

Chapter 2

Project-Based Learning



Christian Stehling and Uwe Munzert

2.1 Professional Education in Central Asia: A Short Introduction

In Central Asia one can find three levels of professional education: the higher education at universities, the primary and secondary vocational education and training (VET) at colleges and informal ad hoc trainings in small and especially microbusinesses. Even two decades after the collapse of the Soviet Union, there are still some distinctive features of its educational system in place, despite sometimes ambitious attempts for reforms in Central Asian countries such as Kazakhstan, Kyrgyzstan and Tajikistan. One of the main attributes in this context is a VET system that takes place foremost in state-run educational institutions, such as vocational colleges and universities, and to a much smaller degree in private companies. Another attribute inherited from the Soviet system is the focus on rather theoretical teaching and learning methods at those institutions, with only a limited portion of practical training and consequently, a limited application of the acquired theoretical knowledge into practice.¹

While, in the Soviet Union, internships and practical trainings in state-owned companies were a crucial aspect for every student and apprentice, however, private companies are nowadays not systematically and sufficiently involved in VET. Internships in such companies, if provided at all, too often do not include the interns in the actual production processes. Thus, the quality of practical trainings too often depends on the financial and technical provisions of individual educational institutions. Until today,

¹For a comprehensive overview of the VET system and VET teacher qualification systems (in German language) in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan, see Tsimoshchanka (2013).

C. Stehling (✉) · U. Munzert (✉)
Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), Bishkek, Kyrgyzstan
e-mail: christian.stehling@giz.de; uwe.munzer@giz.de

a great share of Central Asian VET teachers as well as university teaching staff had gained their professional and teaching skills during the Soviet era. As a result, ex-cathedra teaching is usually the preferred method of passing on knowledge to students. In return, modern teaching methods, taking into account the latest didactical and pedagogical findings and approaches, are not the widely used standard yet. That is unfortunate since, in contrast to other developing regions of the world, the knowledge of Central Asian college teachers and university teaching staff, especially in rather technological subjects of study, is usually quite advanced. In fact, inadequate practical training in VET colleges and university studies is a perennial issue and a formidable obstacle for the promotion of direct foreign investment due to the lack of sufficiently trained professionals for the industry (Stehling 2015).

2.2 National Strategies to Modernize VET in Central Asia

Just as other Central Asian countries, Kazakhstan, Kyrgyzstan and Tajikistan are trying to address the aforementioned issues, in order to modernize their systems of education. These countries are working to improve professional education with the aim of aligning themselves closer to international standards.

Kazakhstan is regarding the German dual system as a role model for reforming its VET system with the aim of linking its VET system stronger to the needs of the industry.² It must be noted, however, that by doing so, the government prefers a “top-down” approach, in contrast to the dual system in Germany, due to the current lack of a truly developed cooperative system between the state and civil society actors such as unions and independent chambers of commerce and trade. The “State Program of Education Development in the Republic of Kazakhstan for 2011–2020” (Ministry of Education and Science of the Republic of Kazakhstan 2010) contains a variety of reform measures for all levels of education, including VET and higher education. The country is applying the “European Credit Transfer and Accumulation System” (ECTS) and has adopted its own “National Qualifications Framework” (NQF) for higher education, while planning to implement a NQF for VET until 2020. Strengthening practical aspects in VET and higher education is a prominent and positive feature of Kazakhstan’s strategy to improve its professional education.

Kyrgyzstan is currently implementing its “National Sustainable Development Strategy for the Kyrgyz Republic” (Donors 2016), which also aims at improving the educational system. The main issues and forward-thinking possible solutions in VET and higher education are described in more detail in the “Education Development Strategy of the Kyrgyz Republic for 2012–2020” (Global Partnership for Education 2014). Primary and secondary VET as well as professional education in higher education are showing disparity between the knowledge and skills of graduates on the one hand, with the needs of the industry on the other hand. Teaching

²Short information on the German dual system and further information: Federal Ministry of Education and Research (2015).

staff who require further training and lack of governmental funds need to be addressed in order to improve the Kyrgyz education system. To tackle these problems, an institutionalized involvement of the private sector at all levels of professional education is intended but currently only driven forward by single educational institutions and entrepreneurs.

Since 2012, Tajikistan passed several laws which aim at reforming all aspects of its educational system, as a part of the “National Strategy of Education Development till 2020” (Global Partnership for Education 2012). A special focus in the strategy identifies the demands and needs of the labour markets and on restructuring the professional education. Since 2015, the country has been implementing a teacher training and education programme with the aim of centralizing the previous system in order to improve the quality. In comparison with Kazakhstan and Kyrgyzstan, Tajikistan is not ambitiously aiming at private sector involvement into its professional educational system. The main problem of the country in this context is the vast size of the informal sector of its economy. In 2014 the World Bank estimated in its report “The Skills Road” a percentage of 60% of Tajik employees working in the informal economy (Ajwad et al. 2014).

All three Central Asian countries are supported in their efforts by several international donors and organizations such as for instance UNESCO-UNEVOC, the European Union’s (EU) agency European Training Foundation (ETF) and GIZ. The latter is using the short-term training tool of project-based learning and formats for cross-border cooperation in order to supplement these long-term education development strategies.

2.3 Strategy for the International Cooperation in the Area of VET

Last but not the least, the process of ongoing internationalization and globalization has caused new challenges in the area of vocational education. “The national systems of vocational education are facing the challenge of international competition on one side and the necessity of international cooperation on the other side” (Dybowski and Walter 2001). One indicator for the competitiveness of national VET systems is evaluated by their quality of and their ability for innovation.

Many countries are interested in Germany’s experiences and know-how of vocational training (see the dual system). According to the publication of the “Deutscher Bundestag”, the financial and economic crisis of 2008/2009 has raised the interest in the dual system and elements of it, as it has proved its ability to contribute to the qualification of qualified employees by connecting theoretical learning in school with practical learning at the work place (Deutscher Bundestag 2013).

Thus, education and training focusing on the labour market’s needs as well as integrating the private sector into the education process will improve the employability of the young generation. Countries with a rather theoretical vocational education model that takes place only at educational institutions increasingly feel the

pressure to reform and to improve their system. Employers criticize the lack of practical skills and the lack of a skilled labour force. Accordingly, many young people in Central Asia have little access to the labour market and may lack a positive perspective regarding their individual future and participation in society. Conversely, an investment into a skilled labour force fulfilling the needs of potential employers will be an important factor for the economic growth in those countries.

Kazakhstan, Kyrgyzstan and Tajikistan are among other countries in Central Asia that are taking great efforts to strengthen their economic growth by reforming their VET systems in order to further develop human capital. Furthermore, they are paying a lot of attention to the development of small and medium enterprises in order to promote economic growth.³

Germany promotes the reform processes of vocational education systems in Central Asia as a means of supporting economic development. The chosen strategies and aims can be quickly described by the following points:

1. Improvement of the employability of young adults by strengthening practical elements of in-house training
2. To support governments and social partners who want to integrate dual structures into their educational systems through transfer of know-how
3. To satisfy the need of skilled work force and technology transfer
4. To support the possibilities for further and ongoing training services
5. To support the introduction of an inclusive, integrated approach of VET in those countries where vocational education can be the driving force for growth and employment and thus contribute to the stabilization of fragile contexts

The “Deutsche Bundestag” states in its strategy paper that it is not intended to transfer the German VET system one by one but rather to adopt elements where feasible and necessary. Besides transferring elements of integrated and cooperative VET elements, much attention is paid to the adaptation process that takes into account the national preconditions and needs. Sustainability in the ongoing and, to an ever growing extent, independent development of the VET systems in the aforementioned countries is of high importance.

The German Government has published instruments and forms of international cooperation in the field of VET (id. 2013). Those mentioned below are implemented and are core activities of the present GIZ regional VET programme in Central Asia.

2.3.1 *Quality Standards*

Implementation of quality management systems and VET standards through:

- Common developed curricula
- New learning and teaching material and formats

³For details of those efforts, see, in Kazakhstan, Ministry of Education and Science of the Republic of Kazakhstan (2010); in Kyrgyzstan, Global Partnership for Education (2014); and, in Tajikistan, Global Partnership for Education (2012).

- Development of in-company training standards
- Qualification of teaching staff in colleges and universities
- Further qualification of trainers in companies

2.3.2 Marketing and Communication

- Increasing the acceptance and image of vocational education through internal and external communication
- Dialogue for educational policy on a regional political level
- Publication of findings, experiences and best practices

2.3.3 Support of Regional Academic Mobility

- Development of an academic network
- Exchange of experiences and best practices through exchange programmes for students and lectures

Based on the aforementioned conditions in the three Central Asian countries, one of the targets of the GIZ programme “Professional Education and Training in Central Asia” is to improve the quality of teachers’ and lecturers’ training in the field of vocational education in the area of food technology.

The governance of educational systems is a prominent topic of recent surveys (Dietrich et al. 2011). The question raised is on how to steer educational systems effectively without being focused on former, hierarchical and authoritarian structures or to become apparent on social dissimilarities. The focus of public attention is also the role of transnational agencies such as UNESCO, EU or GIZ, in the frame of globalization. Local multi-stakeholder networks are seen as an effective steering tool for educational processes especially in the area of VET.

In order to reach this goal, the demand of the food processing industry in all Central Asian countries for skilled labour force was taken into account, and new international accredited curricula fulfilling the Bologna Standards were developed in cooperation with universities, colleges and the private sector. Thus, the shortcoming of a highly qualified labour force shall be tackled by improving study programmes as well as the further and ongoing training of teachers in colleges and lectures in universities.

The implementation of the newly developed curricula is an essential part of the ongoing GIZ programme interventions that will occur from 2016 to 2019. Due to the experiences of the former programmes, a strong network, combining training institutions such as colleges and universities on an international level is necessary to successfully complete the task at hand.

Additionally the programme focuses on the regionalization of the vocational education and on the development of further and ongoing training programmes.

This aspect allows academic mobility and the mutual recognition of qualifications. In addition universities can specialize in a certain area of food technology such as milk and meat in Kyrgyzstan, fruit and vegetable in Tajikistan and bakery and brewery technology in Kazakhstan.

A project-based learning approach was developed and implemented in order to improve the quality of training for teaching and practical training staff. Twenty-two national teachers and lecturers applied with their own project in order to take part in the 18-month USPECH project and to build a network for scientific exchange and publication in Central Asia. The programme is supported internationally by the Universities of Dresden, Kassel and Berlin.

2.4 USPECH

According to the Federal Institute for Vocational Education and Training (BIBB) – Germany, “there is an increasing demand of the dual system ‘Made in Germany’, worldwide. The German government has reacted on the aforementioned demand in 2013 by developing their strategy concerning the cooperation in the area of VET (Berufsbildungszusammenarbeit BBZ ‘out of one hand’)” (Bundesinstitut für Berufsbildung 2016).

In principle you will find five core elements (sign of quality) for the German dual system in the international communication:

- The close cooperation between the state and the economy
- Learning in the work process
- The social acceptance of standards
- The qualification of VET personnel⁴
- The institutionalized scientific research and consultancy

Effective training for TVET quality teaching and learning is necessary, but it also can be a great professional pleasure for participants as well as for trainers and organizers if we succeed to meet participants’ needs and interests (sometimes ‘tacit’ ones) – and to apply methods which generate space for creativity and innovation. (Sharipova and Wesseler 2018)

Since there is strong evidence that the core challenge of TVET capacity building – globally – is not so much a lack of knowledge but rather a lack of competence and practice, the proposal focuses on an innovative system of opportunities for learning from experience and practical exercise. (eid. 2017)

Participants will know how to further develop existing networks and to strengthen their collective learning through cross-country cooperations. This dimension has not only a professional impact but also a ‘political’ one, by promoting mutual understanding and collaboration between the partner institutions and their countries. (Härtel et al. 2015)

Starting from 2008, seven modules for the ongoing and further training of VET teachers were developed by experts from the University of Dresden. Those modules

⁴Translated by the authors.

were integrated into the programmes of the respective institutions, responsible for ongoing and further teacher training in each of the partner countries. Several workshops were conducted with international experts giving trainings on various topics in pedagogies and didactics to teachers in the field of food technology.

While that was a rather centralistic approach as pointed out by Sharipova and Wesseler (2018), a more participative approach was implemented especially in the GIZ programme “Professional Education and Training in Central Asia” from 2013 to 2016. The development of the Bachelor of Science for Food Technology (BSc), the Master of Science for Food Technology (MSc), the Master of Education for Food Technology (MEd) and the Curriculum for Food Technician (College Level) was realized in cooperation with all national partners such as universities and colleges and with a strong involvement of the private sector. All aforementioned study programmes follow the Bologna criteria and are international accredited or like the M.Ed. in the accreditation process.

Thus the GIZ programme was orientating on the strategy of the German government as well as fulfilling the quality criteria of the German VET system as mentioned above. In order to strengthen the ownership and to create space for an innovative learning approach, the USPECH project was implemented as described by Sharipova and Wesseler (2018).

Taking into account our partner’s potential and motivation and to foster sustainability, more and more of the GIZ program’s activities will be under the responsibility of the national partner in the third phase from 2016 to 2019. Operating the network www.eduinca.net will be handed over to one of our partners, and a new PhD (institutionalized scientific research and consultancy) programme will be developed in cooperation with the private sector. USPECH participants will present a “network plan” until the end of 2016 focusing on:

- Innovation, development of competences and communication (internal and external)
- Visibility of activities and scientific motivation
- Coordination, regular meetings and secretary’s office

One of the programme’s major goals was to initiate learning processes in the network, based on the exchange of information, knowledge and experience. In his survey, Härtel et al. point out:

The pure provision of learning options rather leads to incomprehensible creation of knowledge. In order to be able to plan such learning processes, steering is necessary through combining individual and collective bases of knowledge. (eid. 2015, pp. 306–307)

2.5 Conclusion

In order to improve living conditions and create perspectives for the young generation in Central Asia, study and training programmes have to be implemented that meet the needs of the regional labour market and fulfil the demand of a highly

skilled working force. In a positive manner, the private sector has increasingly begun to take responsibility by cooperating in the development of modern training programmes. The participation in examinations is as important as providing internships with a well-organized share of practical training.

Many positive aspects have already been implemented such as the development and implementation of curricula and training programmes. For further widespread societal and systemic change, teaching and training staff must further be introduced to specific laboratory didactics, pedagogies and modern teaching methods. Project-based learning is one approach among others allowing to fully use the potential of students with the aim of raising motivation and developing independent learning as well as analytical and problem solving and critical thinking skills and teamwork. All of the skills aforementioned are widely regarded as key qualifications for modern labour markets.

In order to make training programmes for teaching and training staff more effective, networking is essential. Exchange of knowledge, experiences and best practice methods are a key for the sustainability and ongoing development on the international level. According to Professor Köhler et al., surveys have shown that learning and transfer processes within a network are happening, but rather by pure chance.

Meetings, workshops, publications and others shall be organized to plan and support those processes. Further surveys shall focus on evaluation of the development of effective tools and procedures in order to steer such learning processes in scientific networks.

References

- Ajwad, M. I., Hut, S., Abdulloev, I., Audy, R., Laa, J. D., Kataoka, S., ... Torracchi, F. (2014). *The skills road: Skills for employability in Tajikistan* (No. 91009). Washington, DC. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/20388/910090WP0P14350d000Tajikistan0Final.pdf?sequence=1>
- Barge, S. (2010). Principles of problem and project based learning: The Aalborg PBL model. Retrieved from http://www.aau.dk/digitalAssets/62/62747_pbl_aalborg_modellen.pdf
- Bundesinstitut für Berufsbildung (BIBB). (2016). 10 Jahre Qualitätsmerkmale im Praxistest: Deutsche Berufsbildungszusammenarbeit aus einer Hand. Retrieved from <https://www.bibb.de/de/50190.php>
- Deutscher Bundestag. (2013). *Strategiepapier der Bundesregierung zur internationalen Berufsbildungszusammenarbeit aus einer Hand*. Unterrichtung durch die Bundesregierung (No. Drucksache 17/14352). Berlin. Retrieved from <http://dip21.bundestag.de/dip21/btd/17/143/1714352.pdf>
- Dietrich, W., Echavarría Alvarez, J., Esteva, G., Ingruber, D., & Koppensteiner, N. (2011). *The Palgrave international handbook of peace studies: A cultural perspective*. Basingstoke: Palgrave Macmillan. Retrieved from <http://gbv.ebib.com/patron/FullRecord.aspx?p=4007840>
- Donors. (2016). National sustainable development strategy 2013–2017. Retrieved from <http://www.donors.kg/en/strategy/172-national-sustainable-development-strategy-2013-2017>
- Dybowski, G., & Walter, M. (2001). Internationale Zusammenarbeit in der beruflichen Bildung stärken. *Berufsbildung in Wissenschaft und Praxis*, 30(4). Retrieved from <https://www.bibb.de/veroeffentlichungen/de/bwp/show/id/1664>

- Federal Ministry of Education and Research. (2015). The German vocational training system – BMBF. Retrieved from <https://www.bmbf.de/en/the-german-vocational-training-system-2129.html>
- Global Partnership for Education. (2012). *National Strategy of Education Development of the Republic of Tajikistan till 2020* (No. 334). Dushanbe. Retrieved from <http://www.globalpartnership.org/download/file/44406>
- Global Partnership for Education. (2014). *Education development strategy of the Kyrgyz Republic for 2012–2020*. EDS 2020. Bishkek. Retrieved from www.globalpartnership.org/fr/download/file/44406
- Härstel, L., Hoffmann, M., Köhler, T., & Weith, T. (2015). Wissenskommunikation und Transfer für die Landschaftsentwicklung. Eine Analyse im Forschungsnetzwerk “Nachhaltiges Landmanagement”. *Gruppendynamik und Organisationsberatung*, 46(3–4), 289–312. <https://doi.org/10.1007/s11612-015-0296-0>.
- Ministry of Education and Science of the Republic of Kazakhstan. (2010). *State Program of Education Development in the Republic of Kazakhstan for 2011–2020* (No. 1118). Astana. Retrieved from www.akorda.kz/upload/SPED.doc
- Rummler, M., Nehls, T., Jordan, P., & Heitmann, G. (2012). *Innovative Lehrformen: Projektarbeit in der Hochschule: Projektbasiertes und problemorientiertes Lehren und Lernen* (1st. Hochschuldidaktik ed.). Weinheim: Julius Beltz. Retrieved from http://www.content-select.com/index.php?id=bib_view&ean=9783407292261
- Sharipova, N., & Wesseler, M. (2018). Strengthening the innovative potential of project-based learning for TVET: The USPECH experience. In J. Drummer, G. Hakimov, M. Joldoshov, T. Köhler & S. Udartseva (Eds.), *Vocational Teacher Education in Central Asia: Developing Skills and Facilitating Success*. Berlin: Springer.
- Stehling, C. (2015). Vom Frontalunterricht zu mehr praktischer Anwendung. Herausforderungen der Berufsbildung in Zentralasien. *Zentralasien-Analysen*, (93), 2–6. Retrieved from <http://www.laender-analysen.de/zentralasien/pdf/ZentralasienAnalysen93.pdf>
- Tsimoshchanka, Y. (2013). *Qualifizierungswege der Berufspädagogen in Kasachstan, Kirgistan, Tadschikistan, Usbekistan*. Dresden.
- World Bank. (2013). Tajikistan: Review of public expenditures on education. Retrieved from <https://openknowledge.worldbank.org/handle/10986/20770>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the book’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

