

Focal topic 4:
Systems and Instruments for Transparency of Certified IT Qualifications

**Interchangeability between the scholarly-academic and vocational
sectors of education**

Kerstin Mucke
**Federal Institute for Vocational Education and
Training, Bonn**

Interchangeability between the scholarly-academic and vocational sectors of education

**Interchangeability means
creating flexible transitions between education systems**

- * by recognizing vocational qualifications and experience as entrance requirements to further academic education offerings
(*Regulations for university access without “Abitur”*)
- * by providing academic education offerings which integrate vocational practice
(*dual courses of study at universities*)
- * by transferring credit for skills acquired on the job into further (academic) education offerings, in the sense of transfer and accumulation
(*credit transfer system*)

Discussion about transfer credits

1.
Credits/transfer credits
within the
college or university

2.
Transfer credits
within initial and continuing
vocational education and training

Fields of discussion

3.
Transfer credits within
continuing VET and their
recognition by the
academic institution

1.
Credits/transfer credits
within the
college or university

»»»» Bologna Declaration/June 1999
“establishing a European Higher Education
Area by 2010“

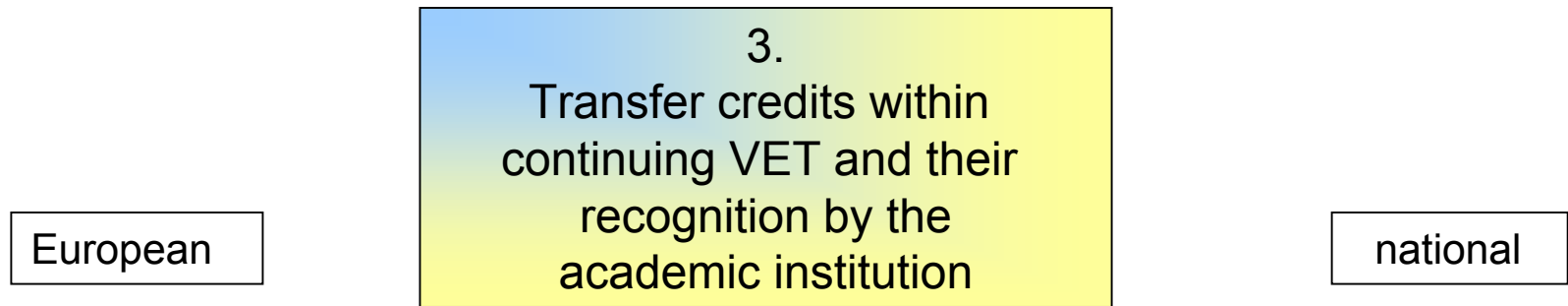
- ECTS
- Qualification frameworks (for certificates)

2.
Transfer credits
within initial and continuing
vocational education and training

»»»» Copenhagen Declaration/November 2002
“enhanced European cooperation in
vocational education and training“

- Credit Transfer System (ECVET)
- Transparency framework (for competences) EQF

Discussion about transfer credits/Basics



»»» Bologna Declaration/June 1999

qualifications and competences acquired outside of college or university should be made credit-bearing via transfer credits

»»» Recommendation of BMBF, KMK and HRK to the academic institutions/ September 2003

awarding of transfer credits in continuing vocational education and training, crediting them for university studies to an extent corresponding to the demands of the respective course of study

Conditions for mutual recognition

A credit transfer system
with uniform/convertible determination bases

with the ECTS elements agreed on at the European level:

- learning outcomes
- levels
- workloads

Developments in the professional IT sector

National motive

2002 introduction of new IT continuing VET system which allows acquiring certificates on a level largely comparable to bachelor or master degrees from universities in the field of computer science

Target

To develop instruments for assessing competences and determining transfer credits and to test them with regard to their practicability, using the IT continuing VET sector as an example



- * Proving comparability and equivalence of competences acquired on the job with those acquired in the academic field of education, thereby achieving recognition
- * Allowing flexible transitions between the vocational and academic fields of education in the sense of lifelong learning (interchangeability)

What needs to be considered in a credit transfer system in vocational education and training?

Example: IT qualification on the job

- * recording formally and informally acquired competences (*learning outcomes*)
- * accounting for learning and work processes; time expended on learning and working (*workloads*)
- * evaluating results of learning/work (assigning transfer credits)

+

- * qualitative evaluation of qualifications and skills (*levels*)

Cornerstones of a vocational credit transfer system

1. Standard results of learning/work = qualifications/skills = learning outcomes

describe what a person needs to know or understand to acquire a credit and/or which competences a person possesses for doing a particular job
= core element of a CTS

2. Levels = stages of learning

circumscribe the operative context in which skills are to be used; express the degree of requirements and their complexity as well as the amount of responsibility/independence necessary for doing a job
= element of quality assurance

3. Learning time = workloads

estimated time needed by a person on average to reach a defined competences level; includes all activities that lead to the acquisition of knowledge, skills and capabilities, for example “hours of contact” with a teacher/trainer in lectures/seminars/workshops or during coaching; practice times/process times; private studies/e-learning/self-regulated learning; examination times **= helper value for determining transfer credits**

The new IT continuing VET structure

Strategic professional level

Gepr. Informatiker/in
(Certified IT Technical Engineer)

Gepr. Wirtschaftsinformatiker/in
(Certified IT Business Engineer)

Operative professional level

Gepr. IT-Entwickler/in
(Certified IT System
Manager)

Gepr. IT-Projektleiter/in
(Certified IT Business
Manager)

Gepr. IT-Berater/in
(Certified IT Consultant)

Gepr. IT-Ökonom/in
(Certified IT Marketing
Manager)

Specialist level

29 specialists for all IT branches



Skilled worker level

IT System
Electronics
Technician

IT Specialist

IT System
Support Specialist

IT Officer

lateral entrants
and re-entrants

The new IT continuing VET structure

Strategic professional level

Operative professional level

Gepr. IT-Entwickler/in
(Certified IT Systems
Manager)

Gepr. IT-Projektleiter/in
(Certified IT Business
Manager)

Gepr. IT-Berater/in
(Certified IT Consultant)

Gepr. IT-Ökonom/in
(Certified IT Marketing
Manager)

Specialist level



Skilled worker level

1. Standard results of learning/work = learning outcomes

Basis:

Ordinance on Continuing Vocational Education and Training in the Field of Information and Telecommunication Technology (IT Continuing Education and Training Ordinance) of 3rd May 2002

Regulations for the examination of operative professionals:

§ 2 Entrance requirements

§ 3 Structure of the examination (3 examination parts)

»»» § 9 Examination content in “Company IT Processes” part

»»» § 10 Examination content in “Profile-specific Specialised IT tasks” part

»»» § 7 Examination content in “Leadership and Personnel Management” part

1. Standard results of learning/work = learning outcomes

- a) adapting to new technologies and changing local and global market conditions
- b) analysing customer requirements as well as technological and organisational interfaces**
- c) designing technologically optimal and market-friendly IT solutions
- d) developing IT solution components and implementing a complete solution
- e) exploring project alternatives
- f) structuring projects, planning costs and resources, analysing risks
- g) planning and safeguarding funding of projects
- h) describing demands on the employees
- i) informing and advising decision-makers
- k) supervising implementation of the projects
- l) planning and implementing activities to improve quality

2. Levels = stages of learning

- »»» Degree of demands and complexity of competences (four levels)

Criteria for determination of levels

1.1 Contextual features (“thinking in processes”)

1.2 Responsibility/independence

1.3 Ethical insights

2.1 Knowledge and comprehension

2.2 Analytical ability

2.3 Synthesis/creativity

2.4 Evaluation

3.1 Problem solving

3.2 Planning and organising learning

3.3 Communication and presentation

3.4 Self-assessment/reflection of practice

← operative context

← cognitive features

← transferable skills

2. Levels = stages of learning

Description of levels (excerpt)

	Level 1	Level 2	Level 3	Level 4
1.2 Degree of independence/responsibility	Working under supervision with limited independence and following prescribed guidelines.	Organizing and accompanying processes following general guidelines for defined activities.	Independent planning and organizing of resources and procedures following general guidelines.	Independence within professional limits. High degree of responsibility for oneself and, depending on the concrete conditions, for others.

2. Levels = stages of learning

Level determination (excerpt 1 – IT Systems Manager)

Examination part 1: Company IT Processes Competences (learning outcome)	Assessment criterion No.	Does not apply	Level			
			1	2	3	4
§ 9 paragraph 2b) analysing customer requirements as well as technological and organisational interfaces	1.1					
	1.2					
	1.3					
	2.1					
	2.2					
	2.3					
	2.4					
	3.1					
	3.2					
	3.3					
	3.4					

2. Levels = stages of learning

Level determination (excerpt 2 – IT Systems Manager)

Examination part 1: Company IT Processes Competences (learning outcome)	Assessment criterion No.	Does not apply	Level			
			1	2	3	4
§ 9 paragraph 2b) analysing customer requirements as well as technological and organisational interfaces	1.1				X	
	1.2				X	
	1.3			X		
	2.1					X
	2.2					X
	2.3				X	
	2.4				X	
	3.1					X
	3.2				X	
	3.3				X	
	3.4				X	

3. Learning time = workloads

- ▶ continuing VET from specialist to operative IT professional takes 2 years on average
- ▶ about 30 working weeks per year with 40 hours per week on average
- ▶ 2400 learning/working hours on average

▶▶▶▶▶ **10 learning/working hours = 1 transfer credit**

▶▶▶▶▶ **2400 learning/working hours = 240 transfer credits in the course of 2 years**
(corresponds to credit key used by universities)

3. Learning time = workloads

Distribution over the three examination parts: § 20 (3) Examination part “Company IT Processes” has twice the weight of the other two exams

Examination part	Credits	Available time in hours
1. Company IT Processes	120	1,200
2. Profile-specific Specialised IT Tasks	60	600
3. Leadership and Personnel Management	60	600
Total	240	2,400

3. Learning time = workloads

Determining learning forms and learning effort (excerpt 1 – IT Systems Manager)

Examination part 1: Company IT Processes (§ 9)	Learning form in hours (1 day = 8 h)				Time spent (total: 1200 h)	
	Self-learning	Learning in a group	Learning in the work process	Examina tion	in h	in %
adapting to new technologies and to changing local and global market conditions						
analysing customer requirements as well as technological and organisational interfaces						
designing technologically optimal and market-friendly IT solutions						
developing IT solution components and implementing a complete solution						
exploring project alternatives						
structuring projects, planning costs and resources, analysing risks						
planning and safeguarding funding of projects						
describing demands on the employees						
informing and advising decision-makers						
supervising implementation of the projects						
planning and implementing activities to improve quality						

3. Learning time = workloads

Determining learning forms and learning effort (excerpt 2 – IT Systems Manager)

Examination part 1: Company IT Processes (§ 9) Competences	Learning form in hours (1 day = 8 h)				Time spent (total: 1200 h)	
	Self-learning	Learning in a group	Learning in the work process	Examina tion	in h	in %
adapting to new technologies and to changing local and global market conditions					120	10
analysing customer requirements as well as technological and organisational interfaces					120	10
designing technologically optimal and market-friendly IT solutions					180	15
developing IT solution components and implementing a complete solution					240	20
exploring project alternatives					60	5
structuring projects, planning costs and resources, analysing risks					60	5
planning and safeguarding funding of projects					60	5
describing demands on the employees					60	5
informing and advising decision-makers					60	5
supervising implementation of the projects					120	10
planning and implementing activities to improve quality					120	10
					1200	100

Transfer credits determined for each part of the examination (IT Systems Manager)

Examination part 1

Company IT Processes:

Level 2 = 69

Level 3 = 51

Examination part 2

Profile-Specific Specialised IT Tasks:

Level 1 = 3

Level 2 = 22

Level 3 = 35

Examination part 3

Leadership and Personnel Management:

Level 1 = 2

Level 2 = 58

Determined transfer credits, total

IT System Manager	Level 1 = 5
	Level 2 = 149
	Level 3 = 86

IT Consultant	Level 1 = 0
	Level 2 = 125
	Level 3 = 115

IT Marketing Manager	Level 1 = 0
	Level 2 = 154
	Level 3 = 86

IT Business Manager	Level 1 = 0
	Level 2 = 76
	Level 3 = 164

The following transfer credits are needed for a bachelor's degree according to the credit framework adopted by the state of Baden-Württemberg

Level 1 = 140
Level 2 = 140
Level 3 = 140

Further reading:

Mucke, Kerstin; Grunwald, Stefan
Hochschulkompatible Leistungspunkte in der beruflichen Bildung.
Grundsteinlegung in der IT-Weiterbildung. Berichte zur
beruflichen Bildung 272.
Bielefeld: Bertelsmann Verlag. 2005

- ▶ Technical questions regarding detection of competences (learning outcomes), learning time (workloads) and levels (stages of learning)
- ▶ Questions of cooperation and networking, trustful cooperation between delivering and admitting institutions/educational fields
- ▶ Questions of quality control and assurance with regard to
 - an occupation-related qualification/competences framework for initial and continuing VET as a foundation for qualitative assessment (occupation principle will be retained!)
 - the examination practice
 - documentation of competences and their assessments
 - evaluation of competences and their assessments
 - procedures for equivalence (recognition/crediting)

- ▶ Instruments should be put into practice and evaluated in joint projects for the whole field of IT continuing VET
- ▶ Instruments should be tested in other occupational fields as well
- ▶ national programmes promoting these goals:
 1. **BMBF Programme** (June 1, 2005 to 2008)
“Crediting of vocational skills for university courses of study”
 2. **BLK Programme** (April 1, 2005 to 2008)
“Further development of dual courses of study in the tertiary sector“
Sponsorship priority 2:
Cross-university development and testing of crediting procedures for qualifications acquired in VET and through professional experience under consideration of the international context (including quality assurance)



Interchangeability between the scholarly-academic and vocational sectors of education

Thank you for your attention!

Kerstin Mucke
Federal Institute for Vocational Education and Training,
Bonn