



Quality Manual

Polytechnic Colleges

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University of Cologne
Chair of Economics and Business Education

Research Team University of Cologne

Prof. Dr. Matthias Pilz

Dr. Muthuveeran Ramasamy

Julia Regel

Guest Researchers Jawaharlal Nehru University

Anjana Rajagopalan

Harshil Sharma

Project Partners India

Indian Institute of Management Bangalore, Prof. Dr. Kothandaraman Kumar

Indira Gandhi National Open University, Ass. Prof. Dr. Uma Gengaiyah

Jawaharlal Nehru University, Prof. Dr. Santosh Mehrotra

National University of Educational Planning and Administration, Prof. Dr. Mona Khare



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I Quality Model: Structure and Scientific Base

The basic approach taken in this framework is based on a comprehensive notion of quality that integrates input-, process- and output/outcome factors, which combine and interact with respect to the quality of educational processes and outcomes at the level of the vocational education institute. Considered central for educational quality are the learning processes and respective outcomes for the individual learner (OECD, 2013; UNESCO, 2000). The input-, process- and output (IPO) approach (UNESCO, 2002) was extended and systematised by means of an organisational perspective to institutional management and quality. The model encompasses seven areas of institutional quality. Six areas relate to characteristic institutional processes and themes while one additional area specifically addresses results and outcomes with a focus on learner achievements.

	1 Institutional Sphere & Context	2 Personnel	3 Educational Planning, Provision & Assessment	4 Learning & Teaching	5 Leadership & School Management	6 Industry Interlinkage & Involvement	7 Learner Achievements
Input ↓	1.1 Facilities & Resources <ul style="list-style-type: none"> General Facilities Learning Facilities & Resources Efficient Resource Utilisation 	2.1 Personnel Competence <ul style="list-style-type: none"> Educational Personnel Qualification 2.2. Working Environment & Job Security <ul style="list-style-type: none"> Working Conditions Teaching Staff Working Conditions Non-Teaching Staff 2.3. Training & Development <ul style="list-style-type: none"> Engagement in Further Training 	3.1 Educational Provision & Curricula <ul style="list-style-type: none"> Learner Profile Assessment Demand-Oriented of Course Programme Quality Syllabus & Curriculum Enrichment 3.2 Assessment Concept & Practices <ul style="list-style-type: none"> Continuous & Holistic Assessment 		5.1 Effective Institutional Organisation <ul style="list-style-type: none"> Supportive & Efficient Institutional Processes 		
Process ↓	1.2 Student Support & Provisions <ul style="list-style-type: none"> Student Support Services Pre-Enrolment Counselling 1.3 Inclusion, Access & Equity <ul style="list-style-type: none"> Support for Underprivileged Groups 	2.4 Consensus & Teamwork <ul style="list-style-type: none"> Cooperative Teamwork 		4.1 Quality Classroom Teaching & Management <ul style="list-style-type: none"> Lesson Preparation & Structure Methodology Mix Learner Engagement 4.2 Learner-Centered Focus <ul style="list-style-type: none"> Frequent Individual Feedback Individual Support & Encouragement 4.3 Holistic Vocational Focus <ul style="list-style-type: none"> Practice & Occupation Orientation Knowledge Application 	5.2 Effective & Cooperative Leadership <ul style="list-style-type: none"> Institutional Strategy & Vision Cooperative Leadership 5.3 Quality Assurance & Development <ul style="list-style-type: none"> Quality Management Procedures & Initiatives 5.4 External Relations & Communication <ul style="list-style-type: none"> Public Relations 	6.1 Industry Engagement & Integration <ul style="list-style-type: none"> Industry Engagement & Integration Functioning IMC Committee (IT1 only) 6.2 Placement Coordination & Monitoring <ul style="list-style-type: none"> Functional Placement & On-the-Job-Training Cell 	
Output/ Outcome							7.1 Competencies & Qualifications <ul style="list-style-type: none"> Employability Learner Performance 7.2 Transition & Participation <ul style="list-style-type: none"> Academic Progression Transition into Work

1. Development of Criteria and Indicators

The IPO model is a well-established approach in educational settings that has been proposed in different forms and further developments by different national and international actors like the OECD, World Bank and UNESCO (UNESCO, 2002, p. 81). Taking an organisational perspective to educational institutions, an extensive literature research with respect to national and international quality management approaches in education was conducted. Existing models for educational quality were identified and selected based on criteria that relate to the acceptability of the approach in the Indian country context, the elaboration as well as the conceptual base of models. Relevant approaches were selected for further aggregation. These jointly provide a substantial approach for actual quality measurement, base on a complex and multilevel quality construct and comply with the underlying understanding and definition of educational quality. The model-based approach was supplemented by an extensive literature review and collection of findings from school effectiveness and school improvement research as well as research into teaching and learning.

Quality areas were identified and consolidated in an iterative process. They display primary characteristics and processes of institutes that are of relevance for the quality of learning services, processes and outcomes. The adoption of the taxonomy and denomination of a specific approach was resigned for matters of accessibility, acceptance (Proctor et al., 2011) and connectivity. Institutional core areas of educational quality were merged with respect to broad but consistent fields of organisational actions and processes to enable a potential subsequent alignment to varying quality management approaches. A specific consideration of existing Indian models and country-specific needs, guided by intercultural feedback from the Indian research partners lead to the definition of a main evaluation area relating to the involvement of the private sector in VET. While the role of public-private partnerships and general private-sector involvement was mapped in some international models and criteria, it received less emphasis there. In a further step, the selected models served for the identification and analysis of criteria and indicators. By comparison and aggregation of more than 400 criteria, relevant criteria and further indicators were identified, and in a stepwise process evaluated, bundled and selected. Selection features related to acceptability (Proctor et al., 2011) (e.g., relevance with regard to evidence-based problems and challenges of Indian vocational education and training, feasibility (e.g., data access) and social validity (consistency with regard to values and norms of the target group) (Nastasi & Hitchcock, 2016). Finally, seven evaluation areas were specified that encompass 20 further quality dimension. Quality is measured along further 34

criteria that are operationalised by means of specific qualitative and quantitative indicators. These focus on criteria related to the institutional input-, process- and output/outcome dimension and thus targets criteria at the micro- and meso-level of institutes, as the current approach specifically targets to detect areas for institutional development.

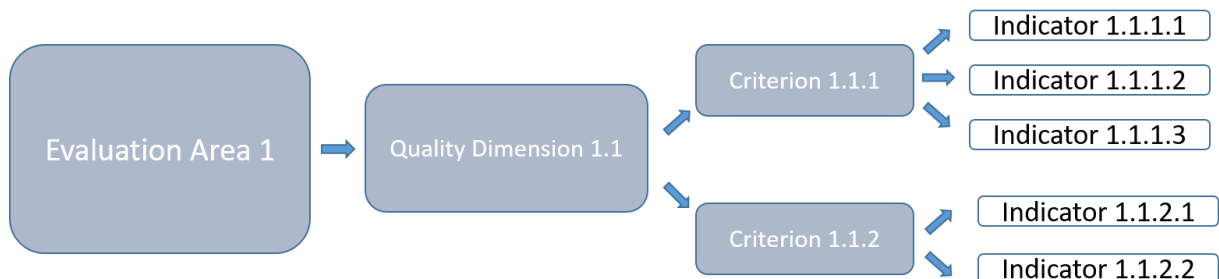
2. Organisation and Structure

Evaluation areas, quality dimensions and related criteria act interdependently and have different direct and indirect effects on the quality of individual learning processes. School effectiveness research identified several main influence factors that primarily relate to school context, teachers and instruction (Creemers & Reezigt, 1996; Scheerens, Witziers, & Steen, 2013), mapped in the current approach. Essential for the quality of learning processes and related outcomes are instructional processes on the classroom level (Creemers & Reezigt, 1996; Hattie & Zierer, 2019a). Although teaching and learning processes are highly influenced by student characteristics (Hattie & Zierer, 2019b, pp. 26–44), it is the teacher who mainly shapes student-teacher interaction in the classroom. Within the current framework, the quality of teaching and learning on the classroom level is viewed as the core factor for educational outcomes and, in addition, builds the primary service of institutions from an organisational perspective. Evaluation areas that relate to personnel, institutional context, organisational and leadership aspects as well as stakeholder impact are organised around this service, having a direct or indirect impact on the quality of direct teacher-student interaction (Wahlstrom, Louis, Leithwood, & Anderson, 2010). The sequence and thus numbering of evaluation areas was chosen based on existing models and considerations regarding the direct and indirect impact on the quality of teaching and learning processes (Creemers & Reezigt, 1996; Wahlstrom et al., 2010). In this context, it is important to note that the given sequence does not display an inherent hierarchy of areas, as characteristics and processes of each institutional sphere provide for and affect the quality of teaching, learning and related outcomes (Creemers & Reezigt, 1996).

The structure of the model involves four levels that allow for the operationalisation of quality with different degrees of abstraction. Within analysed approaches for quality management in education, key areas for quality assessment (IIEP-UNESCO, 2014, p. 27) are specified with certain variations of comprehensiveness. Here, a two-level approach for the definition of quality areas was chosen and the distinction between an evaluation area and specific quality dimensions (NCERT, 2015) was introduced. This distinction allows for the specification of quality

dimensions (NCERT 2015). It serves for the accessibility of the model and enables a focus on selective fields that allow for concrete institutional development processes.

Fig.1: Conceptual Approach for Criteria and Indicator Development



Evaluation area: An evaluation area is a key area for institutional quality assessment (IIEP-UNESCO, 2014). Evaluation areas are defined with regard to a specific spheres of activity that are of relevance for institutional quality and development. They comprise primary characteristics of institutional actions and processes in comprehensive quality areas. Evaluation areas conceptualise educational institutions from an organisational perspective and map educational quality with reference to a multilevel and multidimensional notion of quality.

Evaluation areas: *Institutional Sphere & Context, Personnel, Educational Planning, Provision & Assessment Learning & Teaching, Leadership & Management, Industry Interlinkage & Involvement, and Learner Achievements.*

Quality dimension: A quality dimension (NCERT, 2015) is a further, more specific, domain of an evaluation area. Quality dimensions comprise thematically related qualities and activities of evaluation areas and encompass a range of criteria that have been identified as relevant for educational quality in the specific context. Quality dimensions serve for actual institutional quality management measures as they enable to focus on specific relevant aspects of institutional quality.

Example: A quality dimension in the evaluation area *Teaching & Learning* is *Quality Classroom Teaching & Management.*

Quality Criterion: Within the context of quality assurance in education, a “criterion is an aspect or element, by which a thing is judged” (IIEP-UNESCO, 2014, p. 13). Criteria have a close relation to standards and both terms are frequently used interchangeably (Vlasceanu, Grünberg, & Parlea, 2007). However, criteria indicate certain aspects of quality and standards provide defined achievement levels and specific requirements (IIEP-UNESCO, 2014). Within this

framework, a quality criterion is an attribute of institutional or educational quality. It may refer to processes, input- or output factors and is specified with reference to institutional and educational objectives. It is a specific characteristic that denotes quality in a quality dimension (BMBWF, 2018). Quality criteria are complex constructs, composed of different indicators.

Example: A quality criterion of the quality dimension *Quality Classroom Teaching & Management* is *Transparency and Structure*.

Indicator: An indicator is a device for detection of an actual condition with reference to a specific quality criterion. It is used to operationalise theoretical aspects of quality (Vlasceanu, Grünberg, & Parlea, 2007). By means of indicators, quality criteria that have been described on the next higher level of abstraction and encompass rather general characteristics (BMBWF, 2018) are translated into specific procedures that are concrete and empirically observable. Indicators may be qualitative or quantitative (CEDEFOP, 2011). Within this framework, qualitative indicators are partially combined with quantitative measures to increase data variety and form, and supplement and relate findings.

Example of a qualitative indicator for the criterion *Lesson Preparation & Structure*: Teachers inform students on instructional goals and expected learning outcomes of the current learning unit.

Example of a quantitative indicator for the criterion *Working Conditions Teaching Staff*: Teacher turnover rate (yearly departure of teachers in the particular institutional setting).

3. Criteria and Indicators: Further Considerations

The criteria and respective indicator set has been developed for two distinct institutions of Indian VET, Polytechnic Colleges and Industrial Training Institutes (ITI). These institutions are located in different systemic areas of the Indian educational system, which clearly discriminates between vocational education and vocational training. Polytechnic Colleges offer programmes and qualifications on the diploma level. Graduates frequently progress to further academic institutions after successful completion of programmes, only a minority enters into work directly. Still, programmes target direct job entry of learners. Industrial Training Institutes focus on labour market preparation and practical training contents to a larger extend. The institutions differ to some extent in learning content, with reference to the systemic embeddedness and regarding the attractiveness perceived by learners (Schneider & Pilz, 2019). However, both institutions face similar problems and challenges related to educational quality and respective

learner outcomes (Mehrotra, Raman, Kumra, Kalaiyarasan, & Röß, 2014). As both institutions are settled in the larger context of VET, collected data will allow for a direct comparison and the identification of development potentials as well as the detection of possible shared problems and areas for further development. Hence, an almost identical set of criteria and indicators is applied for Polytechnic Colleges and ITIs. Indian national and federal educational authorities frequently collect a set of quantitative indicators for both institutions. These quantitative measures have partly been integrated within the current framework.

Criteria show different levels of abstraction and range from a limited and clearly defined scope to a larger variety of aspects included on the level of indicators. An equal abstraction level of criteria was not targeted within this framework, as the approach aims to capture quality comprehensively. For a complex construct like educational quality, wider conceptions of criteria allow to specify aspects and related indicators with high explanatory power that would otherwise need to be split in a large set of separate criteria.

A different aspect that needs to be considered with reference to the definition of evaluation areas, quality dimensions and related criteria are overlaps and intersecting criteria and indicators. Overlaps occur because of the interdependency of institutional processes and the scientifically substantiated but nevertheless theoretical division into quality areas. A criterion like 3.1.2 *Demand-Orientation of Course Programme* is strongly related to criterion 6.1.1 *Industry Engagement and Integration*. Furthermore, criteria may share indicators as, e.g. the personnel-turnover rate may be an indicator for 2.2.1 *Working Conditions* but could also be related to criterion 2.1.1 *Educational Personnel Qualification*. Intersections are to be avoided but with reference to the interpretation of data, indicators and criteria that are clearly interdependent or overlap will be marked to be considered complementary.

For the description of evaluation areas, quality dimensions, criteria and indicators, a clear and common level of language was targeted. The framework is designed for quality measurement at the institutional level and thus needs to be accessible and appropriate for educational practitioners in the Indian context in order to provide for the acceptability of the framework (Proctor et al., 2011). A high discrepancy between scientific and technical language and the language use and understanding of teaching personnel in the field should be avoided. A distinct understanding of content and scope of criteria is essential to facilitate actual implementation and adoption of the framework. Clear communication and comprehension are enabled by a certain simplification of professional content. This does partly involve the reduction to shorter units and the necessity to disaggregate subject areas and professional knowledge content, in order

to take them to an understandable and graspable level (Beck & Wand, 2020; Lugger, 2020). The conscious linguistic reduction may account for a certain lack of notional definition regarding criteria descriptions but is accepted with reference to considerations of accessibility.

II Self-Evaluation in Polytechnic Colleges

The QualIndia approach provides a systematic structure for quality measurement in vocational education and training institutions. It can be used for internal and external (inspection) evaluation in Polytechnic Colleges.

Due to its comprehensive conception of quality, it builds a solid foundation for self-evaluation of institutions and self-directed quality development. It blends into existing accreditation and grading frameworks and complements existing approaches in providing a tool for continuous improvement processes of institutions.

Self-directed institutional quality management:

- Complements external monitoring and accreditation
- Increases institutional accountability
- Benefits from the knowledge and potential of faculty
- Contributes to ownership for quality improvement
- Facilitates effective resource utilisation
- Supports educational governance in a highly diverse context
- Establishes a link to industrial quality management

Self-evaluation is central to the maintenance and improvement of quality. It builds the basis for improvement plans and reporting on standards and quality. One strength of self-evaluation and self-directed improvement measures lies in the utilisation of the knowledge and innovation potential of faculty.

The core of the QualIndia framework builds the quality model in combination with the QualIndia Quality Manual. The quality matrix provides a comprehensive map of education and training quality. In the main part of this quality manual, each evaluation area, quality dimension and specific quality criteria are illustrated in detail. Quality criteria serve as benchmarks for the institutions and come with indicators for measurement. A separate handbook exists to provide for measuring instruments. Here, specific instruments that may be used in the institutional context are introduced and example instruments are provided for different quality criteria. As such, the QualIndia Quality Framework offers a complete toolbox for self-directed quality development in Indian VET institutions.

	1 Institutional System & Context	2 Personnel	3 Educational Planning, Teaching & Assessment	4 Learning & Training	5 Institutional & Student Management	6 Internal Quality Assurance & Enhancement	7 External Accreditation
Input	1.1 Quality & Assurance • Conceptual Framework • Planning, Policies & Guidelines • Mission, Vision, Objectives	2.1 Personnel Competence • Staff Appointment • Staff Development • Staff Evaluation	3.1 Educational Processes • Curriculum Development • Quality Assurance of Educational Processes • Quality Assurance of Learning, Teaching & Assessment • Quality Assurance of Learning, Teaching & Assessment	4.1 Effective Learning • Learning Environment • Learning Resources • Learning Outcomes	5.1 Effective Management • Quality Assurance of Institutional Management • Quality Assurance of Student Management		
Process	1.2 Standard System & Evaluation • Standard System • Evaluation System	2.2 Competence & Performance • Competence Framework • Performance Evaluation	3.2 Quality Assurance, Teaching & Management • Quality Assurance of Learning, Teaching & Assessment • Quality Assurance of Learning, Teaching & Assessment	4.2 Effective Learning • Learning Environment • Learning Resources • Learning Outcomes	5.2 Effective Management • Quality Assurance of Institutional Management • Quality Assurance of Student Management	6.1 Internal Quality Assurance & Enhancement • Internal Quality Assurance • Internal Quality Enhancement	7.1 External Accreditation • Accreditation • Accreditation Enhancement
Output/Outcomes							7.2 Compliance & Accreditation • Compliance • Accreditation

QualIndia Quality Matrix



Quality Manual



Instrument Manual

Institutional quality development is embedded in a cyclic quality improvement process. The purpose of cyclic quality development lies in continuous improvement. Here, the individual institution itself serves as benchmark. Innovation, change and increasing quality are documented in within each quality cycle.

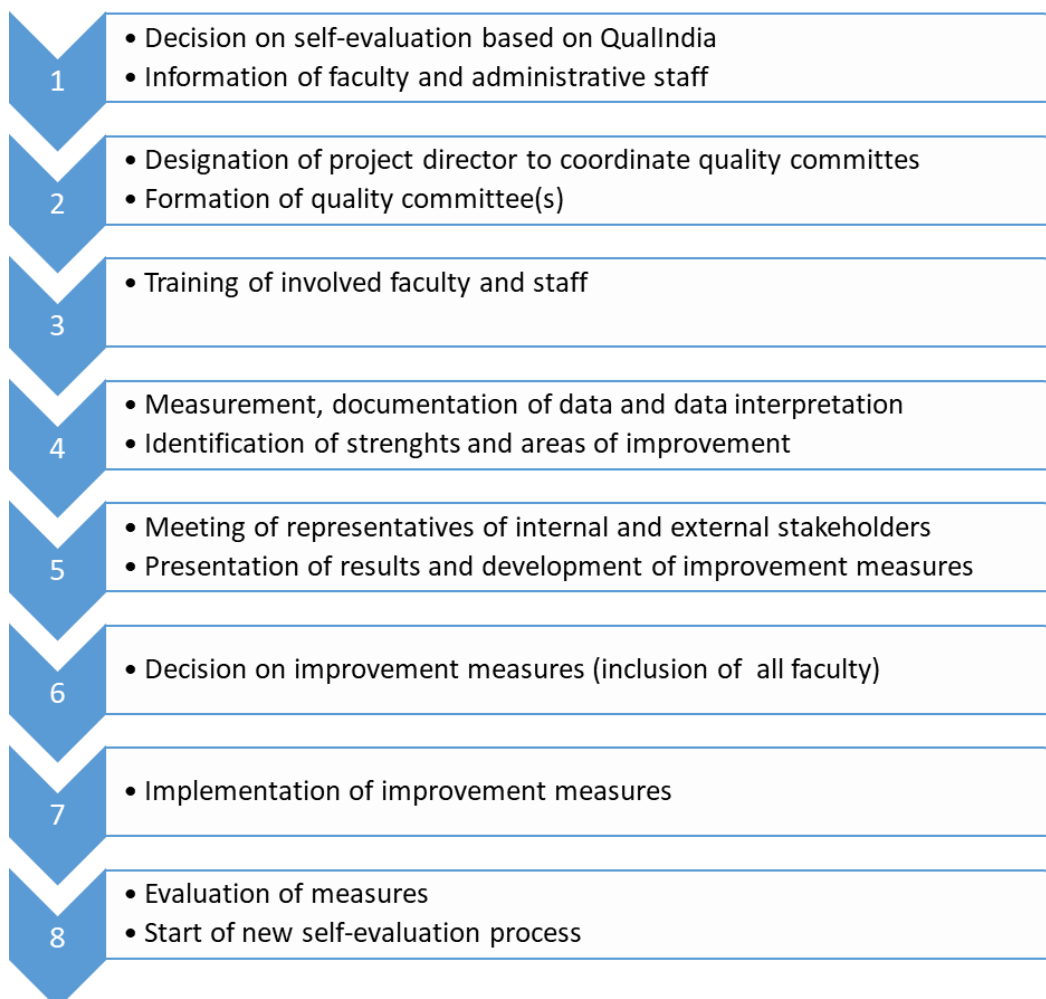


Continuous Quality Development in VET

A typical quality improvement cycle involves following steps: Firstly, standards need to be defined. The QualIndia approach provides standards for educational institutions in form of quality criteria. Areas for quality measurement/ improvement have to be chosen. The second step is the actual measurement process. Measurement takes place by means of indicators and may involve different instruments for measurement. Subsequently, results are analysed. The analysis bases on previous measuring cycles and/or given standards and requirements. Strengths and areas of improvement are identified and improvement measures are chosen/ developed.

These are implemented in the next step. After a predefined time span, these improvement measures are assessed with regard to their implementation and actual quality improvement. Another quality cycle starts.

The QualIndia approach builds the foundation for defining standards and measurement processes. The institute may choose whether the goal is to measure quality in all dimensions or to focus on specific aspects. Institutional quality management needs considerable time and resources. It is recommendable to start with a compliment measurement cycle for once to be able to identify interdependencies of strengths and challenges. In following cycles, the quality committee may focus on specific aspects for measurement and improvement — depending on available resources and time. By that, quality management can be integrated continuously in institutional procedures and daily activities, without leading to overburdening of personnel. Practical applied self-evaluation typically involves following stages. These may be adapted with regard to institutional conditions:



III Criteria and Indicators

1 Evaluation Area Institutional Sphere & Context

The area *Institutional Sphere & Context* covers input- and process factors in the wider context of classroom and training institute. It directly frames the learning process through school layout, facilities, technical equipment and organisational behaviours. It involves the overall communication, rules, support services and extracurricular activities for students. A safe campus environment, appropriate facilities, and efficient and accessible learning resources are basic requirements for optimal learning processes. In addition, an institution and its personnel should make students feel welcome and provide the basis to develop a sense of community by means of physical as well as social premises. The institutional environment contributes highly to institute culture and general climate. How students experience their institution has a significant impact on student retention and overall learning outcomes.

1.1 Quality Dimension Facilities & Resources

The dimension *Facilities & Resources* encompasses existing general and specialised facilities as well as equipment. Furthermore, it involves the process-related utilisation and planned maintenance and service of equipment and facilities.

1.1.1 Criterion General Facilities

In order to ensure a proper learning environment, trainees and staff should be provided with essential facilities in institutions, such as classrooms, furniture, clean drinking water, toilets (separately for male and female learners), and uninterrupted power supply. Advanced facilities may include a horticulture, canteen or other facilities for the consumption of food, storage areas etc.

Facilities should be safe and correspond to given standards. The institution should have disaster management provisions and equipment and comply with safety standards.

Indicators (qualitative): functioning toilets (male/female), separate facilities for staff, toilets on all floors, canteen, water coolers available, staff room, recreation space, horticulture, power supply/ generator, conference room, safety equipment: fire extinguishers, medical equipment,

evacuation plan documents, safety procedures and equipment comply with requirements, additional equipment, facilities and structures that excel requirements.

1.1.2 Criterion Learning Facilities & Resources

The availability of- and the access to learning facilities and resources are essential for the quality of educational processes. Polytechnic Colleges should provide an adequate infrastructure for students, including a library, a basic IT infrastructure and a learner-friendly working space inside and outside of the classroom. Related to the course programme offered, institutions need to provide production workshops, laboratories, computer laboratories and provide adequate material and tools. These facilities need appropriate and current equipment regarding recent industrial and professional developments. Facilities, equipment and resources should be available for learners, staff and visitors in education and training programmes.

Indicators (qualitative): Sufficient classroom condition and space (clean, seat for every trainee/student), boards in every classroom, basic classroom equipment available (chalk, sponges, sink/ water), internet access available (classroom/ outside of classroom), smart boards, library, photocopier, general learning space outside of classroom, small group tutorial spaces (classrooms may be utilised for that), computer room, teaching laboratories and workshops according to occupations provided, sufficient laboratory/ workshop equipment (regarding quality and coverage), access to learning facilities and resources (including workshops for extra-curricular practice), recent acquisition of new equipment/ materials (current and previous accounting period), student feedback on learning facilities and resources.

Indicators (quantitative): Opening hours library/ week, Opening hours workshops/week, expenses library/ student, ratio beamer/ computer/ laptops/ smart boards to classrooms, level of utilisation computer room(s), level of utilisation workshops/ laboratories.

1.1.3 Criterion Efficient Resource Utilisation

The criterion refers to the correct installation, maintenance and operation of equipment and facilities. Equipment and facilities should be in a working condition. Facilities should be in an orderly state and display a proper hygiene, being an essential condition for any learning and working process. There should be designated staff for repair, renovation and cleaning as well as schedules for maintaining. Faculty/ instructors should be able to operate equipment properly.

Indicators (qualitative): Existent and signed maintaining schedules, overall state/condition of facilities and resources, adequate operation of tools and equipment during lessons/ instruction, hygienic condition of facilities, cleaning schedules, staff/ student feedback on operation of tools and equipment.

Indicators (quantitative): Mean life span laboratory/ workshop equipment.

1.2 Quality Dimension Student Support and Provisions

This dimension focuses on essential services that support students in realising and organising their course of study and daily matters, additional learning support, counselling and extracurricular activities.

1.2.1 Criterion Student Support Services

Student support services frame and support core educational processes and contribute to the general institutional climate. Therefore, they form an essential functional aspect of institutes. Students often need suitable accommodation, as institutions are located far from their home. Ideally, institutes should also provide for hostels or should engage with the local community to find suitable accommodation for the students at reasonable rates. Addressing the students' problems and complaints fosters a healthy and positive atmosphere at the institute, for which there should be a proper student's complaints mechanism. Student services should also include financial aid advice and extended training and support for students who require it. Extracurricular engagements and cultural activities contribute to personal and holistic development of the students and improve as well as develop the institutional community and sense of belonging.

Indicators (qualitative): Accommodation provision, Accommodation facilitation, general counselling, remedial classes, extra-learning classes, extra-curricular activities, range of health services, student feedback on support services.

Indicators (quantitative): General advice and counselling service hours/week.

1.2.2 Pre-enrolment Counselling (for admission)

Students need adequate information and advice in order to ensure that they enrol into appropriate programmes. Wrong choices regularly lead to withdrawal from programmes and drop-

out. Students often lack prerequisites for successful course completion or have chosen programmes that they are not interested in. Especially learners from underprivileged groups may lack support, and relatives and peers may not be able to provide adequate knowledge and access to information. Advice should relate to learner's prerequisites, goals and occupational choices. It should provide adequate and realistic information on course content and potentials for a career and job-market entry after graduation. . Students need to be informed and given advice on their possible progression in the education and training system as well as opportunities for employment. Information about the current situation and trends in VET and on the labour market should be provided. Counselling involves an assessment of their abilities and prerequisites. Pre-enrolment counselling should be accompanied directly with aid in the admission process. If this is not manageable due to administrative or organisational reasons, institutions should give clear aid and directions (for example in form of written directions) to support online admission.

Indicators (qualitative): Availability of counselling service, regular service, sufficient length of counselling, content of counselling (determination of student goals, information on prerequisites, assessment of student prerequisites, presenting alternatives), accurate and accessible information, material provided, student feedback on service.

Indicators (quantitative): Pre-enrolment counselling service hours/week.

1.3 Quality Dimension Inclusion, Access & Equity

This dimension emphasises the focus on equal chances for all students, regardless of ethnicity, gender, religion, caste, language or capabilities to get access to education. It focuses on access as well as on equity, involving the institution's actions to provide support to underprivileged students for successful integration into the organisation, enhanced participation and final programme completion.

1.3.1 Support for Underprivileged Groups

This criterion is important with reference to the integration and support of disadvantaged and vulnerable groups. Inclusion should be realised both in terms of access and in terms of equity. Students from underprivileged and vulnerable groups should feel welcome and receive needed support. Institutions should deal with the needs of respective groups effectively and facilitate participation. Students from economically weaker sections, female students, and students from

lower strata of the community, minority and differently abled students need an adequate provision for education and training. The institution should shape services accordingly and implement a positive and supportive attitude towards learners with special needs.

Institutions should be aware and make use of existing schemes and funding. They should provide adequate and complete information and support learners in choosing the right scheme/scholarship/ governmental or private support, provide help with administrative matters and encourage and support learners in getting access to vocational education and training.

Indicators (qualitative): Information provision (brochures, website), information in local dialects, counselling and advice activities regarding scholarships and funding, additional support for entrance and utilisation of schemes (completion of documents etc.), satisfaction feedback by members of underprivileged groups, feedback from teachers on participation and integration of respective groups.

Indicators (quantitative): Level of utilisation of scholarships/ funding schemes, share of underprivileged/underrepresented groups regarding levels/classes, enrolment rates of respective groups with reference to programmes, graduation rates of respective groups, grades of respective groups, share of respective groups in extracurricular activities.

2 Evaluation Area Personnel

The evaluation area *Personnel* covers essential aspects related to personnel and personnel management. It focuses on working conditions, professional development and competencies as well as the working climate and attitudes of teaching and non-teaching staff. Personnel in form of teachers, non-teaching staff and school management are the most important influence factors for educational quality and school development. Especially teaching personnel have a direct influence on learners, the quality of educational processes, and the school- and classroom climate. Non-teaching staff ensure effective organisational processes and contribute to school culture and climate. Personnel needs to be well qualified and should benefit from continuous development and further training. An institution should provide adequate career prospects in order to be able to recruit high quality teacher personnel.

2.1 Quality Dimension Personnel Competence & Attitude

This dimension focuses on qualifications, competencies and attitudes like ethos and motivation of teaching and non-teaching personnel.

2.1.1 Criterion Educational Personnel Qualification

The qualification, competence and experience of teachers have a major impact on the delivery of a high-quality education. Experience may relate to teaching experience as well as practical experience in the industry/occupational area they are teaching. The institution should have professionally qualified teachers with academic/industrial/practical experience of some years in the respective trade.

Indicators (qualitative): Qualifications (academic, other qualifications), self-evaluation of teachers on performance and qualification.

Indicators (quantitative): Years of teaching experience, years of practical industry- or trade-related experience.

2.2 Quality Dimension Working Environment & Job Security

The quality dimension *Working Environment & Job Security* encompasses a variety of factors that have an impact on actual and perceived working conditions. Among these are contractual

and actual working-process related regulations, infrastructural provisions, career chances, matters of staff management that impact perceived working conditions, as well as career chances and school culture.

2.2.1 Criterion Working Conditions Teaching Staff

Working conditions have a major impact on the level of motivation, the ability to realise high quality teaching and the general attraction of qualified personnel. Next to motivation and professional competency, working conditions in form of the general infrastructure of school and classrooms, financial, professional and social conditions as well as the overall school culture have a significant impact on personnel performance. This criterion refers to the conditions of staff involved in teaching and instruction activities. Conditions relate to job security, wage level, number of working hours, workload, the availability and access to teaching resources and the provided working environment. Furthermore, working conditions concern the general school climate and culture, which should be welcoming, respectful and make teachers feel appreciated.

Indicators (qualitative): Regular receipt of wages, performance rewards, amount and form of non-teaching work given to teaching staff, career opportunities, satisfaction with working conditions.

Indicators (quantitative): Working hours, number of contract teaching personnel, teacher turnover rate, staff utilisation teachers (student to academic staff ratio).

2.2.2 Criterion Working Conditions Non-teaching Staff

Non-teaching personnel is employed with reference to any function next to teaching activities. Administrative or maintenance activities are an essential part of every organisation and enable the provision of adequate educational processes. This criterion refers to conditions for non-teaching staff, like job security, wage level, number of working hours and workload. It refers to their role and value within the institution and their integration in institutional living. Working conditions concern the general school climate and culture, which should be welcoming, respectful and make non-teaching staff feel appreciated. While not engaged in teaching activities, such personnel should be informed about pedagogical attitudes and goals and form a respected and integrated part of the institution. That way pedagogical goals and visions may be shared and supported by the work of non-teaching personnel.

Indicators (qualitative): Regular receipt of wages, performance rewards, career opportunities, integration in council, satisfaction with working conditions.

Indicators (quantitative): Working hours, number of contract non-teaching personnel, compensation of non-teaching staff, non-teaching staff turnover rate, non-teaching staff utilisation (student to non-teaching staff ratio).

2.3 Quality Dimension Training & Development

The dimension *Training & Development* encompasses matters of internal and external training measures, expenditure and engagement in training, and the attitude and organisational culture with reference to training and development. It may address different formal and informal means for professional training and development.

2.3.1 Engagement in Further Training

For successful implementation of vocational education and training, faculty should acquire up-to-date skills and knowledge in their specific professional domain and regularly improve their pedagogical expertise. The institutional management should provide opportunities for teachers to participate in further training and encourage teachers to do so. Training measures enhance teacher resources and improve their instructional quality. Existing skill gaps can be resolved. Training may address pedagogical aspects, soft-skills, professional skills like developing e-content or “information and communications technology enabled teaching”, and professional skills relating to their teaching subjects and occupational domains. Training should be appropriate, sufficient and utilised in the institutional context. It should be tailored to actual institutional needs and development goals. Institutes may also invest in teacher training through organisation of seminars/ conferences or by granting leave for completion of such training courses in other cities.

Indicators (qualitative): Encouragement of further training, permissions/ non-permissions for training/ further education, internal trainings within teams, external training offers for teams, external training offers for individuals, self-organised training measures by institutions, informal and institutionalised exchange with experienced colleagues, satisfaction with training (content, scope, variety, number of training measures, appropriateness).

Indicators (quantitative): Number of training measures per year, share of faculty with PhD, share of faculty that are actively pursuing a PhD, number of conferences attended per year,

budget spent on teacher training/development to entire budget, budget spent on teacher training/development to budget available for training

2.4 Quality Dimension Cooperation & Teamwork

Cooperation & Teamwork addresses matters of institutionalised cooperation and teamwork, informal daily ways of cooperation as well as professional cooperative structures established by the personnel. It does also relate to the overall approach to teamwork and collaboration within staff.

2.4.1 Criterion Cohesion and Cooperative Teamwork of Teaching Staff

This criterion refers to the general cohesion and mutual support of personnel, established teamwork and general cooperation. Teachers should establish cooperative working procedures and support each other in the delivery of education. Cooperative teamwork involves frequent relevant communication, conversation and discussion. It involves mutual support and positive criticism and common planning and evaluation of courses and lessons. An advanced state of teamwork includes the common realisation of lessons. Generally, teachers should work effectively as a team in order to enhance effectiveness, address problems and foster mutual professional development. Teachers should know and support professional expectations, duties, responsibilities and quality standards- and understand how their roles relate to the organisation's aims and objectives. Such attitudes, agreements and standards should be shared among the personnel.

Indicators (qualitative): Mutual support activities, established teamwork, open communication, general agreements on pedagogic goals and procedures, satisfaction with teamwork, feedback on cohesion within staff.

3 Evaluation Area Educational Planning, Provision & Assessment

The area *Educational Planning, Provision & Assessment* is closely related to the area *Learning & Teaching* as it frames the interactional process between teacher and student on the classroom level. It covers all aspects of educational planning, course design and institutional programme provision that shape and substantiate learning processes. Educational Planning, Provision & Assessment is realised on the institutional level by teachers and school management alike. It has a direct and strong impact on the quality of the classroom teaching processes. It covers the appropriateness of occupational profiles offered, the demand-orientation of the course programme and course content. Furthermore, it includes the communication and implementation of pedagogic principles, values and approaches - in line with given requirements and adopted to the specific context.

3.1 Quality Dimension Educational Provision & Curricula

The quality dimension *Educational Provision & Curricula* involves the actual provision and design of the course programme as well as specific course content. It relates to the formal institutional framework for actual instructional processes. Institutions need to balance needs of learners as well as of employers and develop their course programme according to those needs.

3.1.1 Learner Profile Assessment and Documentation

Learning experiences of trainees are influenced by a variety of internal as well as external factors. Internal factors relate, for example, to demographic variables (age, gender, and socio-economic factors), self-concept, learning history and prior knowledge and skills. Trainees enter courses with a range of pre-existing knowledge, skills, and attitudes. Prior knowledge and skills shape the way they respond to teaching and learning and in what ways they process, interpret and organize new information. It has a major impact on how successful they are in achieving new relevant competencies and course objectives.

Demographic data should be collected at the level of the individual student in student records as well as processed regarding entire trainee years. Information about pre-existing knowledge and skills as well as knowledge gaps and weaknesses should be used to design instructional

activities that support student's strengths as well as address weaknesses. For that, diagnostic assessments should be undertaken at the start of each course and academic session. These assessments need to be shaped according to general requirements (e.g. sufficient knowledge of English language in reading and writing) as well as specific course-based requirements (e.g., mechanics, applied mathematics, etc.).

It is needed to provide supplementary sessions or foundation classes to close knowledge gaps and prepare students for upcoming course content and assignments. Information about prior knowledge is used at the institutional level to shape the school syllabus (in terms of extra, foundation and remedial classes) as well as at the level of heads of departments and faculty regarding individual lesson design and curriculum enrichment. Individual students that lack a range of the skills required should be counselled to take extra classes whenever possible as well as encouraged to individually work on weaknesses. For that, faculty should provide/ guide them on extra learning material and aids (online tutorials, books, work sheets, etc.).

Quantitative indicators: arithmetic mean of previous academic grades in relevant subjects (relevant subjects have to be defined separately for each course/ occupational area) for each beginner year, key demographic data in percentages for each beginner year (e.g., age, gender, education level, first language, vulnerable and/ other social groups, religion, education level of parents, family income)

Qualitative indicators: Existing student records of each student, student records are updated annually, diagnostic assessment in relevant areas (relevant areas have to be defined separately for each course/ occupational area) before training/ diploma courses start, extra classes that address identified weaknesses

3.1.2 Criterion Demand-Oriented of Course Programme

Course programmes need to cover occupations that match demands of the local industry in order to provide a base for and ensure employment after certification. Furthermore, programmes need to be designed with reference to actual industrial skill requirements and new technologies and should be responsive to current developments and changes in requirements. The institutions should engage in regular revision of curricula and learning content. Next to industrial requirements, the course programme should cater to learner demands and impart a broad base of skills that provide for employability as well as active participation in society.

Indicators (qualitative): Appropriate diversity of trades/courses, integration of new occupational profiles, courses that relate to occupations/skills relevant in the local area, revision of courses, plans for/ introduction of new courses, demand-orientation as perceived by students/teachers/employers.

Indicators (quantitative): Enrolment rates (programme-related).

3.1.3 Criterion Quality School Syllabus & Curriculum Enrichment

The institution should cooperatively elaborate an individual school syllabus based on existing curricular requirements and prescriptions. Curriculum enrichment should take place systematically and based on local needs. A school syllabus should align and coordinate prescribed and additional learning contents in a cohesive and systematic manner and relate them systematically with instructional purposes and goals. Taught skills should be linked to professional knowledge content and be embedded in occupational contexts. A school syllabus relates learning content to actual working processes and intends to build up skills and knowledge in a bottom-up and systematic way. It should provide a clear outline with goals and objectives of a course, pre-requisites, the grading/evaluation scheme, materials to be used (textbooks, software), topics and contents to be covered, a schedule and a bibliography. The school syllabus is a means to realise an up-to-date and demand-oriented course programme. Furthermore, it coordinates learning content within programmes and between teachers, can foster innovation and establishes certain educational standards. A school syllabus provides a frame and guidance for educational processes and thus supports teachers in their professional work and development.

Indicators (qualitative): Elaborated school syllabus (document), measures for enrichment of prescribed curricula (e.g., integration of practical learning measures, integration of current contents required by industry and learners), elaborated plans of teaching structures and timetables, provision of teaching material, guidelines and support material to staff, pedagogic agreements for instruction and use of best practices, teacher meetings for curriculum development.

3.2 Quality Dimension Assessment Concept and Practices

This quality dimension focuses on the official assessment concept of institutions, formal requirements and regulations, the frequency of assessment and underlying pedagogic principles and approaches. It covers certification and student registration regulations.

3.2.1 Criterion Continuous & Holistic Assessment

An institution should integrate a sufficient number of different forms of assessment in the curriculum. Regular assessment provides information for learners and teachers on progress and enables to detect deficiencies and areas of improvement. Individual Assessment results should be used for improvement and support. Guidelines and procedures for assessment need to be institutionally defined as part of the overall pedagogic strategy. Formal assessment should be supplemented by regular informal assessment as a part of the daily classroom routine. Informal assessment may take the form of different assignments given by the teacher. Assessment should be time bound and related to current learning content, be regular, transparent and followed by performance evaluation and a feedback mechanism. Any grievances should be re-addressed and dealt without any prejudice or fear. At the same time, assessment should acknowledge learners for their good work and their record of achievement in order to build up morale and develop a sense of confidence. In essence, learning and assessment is an ongoing exercise that should be linked to teaching, providing learners with guidance on how they are progressing.

Indicators (qualitative): Institutionally determined and appropriate system of regular tests and feedback, assessment intervals are related to learning content, grievance redressal, transparent performance requirements, further means of assessment as part of the daily classroom routine and institutional pedagogic strategy, institutionalised feedback for students on formal assessment data, student feedback on assessment strategies.

Indicator (quantitative): Number of formal assessment measures/term.

3.2.2 Criterion Holistic Assessment

Assessment should take various appropriate forms such as written exams/tests, projects, presentations or produced work pieces. Learners/trainees in VET institutions need to develop a range of different skills related to cognitive skills and key competencies, knowledge skills, manual skills and personal and social skills. Exams need to take different forms to measure up to such different learning goals and requirements. By that, next to the monitoring and improvement function, assessment should foster holistic skill formation and employability.

Indicators (qualitative): Different forms of exams: E.g., assignment of individual and group project work, organisation of presentations/conferences, seminars, weightage given to different types of assessment, appropriate feedback provided for exams.

4 Evaluation Area Learning & Teaching

The area *Learning & Teaching* focuses on the direct interaction of learners and teachers on the classroom level which has a major impact on actual learning processes and related outcomes. The relationship between teaching and learning is complex and attributes of the learner have a significant influence on academic and personal achievements. While cognitive and social premises of learners do impact the quality of teaching, it lies within the main responsibility of the teacher to realise instruction in such a way that students have the opportunity to benefit at most from the education delivered. This area focuses on the role of the teacher in creating a high-quality learning environment, in managing learning processes effectively, in supporting learners in their learning process and in dealing with diverging prerequisites of students. High quality instruction is a means for initiating professional and personal learning processes. Teachers need a range of competencies that involve pedagogic skills, knowledge and experience, as well as professional pedagogical, content-related and methodological knowledge. The area of Learning & Teaching addresses both content-related and technical aspects of the quality of learning and teaching.

4.1 Quality Dimension Quality Classroom Teaching & Management

The quality dimension *Quality Classroom Teaching & Management* emphasises organisational, technical and pedagogic aspects of classroom teaching. An effective classroom management substantiates and frames any instructional activity and is a fundamental requirement for complex and challenging teaching and learning processes. Actual instruction should be based on concerted pedagogic and professional principles and create the conditions for optimum learning processes.

4.1.1 Criterion Lesson Preparation and Structure

Lesson planning and preparation is an essential component of the teaching-learning process and part of the professional teacher practice. It involves the transformation of the prescribed curriculum and/or school syllabus into actual educational provision in lesson form. The lesson preparation process includes the selection of topics, deciding instructional objectives, selection of appropriate teaching methods and materials and evaluation instruments for the assessment of the teaching. It does involve the preparation of teaching/learning materials and equipment

needed. Furthermore, it involves the acquisition of new professional knowledge and skills or the refreshment of professional knowledge by faculty.

Lesson preparation supports organisation and structure and a strategic and purposeful teaching and learning process. The teacher should structure the lesson in a coherent way. This involves the structured organisation and stepwise building of knowledge as well as the integration of prior knowledge. Goals and requirements should be transparent and communicated clearly to the learners. Establishing objectives help students to process information and manage learning processes and tasks in a goal-oriented and strategic way. Different parts of the lesson should be combined coherently and combine varying instructional and processing phases like reproduction, application of knowledge, knowledge transfer and further practicing/tasks in a meaningful way. Transitions between phases/tasks should be managed smoothly and without disturbances, confusion or misunderstanding on side of the learners. Teachers should prepare single lesson plans as well as broad plans that cover longer sequences.

Indicators (qualitative): Prepared lesson plans/documents (for single lessons/for instructional longer sequences), the teacher identified and organises materials and media to be integrated in actual lessons, specific prepared tasks/media for students (e.g. working sheets), pedagogic principles used for lesson planning are expressed/documentated, the teacher creates plans that base upon an appropriate and agreed upon model, the teacher prepares lesson plans that indicate the use of data/knowledge of student achievement/prior knowledge to make lesson decisions, plan of potential learning goals, logical sequence of instruction, the teacher provides an introduction, the teacher provides a closure/summary, the teacher demonstrates adequate knowledge of the discipline.

4.1.2 Criterion Methodology Mix

The criterion *Appropriate Methodology Mix* refers to a sufficient variation of learning arrangements, instructional methods as well as concrete learning methods that fit the purpose of the intended learning goals and the needs of students. Method variation relates to the diversity of students, age, academic ability, the number of students and learning content. Lessons should include a variation of direct instruction, individual learning activities, and partner- and group activities. Different media and tasks types should be applied to provide cognitive stimulation and foster learner flexibility. New technologies should be integrated to enrich educational provision and foster IT literacy as well as to provide additional or supportive learning content.

Teachers should have a sufficient repertoire of methods and be able to reflect their application for different contexts and purposes.

Indicators (qualitative): Teacher feedback on method selection and implementation, methods are selected and vary with reference to learning goals, method and teaching/learning style variation during lesson: E.g. lecture, interactive student group discussions in classroom with teachers, integration of video lectures/demonstrations in class, online class groups for group learning assignments, individual assignments and projects, group-learning activities, class discussions, case studies, etc.

4.1.3 Learner Engagement

This criterion refers to the use of allocated time for lessons for actual instructional purposes, active learning opportunities for learners, their ‘time on task’ and the general focus on the learning process of students. It refers to how teachers provide conditions and engage students in active learning processes.

The criterion addresses how teachers organise lessons effectively to utilise the major share of the lesson for the active learning processes of students. This may involve self-directed learning as well as lectures. Teachers create a space for learning in providing enough time and structure, e.g. through note-taking tasks during lectures, time to reflect, discuss and apply learning content during lectures and the integration of different individual and group learning opportunities. Late arrival, discipline management, disturbances or matters that do not relate to actual learning and teaching processes may reduce instructional time. An effective time-management focuses on learning time and keeps time spend for other aspects to a minimum.

Indicators (qualitative): The majority of students actively engage in the learning process, working/learning results of students (written tasks/documents, notes, presentations), the major share of the lesson is spend with distinct learning activities of learners, observed attention/concentration of students, the lesson starts on time and ends on time, working materials are readily prepared, the lesson is appropriately structured with reference to student’s receptiveness and attention span, there are few discipline troubles.

Indicators (quantitative): share of ‘engaged time’ per lesson (the time a student spends working attentively on academic tasks).

4.2 Quality Dimension Learner-Centred Focus

This quality dimension is concerned with the emphasis on learner's needs and on their value as an individual person. It emphasises the creation of conditions and premises for the individual development of students with reference to professional and personal competencies. Learner orientation encompasses affective and motivational aspects of the teacher-student relation as well as the professional instructional competencies of teachers that allow for an individual learner focus and differentiation.

4.2.1 Frequent Individual Feedback

Feedback supplements own perceptions and attitudes with additional perspectives by others. Teachers use professional feedback as an essential means of individual learning support that is integrated in the daily classroom teaching practice. With reference to learner performance, feedback may target the area of students' learning products (capability and skill gaps), the area of actual learning processes (how do learners design their working/ learning processes) and the way students regulate such processes (e.g. self-management, focus/concentration, control mechanisms). Feedback should be related to past and present learner performances as well as future goals. Responses and feedback may be contradictive, complementary or confirmative. Learners need to practice and expand their ability for adequate self-assessment. They need professional feedback to align their sense of self with the awareness of others. Therefore, feedback is a means for professional as well as personal development, with both aspects being interdependent and overlapping.

Feedback has a strong dialogic component. Teachers need distinguished professional and diagnostic expertise to monitor and assess student's products, processes and behaviours adequately. They use their expertise not only to assist learners, but to reflect their own professional performance accordingly. Therefore, teachers should also actively use learner feedback on goal achievement, comprehension, implemented methods, media use etc. Such information is essential to improve learning and teaching processes and shape them to learners' needs as well as for the professional development of the teacher.

Indicators (qualitative):

Teacher feedback: The teacher integrates questions frequently as part of the teaching process, questions posed are shaped to individual abilities of students, the teacher gives individ-

ual feedback to students during the lesson, the teacher gives individual feedback with reference to homework, the teacher gives individual feedback with reference to assessments/tests, feedback is related to past performance, feedback is related to future goals.

Learner feedback: Learner feedback is valued by the teacher, learner feedback is integrated in the daily classroom routine, teachers have changed approaches and routines with reference to given student feedback.

4.2.2 Criterion Individual Support & Encouragement

Every classroom has diversified students in terms of cognitive prerequisites and learning performance, the socio-economic and cultural background, language knowledge and spoken mother tongue/dialects. Therefore, teachers need to closely monitor students and require diagnostic abilities as well as a profound professional expertise. The criterion *Individual Support & Differentiation* involves giving assistance and aid to students with additional need for support but does also relate to fostering excellent learners. Elementary individual support addresses the personal and individual interaction between teacher and student and is part of the daily classroom teaching process. Teachers involve in individual dialogues with students and class, assist individual learners and learning groups during working phases and task processing. Teachers may provide additional learning material or tasks with a higher level of difficulty as well as learning aids for weaker students. Teaching material that involves a variety of tasks with different degrees of complexity should be provided to students and made available for teachers. Furthermore, the institute should have mechanisms for individual learning support and assessment in place, e.g. remedial teaching classes. Additional classes/courses for professional specialisation and further qualification, like language classes should be provided.

Indicators (qualitative): Availability of learning materials in different languages (online/offline), individual address of learners during lessons, provision of additional learning aid/material for learners, remedial classes for students/ learning groups, extra-learning offers are available, extra-learning activities are actively offered/ recommended to students, the teacher demonstrates flexibility and responsiveness to students.

4.3 Quality Dimension Holistic Vocational Focus

Programmes in institutions should provide students with a broad base of skills and competencies that involve general academic and occupation-specific skills and knowledge. The quality

dimension *Holistic Vocational Focus* emphasises the necessity to present and impart learning content within the broader spectrum of the actual occupation, the need to focus on specific related skills and the responsibility to prepare students at best for a specific occupation or a specific position as well as further personal and professional development.

4.3.1 Criterion Practice & Occupation Orientation

The criterion *Practice and Occupation Orientation* relates to actual practice components of the institutional curriculum delivered in classroom and workshops and an overall working orientation of course content. Working orientation involves a focus on professional knowledge, placing learning content within the context of occupational areas and actual working processes and the application of domain-specific techniques and procedures in classroom and workshops.

The acquisition of practical and domain-specific skills is essential in VET. Depending on industry and occupation, courses need to involve practical training and workshop learning as part of the institutional syllabus. Apart from internships or practice workshops provided in industrial or trade settings, practice learning needs to be offered within institutions and integrated and linked to actual course work and content. Methods and tools, methodology and techniques used in classroom and workshops should be domain-specific and current. The share of practical/manual training should allow the acquisition of skills to a sufficient level of expertise and automaticity, as practice provides for lasting effects and preservation of skills. Internships and apprenticeships during the course of the training may provide for first practical working experience and the application and acquisition of further skills. Working-orientation may also involve classes and interactive sessions with personnel from various industries.

Indicators (qualitative): regular practical tests, existing simulations and training enterprises, organised internships, practical lectures/training by other ITIs and industrial personnel, valuation of practical training by teacher/students, accessible workshops for students, practical elements in classroom context (apart from workshop training), use of relevant domain-related tools and methods.

4.3.2 Criterion Knowledge Application

Learning processes involve different steps of reception and processing of learning content. These involve reproduction (being able to memorise and communicate knowledge), reorganisation (e.g. relating new knowledge and skills to prior knowledge), and recontextualisation of

learning content and problem solving (applying gained knowledge in varying different contexts). Learners need to be able to utilise their knowledge and skills and should be able to transfer it to different contexts and tasks. Integrating different disciplines (for example, mathematics, physics, languages) and theoretical knowledge to be applied in working contexts is essential for VET. Furthermore, learners should be able to apply their knowledge and skills in different personal and societal contexts. A prerequisite for making knowledge transferable is to organise it in a coherent way, relate it to prior knowledge and related issues, processes and concepts. Learning contents should be embedded in the broader spectrum of the profession/occupational area and be related to actual working processes as well as the life environment of students. Like that, students can create meaningful knowledge by forming cognitive structures that enable knowledge storage and re-access.

Teachers need to take different measures to foster the link between theory and practice. This involves regular application of learning content in different tasks, linkage of theory to concrete examples and the integration of actual exercise components in the lessons, which can be extended into homework. Students in the classroom need to be engaged actively in knowledge application and practice on a regular basis. If practice is embedded in tasks that require professional knowledge, a conceptual understanding of knowledge, and knowledge and competency application is fostered.

Indicators (qualitative): Practice examples and application during classroom teaching, learner tasks that involve the application and practice of theoretical knowledge in different contexts, self-learning and group-learning tasks as part of classroom lessons, learning content that is contextualised with reference to steps of actual working processes, learning content that is contextualised with reference to the general life context of students, tasks that involve a variation of aspects taught before that need to be developed/solved by students, tasks that involve further unknown aspects that need to be developed/solved by students.

5 Evaluation Area Leadership & School Management

The area *Leadership & School Management* refers to the design and organisation of administration processes, leadership activities and style, pedagogic leadership, quality assurance and institutional development. The management structures, initiates and guides organisational and pedagogic processes. It is responsible for creating the conditions for an effective and successful realisation of a quality education according to given standards and requirements. It actively incorporates the teaching and non-teaching personnel in leadership and decision-making processes to create a positive organisational climate and enhance effectivity. It interlinks with educational authorities and partners outside of the institution. Within the responsibility of principal and management are the establishment of organisational and social structures with reference to teachers and external stakeholders like parents, authorities and employers. Essential part of the leadership activities is the cooperative development of a strategy and vision for the institution. The management functions as a role model, initiates and guides development processes with reference to common set goals.

5.1 Quality Dimension Effective Institutional Organisation

The quality dimension *Effective Institutional Organisation* addresses physical as well as structural, process-related aspects of institutional organisation. In addition, it includes general attitudes towards the organisation of structures, processes and aspects of personal interaction with regard to effective organisation processes.

5.1.1 Criterion Supportive and Efficient Institutional Processes

VET institutions are complex systems working in a context of different stakeholder requirements and external and internal impact factors. While the delivery of education is the core process of any educational institution, different factors act interdependently and influence process- and output quality. Administrative and other non-teaching personnel should actively provide for and support the realisation of learning services and support students and teachers. Institutional personnel should act service-oriented and realise supportive processes efficiently and with a sense of service orientation.

An efficient and supportive school organisation provides and organises the structure for smooth processes, defines clear responsibilities and thus enables the institution to deliver a high quality of education.

It involves several factors like the definition and communication of functional responsibilities and powers, effective communication and management systems, a maintained and informative organisation website or the provision of knowledge resources and data. Generally, school organisation and administration should facilitate and support core institutional processes and the personnel and learners involved in such processes.

Indicators (qualitative): Organisation website, organigram, documentation of responsibilities, service hours of personnel, availability of personnel, process data (documents, observations, questionnaires), satisfaction with organisational services (staff and learners), data provision, communication systems.

5.2 Quality Dimension Effective & Cooperative Leadership

The dimension *Effective & Cooperative Leadership* encompasses activities by the principal and the institutional management that design and shape structures and actions and are responsible for strategic and developmental goals as well as the establishment of cooperative and participative management and development structures.

5.2.1 Criterion Institutional Strategy & Vision

An elaborated vision and mission build the foundation for the institutional management and further development. It functions as a means for common alignment and the incorporation of rules and standards. It should include purpose, values and goals of the institution and be communicated clearly, understood and put into practice by management and personnel alike.

The institutional strategy and vision are substantiated in the general educational mandate and legal requirements but developed further with reference to the specific institutional context. An institution is embedded in a certain socioeconomic environment that shapes and destines working premises, specific challenges and prospects. The strategy and vision should be developed and formulated cooperatively to utilise the entire organisational and context knowledge of personnel and create a sense of community and alignment. A strategy should be developed consciously by means of workshops, conferences or institutionalised conversation. It needs constant revision, further development and assessment of target achievement.

The strategy and vision build the foundation and frame for any improvement measures and functions as a means to establish a common positive and constructive evaluation and development culture.

Indicators (qualitative): Documentation of vision and mission statement, existing annual reports, realised projects with regard to systematic, goal-oriented self-initiated school development/ improvement, verbal formulation of school analysis (context, challenges, prospects), written documentation of school analysis (e.g. SWOT analysis), verbal formulation of concrete goals for development, implemented vision and mission statement, personnel knowledge about vision and mission, current revision and development of mission statement.

5.2.2 Criterion Cooperative Leadership

A cooperative leadership style utilises the expertise, experience and process knowledge of personnel. It enhances effectivity and the creation of cohesion and identification with the institution. Institutional management and personnel alike should engage in decision processes and development. The management should involve staff in decisions regarding pedagogic, academic/professional and administrative issues. Complaints and suggestions for development should be addressed alike in a respectful and productive manner.

Indicators (qualitative): Regular meetings of management and staff to discuss important issues related to the institution, informal meetings and possibilities to commonly discuss important issues related to the institution, teacher committees as part of participatory management, mechanism for suggestions made by staff, feedback mechanism for staff, open communication between personnel and management, satisfaction with cooperation and participation by staff.

Indicators (quantitative): Number of internal activities (meetings, workshops) to provide personnel with information and knowledge.

5.3 Quality Dimension Quality Assurance & Development

The quality dimension *Quality Assurance & Development* includes formal recognised and informal quality management measures with reference to all parts of organisational and administrative processes as well as educational quality on the classroom level. It includes structures, procedures, attitudes, and cultures with reference to quality assurance and quality development.

5.3.1 Criterion Quality Management Procedures &

This criterion refers to activities and systems of institutional quality management. Quality Management refers to the approach to quality, goals and responsibilities and means like quality control and quality assurance.

It includes improvement plans and target goals with reference to the vision and mission of the institution as part of its developmental function. Institutional quality management may take various forms and is not limited to the implementation of a recognised quality management system or certification. Institutional key performance data should be collected, documented and analysed regularly to monitor internal institutional processes and developments and trends concerning the broader institutional context. Stakeholder feedback should be collected and analysed frequently to detect problems, challenges and prospects.

Quality management should explicitly include the evaluation and improvement of educational quality, primarily focusing the classroom level. Delivery of education is the core process and service of VET institutions. Therefore, quality assurance and improvement measures should primarily focus on this area. Monitoring educational quality can foster the professional development of teaching personnel and detect areas where improvement and training measures are needed. Evaluation may take the form of self-evaluation processes and should include teacher reviews/supervision followed by feedback and coaching processes. Stakeholder feedback should be utilised to improve the process quality of teaching and learning, the quality of internal curricula and the design and content of the course programme. The institution should develop an open attitude towards evaluation and improvement measures on the classroom level. Evaluation needs to take place in a constructive atmosphere free of fear. The school management is responsible for the establishment of evaluation and improvement structures and a school culture that enables for constructive evaluation and improvement processes.

Indicators (qualitative): Internal quality management system, quality handbook, collection and documentation of key data (utilisation of ITI seating capacity, per cent of total number of sanctioned training places that produce graduates, satisfaction of graduates with training, enrolment data, drop-out data, student composition, grades), existing accreditation, Documentation of regular teacher evaluation, attitude towards evaluation of educational quality, evaluation of past/present evaluation measures by staff, projects documentation of self-evaluation measures (checklists, observation protocols, teacher questionnaires), documentation of improvement projects, documented plans/goals for further improvement, collected/documentated student feedback regarding training quality.

5.4 Quality Dimension External Relations & Communication

The dimension *External Relations & Communication* refers to systematic, controlled and developed relations and partnerships to externals from different areas like the general public and media, other educational institutions, actual, former- and future students, parents and educational authorities. Distinct external relations to the industry and local employers are covered in the separate quality dimension *Industry Linkage*.

5.4.1 Criterion Public Relations

Communication and involvement of the community in form of parents, potential future students, other schools and institutions, administrative bodies and generally the interested public is an essential part of the institutional work. Institutions should establish communicative exchange and working relationships to secure information flows, develop the institution participatory and foster acceptance and involvement of the community. Especially with reference to potential future students and the establishment and development of external relations, institutions need clear, informative and up-to date communicative means. Institutional websites should be informative and well maintained. The institution should be accessible via different means like e-mail and telephone and extended means like social media channels. It should provide sufficient service hours for external requests, enquiries and personal visits. There should be programmes and practices to provide an open climate to elicit ideas and suggestions like open days or projects presented to the public. The institution should have an effective working relationship with the news media. Accurate and timely information should be provided concerning school policies, programmes, achievements etc. A well-established comprehensive communication and participation policy serves for effective internal and external institutional processes, further development and the promotion of the organisational work as well as the VET system in general.

Indicators (qualitative): Well-maintained and informative institutional website, social media accounts, service hours for enquiries, Alumni engagement, press releases, organisation of events open for community, external grievance redressal mechanism, responsibilities for public relations are clearly distributed, brochures of the institutions and programmes are available.

6 Evaluation Area Industry Interlinkage & Involvement

The area *Industry Linkage* covers direct and indirect relationships with regard to industrial sectors, trades and employers. Direct linkage concerns the cooperation with businesses, local employers, unions and associations. Indirect linkage may concern the conscious acquisition of relevant information on recent industrial developments by different means. As vocational education and training institutions prepare students and trainees primarily for vocational purposes, programmes need to match requirements of both learners and employers with reference to skills and competencies. The structured and planned involvement of the industry on the institutional level lies within the responsibility of the school management. It moderates the influence of the industry with regard to educational as well as professional goals. It initiates and expands cooperation and designs and shapes cooperative processes effectively. Cooperation that involves learners in form of internships or placement activities is initiated, fostered and monitored by the institution.

6.1 Quality Dimension Industry Engagement

The dimension Industry Engagement involves cooperative relationships to industries and local employers and the active involvement of the private sector via different means. Involvement of the industry serves for constructive development of the organisation and course content and establishes structures for optimum preparation and placement of learners and trainees.

6.1.1 Criterion Industry Engagement & Integration

The involvement of the overall industry as well as specific employers is a crucial aspect for the further development of the VET system and individual institutions alike. Institutions realise their course programme based on federal and national curricula. Still, curricula need current revision and enrichment with respect to local institutional conditions like skill-related general demand requirements of employers as well as demand changes of emerging industries that may not be reflected in existing curricula. The rapid change of economic premises and industrial development frequently leads companies to work with technology that is in advance of that taught in vocational education and training institutions. Therefore, institutions should have mechanisms for the identification of industrial training needs. Among others, these may involve frequent collection of stakeholder feedback with reference to skill needs and technology and systematic information research on industrial and trade developments.

The involvement of the overall industry as well as specific employers is a crucial aspect for the further development of the VET system and individual institutions alike. Institutions rely on expertise and knowledge of the industry to design and shape educational programmes, processes and content that serve labour market requirements. Industry engagement should provide for knowledge transfer and thus foster the professional development of teaching personnel and skill formation of students. Industrial and trade cooperation can provide further options for training like internships, apprenticeships or guest lectures and trainings. A close relation to local industries and employers enables the placement of students.

Indicators (qualitative): Frequent collection of employer/industry feedback with reference to skill requirements and new developments (production companies, vendors of materials and products for companies), feedback on school syllabus and course programme by stakeholders, revised/enriched school syllabus with reference to industrial requirements, industry-related professional magazines (online, print) available for personnel, systematic and frequent research on new developments, existing mechanism for dealing with suggestions regarding the incorporation of new aspects in syllabus.

Memorandums of Understanding (MOU) signed with industry, contacts to different industry partners (production and provider), external experts providing guest lectures, organisation of industrial visits for students and teaching personnel, materials, teaching aids and material provided by industry (e.g. materials, fabrics, tools for demonstration, brochure/company data like reports, annual statements etc.).

6.2 Quality Dimension Placement Coordination & Monitoring

The quality dimension *Placement Coordination & Monitoring* addresses the actual organisation and support of learners' placement with reference to internships, apprenticeships and work entry. It encompasses advice and guidance, the development of functional structures, and the expansion of collaboration and contacts. Furthermore, it refers to mechanisms for monitoring processes to provide equal outcomes for learners and (training) companies and provide for adequate working conditions and the protection of learners.

6.2.1 Criterion Functional Placement & On-The-Job (OJT) Training Cell

The transition into work is a relevant issue with reference to vocational education and training institution graduates. The institution should have a functional placement organisation that actively engages in placement activities and coordination and gives advice and guidance to students as well as to employers. Next to direct placement activities, the Placement and OJT Cell should offer regular career counselling to students. Students need to be informed and given advice on their possible progression in the education and training system as well as opportunities for employment. Information about the current situation and trends in VET and on the labour market should be provided. Counselling involves an assessment of their abilities and prerequisites.

Information gathered during the communication and placement process should be utilised for education and training improvement and course provision. Placement coordination should be a continuous process that is provided on a regular basis. Next to local industry, trade and students, it may involve alumni of the institution. The placement organisation should also involve the organisation of regular opportunities for internships/in-service training. Such internships should be accompanied and structured by institutions through regular monitoring and feedback, rules and standards for employers and learners, as well as organisational assistance.

Indicators (qualitative): Placement cell, collaborating industries/trades match for placement (regarding trades covered by course programme), standards, guidelines and procedures for internships (documents), monitoring activities, collaborating industries/occupations, expansion of industries/occupations, career counselling service hours/ week

Indicators (quantitative): Rate of successful placements (employment, at least 3 months duration), Rate of successful placement (internships), number of industry contacts for placement, number of collaborating businesses for internships.

7 Evaluation Area Learner Achievements

The area *Learner Achievements* focuses on the primary service and goal of vocational education and training institutions, which is to provide high quality education and training, embedded in an effective and enhancing institutional environment. Institutions should aim to create the best possible premises to achieve excellent learner achievements and monitor their actions with reference to learner's results. This area does focus on output and outcome factors related to learners and trainees only. It encompasses professional, personal and societal achievements of learners. Achievements can encompass performance data (grades, qualifications), transition into work, self-employment or academic progression, the success in subsequent academic programmes, professional and personal skills, and success in awards, career paths of learners and overall societal participation and integration. Within the current approach, the focus lies on employability in form of a substantial and appropriate skill base, learner performance within the institution, and successful transition.

7.1 Quality Dimension Competencies and Qualifications

Competencies and Qualifications as output factors refer to learner achievements in form of a gain in knowledge, skills and competencies. It refers to performance levels, acquired certificates, and does include institutional performance data with reference to learner achievements, to contextualise institutional actions and measures regarding the development of educational quality.

7.1.1 Criterion Employability

The criterion *Employability* refers to the actual job readiness of learners/trainees regarding professional skills as well as personal skills. Students need to acquire the relevant knowledge and competencies required for successful entrance and persistence in the targeted occupation. There skill base need to be appropriate and persistent. Graduates should have a substantial base of knowledge and skills that provides for potential future expansion and development. They need to be able to sustain in a working environment that becomes more complex and dynamic. Employability may also refer to actual entrepreneurial skills and knowledge, that enables graduates to set up an own business based on acquired skills.

Indicators (qualitative): Utilised skills at the workplace (in internships/after final placement), feedback from employers on job readiness, feedback from employers on actual skill sets, the broadening of industries that hire graduates from the institute, satisfaction of graduates with trade required, satisfaction of graduates with training received.

Indicators (quantitative): Per cent of graduates entering in designated or related industries/trades, duration of first employment in a particular industry, per cent of graduates who are in wage employment/self-employed/family business.

7.1.2 Criterion Learner Performance

The criterion *Learner Performance* refers to outputs in form of general performance, actual certification and grades of students/trainees. While employability and holistic competences are rather difficult to assess, certain aspects of achievement may be reflected in grades. Furthermore, grades can be monitored over time, and should be compared to employer feedback/feedback of succeeding institutions.

Indicators (quantitative): Share of learners who received certification, grades, institutional progression rates, drop-out rate, graduation rate (per cent of learners who passed the trade test/final exams out of those who appeared for test/exams).

7.2 Quality Dimension Transition & Participation

The quality dimension *Transition & Participation* addresses outcomes regarding the actual transition into work or self-employment, further academic progression and short-term as well as long-term outcomes with reference to career paths and societal economic and social integration and active participation.

7.2.1 Criterion Academic Progression

The institution should monitor the transition of graduates into further studies as well as the success of students who enter further institutions. This will provide relevant information on vertical permeability in VET systems. Furthermore, institutions will be able to evaluate their own performance with reference to providing relevant prerequisites for further academic or vocational studies/trainings.

Indicators (qualitative): Students are able to measure up with requirements and learning contents of succeeding academic institutions, satisfaction with institutional learning content and preparation regarding further academic studies.

Indicators (quantitative): Per cent of graduates who enter into further academic studies, per cent of graduates who pass an exam/receive a certification in a further academic programme.

7.2.2 Criterion Transition into Work

This criterion refers to the actual transition into work. Successful and persistent transition into work is one of the major achievements targeted by learners and the society alike. The institution should know whether graduates enter into work successfully in order to monitor the own performance and identify current trends and developments on the labour market. The criterion involves information about employment and type of employment.

Indicator (qualitative): Satisfaction with transition process, satisfaction with possibilities for transition into work.

Indicators (quantitative): Per cent of graduates who are in wage employment/self-employed/family business, time span between graduation and first employment.

III References

- Alok, K. (2011). Student Evaluation of Teaching: An Instrument and a Development Process. *International Journal of Teaching and Learning in Higher Education*, 23(2), 226–235.
- Ambrose, S., Bridges, M., Lovett, M., DiPietro, M., & Norman, M (2010). *How Learning Works: 7 Research – Based Principles for Smart Teaching*. San Francisco: Jossey-Bass.
- Bailey, B. L., Baumann, C., & Lata, K. A. (1998). *Student retention and satisfaction: The evolution of a predictive model* (Proceedings of the Conference of the Association for Institutional Research). Minneapolis, MN: Association for Institutional Research.
- Bateman, A., Keating, J., Gillis, S., Dyson, C., Burke, G., & Coles, M. (2012). *Concept Paper. East Asia Summit vocational education and training quality assurance framework*. University of Melbourne. https://unevoc.unesco.org/e-forum/120619%20-%20East%20Asia%20Quality%20Assurance%20Framework_final%20concept%20paper_post%20worshop.pdf
- Beck, C., & Wand., J. (2020). Zwischen Theorie und Praxis. In J. Schnurr & A. Mäder (Eds.), *Wissenschaft und Gesellschaft: Ein vertrauensvoller Dialog. Positionen und Perspektiven der Wissenschaftskommunikation heute* (pp. 163–173). Berlin: Springer.
- Berkemeyer, N., Müller, S., & van Holt, N. (2016). Schulinterne Evaluation — nur ein Instrument zur Selbststeuerung von Schulen? In H. Altrichter & K. Maag Merki (Eds.), *Handbuch neue Steuerung im Schulsystem* (pp. 361–384). Wiesbaden: Springer.
- Bessoth, R., & Weibel, W. (2003). *Führungsqualität an Schweizer Schulen. Werkzeuge zu Klima, Kultur und Kompetenz der Führenden*. Aarau: Sauerländer.
- Brophy, J. (1999). *Teaching* (Educational Practices Series 1). Retrieved from UNESCO website: <https://unesdoc.unesco.org/ark:/48223/pf0000125450>
- BMBWF (Bundesministerium Bildung, Wissenschaft und Forschung). (2018). *SQA Glossar*. Retrieved from: <http://www.sqa.at/mod/glossary/view.php?g=3>
- Capaul, R., & Seitz, H. *Schulführung und Schulentwicklung. Theoretische Grundlagen und Empfehlungen für die Praxis* (3rd rev. ed.). Bern: Haupt.
- CEDEFOP (European Centre for the Development of Vocational Training). (2011). *CEDEFOP Glossary. Quality in education and training*. Retrieved from https://www.cedefop.europa.eu/files/4106_en.pdf

- Creemers, P. M., & Reezigt, J. (1996). School level conditions affecting the effectiveness of instruction. *School Effectiveness and School Improvement*, 7(3), 197–228.
- D’Agostino, J. V., Rodgers, E. M., & Karpinski, A. C. (2020). The role of formative assessment in student achievement. In J. Hattie & E. M. Anderman (Eds.), *Visible learning guide to student achievement* (pp. 126–130). London: Routledge.
- Duquesne University. (n.d.). *Performance Indicators*. Retrieved from <https://www.duq.edu/assets/Documents/soe/admin/student-teaching/st4-performance-indicators.pdf>
- Eder, F. (2002). Unterrichtsklima und Unterrichtsqualität. *Unterrichtswissenschaft*, 30(3), 213–229.
- Eger, L., Egerova, D., & Pisonova, M. (2018). Assessment of school image. *CEPS Journal*, 8(2), 97–122.
- Ellis, L., Burke, D. M., Lomire, P., & McCormack, D. R. (2003). *Student grades and average ratings of instructional quality: The need for adjustment*. *The Journal of Educational Research*, 97(1), 35–40.
- European Training Foundation (ETF). (2012). *Proposed indicators for assessing technical and vocational education and training*. Turin: ETF.
- Fussangel, K., Rürup, M., & Gräsel, C. (2016). Lehrerfortbildung als Unterstützungssystem. In H. Altrichter & K. Maag Merki (Eds.), *Handbuch neue Steuerung im Schulsystem* (pp. 361–384). Wiesbaden: Springer.
- Gess-Newsome, J. (2020). Pedagogical content knowledge. In J. Hattie & E. M. Anderman, *Visible learning guide to student achievement* (pp. 139–144). London: Routledge.
- Goetz, T., & Hall, N. C. (2020). Emotion and achievement in the classroom. In J. Hattie & E. M. Anderman (Eds.), *Visible learning guide to student achievement* (pp. 145–152). London: Routledge
- Government Skills Australia (GSA). (2007). *Employability Skills*. Retrived from VOCED website: <https://www.voced.edu.au/content/ngv%3A6427>
- Hanushek, E. A, Kain, J. F, & Rivkin, S. G. (1999). *Do higher salaries buy better teachers?* (Working paper 7082). Cambridge: National Bureau of Economic Research.
- Hattie, J., & Clarke, S. (2019). *Visible Learning. Feedback*. Oxon: Routledge.

- Hattie, J., & Zierer, K. (2019a). *Kenne Deinen Einfluss! „Visible Learning“ für die Unterrichtspraxis*. Baltmannsweiler: Schneider.
- Hattie, J., & Zierer, K. (2019b). *Visible learning insights*. Oxon: Routledge.
- Helmke, A. (2003). *Unterrichtsqualität. Erfassen. Bewerten. Verbessern*. Seelze: Kallmeyer.
- Helmke, A. (2007). Aktive Lernzeit optimieren. Was wissen wir über effiziente Klassenführung? *Zeitschrift für Pädagogik* 59(5), 44–49.
- Helmke, A. (2017). *Unterrichtsqualität und Lehrerprofessionalität. Diagnose, Evaluation und Verbesserung des Unterrichts*. Seelze: Klett Kallmeyer.
- Hendriks, M.A., Doolaard, S., & Bosker, R. J. (2001). *School self-evaluation in the Netherlands: Development of the ZEBO-instrumentation*. *Prospects* 31, 503–518.
<https://doi.org/10.1007/BF03220036>
- Higgs, J., Letts, W., & Crisp, G. (2019). *Education for employability (vol. 2): Learning for future possibilities*. Leiden: Brill.
- Huber, S. G., Hader-Popp, S., & Schneider, N. (2014). *Qualität und Entwicklung von Schule*. Weinheim: Beltz.
- International Institute for Educational Planning Unesco (IIEP-UNESCO). (2014). *Understanding and assessing quality*. Module 2. Paris: Unesco.
- Kasper, B. (2016). *Implementation von Schulqualität. Governanceanalyse des Orientierungsrahmens Schulqualität in Niedersachsen* (Doctoral Dissertation). Wiesbaden: Springer.
- Kelley-Hall, C. (2010). *The role of student support services in encouraging student involvement and its impact on student perceptions and academic experiences* (Doctoral Dissertation). Retrieved from Tiger Prints website: https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=1546&context=all_dissertations
- Kersh, N. (2019). *Learning from knowledge transfer and recontextualisation of experiences in the context of workplace learning: Insights from the UK*. In A. Bahl & A. Dietzen, *Work-based learning as a pathway to competence-based education* (255–272). Bonn: BIBB.
- Kotter, K-H. (2002). *Unser Gymnasium auf dem Weg in die Zukunft. Schulentwicklung nach dem EFQM-Modell*. München: Kastner.

- Lani, F. (2017). Teacher Education for the Changing Demographics of Schooling: Inclusive Education for Each and Every Learner. In L. Florian & N. Pantic (Eds.), *Teacher education for the changing demographics of schooling. Issues for research and practice* (9-20). Wiesbaden: Springer.
- Lugger, B. (2020). Verständlichkeit ist nur der Anfang. In J. Schnurr & A. Mäder, *Wissenschaft und Gesellschaft: Ein vertrauensvoller Dialog. Positionen und Perspektiven der Wissenschaftskommunikation heute* (pp. 139–150). Berlin: Springer.
- Mehrotra, S., Raman, R., Kumra, N., Kalaiyarasan, & Röß, D. (2014). *Vocational education and training reform in India. Business needs in India and lessons to be learned from Germany*. Gütersloh: Bertelsmann Stiftung.
- Misko, J., & Saunders, J. (2004). *Training needs of emerging industries*. Adelaide: National Centre for Vocational Education Research (NCVER).
- Nastasi, B. K., & Hitchcock, J. H. (2016). *Mixed methods research and culture-specific interventions*. Los Angeles: Sage.
- National Council of Educational Research and Training (NCERT). (2015). *Quality assessment tools (QAT)*. Delhi: NCERT.
- OECD (Organisation for Economic Co-operation and Development). (2013). *Equity and Quality in Education. Supporting disadvantaged students and schools*. Retrieved from <http://www.oecd.org/education/school/50293148.pdf>
- Opdenakker, M. C., & Damme, J. V. (2007). Do school context, student composition and school leadership affect school practice and outcomes in secondary education? *British Educational Research Journal*, 33(2), 179–206. <https://doi.org/10.1080/01411920701208233>.
- Shulruf, B., Hattie, J., & Tumen, S. (2008). Individual and school factors affecting students' participation and success in higher education. *Higher Education*, 56, 613–632.
- Prebble, T., Hargraves, H., Leach, L., Naidoo, K., Suddaby, G., & Zepke, N. (2004). *Impact of Student Support Services and Academic Development Programmes on Student Outcomes in Undergraduate Tertiary Study: A Synthesis of the Research*. Retrieved from Education Counts website: https://www.educationcounts.govt.nz/__data/assets/pdf_file/0013/7321/ugradstudentoutcomes.pdf

Proctor, Enola; Silmere, Hiie; Raghavan, Ramesh; Hovmand, Peter; Aarons, Greg; Bunger, Alicia et al. (2011): Outcomes for implementation research: conceptual distinctions, measurement challenges, and research agenda. In: *Administration and policy in mental health* 38 (2), S. 65–76. DOI: 10.1007/s10488-010-0319-7.

QualiVET Project Group. (2019). *QualiVET Quality Development Framework (QDF). Guideline, shaping oriented indicators, team concept* (Ed. NA beim BIBB). Bremen: Institut Technik und Bildung.

Ramasamy, M. (2016). *Demand-driven approaches in vocational education and training: A case study of rural population in South India*. (Doctoral Dissertation). Wiesbaden, DE: Springer.

Rowan, B. (1996). Standards as incentives for instructional reform. In S.H. Fuhrman & J. J. O’Day (Eds.). *Rewards and reform: Creating educational incentives that work*. San Francisco: Jossey-Bass.

Salvador, J. C., Laborda, J. L. A., & Rabanos., N.L. (2020). *Manage the classroom, manage the teaching-learning process* (International Conference of Psychology, Sociology, Education, and Social Sciences, May 2019). Retrieved from https://www.europeanproceedings.com/files/data/article/10023/10678/article_10023_10678_pdf_100.pdf

Scheerens, J., Witziers, B., & Steen, R. (2013). *A meta-analysis of school-effectiveness studies*. *Revista de Educación*, 36(1), 619–645.

Schneider, S., & Pilz, M. (2019). The function and institutional embeddedness of Polytechnics in the Indian education system. *International Journal for Research in Vocational Education and Training (IJRVET)*, 6(3), 284–308.

Shen, J., Ma, X., Gao, X., Bierlien Palmer, L., Poppink, S., Burt, W., Leneway, R., McCrumb, D., Pearson, C., Rainey, M., Reeves, P., & Wegenke, G. (2019). Developing and validating an instrument measuring school leadership. *Educational Studies*, 45(4), 402–421.

Suartini, T. (2019). *Influence Application of Learning Model on Vocational Education Based on Quality Assurance*. Sage Open, 1–11. Retrieved from <https://doi.org/10.1177%2F2158244019851552>

- Tanner, C. K., & Bosch, S. J. (2020). Influences of school layout and design on student achievement. In J. Hattie & E. M. Anderman (Eds.), *Visible learning guide to student achievement* (pp. 98–103). London: Routledge.
- Tara, N., & Kumar, S. (2016). Initiatives in skill upgrading: The case of industrial training institutes (ITI) in Karnataka, India. In M. Pilz (Ed.), *Vocational education and training in times of economic crisis* (pp. 151-170). Cham: Springer.
- UNESCO. (2000). *Dakar framework for action*. Retrieved from <https://sustainabledevelopment.un.org/content/documents/1681Dakar%20Framework%20for%20Action.pdf>
- UNESCO. (2002). *EFA global monitoring Report. Education for all: Is the world on track?* Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000129053>
- UNESCO International Institute for Educational Planning (IIEP). (2014). *External quality assurance: Toolkit for the Tempus project (WPI)*. Paris: Author.
- UNESCO. (2018). *Handbook on measuring equity in education*. Retrieved from: <http://uis.unesco.org/sites/default/files/documents/handbook-measuring-equity-education-2018-en.pdf>
- Usta, D. N., Ültay, N., & Ültay, E. (2020) Classroom Management Perspective of Teachers. *IBAD Journal of Social Science*, (8), 209–25. doi: <https://doi.org/10.21733/ibad.703809>.
- Vlasceanu, L., Grünberg, L., & Parlea, D. (2007). *Quality Assurance and Accreditation: A Glossary of Basic Terms and Definitions*. Bucharest: UNESCO.
- Wahlstrom, K. L., Louis, K., Leithwood, K., & Anderson, S. E. (2010). *Investigating the links to improved student learning*. Executive summary of research findings. Retrieved from Wallace Foundation website <https://www.wallacefoundation.org/knowledge-center/Documents/Investigating-the-Links-to-Improved-Student-Learning-Executive-Summary.pdf>
- Walker, R. (2000). *Indigenous performance in Western Australia Universities. Reframing retention and success*. Canberra: Department of Education, Training and Youth Affairs.
- Weinstein, C. S., Mignano, A. J. (2007). *Elementary Classroom Management. Lessons Learnt from Research and Practice* (4th ed). New York: McGraw Hill.
- Wolf, P. J. (2007). Academic improvement through regular assessment. *Peabody Journal of Education*, 82(4), 690–702.

Yukl, G. (2002). *Leadership in organizations* (5th ed.). Upper Saddle River: Prentice Hall.

Zerihun, Z., Beishuizen, J., & Van Os, W. (2012). Student learning experience as indicator of teaching quality. *Educational Assessment, Evaluation and Accountability*, 24(2), 99–111. doi: <https://doi.org/10.1007/s11092-011-9140-4>



IV References Criteria and Indicators

Sources	
Criteria	Educational Research
1 Evaluation Area Institutional Sphere & Context	
1.1 Facilities & Resources	
1.1.1 General Facilities & Resources	(Tanner & Bosch, 2020), (Bailey et al., 1998)
1.1.2 Learning Facilities and Resources	(Meyer, 2004, pp. 120-126), (Tanner and Bosch, 2020), (Bailey et al., 1998)
1.1.3 Efficient Resource Utilisation	(Kotter, 2002)
1.2 Student Support & Provisions	
1.2.1 Student Support Services	(Prebble et al., 2004, pp. 71–76), (Bailey et al., 1998)
1.2.1 Pre-enrolment and Career Counselling	(Kelley-Hall, 2010), (Prebble et al., 2004, p.60)
1.3 Inclusion, Access & Equity	
1.3.1 Support for Underprivileged Groups	(Prebble et al., 2004, pp. 96-97), (UNESCO, 2018, pp. 16–32), (Walker, 2000), (UNESCO, 2018, pp. 16–32), (Walker, 2000), (ETF, 2012)
2 Evaluation Area Personnel	
2.1 Personnel Competence	
2.1.1 Educational Personnel Qualification	(Fussangel, Rürup, & Gräsel, 2016), (Gess-Newsome, 2020).
2.2 Working Environment & Job Security	
2.2.1 Working Conditions Teaching Staff	(Capaul & Seitz, 2011, pp. 31-32), (Hanushek, Kain, & Rivkin, 1999)
2.2.2 Working Conditions Non-teaching Staff	(Capaul & Seitz, 2011, pp. 31-32)
2.3 Training & Development	
2.3.1 Engagement in Further Training	(Hattie & Zierer, 2019a, pp. 188–190), (Capaul & Seitz, 2011, pp. 357–358), (Prebble et al., 2004, pp. 23–48), (Hube, Hader-Popp, & Schneider, 2014)
2.4 Cooperation & Teamwork	
2.4.1 Cohesion and Cooperative Teamwork	(Hattie & Zierer, 2019a, pp.186–198), (Scheerens et al., 2013, p. 630), (Hendriks, Doolaard, & Bosker, 2001)
3 Evaluation Area Educational Planning, Provision & Assessment	
3.1 Educational Provision & Curricula	

3.1.1 Learner Profile Assessment	(Ambrose et al., 2010), (Bateman et al., 2012), (Hattie & Zierer, 2019b, pp. 26–42), (Lani, 2017), (Rizvi, et al, 2019), (Shulruf et al., 2008), (UNESCO, 2002; 2005).
3.1.2 Demand-Orienta-tion of Course Pro-gramme	(Misko & Saunders, 2004), (Ramasamy, 2016)
3.1.3 Quality School Syllabus& Curriculum Enrichment	(Brophy, 1999, pp. 13–14 [curricular quality, curricular align-ment]), (Capaul & Seitz, 2011, pp. 411–414)
3.2 Assessment Concept & Practices	
3.2.1 Continuous & Holistic Assessment	(Brophy, 1999, pp. 29-30), (Wolf, 2007), (Zerihun et al., 2012), (Shen et al., 2019)
4 Evaluation Area Learning & Teaching	
4.1 Quality Classroom Teaching & Management	
4.1.1 Lesson Prepara-tion and Structure	(Hattie & Zierer, 2019a, pp. 202–206 [, (Duquesne University, n.d.), (Usta, Ültay, & Ültay, 2020), (Meyer, 2004, pp. 25–38, pp.55–66), (Brophy, 1999, pp. 15-16), (Hattie & Zierer, 2019a, pp. 49–50, pp. 74–75 [structure], (Helmke, 2017, pp. 190–201), (Salvador et al., 2020)
4.1.2 Methodology Mix	(Meyer, 2004, pp. 74–85), (Helmke, 2017, 263–271), (Salvador, Laborda, & Rabanos, 2020)
4.1.3 Learner Engage-ment	(Meyer, 2004, p. 39), (Brophy, 1999, pp. 10-12), (Hattie & Zierer 2019a, pp. 94–104 [active learning, guided learning, cooperative learning], p. 168 [time on task]), (Helmke, 2003, pp. 104-106 [quantitative focus], (Helmke, 2007), (Scheerens et al., 2013, p. 632), (Usta et al., 2020), (Weinstein & Mignano, 2007, pp 170–194)
4.2 Learner-Centered Focus	
4.2.1 Frequent Individ-ual Feedback	(Meyer, 2004, pp. 71-72), (Hattie & Clarke, 2003), (Hattie & Zierer, 2019, p. 40, pp. 142–162), (D’Agostino, Rodgers, & Karpinski, 2020 [informal formative assessment]), (Alok, 2011)
4.2.2 Individual Sup-port & Encouragement	(Meyer, 2004, pp. 86–103), (Scheerens et al., 2013, p. 633), (Opdenakker & Damme, 2007), (Hendriks et al., 2001), (Alok, 2011)
4.3 Holistic Vocational Focus	
4.3.1 Practice- and Occupation Orientation	(QualiVET Project Group, 2019, p.32), (Suartini, 2019)
4.3.2 Knowledge Ap-plication	(Meyer, 2004, pp. 104–112), (Brophy, 1999, pp. 21–22), (Hattie & Zierer, 2019a, p. 36), (Kersh, N., 2019)
5. Evaluation Area Leadership & School Management	
5.1 Effective Institutional Organisation	
5.1.1 Supportive & Ef-ficient Institutional Pro-cesses	(Capaul & Seitz, 2011, pp. 167–204), (Prebble et al., 2004, pp. 56–57)
5.2 Effective & Cooperative Leadership	
5.2.1 Institutional Strategy & Vision	(Altrichter et al., 2004), (Altrichter et al. 2004, pp. 35–51 [School Program], (Capaul & Seitz, 2011, pp. 127–163), (Kotter, 2002, pp. 14–15)
5.2.2 Cooperative Leadership	(Capaul & Seitz, 2011, pp. 261–262 [cooperation principles], pp. 280-282), (Wahlstrom et al., 2010, pp. 8–12), (Opdenakker & Damme, 2007), (Hendriks et al., 2001)
5.3 Quality Assurance & Development	
5.3.1 Quality Manage-ment Procedures & Ini-tiatives	(Scheerens et al., 2013, p. 631), (Capaul & Seitz, 2011, pp.565–592), (Berkemeye, Müller, & van Holt, 2016), (Capaul & Seitz, 2011, 573–578)

5.4 External Relations & Communication	
5.4.1 Public Relations	(Scheerens et al., 2013, p. 632 [parental involvement], (Capaul & Seitz, 2011, pp. 51-116; pp. 116–121 [local environment]), (Capaul & Seitz, 2011, p. 116 [school cooperation], (Eger, Egerova, & Pisonova, 2018)
6. Evaluation Area Industry Linkage	
6.1 Industry Engagement	
6.1.1 Industry Engagement & Integration	(Misko & Saunders, 2004), (Mehrotra et al., 2014, pp. 32–35)
6.1.2 Functioning IMC Committee (ITI only)	(Tara & Kumar, 2016)
6.2 Placement Coordination & Monitoring	
6.2.1 Functional Placement and OJT Training Cell	(Kelley-Hall, 2010), (Mehrotra et al., pp. 33-34)
7. Evaluation Area Learner Achievements	
7.1 Competencies & Qualifications	
7.1.1 Employability	(Higgs, Letts, & Crisp, 2019), (GSA, 2006)
7.1.2 Learner Performance	(Ellis et al., 2003)
7.2 Transition & Participation	
7.2.1 Academic Progression	(Kelley-Hall, 2010)
7.2.2 Transition into Work	(Kelley-Hall, 2010)

V Appendix

	1 Institutional Sphere & Context	2 Personnel	3 Educational Planning, Provision & Assessment	4 Learning & Teaching	5 Leadership & School Management	6 Industry Interlinkage & Involvement	7 Learner Achievements
Input 	1.1 Facilities & Resources 1.1.1 General Facilities 1.1.2 Learning Facilities & Resources 1.1.3 Efficient Resource Utilisation	2.1 Personnel Competence 2.1.1 Educational Personnel Qualification 2.2. Working Environment & Job Security 2.2.1 Working Conditions Teaching Staff 2.2.2 Working Conditions Non-Teaching Staff 2.3. Training & Development 2.3.1 Engagement in Further Training	3.1 Educational Provision & Curricula 3.1.1 Learner Profile Assessment 3.1.2 Demand-Orientation of Course Programme 3.1.3 Quality Syllabus & Curriculum Enrichment 3.2 Assessment Concept & Practices 3.2.1 Continuous & Holistic Assessment		5.1 Effective Institutional Organisation 5.1.1 Supportive & Efficient Institutional Processes		
Process 	1.2 Student Support & Provisions 1.2.1 Student Support Services 1.2.2 Pre-Enrolment Counselling 1.3 Inclusion, Access & Equity 1.3.1 Support for Underprivileged Groups	2.4 Consensus & Teamwork 2.4.1 Cooperative Teamwork		4.1 Quality Classroom Teaching & Management 4.1.1 Lesson Preparation & Structure 4.1.2 Methodology Mix 4.1.3 Learner Engagement 4.2 Learner-Centered Focus 4.2.1 Frequent Individual Feedback 4.2.2 Individual Support & Encouragement 4.3 Holistic Vocational Focus 4.3.1 Practice & Occupation Orientation 4.3.2 Knowledge Application	5.2 Effective & Cooperative Leadership 5.2.1 Institutional Strategy & Vision 5.2.2 Cooperative Leadership 5.3 Quality Assurance & Development 5.3.1 Quality Management Procedures & Initiatives 5.4 External Relations & Communication 5.4.1 Public Relations	6.1 Industry Engagement 6.1.1 Industry Engagement & Integration 6.1.2 Functioning IMC Committee (ITI only) 6.2 Placement Coordination & Monitoring 6.2.1 Functional Placement & On-the-Job-Training Cell	
Output/ Outcome							7.1 Competencies & Qualifications <ul style="list-style-type: none"> ▪ Employability ▪ Learner Performance 7.2 Transition & Participation <ul style="list-style-type: none"> ▪ Academic Progression ▪ Transition into Work