-College. In the year 2001 the college program was established with a mission statement being part of it.

In the next chart you see an overview of this mission statement:
The Radko-Stöckl-Schule wants to be a house of learning focusing on the success of the students. It is built on 3 components, which represent education, design of lessons and cooperation. The different interest of clients, owners, the region and the employees of the college play an important role and have to be integrated; their needs are the CORE of the program.

With time the original version of the college program from 2001 was found to be very good and still appropriate but far too complicated to be used in presentations or for discussions. It became clear that a portable vision, which still keeps the original spirit, had to be defined so that it could easily be explained by all staff to everybody at any time.

The following chart can serve as a guideline for identifying and developing a suitable vision.

How to deal with visions …

- **Simplicity**: a clear view of the future that touches the hearts of people leaves footprints in their memory.
- **Dedication**: Martin Luther King is a fantastic example of how great the impact of dedication can be.
- **Repetition**: is necessary to spread wisdom and share it with many other people.
- **Celebration**: the best way to show what is appropriate.
- **Set an example**: live it as a role model!
Keeping these advises in mind, the Radko-Stöckl College developed the following vision:

**Schools vision**

- We offer a culture of a professional and reflected variety and are keen to respect our students and to see their success.
- We are learning companions and want to prepare our students for their work life. We are focused on giving opportunities for learning.
- We offer a well prepared varied learning environment with high quality instructions, precise expectations and transparent quality criterias.
- Therefore we work effectively together in teams with a large network and emerge our competencies permanently.
- Tolerance, solidarity, helpfulness, kindness and the preservation of our environment are parts of our basic values.

After the definition of the vision, the Radko-Stöckl-College, the process of establishing a working system as a bottom-up-process was started. First we started to look at our college in a different view. It became clear that almost all regulations, decisions and processes were just based on verbal agreements but not documented in any way. For difficult situations laws and legal regulations were used to draw conclusions and make appropriate decisions, but quite often the decision finding process was more depending on the number and views of the staff involved than in line with a clearly defined goal for the college as a whole. Thus, a lot of the decisions were not valid for all different parts of the college. To understand the college and the following descriptions about QM at the Radko-Stöckl-College it is important to keep the whole structure of the college in mind, as it is shown in the next chart.
So the next step was to identify and describe all processes that were already in place and all decisions already made and to stipulate them as written regulations. To ensure access and transparency for everybody at any time an Internet portal for collaborative work was introduced, which contains all of the studies, all written material, all decisions and regulations in one place. This was started in 2013. The portal offers general information on the overall process and details about the working process. It is possible to comment all files and to give feedback to the author or the group that is responsible for the document. In this context working together as a team becomes one of the most important aspect of the overall change management process (shown the next diagram).
In our organization we have established structures that guarantee the development of the process of the quality management system. An important step was to appoint somebody who is in charge for the whole system: the Quality Management Representative (QMR) and his deputy.

QM-protagonists at the Radko-Stöckl-College:

1. **Principal**: strategic controlling and ensuring procedures and projects within the Quality Management System (QMS).
2. **Quality Management Representative (QMR)**: Leader of the College Development Group (CDG), controls the QMS, informs teaching and managing staff, in charge of the QM-Documentation like flowcharts for processes.
3. **Quality Circle**: for checking the proposals for different requests like college program, government regulations and vision.
4. **College Development Team (CDT)**: supports QMR, plans projects, provides advice and training, specialists for certain issues related to the QMS.
5. **Teams**: for working out proposals for the defined processes and to publish them on the online portal (www.box.com).

As a result of a meeting with the College Development Team the following structure of the quality management system was developed. It shows three different types of processes:

- key processes and decisions
- leadership processes and decisions
- supporting processes

All of these processes are clearly defined to ensure that the aims of the college are reached. A description of each process and its results is saved in an online portal for the use of the college staff members. The information in this portal can also be used for an external examination or an external inspection.

On the next page the Quality Management Manual of the Radko-Stöckl College is presented as an example. It should not be used as blueprint but to get an idea on how to create all the different types of processes and descriptions for the daily work of a college. At first there is the process landscape. The next picture shows a blueprint of a regulation followed by an example.
Motto of the College
Quality Management - Manual

Process Name of the process - Page 1 of 1

Definition/Aim: What are the main aims for this process description?

Who is in charge for this process: Which person or team is in charge for running this process?

Standards that should be kept: Are there any standards that come from the college program or the college mission statement or are there any advices that come from pedagogic or didactic findings that we have to follow?

Sequence / Implementation: In which way will this description come into work? How can this be managed?

Evaluation: In which way will these process be evaluated?

Government Regulations: Are there any regulations for this process that come from the outside of the college?

Supporting Information: Are there any helpful information that we could add to this description?
Definition/Aim: The main aim of this regulation is to improve the effectiveness of information interchange inside the college.

This regulation correspond with the following criterias of the „Hessen Framework of School Quality“:

- IV.2.1 Knowledge, experiences and planning results of the teaching staff will be systematically shared with each other in the college.

Who is in charge for this process: Everyone of the staff is in charge to run this particular process.

Standards that should be kept:

- Every day, from Monday to Friday everybody of the teaching staff will read the college emails and then react appropriately.
- The class teachers will write a report with email- and phone-contacts of the class. They will send this report to all of the teachers in their class team and to all of the learners.
- All class teachers will take a photo from all their learners at the first day in the college. After that they are send to all the class team combined with the names of the learners.
- Basically they will be send to the learners too. Every learner is able to contradict the mailing of his photo.
- The secretarys office is in charge to supply an actual address file.
- Any information that is put up should be signed.

Sequence / Implementation: College conference 20th of May 2014

Evaluation: Strategic development process at the end of each college year.

Government Regulations: Data security law

Supporting information:
- List of all full-time students
- List of all part-time students
  - List of all internship-students
To develop all kinds of QMS-parts several different teams were established. All staff was involved in creating specific items of the QMS. With 3 pedagogic workshops and many meetings of the different teams and the College Development Team over 300 files were produced and uploaded to the box collaboration system. In order to pass new regulations different steps of the cycle shown below have to happen.

For further development of regulations and descriptions of processes in the QMS the quality circle, which consists of the management team and the first and deputy QMB, is responsible for the revision and update of all documents so they can be approved at the overall conference.

**Quality management tools**

There are many different tools available to interpret and present the various steps of improving the quality within the education system, and specifically the quality of colleges and schools. Some of them are presented below:

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**The 7 Classic Tools of Quality**

The most common Quality Tools that can be used to solve the vast majority of quality-related issues.

![Pareto Chart](image1)

![Scatter Diagram](image2)

![Control Chart](image3)

![Flow Chart](image4)

![Cause-and-effect](image5)

![Histogram](image6)

![Checklist / Check Sheet](image7)

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**General Flow Chart Symbols**

Placeholder for your own sub headline

- The text that you insert will retain the same style and format as the placeholder text.
- The text that you insert will retain the same style and format as the placeholder text.
The radar chart and many other ones that are similar to that are useful to show different standards and their specific outcomes to compare them with other elements.
Chapter 6: Networks and cooperation in vocational contexts

Networking: Lost without smart phone
When it comes to networking and cooperation, one always might say: “Modern communication standards are inevitable. You cannot keep in touch without mobile, netbook and modern means like whatsapp or facebook!” This is surely half of the truth. Cooperation fails when only based on written language. Keeping up eye-to-eye-contact is sometimes even more important than anything else.
Additionally to the existing presentations of 2013 I tried to bring some parts kind of up-to-date, whenever I thought, this might be helpful for the purposes of this manual.

6.1 Operational, personal, and strategic networks
A network gives opportunities to spread and split up duties, responsibilities within an organization. Members can be more or less autonomously, the network unifies them by having common objectives. Generally speaking, we have to differentiate first between the three given directions of possible networks: (http://hbr.org/2007/01/how-leaders-create-and-use-networks/ar/1):

- Operational networking faces directly improvement of internal effectiveness in tasks. Stronger relationships are established and the colleagues play their roles as stakeholders.
- Personal networking involves probably your friends and “brothers in mind,” people who share your thoughts and perspectives, but which come from the outside of your organization.
- Strategic networking leaves focus on business purposes. You arrange with others to seek maximum efficiency and opportunities, from inside the system as well as from its outside.

An operational network faces the day-to-day work. You collaborate with people in other units of school or your company. Everyone in knows about the interdependency of collaboration for success. It also includes those who depend on you and your group to do their work. Therefore an operational network can include an enormous circle of people. Main aims are coordination and cooperation among the employees who have to know each other and even trust one another just to accomplish their immediate tasks. Clear foci and criterion for membership in the network have to be provided. Main problem of operational networks is the lack of focusing future belongings no developing concept to share or provide, because only recent troubleshooting and structural aspects are coordinated. Aspects and influences from outside are only part of the action, when task-related. Examples for operational networks might be organizational structures in churches, educational authorities, chambers etc.
There is an old saying, “It’s not what you know, it’s who you know.” A personal network describes the development of contacts between individuals, the practice of maintaining a personal network over a certain or extended period of time. Due to a concept of teamwork they intend to be beneficial inside or outside of workplace. Many larger companies encourage their managers and workers to practice personal networking, because they hope to improve their productivity. But it is crucial that a lot of time and effort has to be spent on the creation and development of a personal network.

When corporations and companies interrelate and strengthen their cooperation, we mostly speak of strategic networks. A strategic network arises as a result of widening a company’s interests, e.g. an employment agency, a ministry, or a joint-venture of companies. In a strategic network you leave the companies border behind and seek for new accompany outside, sharing the same proficiency or the same visions. The work and structure of the company itself gets reduced to its core, its core capabilities or competencies. All other activities get managed by your partners outside. The aim is chiefly to synergistically face the potentials of the participating partners for a maximum of financial gain or functional improvement at low cost. This kind of network facilitates a higher flexibility within the market.

**task 1:**
Personal networking: List some priorities and note after on, which of your personal contacts seems to be the best reference for these.

**task 2:**
Think about your recent school system. Pick up one operational network and describe actors, their duties and suggestions for improvement.

**task 3:**
What about your recent strategic networks? Are there more agencies or ministries you could collaborate strategically in a more effective manner, especially concerned with promoting your school’s activities and potentials? Create a mind-map of probable relations.

**task 4:**
Which means could improve the processes between your school and collaborative partners in strategic networks more effective? Which future demands have to be fulfilled?
6.2 Best practice: Cooperation and networking at vocational schools in Germany

Many strategic nets build up connections within the German vocational school system as the following graphic illustrates:

The Oskar-von-Miller-Schule, as a vocational college, has a bunch of cooperation partners in strategic and operational sight. It is understood by nearly every colleague of our school, that this cooperation is essential due to the apprentices joining our school. There are a lot of benefits resulting from these strategic connections: E.g. collaborating with companies by keeping up close contact opens doors when students in trouble need another employer to finish apprenticeship successfully. Or in another case: When it comes to exams, supervised by the chambers, we keep in touch with them and experience exam preparation knowledge for our students. There are so many advantages resulting of a good working network. But it is always important to meet at the same level: eye to eye, never looking down or upwards.

**task 5:**
Think about benefits of strategic networks in your vocational systems, list some ideas and compare them to last year’s slide.
6.3 Vocational education in Germany: a strategic alliance
As pedagogues at vocational colleges we get the unique chance to promote their perceptions of the world and their life holistically: During their apprenticeship at a vocational training centre, college or at the company. By combining these three locations effectively, we can offer them utmost possibilities of experiences in professional knowledge. In Germany the so called “dual system” as a strategic network between company or corporation, vocational college and vocational training centre ensures apprenticeships, which benefit from shared tasks respecting each participant’s abilities. Vocational education relies to the close cooperation of optimized use of resources for the students: Each partner in the “dual system” contributes a secure part of the education, fixed in curricula, handcraft acquisition plans, and additional vocational trainings. If a company is not able to offer all content of a craft to be acquired, the missing parts of the skills puzzle are worked out at the training centre. By this cooperation even smaller companies are able to offer utmost quality to their apprentices. Theoretical knowledge is not only offered by the college but also by the training centre, as well as practical knowledge is offered in all three partners’ areas: At college and at the vocational training centre there are workshop settings as well as teaching units and in many cases, the coaches are in close cooperation and communication about contents with the teachers and vice versa (see illustration below).

So finally this system, say this strategic network, ensures maximum acquisition of a qualified apprenticeship. Therefore a lot of detailed communication between the partners is needed: Plans have to be developed and coordinated, and eye-to-eye-contacts as well as close connections via telephone and mail need to be established. A web of connections for the benefit of the students arises and needs to be held alive.

6.4 Competency-based teaching: Approach to apprentices’ real knowledge
The cooperation ensures a commonly designed curriculum for the apprentices, based on the development not only of skills but nowadays also on competences. Competency-based teaching focuses the abilities and skills of the apprentice, puts him/her into the centre of interest, giving him/her the feeling and the knowledge: “I can do this.” Within the last decade competency-based teaching and the development of competency-based curricula marked milestones in educational history of Germany. Recently there is not a single curriculum without description of competences. They are chiefly split up in four areas:
In educational practice competences get realized in concrete plans describing precisely the students' capabilities, skills, discoveries, and realizations. The next illustration provides information about competences in two apprenticeships, car-mechanic and IT–specialist, and the required competences.
6.5 All mixed-up: strategic alliance consolidates activities in a network

The final step to realize is to combine competency-based teaching, developed curricula, vocational training, and company objectives for apprenticeships in a single network for each profession.

The following illustration shows, as an example given, the connectivity between craft companies in the region of Kassel, the chamber of crafts, and our school. The strategic network decides in quarterly meetings over contents and evaluative aspects of the apprenticeship of fitters in gas, heating, and installation. They commonly develop a grid plan for training, as well as they agree on the overall time management over 3.5 years of apprenticeship.
Just to have an imagination of such a grid plan, describing the students’ potentials, their competences, the schedule below illustrates their acquired competences at school as well as at the company. Mind especially the self-related expression: “I can…”

![Training grid plan](image)

This example leads us to the last aspect of this chapter: A successful cooperation between all participants. As we have seen on the previous pages, it is possible to coordinate even a complete apprenticeship when all members of a strategic network are involved in the development process right from the beginning. It is, of course not always easy to cooperate, there are certain resistances and in cases even prejudices, to be overcome. But with the will to cooperate, common goals, a fixed manageable frame and a communication practice at an eye-to-eye level, our clients, the students, will benefit for the rest of their working-life.
6.6 Epilogue: Sapere aude! Be aware of your own potentials!

Installing a successful vocational system is not easy. You analyse the surrounding, establish cooperation in strategic networks, raise infrastructural capacities, and certainly, might look at the German „dual system“ as a kind of possible pattern. But: It’s a system with a long history, full not only of success but also of miscalculations, errors, detours, and dead ends. A structure is only as good as it is embedded in its surroundings. And surroundings in Asia are quite different from German conditions. The achievements here in Germany might serve as an inspiration but you should always take into account your own capacities. As Immanuel Kant wrote in 1784 „sapere aude!“ which is Latin and means: „Make use of your own thoughts, strengths, and capacities!“ Every country has to find own ways in TVET, fitting into its cultural, social and economical conditions. And, indeed, there are many examples for successful engagements in TVET all around Asia:


Sharing expertise throughout Asia is represented as well on internet platforms like „http://www.tvet-online.asia/“ which is a network of scientists and practitioners in TVET in the East and Southeast-Asian region, offering open discussions, and providing reviewed papers. Looking worldwide, also Arabic countries share their knowledge on free accessible platforms like „http://www.tvet-portal.net/forum/“. Even in Europe there are other examples of successful concepts like the Danish production schools: „http://eng.uvm.dk/Education/Upper-Secondary-Education/Production-Schools“ and „http://pub.uvm.dk/2000/prod/16.htm“ give hints how these vocational colleges are organized and embedded into their educational system. There are many potentials, much expertise and knowledge to share, you should make use of the worldwide access to knowledge, proudly being aware of your own diamonds in your knapsack.
6.7 Instead of questions at the end: a task sheet to improve your network

**rule 1: Build outward, not inward**
- Who of my colleagues has always been working together?
- Who of them has never been collaborating?
- By which topic could I make them or me collaborate?
- How can I secure, keeping in touch with them?

**rule 2: Go for diversity, not size**
- Which different projects have to be promoted?
- Who of my connected colleagues is most effective for the task?
- Who else, with which skills are qualifying him/her?
- Do they differ from my attitudes, points of view, to make alternative suggestions?

**rule 3: Build weak ties, not strong ones**
- Think counterintuitive: Do your closest friends really contribute most to solutions?
- Who comes to your mind, when you think of opposition?
- Which world does he/she walk in?
- Could his/her different angle be a chance for new perspectives, which ones?
- How could I keep such a weak tie alive?

**rule 4: Use hubs, not unfamiliar faces**
- Who knows more than me about the topic?
- Who is a great organizational networker, a "hub"?
- When shall he/she connect me to the ones thinking different?
- How can I contribute to develop more "hubs"?

**rule 5: Swarm the target**
- Once a target (competent colleague) is found by the "hub" you ought to clarify helpful surroundings for him/her:
- Who inside my own network keeps in touch to the target?
- Can he/she reach out to the target person?
- What is the goal I want to share with this person?
- How can I arrange a setting with the target?
- What can I offer him/her to help in return?

**rule 6: If people aren’t pulling together, strengthen ties**
- Are there projects that require crossing borders between different departments?
- Did they provide expected results?
- If not: How can I help to initiate a team-building process between the groups?
- Can I create a new, interdisciplinary team?
- How can I support them in their getting-to-know-process?

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