

Chapter 18

Competence-based Approach in the Education Reforms of Lithuania and Estonia

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18.1 Introduction

The introduction of the notion of competence in vocational education and training (VET) curriculum design and training practices was one of the key factors in the reform of initial VET in Lithuania and Estonia that enabled transformation of the post-Soviet initial VET systems towards EU and market-oriented models of VET. Therefore, this chapter aims to explore and compare the introduction and implementation of competence-based approaches in initial VET and higher education, as well as in the reforms of the national systems of qualifications in Lithuania and Estonia. This comparison comprises an analysis of the historical context of the development of competence-based approaches in initial VET and higher vocational education, an exploration of the focus on competence approaches, as well as a review of the development of competence-based national systems of qualifications and National Qualifications Frameworks in Lithuania and Estonia. From a theoretical perspective, this chapter acknowledges the wide diversity in the definition and application of the concept of competence (Winterton et al. 2006; Weigel et al. 2007; Winterton 2009; Brockmann et al. 2009, 2011; Biemans et al 2009; Mulder 2014) and is partly based on the theory of institutional development of skill formation systems as proposed by Streeck and Thelen (2009).

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18.2 Implementation of Competence-based VET and Higher Education in Lithuania and Estonia

The competence-based approach to vocational education and training (VET) emerged in the post-Soviet reform of the initial VET system of Lithuania together with the implementation of the first steps of the initial VET reform. Post-Soviet reform of the initial VET in Lithuania after 1990 was very strongly influenced by the abruptness of institutional changes as a result of the sudden reconstitution of statehood. This circumstance left little space or time for incremental development of the original institutions and institutional models of VET. Besides, the urgency of reform was increased by the irrelevance of the legacy of the Soviet VET system to new social, economic and institutional conditions: a vast network of initial VET providers, low prestige of VET amongst youth, absence or lack of communication between initial VET providers and newly emerged market economy institutions. For these reasons the first stage of post-Soviet reform of initial VET was focused on institutional restructuring of the VET system and adjustment of VET curricula to the skills needs of the emerging market economy.

Reform in the field of VET curriculum design was impeded by lack of expertise and know-how, because in the Soviet period, this function was executed by the central expertise bodies of the Soviet Union. The problem was solved by delegating responsibility for VET curriculum design to VET schools. This approach was piloted for the first time in the EU PHARE support programme for reform of VET in Lithuania, which started in 1995, and was of crucial importance for the further introduction of competence-based approaches to VET curriculum design. In the execution of this programme, competence-based VET curricula were designed and tested in the 27 VET schools with the support of foreign experts. Absence of know-how and expertise in competence-based education amongst the local policy makers and VET providers implied rather intensive application of policy borrowing and policy learning approaches in the conditions of provided EU support (the PHARE programme). A competence-based approach in VET curriculum design was attractive for local VET policy makers and providers because this facilitated flexibility with reference to changing skills needs in the workplaces of restructuring economic sectors.

The application and development of competence-based national VET policy instruments started from the design and implementation of the VET standards launched in 1998. The introduction of these VET standards represented state-led standardisation of the curricula of initial VET and higher vocational education by using competencies defined with common agreement of stakeholders from the VET system and labour market. Competence-based VET standards were treated by policy makers and experts mainly as measures to ensure the quality of initial VET provision under conditions of very diverse capacities of VET providers in terms of teachers' qualifications, methodical provision, infrastructure and other factors. The main 'conductors' of the implementation of competence-based approach in the initial VET curriculum design were vocational teachers trained in VET curriculum

design by using functional analysis techniques. Therefore, VET teachers rather quickly became leading experts in competence-based curriculum design.

The institutional structure of design and development of competence-based VET standards was based on tripartite collegial institutions representing sectors of economy. Fourteen expert groups of economic sectors were established, each consisting of three representatives of employers, three representatives of trade unions and three representatives of VET providers. Activities of these expert groups in the design of VET standards were coordinated by the central group of sector experts and the Centre for Methodological Support of VET – an institution established by the Ministry of Education and Science. Despite formally equal representation of VET providers and social partners, in most cases the representatives of VET providers played a key role in the design of VET standards. The participation and role of employer representatives very often were limited to providing information on skills needs. Trade union representatives participated very passively mainly due to lack of expertise and know-how in the field.

The VET standard defines the standardised part of the VET curriculum (professional activity areas, competencies and training objectives) which is automatically transferred to the curriculum from the appropriate VET standard. The designers of curricula in the VET schools may include additional competencies to satisfy local needs. Both VET standards and training curricula are based on competencies – combinations of knowledge, skills and key skills applied in execution of the work tasks and processes. However, the VET standards to some extent integrate the competence-based approach with the input approach, because the competencies are split into training objectives – smaller units of learning (knowledge, skills, abilities) that are provided through subjects. The training objectives present clear requirements for the designers of VET curricula and teachers on what knowledge, skills and key skills need to be provided and developed for each competency. In this way training objectives act as a bridge between defined competencies and training input. The designers of VET curricula regroup and amend training objectives according to local labour market needs and link them to the training subjects.

In the design and development of the VET standards, local experts cooperated with foreign organisations, such as the European Training Foundation, which facilitated consideration of international experience in developing such competence-based instruments.

Looking at the standardisation approach used in the VET standards of Lithuania, two features can be highlighted: orientation to minimal common performance requirements and lack of attention to future skills needs. VET standards are oriented to minimal common requirements: they indicate what is obligatory and necessary to achieve for competent performance of activities. They do not foresee any excellence levels or steps which would define the standard of highest quality in performance.

Implementation of competence-based approaches in the practices of provision of vocational education and assessment of learning has been very diverse and to some extent fragmentary. Two developments in particular had implications for the development of competence-based approaches in initial VET: modularisation of initial VET curricula and introduction of apprenticeship as an alternative pathway of initial VET.

The main purpose of the modularisation of VET curricula is to increase flexibility of curricula to make them more adaptable to changing economic needs and to standardise the contents of curricula to enhance training quality and recognition of learning outcomes when moving between institutions. It is foreseen to prepare 40 modular training curricula in at least 25 sub-sectors of education (*Lithuania: VET in Europe – country report 2013*). According to the designed methodology of modular VET curricula, the module is designed on the basis of competency defined in the initial VET standard or sectoral-occupational standard. Competency has been chosen as a basis of module, because it provides more flexibility in the organisation of training and accumulation/transfer of credits. However, design of modules on the basis of competencies also implies certain risks related to quality and sufficiency of acquired knowledge and skills to ensure employability, employment quality and permeability with the other learning pathways. Modularisation contains certain contradictions between the strive to make the learning process more flexible and enhance learner-centred approaches on one side and the possible implications of this approach to the quality of provided knowledge and skills from the other side. It has important implications for implementation and development of new pathways of initial VET provision, such as apprenticeship.

The Law on the Amendment of the Law on Vocational Education and Training in 2007 legally introduced the option of a dual type of apprenticeship in the initial VET system of Lithuania. However, despite the competence-based orientation of VET curriculum design, the provision of training and assessment of learning, the implementation of apprenticeship in the formal VET system is very slow. There are examples of ‘hidden apprenticeships’ and implicit competence-based remuneration and career approaches in enterprises that recruit low-skilled young people or students of VET schools and centres, provide in-service training and then gradually increase complexity of their work duties and wages (Qualifications and VET Development Centre 2013). The regulation of provision of the formal vocational education issued by the Ministry of Education and Science in 2012 responded to this situation by providing the possibility for initial VET students studying in the school-based pathway to work during the training period and to use the right of individual preparation for assessment of competencies, as well as the right for recognition of competencies acquired in the workplaces. Implementation and testing of apprenticeship in the VET system started in the field of employment training. Seeking to ensure high-quality vocational training for unemployed and preparation of skilled workers needed in the labour market, four public employment training centres started to implement the ESF-funded project ‘apprenticeship vocational training in the employment training centres’ in 2013. Under this project short-term (up to 6 months) apprenticeship schemes are offered to young unemployed people (16–29 years of age) not engaged in any form of education and training. These experimental apprenticeship schemes are clearly competence based, but they are more appropriate for those who already have acquired a certain general education level and even vocational qualification. Apprenticeship in these schemes is treated as workplace-based learning for the acquisition and development of competencies needed for the workplace. Such an approach to competence development does not

completely match to more holistic and lifelong learning-oriented concepts of competence applied in the reforms of the national system of qualifications and in the Lithuanian Qualifications Framework discussed below.

As mentioned above, competence-based VET standards have been applied for curriculum design not only in initial VET but also in higher vocational education colleges (universities of applied sciences) established in 2000. College study programmes correspond to ISCED 5B level and present by themselves professionally oriented higher education study programmes leading to a professional bachelor degree (*profesinis bakalauras*) or this degree together with vocational qualification. Curricula in these study programmes are designed referring to the VET standards and Guidelines of Study Field Area, which makes them competence based, although the term ‘learning outcomes’ rather than competencies is used in the descriptors of study programmes.

The implementation of a learning outcomes approach in universities began with the implementation of the ECTS system through an ESF-funded project initiated by the Ministry of Education and Science in 2009. In the same year, learning outcomes were introduced in the study credit concept in the Law on Research and Studies. It can be noted that this new concept of learning outcome was dualistic, because the competencies developed in the study subject or module were expressed with intended learning outcomes and achieved learning outcomes as individual achievements of student (*Nacionalinės studijų kreditų sistemos koncepcija* 2012). The ECTS oriented national study credit system is based on student notional workload (volume of studies) needed to develop competencies and to achieve intended learning outcomes. The concept of competence used in the national conception of the study credit system is based on the concept proposed by the TUNING project and is quite similar to the concept of competence used in the VET system defined as a dynamic combination of knowledge, skills and values that are necessary to execute the activity in an appropriate manner. The National Study Credit Conception distinguishes two types of competencies – generic competencies and subject-specific competencies. As far as competencies are acquired by achieving intended learning outcomes, they become the measurable elements of competence.

The project *Development of the Concept of the European Credit Transfer and Accumulation System (ECTS) at the National Level: Harmonization of the Credit and Implementation of the Learning Outcomes Based Study Programme Design* suggested the analysis of the professional field as the first step for design of study curricula aimed to identify the list of generic and subject-specific competencies by actively involving employers, graduates and academic community (*Nacionalinės studijų kreditų sistemos koncepcija* 2012). It is anticipated that reference of study syllabi to competencies and learning outcomes should help resolve problems related to essential differences in the contents of study programmes providing the same type of degrees in the same study fields (*Studijų kryptių aprašų skirtingoms pakopoms kūrimo metodika* 2011). This problem was targeted by the introduction and implementation of the study field descriptors developed in the project coordinated by the Centre for Quality Assessment in Higher Education in 2011–2014. Study field descriptors provide the reference information for identification of the level of

provided higher education degree and qualification according to the national, European and sectoral qualifications frameworks. Unlike the concept of competence suggested by the Tuning project, where competence is the source of learning outcomes, in the descriptors of study fields, competence is only a part of learning outcomes, defining integrated application of knowledge and skills in concrete situations and contexts of professional activity (Studiju kryptių aprašų skirtingoms pakopoms kūrimo metodika 2011).

Although ECTS credits have been officially introduced in study programmes since 2011 and all higher education institutions calculate students' workload in ECTS credits, the complete reorientation of universities from input-oriented to 'competence-based' studies requires a change in mentality of the academic community as well as experience in the new approach.

The beginning of implementation and development of a competence-based approach in Estonia was initiated by the Estonian Chamber of Commerce and Industry in 1997. After abolishing the Soviet qualification system, including occupational qualifications, in 1991, developments in all sectors of formal education were quite similar to those of Lithuania described above.

The period 1994–2004 can be considered as the period of policy borrowing in the field of curriculum design. This process was facilitated by numerous PHARE (VET) and TEMPUS (higher education) projects, mainly concentrating on curriculum development. The modular competence-based approach to initial VET curriculum design in Estonia was being developed from 1994 by applying experience of curriculum design in Ireland and encompassed all initial VET programmes in 2001. Competence-based reform of the VET system led to the separation of provision of VET and awarding of qualifications. Until the introduction of competence-based qualification exams in 2003/2004, graduates of initial VET programmes obtained graduate certificates that did not attribute vocational qualifications. Competence-based vocational qualification exams were introduced in 2003/2004 and combined with VET school graduation exams (Grollmann and Ruth 2004).

After Estonia joined the European Union in May 2004, the development of competence-based approaches and practices in initial VET and higher education were executed in the framework of the Bologna process (higher education), the Copenhagen process (initial and continuous VET) and the development of the European area of lifelong learning.

18.3 Focus on Competence Approaches in Lithuania and Estonia

The emergence and evolution of the competence concept and competence approaches in the VET system of Lithuania are strongly related to the socio-economic development of society and institutional changes of the VET system. Looking back to the historical development of initial VET in Lithuania, the first

references to the term *competence* can be traced to the period of attempts to establish more systemic vocational training in the fields of agriculture and crafts after the establishment of the independent state in 1918. The press of the chambers of trade and crafts widely discussed the problems caused by the absence of state recognition of craft qualifications, arguing that it was one of the most important reasons for the low social status of craftsmen and poor quality of craft apprenticeships. In this discourse, qualification was treated as the main formal outcome of the learning and training process subjected to assessment. The concept of competence emerged rarely in this discussion and was mainly understood as formal authorisation of the persons and organisations to execute defined functions. For example, when discussing the order for issuing craftsmen certificates, Jodaugas (1937) suggested that issuing such certificates did not fit the competence (*kompeticijos*) of public labour inspectors and had to be delegated to a 'qualified' institution (*kvalifikuota įstaiga*). Another meaning of competence that emerged in this discourse was related to the requirements of knowledge and skills typical for the work. For example, the director of one craft school in the article discussing the problems of craftsmens' training and their qualifications claimed that the hasty and abrupt introduction of competence (*kompetingumas*) requirements for the execution of work could endanger the status of experienced but illiterate craftsmen, who could perform in their craft but could not attain formal qualification due to the requirements of credentials of formal education (Gėgžna 1936). He suggested that such craftsmen should be permitted to practice their work in the limits defined by the outcomes of evaluation of their practical experience. Similarly the term of competence was used in another article discussing training of tradesman, claiming that it was necessary to make easier the access to licence for practicing the crafts to more experienced craftsmen by leaving them possibilities to execute the work in the limits of competencies (*kompeticijų ribose*) identified by the practical examination (Gėgžna 1937). It is interesting to note that already in this period two Lithuanian terms related to competence were applied interchangeably: *kompeticija* and *kompetingumas*.

In the Soviet period (1940–1990), the concept of competence was understood as a field of activities in which a person possessed expertise, knowledge and experience and was not related to the concepts of qualification or skills (Laužackas et al. 2009).

The concept of competence as an expressed learning outcome emerged in VET policy and practices as a result of post-Soviet VET reforms aimed at reorienting the former Soviet school-based initial VET to the requirements of a developing market economy and democratic society. Initial VET providers and institutions responsible for the governance of initial VET and curriculum design accepted the 'behaviouristic' concept of competence typical of the Anglo-Saxon approach based on functional analysis of work tasks and functions. This can be explained by the strong influence of policy borrowing and, to a lesser extent, policy learning approaches typical for the first stage of the initial VET reform.

In this period an important semiotic challenge emerged in the application of the concept of competence due to coexistence of two terms in the Lithuanian language: *kompeticija* and *kompetingumas*. According to Pukelis, *kompeticija* is the

literal translation of competence in the sense of the legal empowerment of an organisation or person to execute certain functions, while *kompetetingumas* refers to proven abilities of a person to deal with work (occupational) tasks in a real work situation (2011). Therefore, he suggests that the misleading concept of *kompetencija* should not be used and to focus on the concept of *kompetetingumas*. *Kompetencija* (competency) should only be used to denote requirements for person abilities defined in the occupational standards and profiles, whereas *kompetetingumas* (competence) is defined as a feature of a person consisting of abilities to perform and to solve problems in unpredictable working situations indicating the validity of that individual to occupy certain job positions. This explanation relates this dichotomy of concepts *kompetencija* and *kompetetingumas* in the Lithuanian language with the translation of the dichotomous concepts of competence and competency.

Laužackas (2005) and Andriušaitienė et al. (2008) also agree with such explanation of the origins of this dichotomy, claiming that the concept of *kompetencija* reflects the potential side of human activities, while *kompetetingumas* expresses the real side of demonstrated performance. *Kompetencija* expresses possessing an ability to perform certain work tasks or processes, while *kompetetingumas* defines the usage and expression of this ability in the practical activity. Therefore, the concept of *kompetencija* is more relevant to use in the vocational education, especially in the design and planning of vocational education curricula, while *kompetetingumas* is closer to the practice of professional activities, because it helps to characterise the capacities of persons to perform in different activities.

The dichotomy of the terms *kompetencija* and *kompetetingumas* is not a recent phenomenon and not confined to Lithuania. As noted above, these two terms could be met in vocational and crafts training policy discourse before the Second World War. It is interesting that very similar dichotomies of the concept of competence exist in the languages of other Central and Eastern European nations (Polish, Ukrainian and Russian). For example, Polish distinguishes the concepts *kompetentność* (competence), defined as a proven preparedness to work in the concrete field and ability to solve problems in the concrete occupation or professional field (Karpowicz 2006), and *kompetencje* (competency), understood as the set of knowledge, personal qualities, skills and adequate experience needed for the execution of a given function (Slawiński 2014). The term *kompetencje* is more used in the discourse of educational reforms. In order to solve the problems of comprehension of this term in the design of the National Qualifications Framework of Poland, it was decided to use the term *kompetencje społeczne* (social competence) instead of *kompetencje* (Slawiński 2014). This latter concept is defined as the ability to shape one's own development, as well as the autonomous and responsible participation in professional life and society, taking into account the ethical context of one's own behaviour.

A similar dichotomy of terms can also be found in the Ukrainian language. Golovan (Головань 2008) discusses the concepts *компетенція* and *компетентність* and defines the first concept as a certain norm of proficiency indicating capacity to resolve problems or undertake tasks and the second term as

assessed achievement of (or failure to achieve) this norm. This author claims that the concept *компетентність* is used to characterise the quality of a person which enables him or her to solve problems, make decisions and express opinions in particular areas of work. This quality is based on knowledge, awareness and experience acquired in social and professional activity.

What are the possible reasons of such a dichotomy of concepts related to competence? One possible reason can be literal translation of English terms of competence and competency during the post-Soviet reforms of education system (Pukelis 2009). However, it cannot completely explain the etymology of this dichotomy, because at least in Lithuanian the usage of both terms can be tracked in much earlier historical periods.

In the Estonian language, the notion of competence (*kompetents, pädevus*) also has dual meaning. On the one hand, competence is a set of tasks, rights and obligations given to a physical or legal person by a legal act. Competence gives discretion to perform some kind of legal action (as opposed to an obligation). Competence also includes responsibility for the results of these actions. On the other hand, competence is a combination of knowledge, skills, experiences and attitudes necessary for successful performance of work tasks. The latter definition is used in the Estonian Occupational Qualifications Act (<http://www.kutsekoda.ee/en/kutsesysteem/oigusaaktidkutseseadus>). This dual meaning may sometimes cause confusion, although in most cases the meaning can easily be understood from the context.

The Occupational Qualifications Act defines occupational qualification as the official result of an assessment, received when the body that awards occupational qualifications decides that the person has the required competence in the occupation on the level determined in the relevant occupational qualification standard. The processes of developing the Estonian Qualifications Framework (EstQF) and competence-based occupational qualification system that started in 2005 facilitated clarification of relations between the notions of competence, learning outcomes (performance indicators) and assessment criteria, which are of non-hierarchical, network-type nature. The notion of competence used in describing a person's ability to perform work tasks also has a dual nature (see Fig. 18.1). From the point of view of society, in particular the labour market, competence is described as a set of necessary competencies or a competence profile. From the point of view of a person as a learner, competence as well as each one of the competencies is described through a combination of knowledge, skills and attitudes, usually described as learning outcomes (LOs).

Assessment of competence can be performed competency wise or throughout the whole competence profile. Proper assessment criteria and methods of assessment are attached to each LO. As far as the same assessment criterion and assessment method may fit for several LOs, and vice versa, competencies, LOs and assessment criteria form a network structure.

Conceptually, a qualification system can be described as an interface between society, particularly the labour market, and the system of lifelong learning. This is illustrated by a competence circle (see Fig. 18.2). In this interface expected competencies are extracted from the society (or labour market) and transformed into quali-

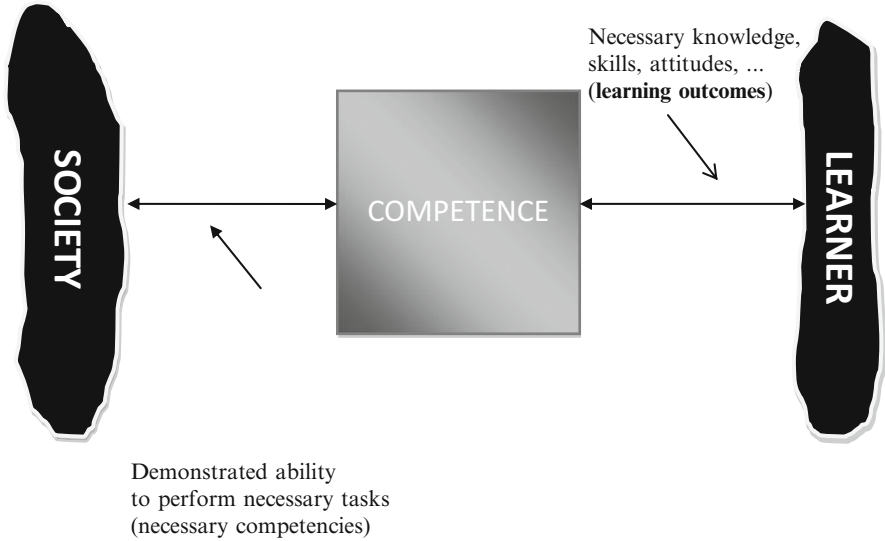


Fig. 18.1 Dual nature of competence (developed by Olav Aarna)

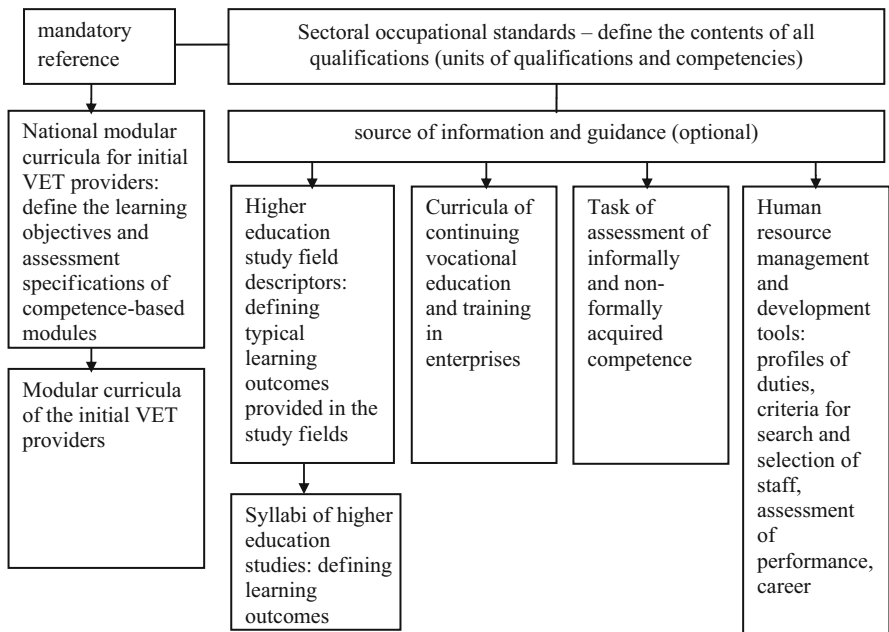


Fig. 18.2 Sectoral-occupational standards and their application fields

fication standards (particularly occupational qualification standards) and possibly national (core) curricula. On the other hand, actual competencies of persons are assessed, validated and certified.

In conclusion, it can be noted that in both countries the concept of competence has a dual nature expressing empowerment or discretion to perform the task, as well as the sets of knowledge, skills and abilities applied in performance of that task. However, reforms in education systems and national systems of qualifications both necessitate and facilitate clarification of these terms and their relationships with other applied terms, such as qualification, knowledge and skills.

18.4 The Role of the Concepts of Competence and Competence-based Approaches in the Reform of the National System of Qualifications in Lithuania and Estonia

Competence is one of the key conceptual elements of the Lithuanian Qualifications Framework (LTQF). The structure and logic of the LTQF level descriptors are based on requirements for performance of activities (in terms of complexity and changeability of activity and autonomy of performer) to competencies (Laužackas et al. 2009).

There are two reasons why the descriptors of LTQF are oriented to a competence-based approach: (1) this concept is familiar for the initial VET providers, assessment bodies and universities of applied sciences working with the VET standards and competence-based curricula; (2) the concept of competence is regarded as the optimal concept for articulation between the system of education and labour market. The familiarity of VET providers, assessment bodies and the universities of applied sciences with the concept of competence is related to comparatively positive acceptance and successful adaptation of competence-based VET standards and related qualifications. It creates favourable conditions for the introduction of the comprehensive competence-based NQF targeted to ensure the pathways of progression between different qualifications and their levels.

The first draft of the NQF level descriptors was prepared in 2008 by the group of experts from the higher education, initial VET and employers' organisations. It was strictly oriented to the coordination and referencing of vocational and academic (higher education) qualifications. Each level descriptor provided information on the requirements of the functional, cognitive and general competencies posed by the characteristics of occupations and professional activities. Consequently, the competencies acquired in general education were considered only as prerequisites for the acquisition or upgrading of vocational qualification, and all general education certificates were supposed to be referenced to the lowest (first) levels of the NQF. This approach was criticised by the national and European experts in the process of referencing the LTQF to the EQF in 2011–2012 by stating that orientation of the LTQF

only to vocational and higher education qualifications contradicted the principles of lifelong learning and permeability of different learning pathways declared in the European Qualifications Framework for Lifelong Learning (Kaminskienė 2011). As an outcome of the referencing process, the concept of qualification used in the Law on Education and LTQF was amended by indicating that competencies constituting qualification could be applied both in the professional activities and in learning. It implied introduction of the two main types of qualifications constituting the LTQF: qualifications needed for work (professional activity) and qualifications for learning.

Implementation of the LTQF in the national system of qualifications was regarded by the developers of this instrument as a process leading to the development of a new coordinative model of skills formation that would replace the outdated regulative model (Tütlys and Spūdytė 2011). It was expected that implementation of the competence-based LTQF and introduction of sectoral-occupational standards would enable and enhance more active involvement of social partners and stakeholders in the design and development of qualifications, provision of education and training, competence assessment and awarding of qualifications.

Implementation of the LTQF is also directed to ensure application of competence-based approach in the design and development of qualifications through the introduction of sectoral-occupational standards that include all qualifications belonging to the national system of qualifications. Sectoral-occupational standards will serve as reference for the development of the different instruments of curriculum design and assessment of learning: standardised national modular initial VET curricula, higher education study field descriptors used for design and updating of the syllabi of higher education studies, curricula of continuing vocational training in the enterprises, instruments of assessment of informally and non-formally acquired competence (Fig. 18.2).

The design of competence-based sectoral-occupational standards in the sectors of energy, construction, hospitality, IT and transport demonstrated that development of such standards did not encounter significant methodological challenges and was positively accepted by stakeholders and providers of qualifications. Most of the methodological problems and questions were solved by internal discussions and agreements of experts from the sectors. One of the specific features of the design of sectoral-occupational standards is the combination of competence and work process approaches. This means that competencies are derived not just from isolated work tasks or functions (as was the case in the design of the VET standards) but from holistic analysis of the work processes that constitute professional activity, considering the context of the work process, work organisation, requirements for the work process and its results posed by the customers, enterprise and society (Spöttl and Ruth 2011). Introduction of this work process-oriented approach for the identification and description of competencies leads to wider and more comprehensive descriptors of competencies that can grasp and consider not only current but also ongoing and future requirements for usage of knowledge and skills in the work process.

Observation of the design of competence-based sectoral-occupational standards in five sectors allows us to draw certain cautious assumptions about their possible impact on the development of national system of qualifications:

1. Development of work process and competence-based sectoral-occupational standards creates favourable conditions for reviewing and revising the structure and content of existing qualifications in the sectors by considering skills needs in the sectors and their potential changes. For example, design and development of competence-based sectoral-occupational standards permit to replace outdated narrowly specialised vocational qualifications with more universal and ‘multi-skilled’ qualifications. This was the case in the introduction of electrician qualification in the sectoral-occupational standard of the energy sector, where a wide and basic vocational qualification replaced narrowly specialised qualifications that had already lost their relevance and demand in the labour market. The old specialist qualifications included electrician fitter, fitter of the electric lighting equipment and electric power networks, fitter of electric equipment winding, insulation and maintenance, fitter repairmen of overhead electric transmission lines, etc. The competencies and units of these qualifications were integrated in the qualification of the electrician. The design of sectoral-occupational standards also facilitated the emergence or re-emergence of high-skilled vocational qualifications. This was the case with the introduction of qualifications of civil engineers in the construction sector. Currently there are only academic degrees in civil engineering according to the European Higher Education Area Qualifications Framework (bachelor, master and doctor in civil engineering). The occupational standard in the construction sector foresees introduction of qualifications of junior civil engineer (LTQF and EQF level 6), civil engineer (LTQF and EQF level 7) and senior (chartered) civil engineer (LTQF and EQF level 8) with requirements of professional experience in the award of these qualifications. There were introduced new vocational qualifications responding to labour market needs. For example, the occupational standard of the ICT sector foresees introduction of new vocational qualifications that are not yet provided in the initial VET system, such as junior software developer (LTQF and EQF level 4), junior test specialist (LTQF and EQF level 4), service desk agent (LTQF and EQF level 4) and associate of system administrator (LTQF and EQF level 4). Currently these qualifications are provided only by the enterprises of the sector through in-service training and recognition of experiential learning.
2. Development and implementation of sectoral-occupational standards also facilitate the involvement of social stakeholders in these processes, as well as developing their responsibility for designed qualifications leading to ‘ownership’ of these qualifications. Competence-based sectoral-occupational standards provide a lot of scope for systemic and comprehensive consideration of real skills needs in the work processes, thus making these standards applicable not only for communication of information on skills needs for curriculum design in the initial VET and higher education but also for human resource management and development in the enterprises and sectors (application for selection and recruitment,

planning and curriculum design of continuing vocational training, assessment of competencies and performance, remuneration policies, career management, etc.). These advantages were noticed by the employers' organisations, which motivated them to take active part in the process of development of standards and in some cases even to coordinate this process.

However, introducing and implementing these competence-based sectoral-occupational standards required important changes to the institutional framework of assessment of competence and awarding of qualifications, especially in case of introducing professional qualifications at the higher levels of the LTQF (6–8). Here the main challenge is a shortage of well-established and competent professional organisations or bodies that could take this responsibility. To solve this problem, the policy makers and stakeholders discuss the possibility of establishing multipartite collegial bodies or committees.

The development and implementation of a competence-based approach in Estonia is essentially the story of developing the national qualifications framework and qualification system. The creation of the Estonian Qualifications Framework (EstQF) started in 2005, when the minister of education and research established a broad-based working group with an assignment to analyse the first draft proposal of the EQF, the possibilities to link Estonian 5-level occupational qualifications framework to the EQF (established with the Occupational Qualifications Act adopted in 2001), and formulate suggestions about the development of the EstQF. The working group put forward the proposal of creating an eight-level comprehensive national qualifications framework. The proposal was supported by the employers' and employees' organisations, by the Estonian Chamber of Commerce and Industry, by the Ministry of Social Affairs and by the Ministry of Economic Affairs and Communications. Based on this agreement, another broad-based working group was established by the minister of education and research with the task of drafting a new Occupational Qualifications Act that would stipulate also the EstQF (Aarna 2011) (Fig. 18.3).

An eight-level qualification framework was established in 2008, with the Occupational Qualifications Act (<http://www.kutsekoda.ee/en/kutsesysteem/oigusaktidkutseseadus>). The EstQF consists of four sub-frameworks: for general education, for vocational education and training (VET), for higher education and for occupational qualifications (qualifications associated with a trade, occupation or profession resulting from work-based learning), with sub-framework-specific level descriptors. Unlike in many other member states of the EU, occupational qualifications are also placed into the EstQF and through that referenced to the EQF. This is made possible by the consistent application of a competence-based approach in the occupational qualification system, wide involvement of stakeholders and national governance of the system, ensuring the quality of the awarding of occupational qualifications and comparability thereof on the international level.

The creation and implementation of the EstQF followed the principles for accountability and quality assurance of qualifications laid down by the European

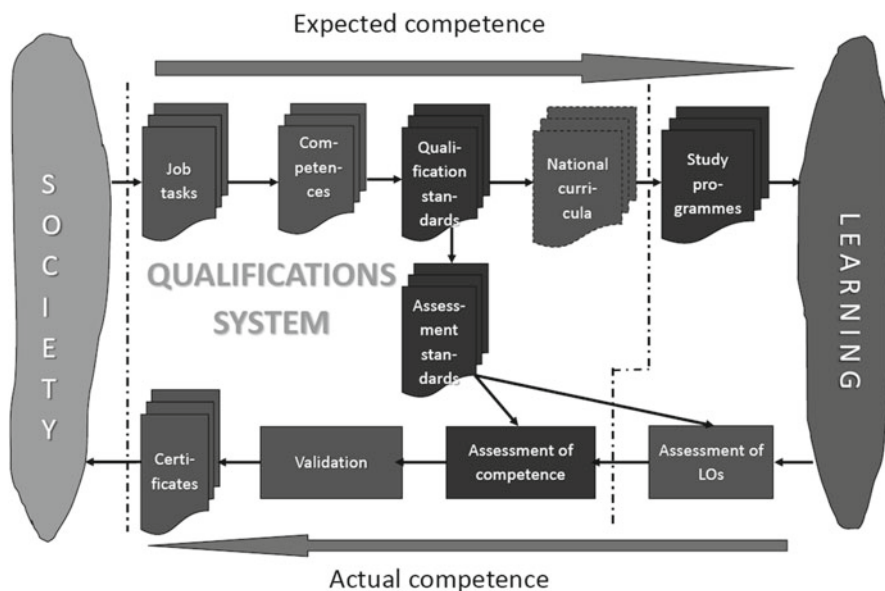


Fig. 18.3 Conceptual scheme of the qualification system in Estonia (developed by Olav Aarna)

Parliament and Council recommendation on the establishment of the EQF. Since the level descriptions of the EstQF are identical with those of the EQF, the criteria for referencing the EstQF to the EQF have been reformulated in terms of assigning the EstQF levels to the types of qualifications and the positioning of qualifications in the EstQF.

Qualification sub-frameworks are described in the corresponding legal acts and contain sub-framework-specific LO-based descriptions of qualification types. Level descriptions of sub-frameworks are defined in the corresponding national educational standards:

- National curriculum for basic schools
- Simplified national curriculum for basic schools
- National curriculum for upper secondary schools
- Standard of VET
- Standard of higher education

The process of establishing the EstQF and referencing it to the EQF provided an important impulse for developing the lifelong learning system in Estonia, for the establishment of the national qualification system and a quality assurance system for lifelong learning. In the course of this process, a remarkable convergence inside the formal educational system (general education, initial VET and higher education) occurred, and the barriers between qualifications from the formal education system and from the occupational qualification system have been reduced.

There are two types of qualifications in the Estonian general education system:

- Basic education certificate
- Upper secondary general education certificate

Somewhat paradoxically national curricula for basic school and upper secondary school were competence based already since 1996. Expected LOs of these qualifications and respective national curricula (adopted in 2011) are based on competencies derived from the eight EU key competencies for lifelong learning. There are two types of competencies: general and domain specific.

General competencies comprise value-based competence, social competence, self-definition competence, learning competence, communication competence, mathematical competence and entrepreneurial competence.

The subjects with similar aims and content form a subject field which is targeted to support formation of the respective competence. Formation of these competencies is supported by learning the subjects of the same and other fields and extracurricular activities.

Uniform requirements for VET curricula and qualifications are regulated by the Standard of VET (SVET) (<https://www.riigiteataja.ee/akt/128082013013>) and the national curricula for VET (<http://www.innove.ee/et/kutseharidus/kutsehariduse-rok>) developed for the upper secondary VET qualifications. National curricula are drafted in co-operation with social partners and are based on occupational qualification standards, the Standard of VET and the national curriculum for upper secondary schools.

Competence-based school curricula are compiled for every individual qualification that can be acquired at a VET institution. The school curricula (excluding upper secondary VET curricula) are developed based on the Standard of VET and the respective occupational qualification standards. In cases where no such standards exist, the school must apply for recognition of the curricula by the social partners. Upper secondary VET curricula are developed based on national curricula.

The SVET stipulates that LOs of modules are described in terms of occupation-specific knowledge and skills, autonomy and responsibility, learning skill, communication skill, self-definition competence, operational competence, ICT competence and entrepreneurship competence defined as follows:

- Occupation-specific knowledge are facts, theories and practices of an occupation, vocation or speciality acquired through learning process.
- Occupation-specific skill is an ability to apply knowledge for performing tasks and solving problems; skills are described in terms of their complexity and diversity.
- Autonomy and responsibility describe to what extent the graduate is able to work independently and carry responsibility for the results of work.
- Learning skill is an ability to manage learning process using efficient learning strategies and proper learning styles.

- Communication skill is an ability to communicate in different situations and on different topics in oral and written form.
- Self-definition competence is an ability to understand and evaluate yourself, give sense to your activities and behaviour in the society and develop yourself as a person.
- Operational competence is an ability to identify problems and solve them, plan your activities, set goals and expected results, select proper tools, act, evaluate results of your action and cooperate with others.
- ICT competence is an ability to use ICT tools and digital media skilfully and critically.
- Entrepreneurship competence is an ability to take initiative, act creatively and plan your career in the modern economic, business and work environment using acquired knowledge and skills in different spheres of life.

The SVET describes the expected LOs of VET qualification types at the threshold level needed to complete a programme or a module (at the level of grade 3).

Qualification standards for the EQF levels 2 through 5 define-level specific competencies in terms of LOs.

Qualifications framework of higher education in Estonia is laid down by the standard of higher education, which establishes the following uniform requirements for studies at higher education level:

- Requirements for a curriculum, including requirements for a joint curriculum and requirements for studies and final paper or final examination
- The objectives of study and LOs (<http://www.hm.ee/index.php?148583>) and total volume of study, including the principles for recognition of prior learning
- General requirements for qualification of the academic staff
- List of fields of study and specialisations
- The curriculum groups in which the respective higher education institution (HEIs) has the right to offer programmes and award respective academic degrees and diplomas.

The LOs of higher education levels have been defined in compliance with the cycles of Qualifications Framework for the European Higher Education Area (QF-EHEA) and descriptions of levels 6–8 of the EQF. Nevertheless, the aim was not to copy any existing qualifications framework, but to develop the basis for improving the comparability of qualifications and streamline them with the needs of the society. It should be noted that QF-EHEA describes LOs on the average level or a normal achievement of a successful learner, while the SHE describes LOs on the basic level, i.e. any graduate must achieve these outcomes and achievement of LOs on the level above minimum is differentiated by grading. No attempt has been made to differentiate between professional and transferable LOs.

The Estonian qualifications framework of higher education comprises four types of qualifications: bachelor's degree, diploma of professional higher education, master's degree and doctoral degree.

Bachelor's degree and diploma of professional higher education have a different focus but they are equal qualifications of the QF-EHEA first cycle. Master's degree complies with the QF-EHEA second cycle and doctoral degree to the third cycle. All degrees offered by Estonian HEIs are end-of-cycle degrees, meaning that the LOs achieved are at the same qualification level as the corresponding level in the EstQF. This implies that there are no intermediate degrees in the Estonian higher education system.

The occupational qualification system in Estonia is a subsystem of the Estonian qualification system that links lifelong learning system with the labour market (see Fig. 18.2). The following principles have been taken into account while developing the occupational qualification system in Estonia:

- Stakeholders of the labour market are involved in all parts of the occupational qualification system: employers, employees, the state and trainers. Agreements are based on the co-operation of various stakeholders.
- The main concept of the occupational qualification system is competence that means the system is based on competence both conceptually and in reality.
- Occupational qualification system is built and operational as a quality assurance system.

The OQS consists of:

- System of occupational qualification standards
- System for awarding occupational qualifications
- Occupational qualification register

Occupational qualification standard (OQS) is a document which describes occupational activities and provides the competence requirements for an occupation. Development of OQSs in Estonia, which started in 1998, has gone through three generations. The third-generation standards are fully competence based. An OQS meets the following conditions:

- Is based on the job analysis or functional analysis
- Describes expected competencies as observable and assessable
- Defines the method(s) for assessing of persons' competence
- Defines the EstQF level of the respective occupational qualification

OQS consists of three parts. Part A of the standard (description of the occupation) provides an overview of the nature of work, major parts of work and tasks, necessary tools and work environment, including the specificities of work and describes the personal characteristics and skills-enhancing occupational activities. This is a source of information for a person selecting their occupation and shaping their career path. It also contains useful information for career advisers, labour market consultants, human resource managers and trainers.

The competence requirements presented in part B of the standard serve as a basis for the assessment of the applicant for the occupational qualification. These requirements are presented as descriptions of mandatory and optional competencies. Competence is an ability to perform a specific part of work or a task together with

the knowledge, skills and attitudes required for that. Proceeding from the nature of the occupation, its specificity and traditions, attesting competencies related to a specialisation or optional competencies may be the prerequisite for being awarded the occupational qualification. Part C of the standard contains general information.

Development of the occupational qualification system in Estonia took place in the framework of the European Social Fund (ESF) sponsored programme *development of the occupational qualification system 2008–2014*. During the programme, all OQSs were updated and the methods for assessing competence improved. At the moment there are more than 500 active OQSs. An option to award initial occupational qualification upon the completion of a VET or higher education institution is also provided.

Development and implementation of the occupational qualification system in Estonia has been initiated by the social partners and supported by the government. Thanks to governmental support, it has quickly grown into state-recognised qualification subsystem based on a strong legal framework. The competence-based occupational qualification standards are widely used as an input for curriculum development in initial VET and higher education.

The explicit division of the EstQF into four sub-frameworks has been spontaneous rather than pre-planned as a result of independent development of the four sub-frameworks based on different competence approaches. The general education system focused on providing general and field-specific subject competence, while the initial VET system curricula and qualifications focused on providing holistic general and vocational competence. The higher education qualifications framework learning outcomes are developed on the basis of the descriptors of the European Higher Education Area Qualifications Framework (Dublin descriptors), while the occupational qualification system is focused on developing occupational and work process competence. However, this does not mean that there is a very strict separation of these subsystems and does not, for example, exclude the possibility of adopting competence-based approaches in higher education. If there is an occupational qualification standard available on the EstQF level 6 or 7, fitting with a study programme envisaged, it has to be used as a competence-based starting point for the programme development.

Concluding this section, it is worth noting that the main difference in design and implementation of competence-based National Qualifications Frameworks in Lithuania and Estonia is related to the extent of unification and differentiation of these processes. In Lithuania, implementation of competence-based NQF are based on unified approach leading to the design of a comparatively unified qualifications framework without discerning explicit sub-frameworks at the beginning and emergence of the different types of qualifications (competence-based initial VET qualifications, learning outcome-based higher education degrees, higher professional qualifications) in the later stage of implementation of the LTQF and sectoral-occupational standards. Such development and implementation of the LTQF have led to the emergence of gaps in the LTQF, where certain levels of the framework remain 'empty' (level 5 of the LTQF), as well as the emergence of institutional challenges in ensuring assessment of competence and awarding of higher

vocational qualifications referenced to higher levels of the LTQF (6–8). Differentiated design and implementation of the NQF in Estonia led to development of different sub-frameworks containing different types of qualifications, as well as diverse institutions and bodies responsible for these qualifications. This has not, however, impeded transferability of pathways for acquisition of competence between the sub-frameworks and has helped to avoid the problems that typify Lithuania.

18.5 Competence Policy and Practice in the Educational Theory and Research in Lithuania and Estonia

The literature regarding competence-based vocational and higher education in Lithuania can be grouped into the following categories:

- Conceptual literature that discusses core concepts related to competence-based professional and vocational education
- Literature analysing implementation and application of competence-based approaches in the professional and vocational education
- Applied research and methodical literature providing different methodical guidance, tools and recommendations on the application of competence-based approach in the different practices of the provision of initial and continuing VET

The conceptual literature has played an essential role in introducing the concept of competence and explaining its contents in the reforms of initial VET, professional education and the national system of qualifications. This literature established the conceptual basis for the implementation and development of competence-based instruments of curriculum design, assessment of learning and awarding of qualifications. Laužackas (1997, 1998, 1999, 2000, 2005), Laužackas and Pukelis (2000) analysed and explained the concept of competence and its relationship with the concept of qualification by referring to the contradictions between objective and subjective aspects of professional activities and suggested the principles and methodical guidelines of competence-based VET curriculum design by applying the functional analysis approach. This research played a very important role in the design of the first competence-based instruments of VET curriculum design – VET standards. Pukelis (1995, 2009) analysed theoretical dimensions of the concepts of abilities, competence, competency, learning outcomes and qualifications, as well as exploring relationships between these concepts. Jucevičienė and Lepaitė (2000), Lepaitė and Jucevičienė (2002) analysed the structure of the concept of competence referring to the context of the model of activity and stating that competence is a hierarchical and structural construct. Jovaiša and Shaw (1998) analysed the concepts and types of key competencies referring to the Anglo-Saxon approach of categorisation of these competencies. The literature on the development of the national system of qualifications of Lithuania analyses and discusses the application of competence-based approaches in the design of qualifications,

provision of education and training, assessment of learning outcomes and awarding of qualifications and provides the conceptual underpinning of the competence-based National Qualifications Framework of Lithuania (Lietuvos darbo rinkos mokymo tarnyba 2008; Andriušaitienė et al. 2008; Lietuvos darbo rinkos mokymo tarnyba 2007). This literature refers to the instrumental character of the concept of competence and pays particular attention to structural relationships between competence and qualifications, as well as to the typology of competencies. Competence requirements originating from the specifications and characteristics of professional activities are suggested as key parameters for defining the levels of qualifications in the Lithuanian Qualifications Framework. The typical feature of this conceptual literature on competence-based vocational and higher education is theoretical discussion of the structure and contents of the concepts of competence, as well as on the typologies of competencies largely referring to the analysis of concepts and approaches existing in the other countries. Poviliūnas et al. (2012) notice that the development of the conceptual background of the national system of qualifications of Lithuania and competence-based Lithuanian Qualifications Framework can be attributed to positivist methodology and the structuralist approach of social research.

The literature analysing implementation and application of competence-based approaches in the vocational and higher education of Lithuania is not very abundant, and it is focused on the analysis and evaluation of the different aspects of application of competence-based approaches in the reforms of VET and practices of VET provision. Laužackas et al. (2004) evaluated the initial VET reform in Lithuania analysing the processes of this reform on the national, institutional and classroom levels. Their research demonstrated that the introduction of competence-based curricula in the post-Soviet initial VET reform significantly improved VET teachers' awareness of the fields of competence-based curriculum design and assessment of learning outcomes, but at the same time VET providers faced significant challenges in developing social partnership and involving social partners in these processes. This research also disclosed the rather modest positive impact of competence-based approaches on improving vocational skills of initial VET students in the initial stages of the VET reform. Laužackas et al. (2005) analysed the assessment of competence acquired in the informal and non-formal learning referring to the legal regulation, usage of standards, issues of social partnership, preparation of assessors and development of assessment methods. This research showed that assessment of non-formally and informally acquired competence faced difficulties and challenges related to fragmented and inconsistent legal regulation, insufficient quality and availability of VET standards, insufficient involvement of social partners in the assessment of competence, lack of awareness of their functions and responsibilities in this field and absence of unified and coherent system of competence assessment. Laužackas et al. (2009) analysed evolution of the competence concept in Lithuania from the post-Soviet initial VET reform to the development of the national system of qualifications. This paper demonstrated the variety of concepts of competence that emerged in the initial VET reforms and development of the system of qualifications, as well as the role the concept played in bridging the worlds of work and

education in the design of the Lithuanian NQF. Tütlys and Spūdytė (2011) further analysed the role and place of competence in the design and implementation of the Lithuanian Qualifications Framework, showing that the competeregulation, insufficient quality and availability enced-based Lithuanian Qualifications Framework and occupational standards are expected to improve the relationship between the worlds of work and education, but at the same time this process is very iterative and faces complex institutional and methodological challenges.

Methodical literature in the field of competence-based vocational and higher education consists of different methodological guidelines in the fields of VET curriculum design, occupational analysis and design of qualifications (occupational standards). Laužackas (1999) provided methodological guidelines for design of competence-based initial VET curricula using functional analysis. Laužackas et al. (2006) developed guidelines for the assessment of competence in the qualification examinations of initial VET graduates. Methodology of the design of occupational standards (2012) provides guidelines for designing of occupational standards by applying the work process analysis approach developed by German experts (Spöttl 2010; Spöttl and Ruth 2011) that makes it possible to identify competencies from the results of holistic analysis of work processes.

It is indicative that the database of publications (research reports, dissertations, etc.) on VET in the Estonian language (<http://dspace.utlib.ee/dspace/handle/10062/40559/browse?value=kompetentsus&type=subject>) contains fairly limited occurrences of the keywords ‘competence’ (23 times in 4 publications) and ‘competency’ (three times in three publications). Scientific literature on competence-based approaches in initial VET and professional education in Estonia is more focused on the different socio-economic and cultural factors and implications of the implementation of these approaches. Loogma (2004) analysed employers’ discourse on competence development in the sectors of transitional economy and noticed a decreasing role of the initial VET providers and increasing role of continuing VET in enterprises in the field of competence development, as well as rather diverse and often contradictory understanding of competence needs in the discourse of employers and employees. Ümarik et al. (2010) identified a mismatch between learning outcome assessment mechanisms elaborated by schools and measures of competence needed by the enterprises, which demotivated employers to engage in such assessment. Rekkor et al. (2013) analysed the extent to which competence-based modular curriculum design in initial VET was accepted by teachers as innovative change, as well as the main challenges and difficulties faced by teachers in developing and applying modular curricula.

A survey of VET graduates in Estonia disclosed their satisfaction with competence-based initial VET provision such as apprenticeship (Nestor 2012). This survey also showed the problems of mismatch between competence developed in initial VET and the requirements of available jobs, as well as issues related to low economic benefits from acquired competence and qualification for some groups of learners (e.g. women) in precarious jobs. The survey of employers showed that they are willing to develop for VET graduates occupation-specific skills, but not their attitudes (Nestor and Nurmela 2013). The preferences of employers in recruiting

VET graduates depend on the type and features of job position – in the case of technically sophisticated occupations, the respective occupational qualification is the most important prerequisite for hiring, while in other job positions, personal characteristics and social attitudes are considered the most important.

In summary, it can be stated that the competence-based approach in initial VET and higher education has been one of the core topics of VET research in Lithuania, whereas it has been a rather peripheral topic in VET research in Estonia. Researchers and developers of VET in Lithuania have paid more attention to methodological issues of competence and competence-based approach in VET curriculum design and development of qualifications, while VET researchers in Estonia have focussed more on studying the impact of this approach.

18.6 Conclusions

The concept of competence was introduced in the education systems of Lithuania and Estonia during a period of abrupt and radical socio-economic and institutional post-communist transition and took rather similar pathways of development. Competence by itself presented one of those very attractive and appealing conceptual backgrounds for the development of new systems of education and pathways of learning oriented to the needs of a market economy. Therefore it served as the core concept and background for the curriculum reforms in the initial VET and higher education in both countries.

The concept of competence has certain similarities and differences in both countries. The concepts applied in the discourse of education policy and qualifications are quite similar, expressing the articulation between learning outcomes and their application in assessing learners' performance. The main differences can be found in the semiotics of this concept. For example, the dichotomy of terms '*kompetencija*' and '*kompetetingumas*' reflecting duality of the concept of competence in Lithuanian and some other languages is not found in the Estonian language.

The pace of introduction and implementation of competence-based approaches in the education systems of Lithuania and Estonia is also different. The development of the competence-based approach in initial VET in Lithuania occurred under the existing institutional conditions and capacities of initial VET providers and social partners leading to certain compromises between competence-based and subject-based approaches (e.g. competencies in the VET curricula are split into training objectives – knowledge, skills and key competence, provided through subject-based training), as well as later development of competence-based occupational standards (started only in 2011). The introduction and development of a competence-based approach in curriculum design in Estonia was faster and more radical than in Lithuania due to the stronger initiative and engagement of employers and other stakeholders, leading to earlier modularisation of initial VET curricula in 2003/2004 as well as earlier implementation of the occupational qualification system and occupational standards in 2008.

Competence-based approaches in the design of qualifications have played an important role in the reforms and the development of the national systems of qualifications in both countries. In Estonia, the development of the competence-based qualification system was initiated by the social partners (the Estonian Chamber of Commerce and Industry), and supported by the government. With that governmental support, the occupational qualification system was developed into a state-recognised qualification subsystem, which was based on a strong legal framework. The development of the competence-based qualification system in Lithuania was more centralised (with a strong role of the governmental bodies) and unified with some features of the sectoral approach.

The research agenda in the field of competence-based VET and higher education in Lithuania is more focussed on initial VET and on a wide range of methodological issues which emerge from the competence-based approach, while in Estonia this agenda is more oriented towards the analysis of the outcomes and implications of the competence-based approach.

The Comparison of the implementation of competence-based approaches in the reforms and development of vocational and professional education in Lithuania and Estonia shows that, although the application of this approach in the transitional reforms is based on rather similar conceptual backgrounds, this implementation followed rather different institutional pathways and patterns.

References

- Aarna, O. (Ed.). (2011). *Referencing of the Estonian qualifications and qualifications framework to the European qualifications framework*. Tallinn: Kutsekoda.
- Andriušaitienė, D., Gurskienė, O., Jovaiša, T., Laužackas, R., Pukelis, K., Spūdūtė, I., et al. (2008). *Lietuvos kvalifikacijų sistemos metodologija: Monografija*. Vilnius: Lietuvos darbo rinkos mokymo tarnyba prie Socialinės apsaugos ir darbo ministerijos.
- Biemans, H., Wesselink, R., Gulikers, J., Schaafsma, S., Verstegen, J., & Mulder, M. (2009). Towards competence-based VET: Dealing with the pitfalls. *Journal of Vocational Education and Training*, 61(3), 267–286.
- Brockmann, M., Clarke, L., & Winch, C. (2009). Competence and competency in the EQF and in European VET systems. *Journal of European Industrial Training*, 33(8/9), 787–799.
- Brockmann, M., Clarke, L., & Winch, C. (2011). *Knowledge, skills and competence in the European labour market. What's in a vocational qualification?* London: Routledge.
- Gėgžna, J. (1936). Kaip bus ruošiami prekybininkai ir amatininkai. *Amatininkas*, 45(90), 4–6.
- Gėgžna, J. (1937). Amatininkų švietimas. *Amatininkas*, 1(91), 6–7.
- Golovan, M. S. (2008). Kompetensiia i kompetentnist': Dosvid teorii, teoriia dosvidu. *Vyshcha shkola Ukrainy*, 3, 23–30.
- Grollmann, P., & Ruth, K. (2004). *Achieving the Lisbon goal: The contribution of vocational education and training systems. Country Report: Estonia*. Bremen: ITB, University of Bremen. Access in the Internet: <http://vana.innove.ee/orb.aw/class=file/action=preview/id=5696/>. Accessed 14 May 2015.
- Jodaugas, J. (1937). Amato mokinių paruošimas. *Amatininkas*, 8(150), 8–10.
- Jovaiša, T., & Shaw, S. (1998). Žvilgsnis į bendrųjų gebėjimų ugdymą Rytų ir Centrinėje Europoje (partnerių šalyse). *Profesinis Rengimas: Tyrimai ir Realijos*, 1, 30–47.

- Jucevičienė, P., & Lepaitė, D. (2000). Kompetencijos sampratos erdvė. *Socialiniai Mokslai*, 1(22), 44–51.
- Kaminskienė, L. (2011). *Referencing Lithuanian qualifications system to the European qualifications framework for lifelong learning. Research Report*. Qualifications and Vocational Education and Training Development Centre: Vilnius. Access in the Internet: <http://www.kpmc.lt/kpmc/wp-content/uploads/2013/04/LKA-research.pdf>. Accessed 8 May 2015.
- Karpowicz, T. (2006). *Słownik ortograficzny języka polskiego*. Muza: Warszawa.
- Laužackas, R. (1997). *Profesinio ugdymo turinio reforma: didaktiniai bruožai*. Vilnius: Leidybos centras.
- Laužackas, R. (1998). Standartai ir standartizavimas profesiniame rengime: Vadybinis aspektas. *Organizacijų Vadyba: Sisteminiai Tyrimai*, 7, 61–73.
- Laužackas, R. (1999). *Svarbiausios profesinės edukologijos sąvokos: Žodynas*. Vilnius: PHARE Lietuvos profesinio mokymo reformos koordinacinis centras.
- Laužackas, R. (2000). *Mokymo turinio projektavimas = Curriculum design: Standartai ir programos profesiniame rengime*. Kaunas: Vytauto Didžiojo universiteto leidykla.
- Laužackas, R. (2005). *Profesinio rengimo metodologija*. Kaunas: Vytauto Didžiojo universiteto leidykla.
- Laužackas, R., & Pukelis, K. (2000). Kvalifikacija ir kompetencija: Samprata, santykiai bei struktūra profesijos mokytojo veiklos kontekste. *Profesinis Rengimas: Tyrimai ir Realijos*, 3, 10–17.
- Laužackas, R., Danilevičius, E., & Gurskienė, O. (2004). *Profesinio rengimo reforma Lietuvoje: Parametrai ir rezultatai*. Kaunas: Vytauto Didžiojo universiteto leidykla.
- Laužackas, R., Stasiūnaitienė, E., & Teresevičienė, M. (2005). *Kompetencijų vertinimas neformaliojoje ir savaiminiame mokymesi*. Kaunas: Vytauto Didžiojo universiteto leidykla.
- Laužackas, R., Tūtlys, V., & Spūdytė, I. (2006). *Analysis of the current state of qualifications in Lithuania*. Vilnius: Lietuvos darbo rinkos mokymo tarnyba.
- Laužackas, R., Tūtlys, V., & Spūdytė, I. (2009). Evolution of competence concept in Lithuania: From the VET reform to the development of national qualifications system. *Journal of European Industrial Training*, 33(8/9), 800–816.
- Lepaitė, D., & Jucevičienė, P. (2002). Outlines of competence based program for evaluators: General assumptions and concentration to the evaluators' training. *Socialiniai Mokslai*, 4(36), 88–93.
- Lietuvos darbo rinkos mokymo tarnyba. (2007). *Lietuvos nacionalinės kvalifikacijų sąrangos metmenys*. Vilnius: Lietuvos darbo rinkos mokymo tarnyba.
- Lietuvos darbo rinkos mokymo tarnyba. (2008). *Lietuvos nacionalinės kvalifikacijų sistemos koncepcija*. Vilnius: Lietuvos darbo rinkos mokymo tarnyba.
- Loogma, K. (2004). Learning at work and competence: Different contexts and meanings in the case of transition economy. *Journal of European Industrial Training*, 28(7), 574–586.
- Mulder, M. (2014). Conceptions of professional competence. In S. Billett, C. Harteis, & H. Gruber (Eds.), *International handbook of research in professional and practice-based learning* (pp. 107–137). Dordrecht: Springer.
- Nacionalinės studijų kreditų sistemos koncepcija. (2012). Vilniaus universitetas: Vilnius. Access in the Internet: <http://ects.cr.vu.lt/Files/File/Nacionalines%20studiju%20kreditu%20sistemas%20koncepcija.pdf>. Accessed 19 Jan 2015.
- Nestor, M. (2012). *Kutseõppeasutuste, vilistlaste uuring*. Tallinn: Poliitikauuringute Keskus Praxis.
- Nestor, M., & Nurmela, K. (2013). *Kutseharidus ja muutuv tööturg Tööandjate uuringu lõpparuanne*. Tallinn: Poliitikauuringute Keskus Praxis.
- Poviliūnas, A., Žiliukaitė, R., & Beresnevičiūtė, V. (2012). *Profesinės veiklos lauko tyrimas*. Vilnius: Vilniaus universitetas.
- Pukelis, K. (1995). *Mokytojų rengimas ir tautos kultūra*. Kaunas: Aušra.

- Pukelis, K. (2009). Gebėjimas, kompetencija, mokymosi/studijų rezultatas, kvalifikacija ir kompetentingumas: teorinė dimensija/Ability, competency, learning/study outcome, oualification and competence: Theoretical dimension. *Aukštojo Mokslo Kokybė*, 6(12), 12–35.
- Qualifications and Vocational Education and Training Development Centre. (2013). *VET in Europe – Country report*. Vilnius: Qualifications and Vocational Education and Training Development Centre.
- Rekkor, S., Ümarik, M., & Loogma, K. (2013). Adoption of national curricula by vocational teachers in Estonia. *Journal of Vocational Education & Training*, 65(4), 489–506.
- Slawiński, S. (Ed.). (2014). *Słownik podstawowych terminów dotyczących Krajowego systemu kwalifikacji. A glossary of key terms related to the national qualifications system*. Instytut Badań Edukacyjnych: Warszawa.
- Spöttl, G. (2010). Berufsstrukturen und berufliche Kompetenz. In M. Becker, M. Fisher, & G. Spöttl (Eds.), *Von der Arbeitsanalyse zur Diagnose beruflicher Kompetenzen. Methoden und methodologische Beiträge aus der Berufsbildungsforschung* (pp. 159–176). Frankfurt am Main: Peter Lang Edition.
- Spöttl, G., & Ruth, K. (2011). *ECVET- Kompatibilität von Kompetenzen im Kfz-Sektor, ECVET – Compatibility of competences in the automotive sector*. Bremen: Nationale Agentur Bildung für Europa beim Bundesinstitut für Berufsbildung.
- Streeck, W., & Thelen, K. (2009). Institutional change in advanced political economies. In B. Hancké (Ed.), *Debating varieties of capitalism* (pp. 95–131). Oxford/New York: Oxford University Press.
- Studijų kokybės vertinimo centras. (2001). *Studijų kryptių aprašų skirtingoms pakopoms kūrimo metodika*. Vilnius: Studijų kokybės vertinimo centras.
- Tütlys, V., & Spūdytė, I. (2011). Implementing a national qualifications framework in Lithuania. *Journal of Education and Work*, 24(3–4), 429–448.
- Ümarik, M., Loogma, K., & Hinno, K. (2010). Structural decoupling between the VET and the employment systems: Challenges manifested in assessment of practical training. *Journal of Education and Work*, 23(2), 145–160.
- Weigel, T., Mulder, M., & Collins, K. (2007). The concept of competence in the development of vocational education and training in selected EU member States. *Journal of Vocational Education and Training*, 59(1), 53–66.
- Winterton, J. (2009). Competence across Europe: Highest common factor or lowest common denominator? *Journal of European Industrial Training*, 33(8/9), 681–700.
- Winterton, J., Delamare-Le Deist, F., & Stringfellow, E. (2006). *Typology of knowledge, skills and competences: Clarification of the concept and prototype* (CEDEFOP reference series 64). Luxembourg: Office for Official Publications of the European Communities.