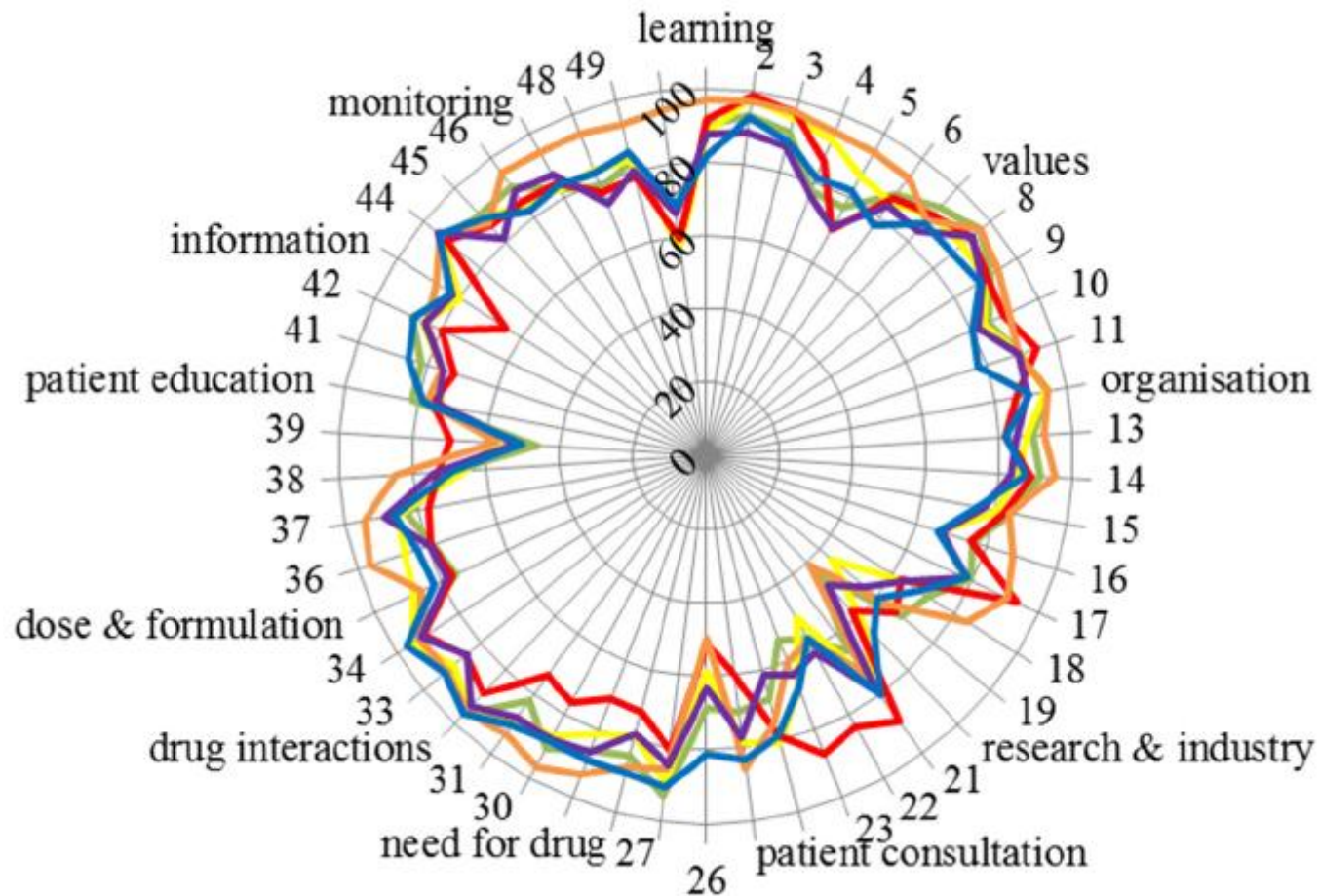


European competency framework



Patient care competences

25-27 diagnosis

28-31 treatment

32-34 interactions

35-39 formulations

40-42 education

43-45 information

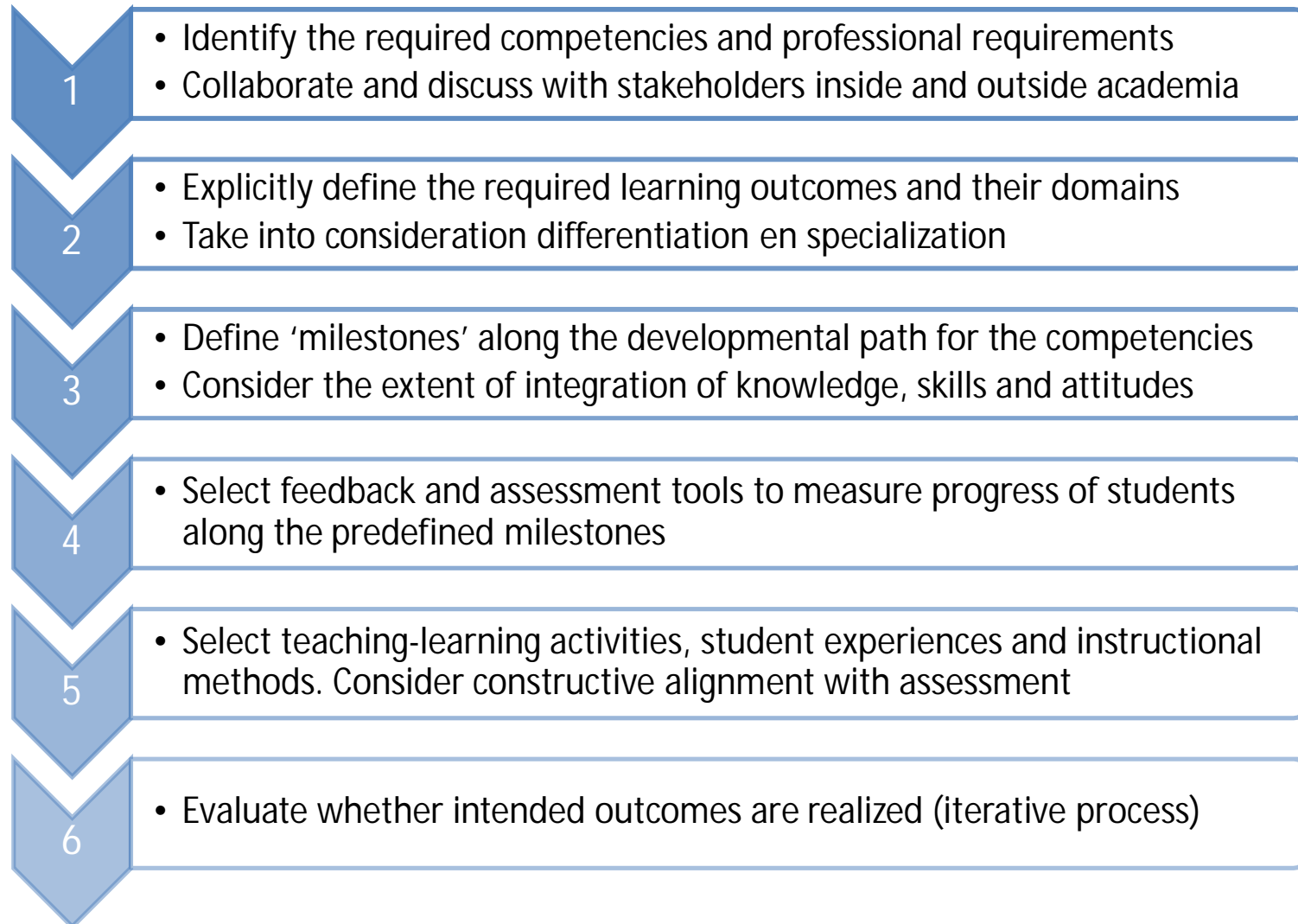
46-50 monitoring

Competency score for community pharmacists (green), hospital pharmacists (orange), industrial pharmacists (red), pharmacists in other professions (purple), students (blue) and academics (yellow). *Source:* Atkinson J et al.: Pharmacy 2016, 4(3), 27 [online]

Competencies and learning outcomes

- Competencies are the various ingredients of professional competence, specified as *observable abilities* of a pharmacist, integrating multiple components such as knowledge, skills, values and attitudes, expressed as behaviour
- Learning outcomes are the *observable results* of CBE and can be defined in terms of knowledge, skills and behaviour of students at specified stages of the curriculum
- Learning outcomes can be ordered in different domains and different developmental stages to ease curriculum development
 - domains: e.g. patient care, compounding
 - stages: e.g. bachelor, master

Curriculum design for CBPE



Curriculum mapping

Curriculum mapping can serve different purposes, but in the European context the main purpose will be guidance in curriculum evaluation and development:

- [Armayor, Leonard 2010,](#)
- [Zelenitsky et al. 2014](#)
- [Malone et al. 2015](#)
- [Farris et al. 2009](#)

The goal of this study was to evaluate the usefulness of the recently developed European Pharmacy Competences Framework (EPCF) as a tool for the mapping of existing first-degree pharmacy curricula.

Partners were asked to map their intended curriculum on the EPCF.

Curriculum mapping: 1st round



Country	City	Contact person
Estonia *	Tartu	Daisy Volmer
Finland	Helsinki	Jouni Hirvonen
Poland *	Krakow	Agnieszka Skowron
Slovenia *	Ljubljana	Borut Božič
Spain	Granada	Antonio Sanchez-Pozo
United Kingdom	Birmingham	Keith Wilson
Sweden	Uppsala	
France	Paris	
The Netherlands	Utrecht	

* Results are published (Pharmacy, Spring 2017)

Levels of curriculum analysis

Intended curriculum: as designed and described in management documents



curriculum design
management: consistency?
internal quality control

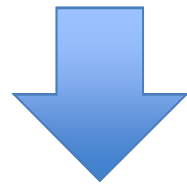
Delivered curriculum: as delivered by teachers to the students



constructive alignment?
consistency of student assessment?
personal epistemology of teachers

Perceived curriculum: as experienced by the students

Danger of
the hidden
curriculum



expectations of workplace environment

Achieved curriculum: as measured/assessed by external parties

Procedure: content of the curriculum

STEP 1

The 'intended curriculum' (consisting of curricular elements) is mapped on the European Pharmacy Competences Framework (EPCF):

- Curricular elements can be mono-disciplinary, multidisciplinary, theoretical, practical (or a mix) depending on the way a curriculum and the institution or department is organized.
- The curricular organization of a particular Pharmacy programme is respected

The resulting matrix makes clear where and when in the curriculum different competences are addressed, and can be used to identify 'curricular gaps' and 'curricular inconsistencies'

Year	Course	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5
P1	1.1					
	1.2					
	1.3					
	1.4					
	1.5					
	1.6					
	1.7					
	1.8					
	1.9					
	1.10					
	1.11					
	1.12					
P2	2.1					
	2.2					
	2.3					
	2.4					
	2.5					
	2.6					
	2.7					
	2.8					
	2.9					
	2.10					
	2.11					
	2.12					
P3	3.1					
	3.2					
	3.3					
	3.4					
	3.5					
	3.6					
	3.7					

Shading	Proportion of Domain Coverage Ranges
	0.81 - 1.0
	0.61 - 0.8
	0.41 - 0.6
	0.21 - 0.4
	0.01 - 0.2
	0.00

Results: content of the curriculum

§ Almost all competences are covered in the curricula investigated: no major gaps were identified in the curricula investigated.

§ As most curricula were not designed initially as competence-based curricula, progression of students (increasing competence) cannot be analyzed easily with the framework.

§ Detailed analyses are published up till now:

Krakow (Poland): Skowron A et al., *Pharmacy* 5, art. 25 (2017)

Ljubljana (Slovenia): Gmeiner T et al., *Pharmacy* 5, art. 24 (2017)

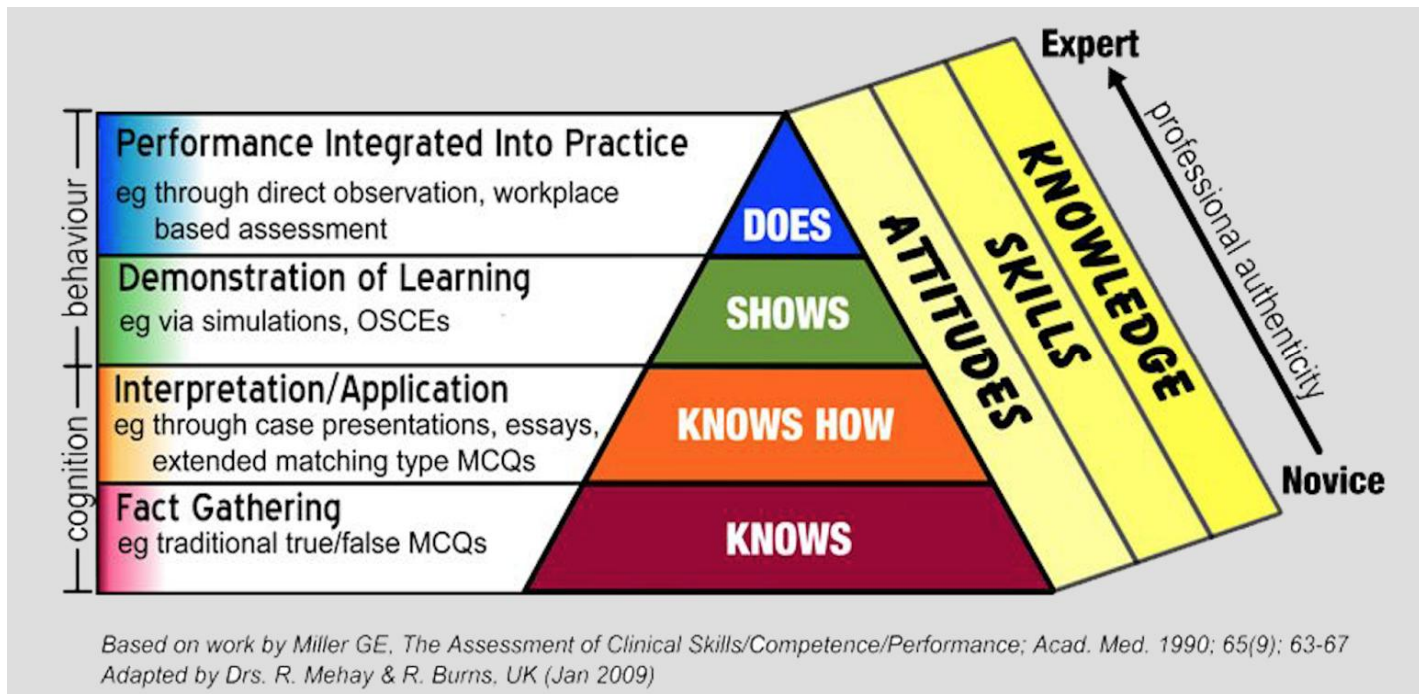
Tartu (Estonia): Volmer D et al., *Pharmacy* 5, art. 18 (2017)

Procedure: achieved level?

STEP 2

Evaluation of **how well** intended competences are achieved in the curriculum.

- Requires an explicit expression of the 'entry level competence' (for the first degree) in terms of level of tasks, professionalism, independence and responsibility.



Procedure: achieved level?

Table 1: Competency levels in the Dutch competency standards framework

Level 1 (educated)

- a. The student has knowledge and understanding of the relevant science areas (i.e. chemical, biological, medical, pharmaceutical)
- b. The student shows relevant pharmaceutical skills in standardized test situations
- c. The student has knowledge of and shows basic professional skills

Level 2 (trained)

The student is able to apply knowledge, skills and professional behaviour in an integrated way in/during solving of pharmaceutical problems in context-rich test-situations

Level 3 (simulated)

The student is able to adequately* carry out professional activities in a specifically constructed learning situation and/or a simulated professional situation

Level 4 (guided)

The student is able to adequately* carry out professional activities in an authentic professional situation** after previous instruction by and under intensive guidance of an experienced pharmacy practitioner

Level 5 (supervised)

The student is able to adequately* carry out professional activities in an authentic professional situation** (or exceptionally a simulated professional situation) under supervision of an experienced pharmacy practitioner

* in concord with existing guidelines and/or actual state of (scientific) knowledge

** normal working environment.

Results: achieved level of competence

Competence Domains	Achieved competence level (1-5)	
	faculty members	external stakeholders
Personal competences (average)	4.1	3.2
1. Learning and knowledge	4.0	3.4
2. Values	4.4	3.7
3. Communication and organizational skills	3.8	3.1
4. Research and industrial pharmacy	4.0	2.5
Patient care competences (average)	3.6	3.1
5. Patient consultation and assessment	3.3	3.2
6. Need for drug treatment	3.0	3.0
7. Drug interactions	3.0	3.2
8. Drug dose and formulation	4.2	3.0
9. Patient education	4.0	3.7
10. Provision of information and service	4.7	3.5
11. Monitoring of drug therapy	3.2	2.4

Procedure: mapping process

STEP 3

Evaluation of the mapping process, using a questionnaire

- How do the participants evaluate the EPCF and the mapping process itself?

	Results
Competencies well defined?	No serious defects, but some disbalances are noted (level of detail); Suggestions were made to add further explanations, illustrations and examples of explicit learning outcomes.
Competencies missing?	Complete with respect to community/hospital pharmacy; In some countries scientific and industrial competencies are required; Minor remarks about herbal medicine and legal aspects.
Framework usable/effective?	Yes, but some friction with national definitions of learning outcomes may occur.
Framework usable for (European) accreditation?	Would be great idea, but may conflict with national practices at the moment.

Results: mapping process

	Results
Who participated in the mapping?	Ranging from 1 individual (with peer feedback) to 5-10 teachers/directors and/or external stakeholders
The mapping process?	Time needed was ca. 40 hours (if individual) to 100+ hours (if a team) and 2-3 full-day meetings.
Involvement of teachers and students?	In some cases teachers and/or 'leader groups' were involved; Consultation of students less clear.
Mapping of intended curriculum?	Difficult; interaction with recent graduates and employers needed.
Effects on reflective curriculum evaluation?	Some points of attention (curriculum gaps) were identified, but more time is needed; National regulations may be conflicting.
Comparing intended and experienced curriculum?	The experienced or the achieved curriculum must be guiding eventually. Training for mapping the experienced curriculum is needed.
Overall impression of mapping process?	Difficult, complex and time-consuming, but interesting; Definition of achievement levels requires attention (early professional life).

Conclusions

- § The mapping process was experienced as complex and time-consuming, but interesting.
- § In general, the mapping process was organized internally but future consultation of alumni and pharmacy employers was deemed desirable.
- § A need for training in reflective curriculum evaluation was felt.

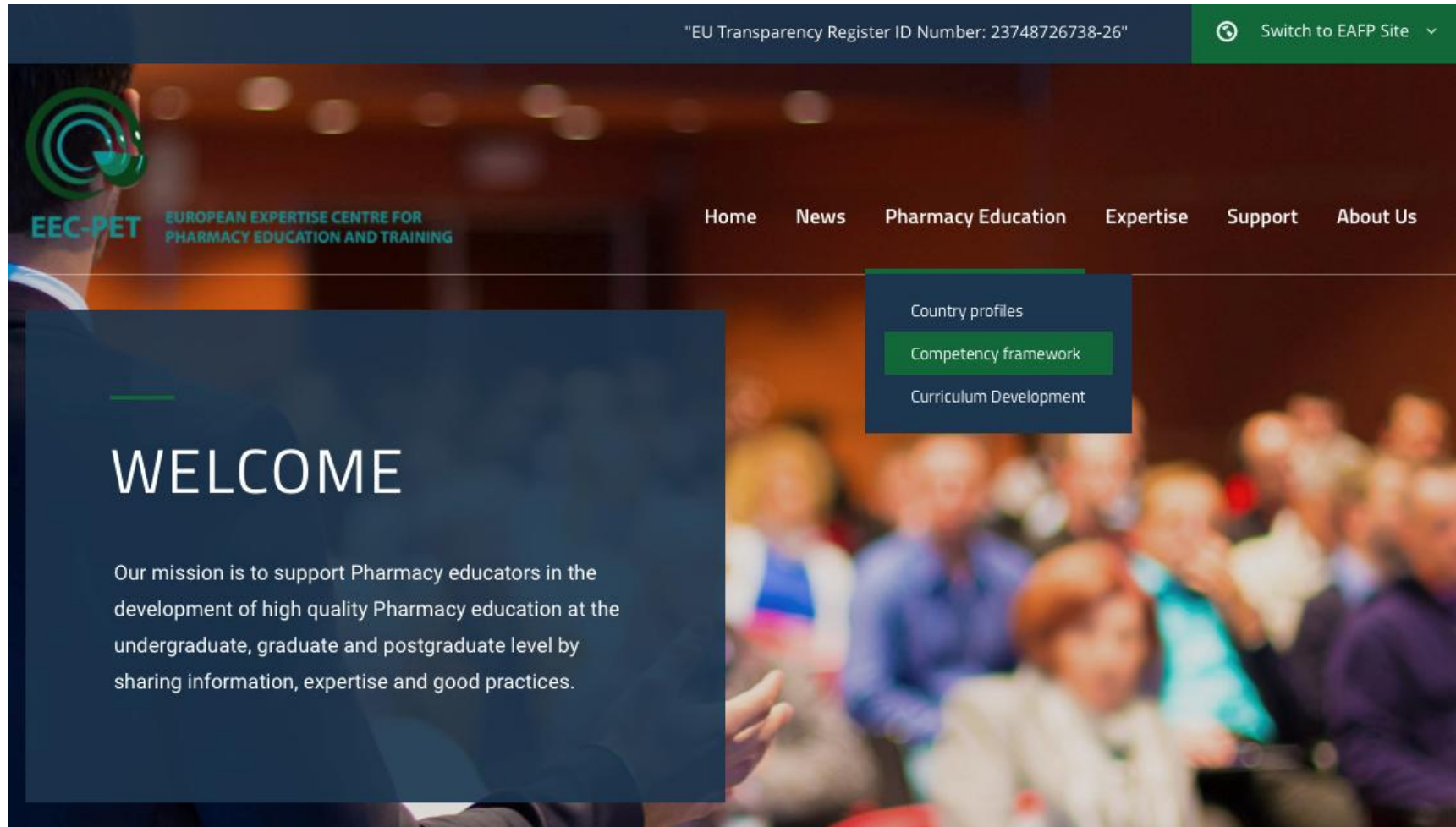
Conclusion

This first round of curriculum mapping suggests that the EPCF is a useful tool for curriculum evaluation, but further refinement of the framework and training of faculty is needed to enhance effectiveness.

Follow-up

Country	City	Contact person	
Estonia	Tartu	Daisy Volmer	<i>published: Pharmacy 5, art. 18</i>
Finland	Helsinki	Jouni Hirvonen	data collected
Poland	Krakow	Agnieszka Skowron	<i>published: Pharmacy, art. 25</i>
Slovenia	Ljubljana	Borut Božič	<i>published: Pharmacy, art. 24</i>
Spain	Granada	Antonio Sanchez-Pozo	data collected
United Kingdom	Birmingham	Keith Wilson	data collected
Sweden	Uppsala	Mathias Hallberg	ongoing
France	Paris	Christina Cavé	ongoing
The Netherlands	Utrecht	Mirjam Hempenius	data collected

Curriculum mapping: EEC-PET



"EU Transparency Register ID Number: 23748726738-26"

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