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Making an American Credentials Framework Intentions, Construction, Challenges and Perspectives

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Abstract

In 2015, a Credentials Framework (CF) has been released to promote transparency, comparability, connectivity as well as quality assurance and quality development of credentials in terms of competencies and learning outcomes achieved in any formal or non-formal way in the US. This article discusses, firstly, the framework's underlying objectives in the context of the educational, economic and political environment and developments. It then analyzes the framework's conceptual approach and problems, and discusses the compatibility with the Degree Qualifications Profile for higher education. Furthermore, the article parses the CF's conceptual commonalities and differences with respect to the European Qualifications Framework. It classifies the CF's comprehensive focus on all quality assured credentials as one of the most advanced and compatible instrumental approaches in the international landscape of qualifications frameworks. Finally, the article summarizes essential conceptual and implementation questions to be tackled in sustainably establishing the CF in the US education system.

Keywords

Education, qualifications framework, credentials, transparency, learning outcomes

1. Introduction

Facing ongoing changes and increasing requirements on the labor market and in the society on the whole many countries worldwide promote transparency, comparability, connectivity as well as, quality assurance and quality development of credentials in terms of competencies and learning outcomes achieved in any formal or non-formal way. In 2015 the Lumina Foundation for Education released a beta version of a Credentials Framework for the US to promote the strategic objective, that 60% of US adults should obtain a high-quality postsecondary credential by 2025 (Lumina Foundation, 2015). The Foundation proposed the development of new systems of quality credentials and credits defined by learning outcomes and competencies rather than time-to-completion, and which offer clear and transparent pathways to students, assure high-quality learning, and are aligned with workforce requirements. (Lumina Foundation, 2012)

To clarify the educational, economic and political context of such an instrumental development, this article elucidates, firstly, the framing conditions and drivers on the labor market and in the education system and how these are discussed politically. Additionally, it portrays the instrumental developments generated by the Foundation and other stakeholders that preceded the framework while explaining the underlying objectives of the instrument. Further, the article analyzes the conceptual approaches and problems of the framework, discussing the organizational characteristics of the construction. In order to clarify the compatibility with higher academic education requirements, the major features of this framework will be compared with the Degree Qualifications Profile (DQP) developed by the Foundation as well. The article will classify the Credential Framework in the international setting of qualifications framework and analyzes its commonalities and differences towards the European Qualifications Framework (EQF), an internationally well acknowledged regional qualifications framework. Finally, it summarizes essential conceptual and implementation questions to be tackled to establish such a comprehensive instrument in the educational landscape and infrastructure of the US in a sustainable way.

2. The Context: labor market, education and politics

As in other highly industrialized countries, the globalized knowledge-based economy in the US requires a postsecondary education system that contributes significantly to the development of knowledge and skills to address the dynamic developments in not only technology and work organization but in society as a whole. According to the pioneering study "Help Wanted" on labor market and education projections (Carnevale, et al. 2010), about two-thirds of job openings in the US will require at least some postsecondary education and training by 2018, with an increasing number in the middle-skill occupations covered by workers with an associate's degree or an occupational certificate. In this study, the Center on Education and the Workforce (CEW), a Georgetown University-based research institute, highlighted with convincing empirical data that US education policy will not achieve its objective of increasing postsecondary education graduation rates by focusing predominantly on promoting college completion rates. According to the CEW study, over 7.7 million US citizens participate in non-credit programs that can be considered to correspond to credit-bearing programs. Today, as for the past forty years, circa 40 % of adults have

earned a two-year or four-year college degree, whereas in other OECD countries, more than 50 % of young adults have earned similar degrees and educational attainment rates are on the rise.

In the US educational system postsecondary workforce education is delivered by public two- and four-year institutions, for-profit colleges, universities and training programs, as well as by labor management partnerships. Sub-baccalaureate postsecondary workforce education and training is a diverse sector, with a wide range of providers. Postsecondary Career and Technical Education internationally classified as advanced Vocational Education and Training is predominantly performed at community colleges. (US Department of Education, 2005)

Nationwide standards for academic degrees at community colleges, at four year colleges and at universities do not exist in US higher academic education. Clarity on the required learning outcomes as well as education and career pathways is expected to motivate students to enroll and to assist them in persisting in study courses progressing toward a degree. The number of credits required for a degree varies across institutions and federal states, and the opportunity for students to take their learning from one institution to another and to receive credit for it is still limited. Higher academic education institutions in the US are under increasing pressure to be accountable for the quality of their degrees. Accreditors and other stakeholders require high quality degrees to have well-defined and transparent learning outcomes that provide clear pathways to further education and employment. (cf. Bird, et al. 2011)

The credentialing process for non-credit occupational learning is not regulated. Currently, numerous non-academic certificates are competing successfully with associate degrees on the US labor market. In addition, learners acquire competencies based on other non-credited forms and levels of postsecondary learning that are of value on the labor market. At many community colleges, more students enroll in non-credit education than in credit programs. Most of these students are enrolling in occupational education and training programs. (cf. Van Noy, et al. 2008)

While associate degrees are generally portable and are designed to articulate towards the next higher educational credential, the portability of certificates within education is limited. This depends on institutional articulation and transfer policies, and on their value in the labor market, particularly on the employer requirements for hiring and promotion. Students who complete non-credit courses receive certificates, which have varying degrees of value in the labor market. Widespread industry certification and licensures are non-credit programs as well. Additionally, the non-credit programs offered by government, business employers and other training providers or vendors include a diverse number of certifications, apprenticeship training, adult education, job readiness and dislocated worker training. (cf. Bird, et al. 2011)

US education politics have, for a long time, been determined by the ongoing deficits in general education and workforce development. In 2005, the US Government Commission on education concluded that students must have clearer pathways between education levels, and institutions and colleges have to remove barriers to student mobility and

promote new learning paradigms (e.g., distance education, adult education, workplace programs) to accommodate a far more diverse student cohort. (US Department of Education, 2005)

The political debate on postsecondary education currently focuses on measures to promote institution and program accountability and to increase college completion in order to address the relevant labor market demands for an advanced skilled workforce (cf. Birtwistle & McKiernan 2010). Therefore, the Obama administration has made increased degree and credential completion a national priority, which can be accomplished at a community college or a four-year college as well as via vocational training, apprenticeship or industry certification. The Federal Government stressed that US postsecondary education urgently needs quality improvements and an increase of the degree and credential completion rate to meet competitive workforce requirements. (Obama, 2009)

Students and employers complain that the lack of portability of competencies earned in work-based and other non-credit programs costs individuals enormous amounts of time and money. They demand an instrument for the recognition of prior learning and work experience. [cf. Carnevale, et al., 2010) The business community increasingly requires demands accountability of credentials in terms of the value added and the assurance of skills and abilities needed. The lack of common definitions and standards underlying occupational credentials especially related to middle-skilled jobs contributes to considerable confusion about their value in the labor market and how they relate to academic credentials. (Bird, et al., 2011) At the same time, however, academic higher education often fears that in making itself accountable in this way, it will become akin to vocational training. (Adelman, 2009) Up to now any promotion of increased education and training completion in the US has not been grounded in a consistent public understanding as to what constitutes a degree or a credential that defines what a credential represents in terms of what a student knows, understands and is able to do.

3. The preceding developments and the objectives

The Lumina Foundation initiated the development of a Degree Qualifications Profile (DQP) framework for academic US higher education in 2010 to define educational quality in terms of student learning. The DQP had been released in beta version in 2014 after having been tested by over 400 higher education institutions in more than 30 states in terms of curricula revisions and alignments to the profile. (Lumina Foundation, 2014) This was supported by US TUNING under the auspices of 6 major US accreditation bodies. (Tuning USA, 2010) It is regarded as a baseline set of reference points of learning outcomes for what academic graduates of associate's, bachelor's or master's degrees should know and be able to do.

3.1 Policy debate on a comprehensive qualifications framework

The education policy debate in the US welcomed the DQP as a big step forward to improve the quality of higher academic education in the US. However, more labor market oriented education experts demanded going beyond a degree-oriented approach. The CLASP report "*Give credit where credit is due*" (Bird et al., 2011) proposed creating a nation-wide

operating competency-based qualifications framework for all postsecondary education and training as postsecondary credentials are the keys to individual self-sufficiency, greater civic participation, and higher levels of family well-being as well as the catalysts for local, regional, and national economic growth. The report complains that a vast number of adults in the labor market engage in creditworthy occupational education and training, but, in the absence of a system, appropriate instruments and procedures which can equate noncredit occupational education and training to educational credit, they cannot translate their education and training into postsecondary credit. In addition, reducing institutional barriers between credit- and noncredit-bearing education is required and revising the traditional input-driven US credit transfer system towards an outcome and cross-sector-oriented approach.

3.2 The Shift for a comprehensive framework

Consequently, the Foundation decided not to extend the DQP for sub-associate level occupational credentials. Previous sector tests had proven conceptual difficulties in describing learning outcomes, e.g., for industry certificates along degree domains. At the beginning of 2014 Lumina started the development of a sector-overarching US-wide qualifications framework for lifelong learning to address both degrees and non-degree credentials and released after test based revisions a beta version in 2015 (Lumina Foundation).

As in previously developed qualifications frameworks (cf. EU 2008), the Credentials Framework focuses on learning outcomes to address required competencies as common reference points in terms of what the learner knows and is able to do in different contexts such as colleges or training providers. The Lumina Foundation intends to use the CF in terms of a system for communicating and connecting diverse credentials and facilitating student progression. Following the preceding policy and expert debate, this approach tries to address both degrees as well as non-credit credentials like certificates, industry certifications, licenses, apprenticeships and badges. Supported by a common language, the instrument intends to facilitate understanding and comparison of the levels and types of knowledge and skills underlying the credentials. Like other qualifications frameworks for lifelong learning, the Credentials Framework tries to promote the following major objectives:

- Transparency

Facilitating, for education and training stakeholders, understanding the competency-related learning outcomes associated with any sort of credentials, clarifying the meaning of these credentials and supporting learning assessment.

- Comparability

The competency and learning outcome-oriented approach shall support stakeholders in comparing the value of various credentials related to the same or different education and training.

- Portability

The CF shall support a translation of the learning achieved from one credential towards another credential and facilitates recognition of learning acquired across institutions, e.g., via credit transfer.

As an additional benefit, the CF document indicates its potential support for the development of credentials and competence-based curricula. However, in contrast to other qualifications frameworks, it doesn't emphasize quality assurance and quality development of credentials and education programs as one of its major objectives. Finally, the CF promotes the goal of societal equity, because it facilitates the identification and development of educational pathways for underserved segments of the US population like African Americans and Hispanics.

3.3 The relevance in the education and training environment

The CF has been developed as a voluntary reference tool and not as an official government instrument; this is due to constitutional restrictions and traditional skeptical perceptions in the US with regards to regulatory government interventions. The US Departments of Education and Labor will monitor its efficiency for education and labor market purposes and its acceptance by the stakeholders. The framework has been designed as a meta-framework complementing key initiatives of other competence-oriented education and labor market reference instruments e.g. the Federal Occupation Network of the US Department of Labor.

4. Development and construction

The development process to design a CF started with a comparative analysis of qualification frameworks of lifelong learning which had been implemented in other countries. This included European countries like the United Kingdom and Germany, as well as Australia and Canada. (cf. Allais, et al, 2009; Rein, 2007 & 2011) The framework's design also took into account several related other US initiatives, as the academic Degree Qualifications Profile developed by the Lumina Foundation, but also various approaches developed by business sectors, e.g., the Common Employability Skills (NBBIA, 2014).

The current beta framework version had been developed based on both US and international expertise in education and training and in qualifications framework. Education and training experts from colleges, industry, certification and accreditation agencies and policy organizations provided input. Panels of educators and industry representatives were created to explore credentialing in selected industries and to identify cross-sector patterns contributed to this process as well. Credential users from colleges and industry mapped a representative selection of specific educational certificates against a preliminary framework draft. The current version took into account test results from all types of postsecondary credentials on all levels, including academic degrees and industry certifications.

The CF has been organized around requirements and competencies that are addressed by learning outcomes. (see table 1) They are described in *knowledge* and *skills* regarded as

learning domains of *competency*, which is classified as the key term of the instrument. The competencies for each domain are described independently, but have to be understood and to be used complementarily. In practice, specific competencies reflect a person's ability to learn and apply a combination of knowledge and skills as different credentials represent different patterns of competency attainment across domains. Consequently application of knowledge and skills is not addressed by specific domains but embedded throughout the framework.

The requirements and competencies of *knowledge* are described in terms of depth, breadth and dimension. The *skills* are described in terms of types and complexity, and include cognitive, technical, communication, interpersonal and practical skills. In the framework *skills* are subdivided into the sub-domains *specialized skills*, *personal skills* and *social skills*. The framework is structured into eight levels indicated by the degree of adaptability, range, complexity and selectivity of learning achievement. The levels are described across the learning domains *knowledge* and *skills* to stress their complementary functions and to provide an overarching orientation for credentialing and credential referencing. The eight levels relate to de facto existing major levels of credentials in the US education and training landscape. Characteristics already described at one level are not repeated, but implicitly included at higher levels unless additional elaboration is required. Levels are not designed and described for a specific type of credential, and the profile of a specific credential might be addressed by different levels for each domain. Credentials referenced to a specific level of requirements and competencies level need not be acquired in the same sequence.

The framework attempts to use a language that can be understood and used by educators, employers and learners. The competencies are described through action verbs that describe what learners should do to demonstrate mastery at increasing levels of difficulty or complexity. The level descriptors and domain descriptors are not meant to be prescriptive but to provide orientation for learning assessments associated with credentials.

Conceptually critical is the inconsistency of some key term definitions and the correlation between them for the understanding and implementation of the instrument. The subdomain *specialized skills* is described in the generic terms of critical thinking, judgment and systems thinking. *Specialized skills* addresses occupational or discipline specific requirements. However, this is not further specified in domain descriptors. Furthermore it contradicts the holistic and complementary approach of the learning domains and the credential-neutral approach of the framework.

The beta framework version tries vaguely to integrate different approaches to define *competency* as a characteristic or as a capability of an individual, which had been developed in different scientific schools (e.g., behaviorism, constructivism; cf. Winterton, et al., 2005). For all qualifications frameworks, it is a challenge to develop a consistent definition requiring interdisciplinary approaches and addressing different education and training perspectives at the same time. The question might be raised about why competency as the key term of the instrument is not defined in a nominal definition alongside the instrument objectives and descriptor perspective, i.e., to demonstrate the capability of the individual to use knowledge and skills in educational and occupational situations and in terms of

professional and personal development. Furthermore, the instrument is lacking a definition of *learning domain* and in contrast to the definition of *domain descriptors* it does not provide any definition at all for the overarching *level descriptors*.

Finally, the document does not describe situation neutral requirements but refers to study and work situations, although the instrument tries to facilitate lifelong learning, career pathways and credentialing across education and training sub-systems. This also includes the need to clarify the commonalities and the differences between occupational and professional requirements and competencies in the descriptors beyond traditional comprehensions related to specific education and training sectors.

Table 1: Credentials Framework-Matrix (Lumina Foundation, 2015; designed by author)

Domains		SKILLS		
Levels	KNOWLEDGE	Specialized Skills	Personal Skills	Social Skills
CF (Matrix) Key term: <u>Competency</u>				
Level Descriptors: Requirements and Learning Outcomes	Domain Descriptors: Requirements and Learning Outcomes			
Level 1 - 4 (ref. EQF level 1 - 4) <i>non-specified certificates</i>				
Level 5 (ref. DQP level 1 + EQF level 5) <i>e.g. Associate Degrees</i>				
Level 6 (ref. DQP level 1 + EQF level 6) <i>e.g. Bachelor Degrees</i>				
Level 7 (ref. DQP level 1 + EQF level 7) <i>e.g. Master Degrees</i>				
Level 8 (ref. EQF level 8) <i>e.g. Doctorate Degrees</i>				

5. The compatibility towards higher academic education

Focusing on degrees, higher academic education pioneers in the US, similarly to the European Bologna Process for higher academic education (Council of Europe, 1999), were tackling the need to promote quality and mobility for postsecondary credentials across institutions and the labor market. (Rein 2011) As part of a five year development and nationwide test process, a beta version of the Degree Qualifications Profile (DQP) was released by the Lumina Foundation in October 2014 as a voluntary reference tool for academic programs and degrees. This framework has defined what learning is must be achieved in study programs at the Associate, Bachelor and Master degree levels (cf. DQP matrix on table 2). Increasingly accepted by academic institutions the DQP is embedded in an ongoing stakeholder communication in terms of testing and implementation issues. (Lumina Foundation, 2014)

The comprehensive CF and the DQP share the same major objectives to promote transparency, comparability, portability, quality assurance and quality development of credentials in terms of learning outcomes. Learning is recognized as a continuum in terms of lifelong learning requirements. All credentials addressed offer pathways to continue learning. Learners can attain the competencies expressed at each level through many paths, both sequential and non-sequential. The CF implicitly embraces all learners, forms of learning and careers, and all citizens will have equal access to the benefits of the framework. Consequently both frameworks promote the recognition of prior learning via the learning outcomes orientation.

What other contextual and conceptual commonalities and differences with regard to their key features exist between these two reference instruments and to what degree they are compatible? The DQP approach is firmly set in the context of higher academic education, providing learning domains as reference points for what students should know and be able to do to address the requirements of associate's , bachelor's and master's degrees across all fields of study. The CF was designed as an overarching, comprehensive framework. It offers an integrated way for learners, employers, educators and those responsible for measurement and assessment to understand the levels and types of competencies and learning outcomes represented by diverse types of credentials including degrees, industry certifications and certificates.

The DQP is focused on *proficiency* as the instrument's guiding key term, understood as a label for a set of demonstrations of knowledge, understanding and skills that satisfy the levels of mastery sufficient to justify the award of an academic degree. The CF goes beyond, and uses *competency* as the overarching-key term in a holistic comprehension of behavior and capability, that implicitly includes, the credential achievement perspective of the DQP.

In contrast to the CF, the DQP does not describe *levels* across the learning domains. The domain requirements and competencies of the DQP demonstrate levels of learning outcomes to be achieved in associate, bachelor and master programs can be complementarily interpreted as implicit levels. Compared with the requirements and competencies of the CF levels 5 to 7, these implicit DQP levels can be regarded as

compatible but not in the sense of sameness. Consequently, both instruments avoid the term *equivalency of credentials* because the DQP focuses exclusively on associate, bachelor and master degrees and the CF has an overarching focus encompassing both degrees and non-degree credentials. Up to now, the DQP has not included an implicit level description for doctorate programs which to address compatibility with the highest CF level 8.

The CF and the DQP both focus on the domains *knowledge* and *skills* with intersections and differences due to the specific approach of the frameworks. In contrast to the CF, the DQP describes in an elaborated way learning outcomes for associate degrees, bachelor degrees and master degrees in five learning domains: *specialized knowledge, broad and integrative knowledge, intellectual skills, applied and collaborative learning* and *civic and global learning*.

The CF domain *knowledge* includes implicitly broad, integrative and specialized knowledge, two of the DQP categories. The comprehension and the scope of the learning domain *knowledge* differ essentially concerning the application area. The CF describes what a learner knows, understands and can demonstrate in terms of the body of facts, principles, theories and practices related to fields of application related to study or work. In contrast to the CF the DQP definition of *knowledge* focuses exclusively on study requirements. The CF domain *skills* is subdivided into the sub-domains *specialized skills* (addressing occupational, professional or disciplinary requirements), *personal skills* and *social skills*.

In addition to *knowledge* and *skills*, the domain *learning* addresses proficiencies in the DQP described as *applied and collaborative learning*, and as civic and global learning. In the CF, learning is only explicitly addressed by the descriptions in the skills sub-domains but implicitly addressed by all level and domain descriptors on all levels. All CF learning descriptors cover implicitly, and to a lesser extent explicitly, the content of the DQP domain *learning*. The DQP's *civic and global Learning* cut across learning outcomes and are reflected in the CF both in *knowledge* and in *skills*.

The DQP provides no specific indicator structure to describe learning outcomes with the exception of the indicators *breadth* and *depth* whereas the CF uses descriptor indicators which are well embedded introduced in US education (cf. Bailey & Matsuzuka, 2003). Level descriptors describe the summary characteristics of learning outcomes and competencies in terms of the degree of *adaptability, complexity, range* and *selectivity*. In its learning domains, the framework uses for *knowledge* the descriptor indicators *depth, breadth* and *dimension*; for *specialized skills* the descriptor indicators *critical thinking and judgment, integrative application* and *systems thinking*; for *personal skills* the descriptor indicators *autonomy, responsibility, self-awareness* and *reflectiveness*; and for *social skills* the descriptor indicators *communication, involvement, teamwork* and *leadership*.

The CF descriptors cover academic, occupational and professional learning outcomes on all levels whereas the DQP only provides this overarching descriptor approach for the associate learning outcomes. Both instruments contain discipline- and sector-neutral descriptors and use active verbs, some of them identical and from the same verb classifications to describe learning outcomes.

Due to the differing characters and purposes of the instruments, the descriptor diction is different. However, when the verbs are read in the context within which they are used, their compatibility is obvious. Due to the CF's overarching and credential-neutral purpose, the CF descriptors express more general statements on required learning outcomes and competencies, which are not as detailed and concrete as the predominantly academic-oriented DQP descriptors. The frameworks differ as to how to address competencies on learning. The DQP describes the relevant learning requirements and competencies in a very elaborate way, in two learning specific domains. In *applied and collaborative learning* the descriptors focus on more concrete problems to be solved in a specific environment, whereas *global and civic learning* addresses the broader context and societal requirements to be taken into account in a learning process. In the CF, learning requirements and competencies are described as integrated in the learning domain *social skills* without further specification and differentiation like in the DQP.

Table 2: Degree Qualifications Profile – Matrix (Lumina Foundation, 2014; designed by author)

Domains	KNOWLEDGE		SKILLS	LEARNING	
Levels					
DQP (Matrix) Key term: <u>Proficiency</u>	<i>Specialized Knowledge</i>	<i>Broad and Integrative Knowledge</i>	<i>Intellectual Skills</i>	<i>Applied and Collaborative Learning</i>	<i>Civic and Global Learning</i>
	<i>Domain descriptors: Requirements and Learning Outcomes</i>				
Level 1 (implicit) (ref. CF level 5) <i>Associate Degrees</i>					
Level 2 (implicit) (ref. CF level 6) <i>Bachelor Degrees</i>					
Level 3 (implicit) (ref. CF level 7) <i>Master Degrees</i>					

6. The international context

The development of the CF is embedded in a worldwide trend in education and training politics to develop and to implement qualifications frameworks in order to promote transparency, comparability, transferability, quality assurance and quality development of credentials.

Following a joint international comparative study of UNESCO, ETF and CEDEFOP (2015), the frameworks differ by their conceptual and structural organization concerning domains, descriptors, key terms, etc., and, by their regional national, regional or sector orientation. Furthermore, they might include non-formal and informal learning, a credit transfer system and they might provide an regulatory approach like the Scottish framework (SCQFP 2001) or just provide a voluntary approach like the German framework (Federal Ministry of Education, 2011) for orientation purposes for specific education and training systems.

As previously mentioned, during the CF development process conceptual approaches of other frameworks with focus on those being implemented in the European Union on the regional and national levels were analyzed. In particular, the European Qualifications Framework (EU 2008; see EQF matrix on table 3) was relevant for the CF development in the US context as it had been designed as a meta-reference instrument for the different qualifications frameworks and systems of the autonomous EU member states. Although the EU up to now is no integrated political federation like the US, in terms of its demographic and economic dimensions and the division of political responsibilities, it faces similar challenges in shaping education and training.

Like the CF, the EQF tries to promote transparency, comparability and the quality purposes and share the same voluntary orientation function to promote shift to learning outcomes in specific education and training systems. The EQF concept and language also had to be developed broadly enough to be inclusive of the differences between states, industries, occupations, education systems, etc., but at the same time specific enough to successfully define levels, learning outcomes and performance measures.

The EQF uses *knowledge, skills and competence* (KSC) as the conceptual basis of its framework, because this was recognized as one of the internationally most established way for categorizing learning outcomes (Winterton, et al. 2005). As with the CF, the EQF covers eight levels of requirements and competencies and, in the current process of implementing the EQF, each country reference its national qualifications (in terms of diplomas, certificates or awards) to the relevant EQF levels via national qualifications frameworks following the best-fit principle. Furthermore, the experience in the connectivity of the EQF inside the EU and towards other countries and regions is relevant for the international compatibility of the CF as well. The EQF is not only a translation device between different national contexts and a reference point for all credentials in the EU, but also towards other countries and regions seeking portability of their credentials e.g. from Australia or the South-East Asian ASEAN countries.

Both frameworks use the domain *knowledge and skills*. But the CF has avoided introducing its holistic key term *competency* as an extra learning domain as the EQF did with its key term *competence*, which caused different interpretations by the EU member states in terms of qualification referencing to EQF levels up to now. The key terms of both instruments differ as follows. Politically induced *competence* in the EQF is holistically defined as the proven ability to use knowledge, skills and personal social and/or methodological abilities, in work or study situations and in professional and personal development. (EU 2008) This is based on an integrated domain approach and addresses a clear target. The CF document, in contrast, defines competency as learnable, measurable, role-relevant, and behavior-based characteristic or capability of an individual, which uses both constructivist and behavioristic

approaches. The broader and targeted holistic approach of the definition of competence is covered in the CF by the domain definition of knowledge and skills.

Furthermore, in contrast to the EQF the CF

- introduces a domain-overarching level description based on competencies and requirements,
- contains an integrated descriptor design to address both academic and occupational respectively professional requirements and competencies, that promotes parity between academic and work routes, and,
- includes all different types quality assured and certified credentials i.e. it does not prioritize formal qualifications or credit based learning.

Different from the EQF, the recent UNESCO survey on qualifications frameworks worldwide (Chakroun and Keevey 2015) classified the CF as an example of the most progressive framework type (*fourth generation*), because of its conceptual clarity in the learning level and learning domain descriptors and its inclusion of credentials understood as all quality assured and certified learning outcomes in the broadest sense. According to the survey, this approach facilitates overcoming the traditional separation in education between learning in degree programs, in non-degree programs and in informal learning settings to promote the transparency and transferability of learning outcomes.

Table 3: European Qualifications Framework - Matrix (EU, 2008; designed by author)

Domains Levels	KNOWLEDGE	SKILLS	COMPETENCE
EQF (Matrix) Key term: <u>Competence</u>	<i>Domain descriptors: Requirements and Learning Outcomes</i>		
Level 1 - 4 (ref. CF level 1 - 4) <i>non-specified certificates</i>			
Level 5 (ref. CF level 5) <i>e.g. Associate Degrees</i>			
Level 6 (ref. CF level 6) <i>e.g. Bachelor Degrees</i>			
Level 7 (ref. CF level 7) <i>e.g. Master Degrees</i>			
Level 8 (ref. CF level 8) <i>e.g. Doctorate Degrees</i>			

7. Outlook and perspectives

The CF is a promising tool for addressing, in an appropriate way, the education policy and economic demands in the US for increasing accountability and postsecondary educational attainment by shifting to competencies and learning outcomes. Like qualifications frameworks for lifelong learning in Europe and other highly industrialized areas, it has the potential to promote transparency, comparability and portability, as well as quality assurance and quality development of credentials in US postsecondary education facilitated by a common conceptual language. [cf. EU, 2008; Raffe 2003)

Prospective success of the CF is not only determined by the most appropriate construction and design but by the way in which the stakeholders in the education and business sectors as well as in government organizations are being involved in the development and implementation process from the beginning on. To increase acceptance, the Lumina Foundation started a national dialog about how to create a more seamless and comprehensive system of credentials. This includes the major stakeholders of postsecondary education such as federal and state government agencies, education providers and employers. (cf. Birtwistle & McKiernan, 2010) The intention is to create a US version of a zone of mutual trust in terms of transparency and portability of achieved learning outcomes, which might be joined by a rising number of states and education stakeholders. (cf. Adelman, 2009) Furthermore, roundtable discussions on the regional and national levels are taking place in order to improve the construction of the instrument and to promote the acceptance by educators, employers and political bodies. Finally, a pilot alignment of credentials of all forms and types to test the validity and applicability of the descriptors, levels and domains is carried out. (Lumina Foundation, 2016)

During these further developments the following questions are critical in terms of a sustainable acceptance and applicability of the credentials framework across disciplines as well as education and economic sectors. How will the definition inconsistency of the key terms *specialized skills* and *competency* be tackled (see analysis in section 4)? This also includes the question of the connectivity between these terms and towards analogous conceptual approaches in other education sectors, e.g., higher academic education in other countries.(cf. Rein, 2012; Raffe, 2003) How will the conceptual gap be *bridged* to address situation neutral requirements to refer to study and work situations, e.g., by an integrated formulation of academic and occupational requirements and competencies in order to facilitate both quality development of credentials (curricula and assessment regulations) and level alignment as well as the articulation of learning outcomes across different education pathways?

Furthermore, an analysis must be done as to how and to which extent the CF in the US will promote implementation of the shift to competence-oriented learning outcomes and appropriate developments of curricula, didactic and assessment approaches. How will an overarching cross-sector credit transfer system based on competence-oriented learning outcomes be generated to support the portability of credentials? How will the CF facilitate cross-walking between credit and non-credit learning to assess prior learning, e.g., between academic associate degrees and apprenticeship programs in terms of the benefit for

educational institutions and learners as well as employers and employees? What are appropriate principles of quality assurance and quality development for credentials based on the learning outcome approach which are compatible between all sectors and areas of US postsecondary education and training? How will the sector overarching CF approach contribute to clarification and possibly to revision of the traditional concepts of *degree* or *certificate*, i.e., towards a holistic, competence-driven concept of connectible credentials, which doesn't blur the essential characteristics of specific education systems, e.g., in academia? How and to which extent will the CF contribute an overarching language for US education and training? There also must be discussions as to which extent and by which mechanism the CF will be able to operate as a US meta-framework that complements other key credential reference instruments, e.g., O-Net. And, last but not least, the conceptual compatibility of the CF-approach towards other meta-frameworks will have to be analyzed in terms of its international connectivity.

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