



Congruence or discrepancy of VET competence profiles? A comparison of ESCO occupation profiles with VET Curricula of four selected countries (Germany, Ireland, Poland & Latvia)

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Content

1. Research Content
2. Research Questions & Research Method
3. Comparison of VET Profiles: Selected Countries and selected Occupations
4. Results
5. Conclusion & Discussion

ESCO: Bridging the world of labour with the world of education?

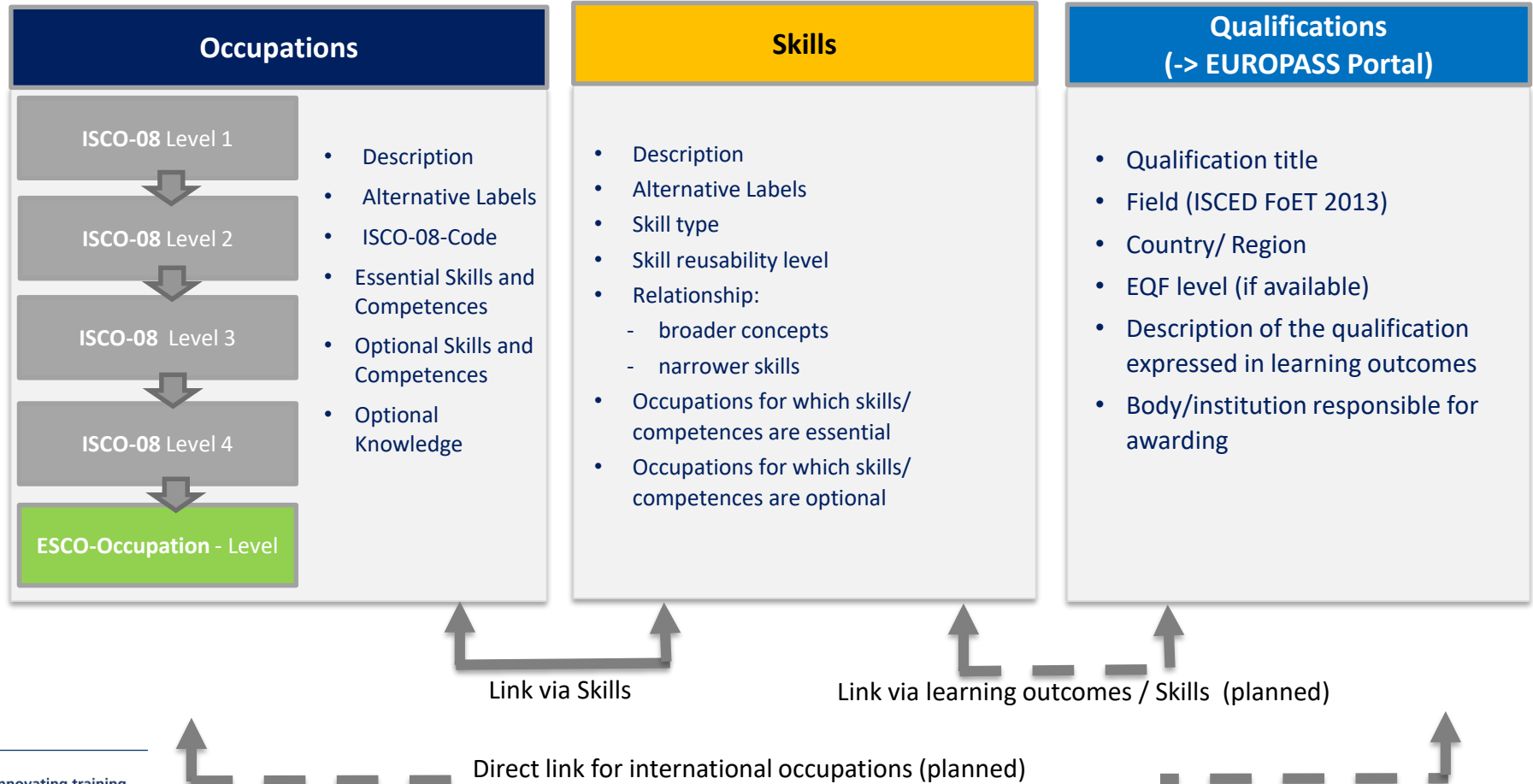
ESCO (= European Skills, Competences & Occupations) is ...

- a European multilingual classification of Competences, Qualifications and Occupations
- a „ ... dictionary, describing, identifying and classifying professional occupations and skills relevant for the EU labour market and education and training” (ESCO Web-Portal)

Main goals of ESCO

- Central support function for the European employment portal EURES: More precise matching of occupations, competences and qualifications required by employers and offered by employees
- Optimization of comparability, presentation and data collection of competences and qualifications
- Identification of necessary skills, competences and qualifications for the European labour market
- Option to use ESCO as a basis for curriculum development, e.g. by taking up identified competence needs for the development of new qualifications

The three Pillar Structure of ESCO



Research Questions

- Congruence or Discrepancy: How well does ESCO represent national occupational profiles?
- Methodological Points of Discussion arising from the analyses for the envisaged linking of ESCO skills with learning outcomes of national qualifications: Bridging the world of labour with the world of education?

Research Method

- Comparative content-analysis of selected ESCO occupation profiles with VET curricula of four countries: Germany, Latvia, Ireland & Poland
- Lists of Correspondence (matching lists) between VET Profile learning outcomes and skills / competences of ESCO occupation profile

Lernziele Maurerprüfung PL	Entsprechungen in ESCO
2.1 Gesundheit und Sicherheit am Arbeitsplatz	
Der Geselle muss:	
1) Konzepte im Zusammenhang mit Sicherheit und Hygiene am Arbeitsplatz, Brandschutz, Umweltschutz und Ergonomie unterscheiden;	
2) Ermittlung der Aufgaben und Rechte von Institutionen und Diensten, die im Bereich des Arbeits- und Umweltschutzes in Polen tätig sind	
3) die Rechte und Pflichten des Arbeitnehmers und des Arbeitgebers in Bezug auf Sicherheit und Hygiene am Arbeitsplatz zu ermitteln	
4) Gefahren für die Gesundheit und das Leben von Menschen sowie für Sachen und die Umwelt im Zusammenhang mit der Ausführung beruflicher Aufgaben vorhersehen	
5) Ermittlung von Gefahren im Zusammenhang mit dem Auftreten schädlicher Faktoren in der Arbeitsumgebung	Gesundheitsschutz und
6) die Auswirkungen von schädlichen Faktoren auf den menschlichen Körper zu erkennen	Sicherheitsvorkehrungen im Bauwesen beachten; ergonomisch arbeiten;
7) die Arbeitsplätze gemäß den geltenden ergonomischen Anforderungen, der Arbeitssicherheit und -hygiene sowie den Brand- und Umweltschutzvorschriften zu gestalten	Arbeitsbereich sichern; Sicherheitsausrüstung am Bau verwenden; Sicherheitsverfahren bei der Arbeit in großen Höhen befolgen
8) individuelle und kollektive Schutzmaßnahmen bei der Ausübung beruflicher Tätigkeiten anwenden	Bauvorschriften; Abfall sortieren; Sauberkeit des Arbeitsbereichs bewahren;
9) die Grundsätze der Arbeitssicherheit und -hygiene einhalten und die gesetzlichen Vorschriften zum Brand- und Umweltschutz anwenden	

Selected Countries¹

¹within the BIBB EUKLASS research project

Country	Germany	Ireland	Poland	Latvia
Criteria				
Employment system² / VET-system³	coordinated market economy / collectiv	liberal market economy / liberal	mixed	mixed
European Labour Mobility: (predominately) Countries of origin or Countries destination of European labour mobility	destination	destination / origin	origin	origin
Level of ESCO adoption: “Mapping” or “Adoption“ of ESCO Classification (pillar 1 & 2)	mapping	adoption	mapping	mapping

Referring to ²Varieties of Capitalism Typology (Hall & Soskice 2001) and ³Varieties of Skill formations (Busemeyer & Trampusch, 2012)

Comparison of selected ESCO profiles with initial VET profiles (1): Bricklayer

Country VET profile ESCO profile	Germany	Ireland	Latvia	Poland
Bricklayer ¹	Maurer / Maurerin ²	Brick and Stonelaying ³	Mūrnieks ⁴	Muraz ⁵
EQF Level & VET-Type	4 vocational education and training under the dual system	5 Craft Apprenticeship	3 Voc. secondary education	3 dual VET pathway

1 <http://data.europa.eu/esco/occupation/05f321f8-055b-407d-bf19-e0ddabda56b7>

2 Verordnung über die Berufsausbildung in der Bauwirtschaft vom 2. Juni 1999, zuletzt geändert am 2. April 2004

3 SOLAS (2021). Brick & Stonelaying Curriculum

4 https://www.latvijaskvalifikacijas.lv/qualification/atestats-par-arodizglitiba-ar-profesionalo-kvalifikaciju-5murnieks/?doing_wp_cron=1638444497.8950328826904296875000

[http://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20120000184,](http://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20120000184)

<https://www.irpoznan.com.pl/imgs/Komisje2013/standardy/murarz.pdf>

ESCO Profile Bricklayer

Skills & Competences

Essential Skills and Competences

- split bricks
- use safety equipment in construction
- check straightness of brick
- use measurement instruments
- inspect construction supplies
- snap chalk line
- work ergonomically
- interpret 2D plans
- install construction profiles
- secure working area
- transport construction supplies
- lay bricks
- follow safety procedures when working at heights
- mix construction grouts
- follow health and safety procedures in construction
- interpret 3D plans
- sort waste
- finish mortar joints

Optional Skills and Competences

- work in a construction team
- reinforce concrete
- use squaring pole
- inspect supplied concrete
- document survey operations
- place concrete forms
- screed concrete
- keep records of work progress
- maintain work area cleanliness
- apply finish to concrete
- install falsework
- remove concrete forms
- calculate needs for construction supplies
- maintain equipment
- apply proofing membranes
- set up temporary construction site infrastructure
- process incoming construction supplies
- estimate restoration costs
- keep personal administration
- operate surveying instruments
- apply restoration techniques
- build scaffolding
- pour concrete
- install insulation material
- mix concrete
- rig loads
- monitor stock level
- operate masonry power saw
- order construction supplies

Optional Knowledge

- building codes

Results (1): Bricklayer

- All four national VET profiles cover skills provided in the ESCO bricklayer profile
- Conversely ESCO provides a reduced profile compared to national VET curricula which
 - provide more content in terms of vocational craft skills, social competences, business and digital skills
 - have a higher estimated competence level
- Different structure, logic and presentation of skills:
 - different levels of granularity
 - VET profiles: holistic and process-oriented form of presentation
 - Technology-open vs. technology-specific competence presentation

Comparison of selected ESCO profiles & initial VET profiles (2): System integration engineer

Country VET profile ESCO profile	Germany	Ireland	Latvia	Poland
System integration engineer (integration engineer)¹	Fachinformatiker/-in der Fachrichtung System-integration ² (Information technology specialist – specialising in systems integration)	Major Award Computer Systems and Networks ³	Datorsistēmu tehniķis (Computer System Technician) ⁴	No direct equivalent found (similarities to Technik informatyk)
EQF Level & VET-Type	4 vocational education and training under the dual system	5 QQI further education and training	4 Vocational continuing education	-

¹https://esco.ec.europa.eu/en/classification/occupation_main#overlayspin

²Verordnung über die Berufsausbildung zum Fachinformatiker und zur Fachinformatikerin vom 28.02.2020 (BGBl. I S. 250)

³<https://qsearch.qqi.ie/WebPart/AwardDetails?awardCode=6M0695>

⁴Certificate of professional qualification: Computer System Technician - Latvijas kvalifikāciju datubāze (latvijaskvalifikacijas.lv)

ESCO Profile system integration engineer

integration engineer

Skills & Competences

Essential Skills and Competences

- apply ICT system usage policies
- apply company policies
- deploy ICT systems
- integrate system components
- analyse network bandwidth requirements
- provide technical documentation
- define integration strategy
- use scripting programming
- design component interfaces

Essential Knowledge

- software components suppliers
- hardware components suppliers
- ICT communications protocols
- ICT project management methodologies
- ICT system user requirements
- procurement of ICT network equipment

Optional Skills and Competences

- use back-up and recovery tools
- adapt to changing situations
- implement anti-virus software
- implement a firewall
- communicate with customers
- utilise computer-aided software engineering tools
- perform project management
- design computer network
- use an application-specific interface

Optional Knowledge

- ICT system programming
- Perl
- SAS language
- Scratch (computer programming)
- Salt (tools for software configuration management)
- information security strategy
- Visual Studio .NET
- Puppet (tools for software configuration management)
- solution deployment
- model based system engineering
- Prolog (computer programming)
- R
- ABAP
- interfacing techniques
- Ansible
- MATLAB
- Haskell
- ASP.NET
- Cisco
- ICT recovery techniques
- Swift (computer programming)
- Microsoft Visual C++
- JavaScript
- ML (computer programming)
- Process-based management
- AJAX
- STAF
- Assembly (computer programming)
- Pascal (computer programming)
- Jenkins (tools for software configuration management)
- Apache Maven
- information architecture
- Objective-C
- Agile project management
- computer programming
- Common Lisp
- Scala
- PHP
- ICT debugging tools
- Vagrant
- Java (computer programming)
- OpenEdge Advanced Business Language
- engineering processes
- hardware components
- embedded systems
- COBOL
- APL
- Lisp
- ICT infrastructure
- SAP R3
- C++
- tools for ICT test automation
- C#
- software components libraries
- Groovy
- Lean project management
- Python (computer programming)
- ICT system integration
- Ruby (computer programming)
- tools for software configuration management
- ICT network routing
- systems development life-cycle

Results (2): System Integration Engineer

- **(Likewise) different structure, logic and presentation of skills:**
 - VET profiles: Holistic and process-oriented form of presentation
 - different levels of skill-granularity
 - especially evident: technique-specific representation of skills in the ESCO profile -> lead to necessity of regular update intervals
- **Content related differences between ESCO profile and national profiles:**
 - ESCO: more detailed and extensive listing of skills in the field of programming and software solutions as well as project management
 - ESCO profile reduced in terms of quality management, IT security and data protection, fault prevention / troubleshooting, administration of IT systems, customer orientation, customer focus and customer interaction -
 - as well as social competences, such as "team leadership" and "communication" (IRL) or "networked cooperation using digital media"(DE)

Conclusion & Discussion

Conclusion

- ESCO provides basic skill profile, but has gaps in professional and social competences
- Country VET curricula are more comprehensive, the level of competences is estimated higher than in ESCO
- Altogether we found more congruence between the selected countries-curricula and more discrepancy in comparison to ESCO

Methodological Points of Discussion arising from the analyses

- Linking of ESCO Skills with national (VET) qualifications may be difficult, because of ...
 - differences in granularity of skills / learning outcomes
 - process and action oriented presentation vs. listing of skills
 - technology-open vs. technology-specific wording of skills / learning outcomes