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Quality Management System in School (QMSiS[1]): an Indonesian example for improving quality at vocational schools

Abstract

For Indonesia, as the most populous ASEAN country, improving and assuring TVET quality is one major goal of educational policy. Different strategies are in place to bring learning outcomes closer to labour market requirements and to even out regional disparities. This article presents QMSiS as a practical example from a vocational high school in Makassar. Prior to the introduction of this quality management system (QMS), school quality was deterred by problems such as a lack of customer orientation, incoherent teaching activities, inefficiencies in school administration and a lack of student involvement. QMSiS combines characteristics of ISO 9001:2008 with the concept Q2E2 against the background of the eight Indonesian education standards. ISO 9001:2008 is internationally recognized, offers a flexible quality management approach for different contexts and can also be certified in Indonesia. Q2E is a concept that particularly addresses quality areas and requirements in educational institutions. Together, these two systems can help vocational schools to develop their own certified QMS with the due special regard for educational inputs, processes and outputs.Under QMSiS, internal and external school processes and the overall school performance in terms of industry linkages and placement of TVET graduates were improved at SMKN (Public Secondary Vocational School) 4 Makassar. After these positive developments, the experiences with QMSiS were disseminated to 16 other vocational schools in South and West Sulawesi. These results show that QMSiS can help vocational schools in the Indonesian context to achieve better TVET quality provided that all relevant school stakeholders are involved in the process.

1 Introduction

With a population of more than 250 million, ensuring the provision of education and training that match labour market needs is of particular importance in Indonesia. Among the population, 43,3% of them are 25 or younger and thus are at the beginning of their work life or will enter the labour market soon (CIA, 2014). The youth unemployment rate has been above 20% during the last years and is the highest within ASEAN (ILO & ADB 2014, 58).

Furthermore, the economic structure is developing towards the supply of more sophisticated products and services. The Ministry of Industry identified three key sectors for future growth: Agro-Industry, Information Technology Industry and Transportation Industry (Kim 2010, 169). To meet these development targets and to enhance its competitive profile within the projected ASEAN Free Trade Area (AFTA), the country needs to upgrade medium-skilled

[1] QMSiS= Quality Management System in School

[2] Q2E= Qualität durch Evaluation und Entwicklung (engl.: *Quality through evaluation and development*)

and high-skilled labour supply (ILO & ADB 2014, 53). Among other reforms, this requires improvements in TVET quality.

This article serves several purposes. At the beginning, it provides a short overview of current quality challenges and recent reforms in TVET in Indonesia. This overview is based on a review of international policy and project documents in the area of skills development. Furthermore, the article is especially directed to regional vocational school staff interested in the implementation of quality management approaches in practice. While there are clear goals for improving education and training quality in the national education standards, the concrete process towards achieving these goals is much less clear. Therefore, the article also presents experiences from a practical example. SMKN 4, a vocational high school in Makassar/Sulawesi, implemented a quality management system that combines aspects of ISO 9001:2008 and Q2E against the background of the national education standards in 2011. The paper first presents the underlying quality management concepts and explains how they were combined to fit the needs of SMKN 4 Makassar. Subsequently, the article illustrates the school context with its previous quality challenges, the realization of the quality management system and what results could be achieved so far.

Finally, the article shows how this QM approach was disseminated to other schools of the region and discusses recommendations for the future.

2 Challenges and strategies for better TVET quality in Indonesia

Despite being the largest economy in Southeast Asia with annual growth rates above 5%, Indonesia's competitiveness could be affected by its weaker position in education and skill development (ADB 2014, 60-64). Since the spread of international student performance studies such as PISA, TIMSS or PIRLS, there has been an ongoing discussion about education quality. Although Indonesia managed to improve the overall scores, they remain low compared to other Southeast Asian neighbouring countries (ADB 2014, 70; UNESCO, 2014; MoEC 2013). As a response to these challenges, the Indonesian government increased educational spending to over 20% of the total budget (Kim 2010, 179).

Although large-scale examinations of learning outcomes mostly concern younger learners, TVET is not excluded from the quality debate in Indonesia. Skill surveys showed that vocational secondary education is one of the major problems for skill development. Thus, skill enhancement and hence the development of vocational schools are a key reform area (Di Gropello, 2011, 147f.; Kim 2010, 179f.) As for all school levels, an increase in educational spending and policy reforms should contribute to higher enrolment rates. The ratio of enrolment in technical and vocational education as a share of total upper secondary education enrolment was 42,3 % in 2011 with an upward trend (World Data Bank, 2014). This corresponds to the "SMK[3] Roadmap 2010-2014" by the Directorate of Vocational Education at the Ministry of Education and Culture (MoEC). This strategy should lead to a general increase in TVET supply by raising the number of vocational schools, vocational teachers and students.

[3] SMK = Sekolah Menengah Kejuruan

Ultimately, the proportion of general senior secondary to vocational senior secondary schools should be reversed to a ratio of 33% (general secondary schools) to 67% (vocational secondary schools) (Kim 2010, 185).

However, if Indonesia wants to succeed in upgrading its economy towards more sophisticated products and services, it needs a high number of workers with sufficient skill levels (ILO & ADB, 2014, 53). A comprehensive skill report by the World Bank showed that the most lack skills among younger workers include creativity, English language, leadership, problem-solving and computer skills (Di Gropello, 2011, 144). When it comes to graduates of secondary vocational education, the report shows that employers from both the manufacturing and the service sector expressed their need for more and better generic skills such as thinking skills, behavioural skills and the ability to work independently and in teams (ibid., 130, 147).

Looking at current TVET policies in Indonesia, we can see that the understanding of what constitutes TVET *quality* is highly connected to the fulfilment of international standards, third-party certification of institutions and the creation of stronger links with enterprises. The targets of the Directorate of Vocational Education for better SMK quality include an increased accreditation rate of SMK, a higher number of schools that meet international quality standards (e.g. ISO 9001/2008), a wide-spread use of ICT and also the development of more SMK into "teaching industry" schools (ibid, 187). Being a teaching-industry school means that SMK specialize in the production of specific products, parts etc. for regional enterprises. This way, they establish closer links with companies, generate additional income and bring about more practical relevance to education and training.

A major achievement with regard to the Indonesian education system was the introduction of a national qualifications framework. The Indonesian Qualifications Framework (IQF)[4] sets competency-based learning goals for all education and training courses. It should serve as a comparison tool for improving international labour mobility to and from Indonesia (Santoso 2013, 12). While the promotion of international labour mobility is an important purpose of the IQF, its first focus is to help build confidence of domestic employers into the national qualifications (SED-TVET 2014, 7). The relevance of the IQF to the TVET quality challenge is twofold: On the one hand, it seeks to provide more clarity on the expectations of workers at different skill levels. On the other hand, by providing a common reference scheme, it should also contribute to a reduction of quality disparities between regions. As the mere existence of the IQF does not ensure high training quality, the Ministry of Manpower and Transmigration has developed the Indonesian Quality Training Framework (IQTF). After its implementation, this set of standards for TVET providers should ensure that training programs indeed lead to the targeted qualification levels (ibid., 8).

As the low quality of Indonesian teachers is seen as one major reason for the poor performance in international learning assessments, teacher development is another area of reform (Jalal et al., 2009). The 2005 Teacher Law defined minimum qualification standards for teachers and significantly raised teacher salaries (Verger, Altinyelken & de Koning 2013, 22). This made the teaching profession a more attractive career choice. The implementation of the

[4] Kerangka Kualifikasi Nasional Indonesia = KKNI)

Teacher Law was complemented by the BERMUTU[5] project (BERMUTU= Better Education through Reformed Management and Universal Teaching Upgrading). The main goal of BERMUTU was the improvement of teacher quality through the enhancement of their professional and pedagogical skills (ibid.). So far, it seems that the pay raise and other reforms have not led to a real improvement in learning outcomes. According to Chang et al. (2014, 4) and MoEC (2013, 86), many teachers still resort to a lecture-style way of instruction. On the one hand, this kind of teaching is easy to manage and requires less time as the teacher provides only one informational input for the entire class and there is limited time for student discussions or trial and error learning. On the other hand, it hardly stimulates the development of problem-solving skills and independent thinking on the student side (ibid.).

From the aforementioned developments, we can see that the existing quality challenges are well-recognized and there are a number of top-down strategies to improve TVET quality in Indonesia. These include an increase in educational spending, the definition of national education standards and the development of a national qualification framework with competency goals for all skill levels. These top-down measures now need to be filled with appropriate activities at the bottom level within the increased autonomy that Indonesian schools enjoy after decentralization reforms.

3 QMSiS as a combination of ISO 9001:2008 and Q2E

This section will explain more detail the underlying quality management approaches of QMSiS at SMKN 4 Makassar. QMSiS combines characteristics of ISO 9001:2008 with the concept Q2E against the background of the Indonesian education standards.

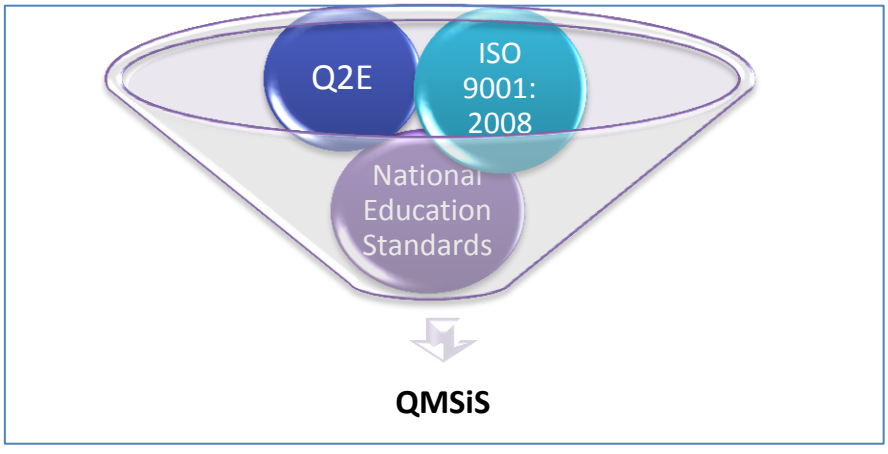

Figure 1: QMSiS as a combination of ISO 9001:2008, Q2E and the objectives of the national education standards

ISO 9001 is a quality management standard that is internationally recognized. The latest version is 2008; the next revision is expected by the end of 2015 (ISO 2014). ISO 9001:2008 defines quality management requirements that should be fulfilled by organizations that seek to

[5] This project was supported by the World Bank and the Dutch government.

offer high-quality products or services. These requirements are divided into five main business processes:

- Quality management system
- Management responsibility
- Resource management
- Product realization
- Measurement, analysis and improvement

Each process is then structured into further sub-sections; for instance the process "management responsibility" consists of

- Management commitment
- Customer focus
- Quality policy
- Planning
- Responsibility, authority and communication
- Management review

(see ISO 2009)

The following figure shows how the five business processes should contribute to a constant improvement of the quality management system:

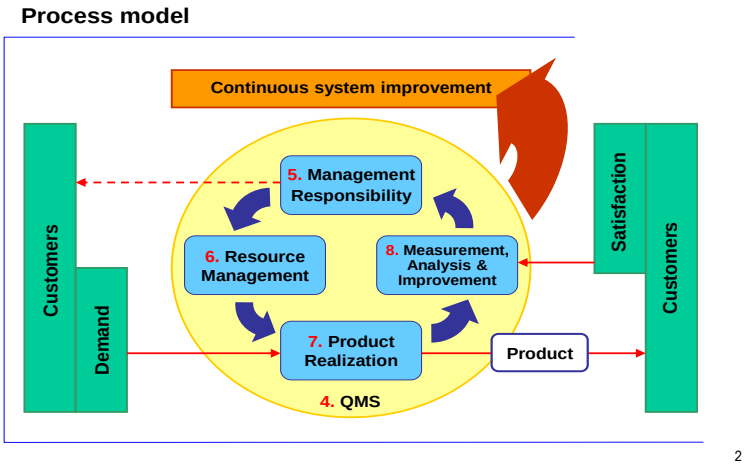

Figure 2: The ISO 9001:2008 quality management process cycle (© DIN ISO 9001:2008)

The customers in this case are the students, parents and local industries of SMKN 4 Makassar. They have different demands to the education and training services provided by the school. Based upon these demands, it is the management's responsibility to plan and implement the annual school strategies and activities against the background of the school resources (infrastructure, staff, financial means etc.). On this basis, the school develops its products, i.e. education and training in the different professional profiles. The internal results and the external feedback from the school's customers are continuously measured and are then taken into consideration for future planning and implementation of training services.

For each of the business processes and corresponding sub-sections, SMKN 4 Makassar defined goals and guidelines against the background of the national education standards in a quality management handbook. As a prerequisite for obtaining the ISO 9001 certification, the

organization must be able to prove the documentation of its QM procedures. Therefore, SMKN 4 Makassar developed a QM documentation system following the ISO 9001 structure.

Table 1: **Quality procedures at SMKN 4 Makassar**

QMS ISO 9001:2008		No.	QUALITY PROCEDURE	
4.2.2	Quality Manual	1	SMK4/QM/01	Quality Manual
4.2.3	Control of documents	2	SMK4/QP/4.2.3-01	Control of documents procedure
		3	SMK4/QP/4.2.3-02	Administration management procedure
4.2.4	Control of records	4	SMK4/QP/4.2.4/01	Control of records procedure
5.3	Quality policy			
5.4.1	Quality objectives			
5.5.3	Internal communication	5	SMK4/QP/5.5.3-01	Internal communication procedure
5.6	Management review	6	SMK4/QP/5.6-01	Management review procedure
6.2.2	Competence, awareness and training	7	SMK4/QP/6.2.2 -01	Human Resource management procedure
6.3	Infrastructure	8	SMK4/QP/6.3-01/109	Practice Laboratory management procedure
		9	SMK4/QP/6.3-10	Income Generating Unit procedure
		10	SMK4/QP/6.3/11	Infrastructure management procedure
		11	SMK4/QP/6.3/12	Library management procedure
6.4	Work environment	12	SMK4/P/6.4-01	Occupational Health and Safety procedure
7.2.3	Customer communication	13	SMK4/QP/7.2.3-01	Customer communication procedure
7.3	Design and development	14	SMK4/QP/7.3-01	Curriculum design and development procedure
		15	SMK4/QP/7.3-02	Design and development teaching and learning procedure
7.4.1	Purchasing process	16	SMK4/QP/7.4.1-01	Purchasing process procedure
7.5.1	Control of production and service provision	17	SMK4/QP/7.5.1-01	Enrollment procedure
		18	SMK4/QP/7.5.1-02	On the job training procedure
		19	SMK4/QP/7.5.1-03	Student Data Base Management procedure
		20	SMK4/QP/7.5.1-04	Student Transfer procedure
		21	SMK4/QP/7.5.1-05	Financial management procedure
		22	SMK4/QP/7.5.1 06	Extracurricular procedure
7.5.5	Preservation of product	23	SMK4/QP/7.5.5-01	Guidance Counselling procedure
8.2.1	Customer satisfaction	24	SMK4/QP/8.2.1-01	Customer satisfaction procedure
8.2.2	Internal audit	25	SMK4/QP/8.2.2-01	Internal Audit procedure
8.2.3	Monitoring and measurement of process	26	SMK4/QP/8.2.3-01	Teaching and learning control procedure
		27	SMK4/QP/8.2.3-02	Assessment procedure
8.3	Control of non-conforming product			
8.4	Analysis of data	28	SMK4/QP/8.4-01	Analysis of data procedure
8.5.2	Corrective action	29	SMK4/QP/8.5.2-01	Corrective action procedure
8.5.3	Preventive action	30	SMK4/QP/8.5.3-01	Preventive action procedure

There are 30 quality procedures within the QMS (see Table 1). In order to facilitate coordination and communication within the school, there are altogether 194 standard quality forms for all quality procedures. Consequently, all staff have a common basis for their work tasks.

While ISO 9001:2008 is a widely recognized and relatively flexible quality management concept, it is not designed specifically for institutions in the area of education and training. For this reason, there are a number of other or complementing QM approaches that seek to take into consideration the special situation of institutions that "produce" education and training. One of these alternative concepts is Q2E. This QM model was developed in Switzerland but is now also applied at vocational schools in other countries such as Germany (IDES 2010).

One of the most interesting aspects about Q2E is its versatility. First of all, it is an action model for schools that plan to establish a QMS[6]. As indicated by the name, this should be achieved through continuous evaluations (both individual and for the entire school; both internal and external) and further development (Landwehr & Steiner 2007).

In addition to that, Q2E also serves as a reference framework for school quality. This quality definition is twofold: the first quality definition is process-oriented. In this regard, a good school is a school that strives for continuous improvement through a quality management system. The second quality definition describes concrete quality requirements that a good school should fulfil. The framework consists of four quality areas:

- Quality of inputs
- Quality of processes in class (instruction)
- Quality of processes in the school
- Quality of outputs/outcomes

Each quality area is further concretized in three quality dimensions[7]. A fifth quality area that refers to all the other quality areas and can thus be understood as a "meta-area" is quality management which is also divided into three quality dimensions (ibid.).

The following figure-e provides an overview of the five quality areas and 15 quality dimensions of the Q2E reference framework:

[6] This action model includes the following instruments: Definition of a quality concept for the school, controlling quality processes by the school management, external school evaluation, Individual feedback and personal quality development, data-based self-evaluation of the school

[7] On a 3rd level below quality areas and quality dimensions, the Q2E reference framework describes quality characteristics. These are approx. 250 normative statements of quality requirements of a *good* school (Landwehr & Steiner 2007). When defining its own quality framework, each school would decide which of these to incorporate.

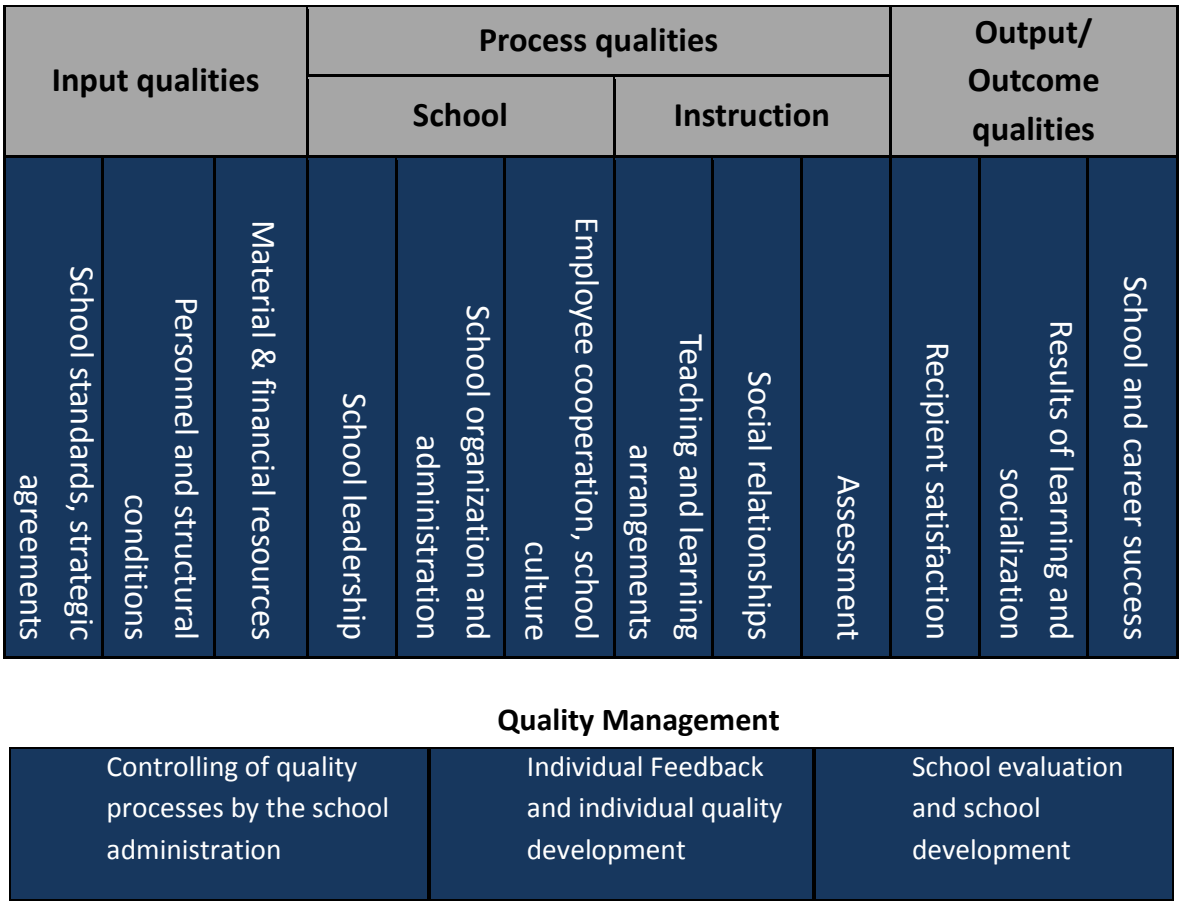

Figure 3: Quality areas and quality dimensions of the Q2E reference framework
(© Landwehr/Steiner PH NW EDK Aarau, translation by the authors)

The Q2E reference framework should not serve as a blueprint that schools adopt completely. Rather, they should use it as background concept to develop their own quality framework.

After presenting the main characteristics of the two quality management approaches, ISO 9001:2008 and Q2E, the following explains how these concepts were combined for the QMSiS approach at SMKN 4 Makassar. As ISO 9001:2008 is the concept with the wider international popularity and is also one that can be certified in Indonesia, it serves as the foundation of QMSiS. Different aspects of Q2E and particularly of the Q2E reference framework were then added to all the processes of ISO 9001:2008. This helped the school to reflect more deeply on its education quality needs and targets and to develop the corresponding quality criteria in more detail, especially in the area of internal and external evaluation (Eberhard 2009).

This is in line with the Government Regulation 19/2005 which explained the 8 Indonesian education standards[8]. One of the most essential of these with regard to TVET quality is standard 2 "Process standards". Within the ISO framework, this would be related to chapter 7 (product realization) and it defines standards for teaching and learning methodologies:

[8] The 8 education standards are: 1) content standards, 2) process standards, 3) standards for educators and educational personnel, 4) facility and infrastructure standards, 5) management standards, 6) financing standards, 7) assessment standards, and 8) graduation competency standards (see MoEC 2013, 85).

> *"The teaching process in schools shall be conducted in a way that is interactive, inspiring, fun, and challenging, motivates students to participate actively, and provides sufficient space for initiatives, creativity, and independence in line with the talents, interest, and physical and psychological development of the students." (MoEC 2013, 89)*

This goal marks an important development away from the traditional teacher-centred instruction towards a learner-centred approach. Nevertheless, the MoEC acknowledges that a "lack of overall implementation guidelines or core indicators" still poses a challenge in practice (ibid., 90). This is then the gap where Q2E can support schools in defining and implementing a comprehensive QMS.

The following figure shows where Q2E aspects complement the ISO approach in QMSiS:

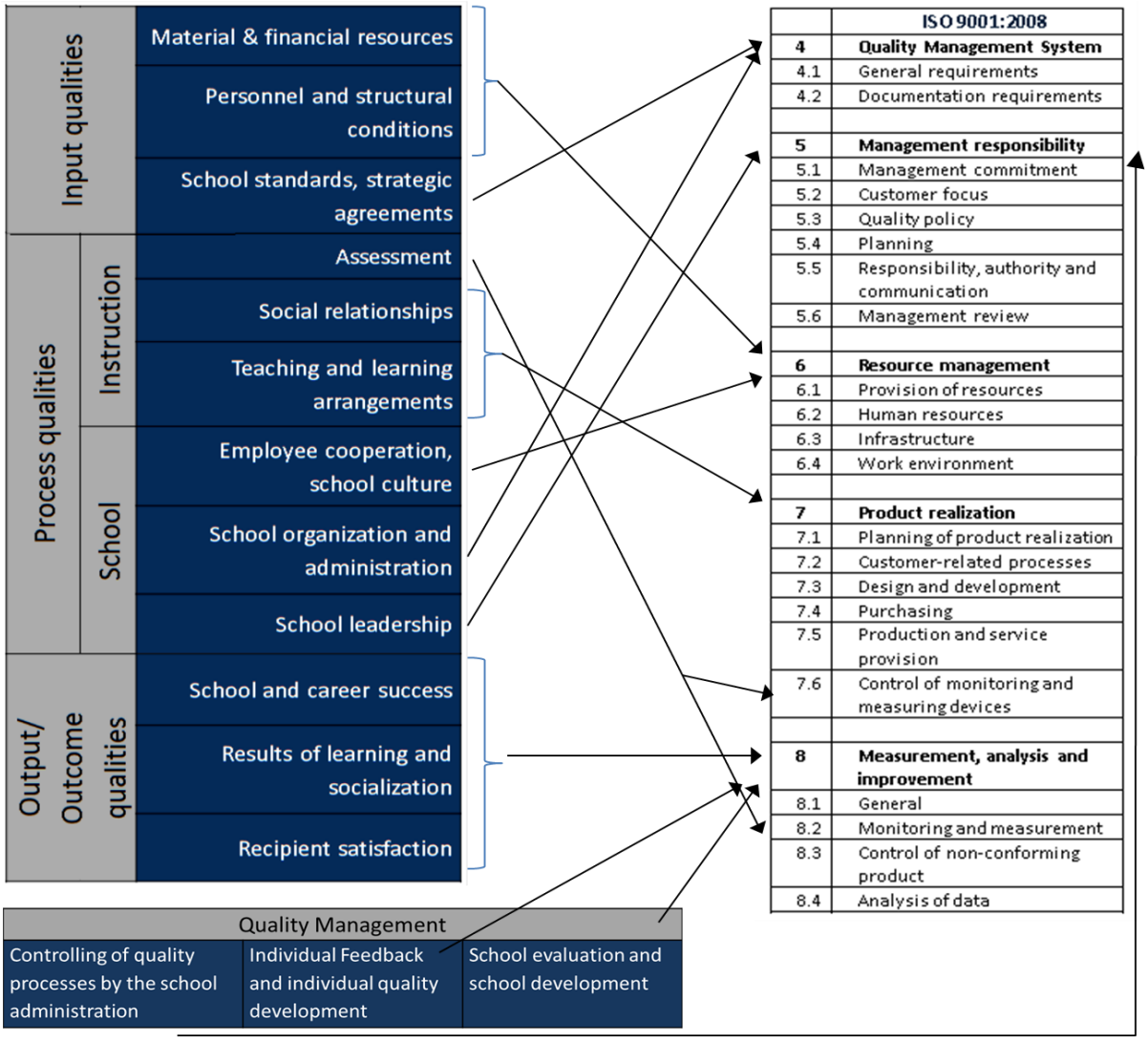

Figure 4: Q2E quality reference framework as a complement to ISO 9001:2008

The result of this combination of ISO 9001:2008 and Q2E is a quality management approach that follows the ISO logic and helps the school in improving its reputation by receiving external certification. At the same time, it is a very rich concept which takes into special

consideration the characteristics and requirements of schools and helps them to achieve the provisions of the national education standards.

After the explanation of QMSiS and its underlying quality management concepts, the next chapter describes the process of its practical implementation at SMKN 4 Makassar.

4 Practical implementation of QMSiS at SMKN 4 Makassar

4.1 Local school context

SMKN 4 Makassar is a public vocational school in the city of Makassar. In Makassar, there are currently 11 public vocational high schools and 87 private vocational high schools. The main industries of the district are trading, home industry and fishery. Among the shared challenges of most of the local vocational high schools are fast industry development, a lack of infrastructure, lack of teachers´ competencies and of industry linkages, curriculum development and also the development of suitable teaching materials.

SMKN 4 Makassar has six departments: Accounting, Office administration, Marketing, Tourism and Travel, Computer Networking and Commercial Cookery. Currently 1412 students are taught by a total of 97 teachers.

4.2 Prior quality challenges

Before the introduction of QMSiS, SMKN 4 Makassar had no coherent QMS. As a consequence of this situation, the school suffered from various quality problems:

- A lack of external/customer orientation: the school management mostly focused on the internal needs of the school (input orientation).
- Unsystematic and incoherent preparation and implementation of learning activities by the school's teachers: Teachers used different approaches for the preparation and implementation of their lessons. There was no external feedback and motivation to help them to develop their teaching in a more systematic way.
- Teacher-centred teaching and learning processes: Students did not have an active role in their learning. Furthermore, teaching quality was relatively uneven. The students could be lucky if a teacher invested more time and effort into planning the lessons and used different didactic approaches. If not, they would experience a more unidirectional instruction.
- Inefficient documentation procedures in the school administration and as a result frequent confusion about student and other school data: documentation was paper-based and often incomplete. As a result, finding information was very time-consuming for both school staff and external stakeholders (such as parents, industry representatives or government officials).
- Lack of student involvement: Students were not much involved in the organization of different activities of the school life (such as local or regional events) and also played

a more passive role in their learning process. Education and training could thus not contribute optimally to their professional development towards becoming independent and self-confident employees.

These weaknesses represented problems in different areas of the school and hence it was necessary to develop and implement a holistic quality management approach that would encompass all school departments and their related work procedures.

4.3 Practical implementation of QMSiS at SMK 4 Makassar

In order to address the aforementioned quality obstacles and improve the school's performance, the school management of SMK 4 Makassar decided to introduce a new QMS in 2011. This change process started with an information workshop to make sure that all school staff understood the importance and different aspects of quality management. Next, a work team was created which was responsible for implementing the subsequent activities and preparing the quality management documents that should later be used by all school staff. To ensure that different departments of the school worked well together for a better education and training quality, it was necessary to understand and list all the crucial work procedures. For each procedure, the new documentation system contained standard documents to guide the staff's work. Creating such a common reference system yielded several benefits. Firstly, it promoted clarity and a shared awareness of the quality expectations within the school. Secondly, as the work procedures were clearer and well-structured, the school staff could save time and resources that were previously required for the preparation, communication and negotiation of tasks. And lastly, the new QMS also supports the staff in reflecting on their work. It is easier than before to check whether all tasks were completed or whether important aspects were missing.

Finally, after an internal and external audit the school received the ISO certification for quality management.

4.4 Positive results for TVET quality at SMKN 4 Makassar

As a result of the successful implementation of QMSiS at SMKN 4 Makassar, a number of different internal and external performance aspects could be enhanced. Firstly, teaching and learning processes in the classroom were improved. All the teachers participated in workshops where they learnt and discussed about their role as teachers within the quality framework of the school. They also learnt how to prepare and structure their lessons with the help of common documents and apply a greater variety of different teaching and learning methods. By doing so, especially the less experienced teachers were strengthened. This is one of the quality areas where aspects from Q2E (in this case: process quality in class) helped to enrich the ISO 9001:2008 structure. As a result of these changes, teaching and learning processes have become more interactive and more responsibility is transferred from the teachers to the students.

In addition, students are now more involved in the school's activities than before as this aspect is also included on the procedures list of QMSiS. This means that student associations

are now actively contributing to the planning, implementation and evaluation of school events throughout the year (local, regional and national). Feedback from students, parents, and teachers such as meeting responses, activity reports and questionnaires showed that these experiences were considered very valuable and a good preparation for the students´ personal and professional development after graduation.

Furthermore, SMKN 4 Makassar intensified its connections and contacts with the local industries through the introduction of QMSiS. QMSiS includes information and agreements on the professional networks of the school and how different industry stakeholders contribute to education and training services. As a result, the school managed to increase the number of companies that joined the industry attachment program from 70 to 108. The participating companies come from a broad range of economic sectors such as retail, travel and tourism agencies, hotels, restaurants, government institutions, food service companies, IT companies and financial service providers. This enhanced professional network contributed to a better education and training quality in several ways. First of all, industry representatives provide support in the annual curriculum development process. Together with teachers and the school management, they discuss about competency demands by the industry, required training equipment and also about assessment criteria for the different competencies. Secondly, industry staff is now also involved as guest lecturers at SMKN 4 Makassar. Every school department hosts such guest events once per semester. Thus, the experts have the opportunity to talk about professional innovations and provide the students with a better understanding of the realities of their future workplace. Thirdly, industry personnel are not only involved in curriculum development but also in the student assessment process. This comprehensive progress is already yielding tangible benefits as the rate of school graduates who are hired as new employees in local industries has risen from 32% to now approximately54% per year.

Finally, another positive effect of the implementation of QMSiS has been an increased government support. The MoEC had linked school funding to the existence of a QMS as an indicator of school quality. The quality improvement was confirmed via the school accreditation and the ISO 9001:2008 certification. Subsequently, SMKN 4 Makassar received financial support from the local government to modernize school buildings and training equipment, to offer more teacher training activities, to promote student entrepreneurship and further industry partnerships, to support curriculum development and to undertake international benchmarking activities.

4.5 Dissemination and regional relevance

After these positive results at SMKN 4 Makassar, the experiences and activities with QMSiS were also disseminated to 16 other schools in South and West Sulawesi[9]. In a series of workshops in 2011 and 2012, teachers and management staff at the other schools learned about the importance of QMS and the process of setting up a quality documentation system.

[9] These schools were: SMKN 1, 2, 3, 5, 6, 7 and 8 Makassar (South Sulawesi), SMKN 3 Pare-Pare (South Sulawesi), SMKN 1 Bantaeng (South Sulawesi), SMKN 1 Bulukumba (South Sulawesi), SMKN 1 Watangsoppeng (South Sulawesi), SMKN 1 and 2 Pinrang (South Sulawesi), SMKN 1 and 2 Palopo (South Sulawesi), SMKN 1 Polewali Mandar (West Sulawesi).

Furthermore, they received assistance in the implementation of their own QMS and in some cases for the preparation of certification. Until now, five of the sixteen schools have already implemented QMSiS and are on their way to external ISO 9001:2008 certification. As a result of these dissemination activities, school staff is more aware of the importance of quality aspects and of a QMS for the functioning of the school. Furthermore, the schools enhanced their documentation systems and as a consequence could also improve teaching and learning processes. The teachers prepare better lesson plans on the basis of the curriculum and include a greater didactic variety in their classes. Also as a result of the implementation of QMSiS, several schools received government support such as financial support for equipment, teacher training, curriculum development and promoting further industry partnerships.

5 Findings and recommendations

Improving quality in TVET has been one of the main education reform areas in Indonesia for the last years. As a part of this broad objective, vocational schools should establish coherent quality management systems.

The example of the vocational high school SMKN 4 in Makassar represents the experiences and benefits of the introduction of a new QMS called QMSiS. This concept brings together the international reputation and structural flexibility of ISO 9001:2008 and the detailed focus on school-specific quality requirements of Q2E. QMSiS was implemented at SMKN 4 Makassar in 2011. The positive results for the school include improvements in teaching and learning processes, an enhanced responsibility for students in school activities, a stronger network with local companies and an increase in government support. These positive experiences have so far been shared and disseminated to 16 other vocational schools in the region.

Although the positive results of introducing QMSiS prevailed, they came at some costs. Additional resources in the form of time, manpower and financial costs were needed to integrate Q2E principles into the ISO 9001:2008 approach in the way that it helps fulfil the national education standards. Approximately 1.5 additional months were needed for the discussion about and the development of the specific quality documentation procedures.

These practical experiences from Makassar show that Q2E can contribute to the enrichment of ISO 9001:2008. Through this combination, QMSiS can help achieve the objectives of the Indonesian education standards that determine the quality targets but cannot guide schools through the steps that lead there. The example also shows that it is important to involve all school stakeholders in the discussion and adaptation of the QMS to ensure ownership and the integrity of the new system.

Beyond its regional relevance, the example of QMSiS at SMKN 4 Makassar also represents a potential source of advice and learning for other schools in Indonesia who want to develop their own QMS and make sure that it is in line with their institutional context. To broaden the positive influence of these activities, we recommend the following measures:

- In order to continue the positive development for TVET in the region, further workshops and activities to enhance quality management should take place at vocational schools in South Sulawesi, West Sulawesi, Southeast Sulawesi, Gorontalo, North Sulawesi and Central Sulawesi.

- With an even wider range of practical experiences with QMSiS, it would be useful to systematically collect the outcomes over a longer time period. This process should be supported scientifically, e.g. by a university with experience in the area of quality management in TVET. This scientific support could help derive facilitating factors and obstacles for the implementation of an effective QMS. This way, QMSiS could develop into a successful and well-founded model for other regions in Indonesia.

- Broader networking activities on the regional and national level would encourage professional exchange between TVET researchers and practitioners about different QMS in the Indonesian TVET context. This would allow for a comparison of practical experiences and joint efforts towards the compatibility and coordination of different QMS. As the government aims at reducing regional disparities in education, QM approaches in TVET should contribute to this objective and not rival to each other.

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TVET@sia The Online Journal for Technical and Vocational Education and Training in Asia

CITATION:

Mustafa & Petrick, S. (2015). Quality Management System in School (QMSiS): an Indonesian example for improving quality at vocational schools. In: TVET@Asia, issue 4, 1-16. Online: http://www.tvet-online.asia/issue4/mustafa_petrick_tvet4.pdf (retrieved 30.1.2015).

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