

OECD Initial Teacher Preparation study

# Promising Practices

## Knowledge Bases for Initial Teacher Education in the Netherlands

*Country category: Netherlands*

*Teacher education pathway category(ies): Equipping teacher candidates with what they need to know and do; Supporting beginning teachers*

*Stakeholder category(ies): teacher candidate; teacher educator*

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This case study describes a “promising practice” drawn from an OECD review of initial teacher preparation in the Netherlands from 6-10 March 2017.

The OECD Review Team – Hannah von Ahlefeld (OECD), Michael Day (University of Roehampton), Kjetil Helgeland (OECD) and Danielle Toon (Learning First) – identified a number of “Promising practices” in each country. These practices may not be widespread or representative, but seen in the context of other challenges, they represent a strength or opportunity to improve the country’s initial teacher preparation system – and for other countries to learn from them.

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## *Promising Practice 7.*

### *Knowledge Bases for Initial Teacher Education in the Netherlands*

#### Context

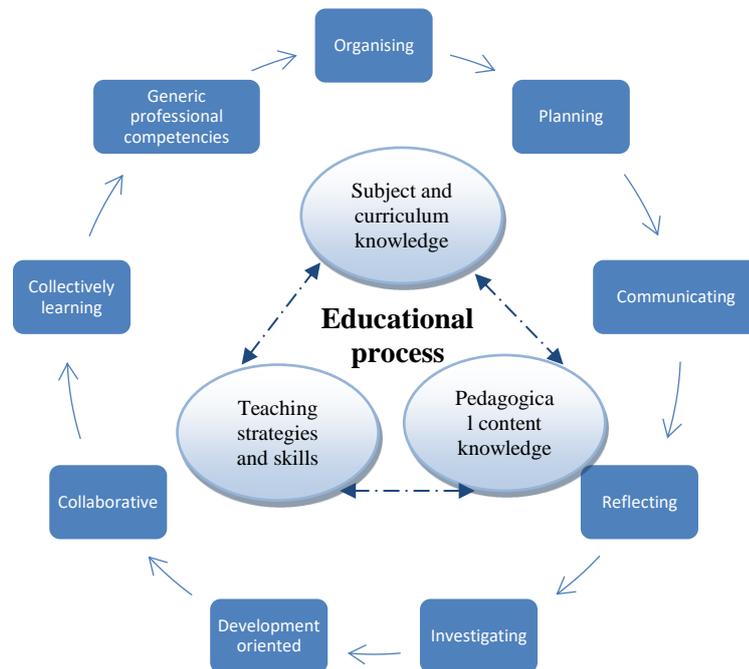
Conceptualising teacher knowledge is an ongoing challenge, for it relates to different complex processes such as how teaching and learning interact, or the way teachers' knowledge is put into action in the classroom." (Guerriero, 2014, p. 4<sub>[1]</sub>). Furthermore, the lack of a profession-specific knowledge base adds more difficulties when trying to advance a model of specialised pedagogical training, which in turn lowers the prestige of the teaching profession – with some characterising teaching as a semi-profession (Révai and Guerriero, 2017, p. 30<sub>[2]</sub>). Indeed, understanding what a current knowledge base for teaching looks like would help determine whether and to what extent upgrading teachers' skills is required – and the knowledge base is constantly changing, so it must be regularly updated in line with professional practice.

According to Shulman (1986<sub>[3]</sub>; 1987<sub>[4]</sub>; Guerriero, 2014<sub>[1]</sub>), teachers' knowledge base would comprise the following categories:

- general pedagogical knowledge (principles and strategies of classroom management and organisation that are cross-curricular)
- content knowledge (knowledge of subject matter and its organising structures)
- pedagogical content knowledge (knowledge of content and pedagogy)
- curriculum knowledge (subject and grade-specific knowledge of materials and programmes)
- knowledge of learners and their characteristics
- knowledge of educational contexts (knowledge of classrooms, governance and financing of school districts, the culture of the school community)
- knowledge of educational ends, purposes, values, and their philosophical and historical grounds.

In the Netherlands, standards of competences for teachers are regulated in the 2006 Education Act and have been thoroughly revised in 2017 to embed the broader concept of professionalism. In the following schematic representation (Onderwijscoöperatie, 2014<sub>[5]</sub>), the general competences are represented in the outer circle and the specific professional competences of the teacher profession in the inner circle (Figure 1).

**Figure 1. Schematic representation of standards of competence requirements for teachers**



Source (translated and adapted from): (Onderwijscoöperatie, 2014<sup>[5]</sup>), Voorstel bekwaamheidseisen, Figuur 1: Een brede professionele basis en de kern van het beroep, p.6, <https://registerleraar.nl/Media/Default/pdf/Herijking-Bekwaamheidseisen.pdf>

Among other inputs, this set of standard competence requirements were important to develop two different kinds of web-based knowledge bases:

- knowledge bases to prepare teacher candidates
- knowledge bases for the professional body of teacher educators (see [Promising Practice 4](#)).

### Knowledge bases for teacher candidates in the Netherlands

In 2009, inspired by research on teachers' knowledge and as part of a general focus on improving the quality of initial teacher education (ITE) programmes in the Netherlands (Verloop, Van Driel and Meijer, 2001<sup>[6]</sup>), the Universities of Applied Sciences (HBO) proposed to develop and implement “knowledge bases” to improve coherency, transparency and accountability in teacher education. The knowledge bases are defined as “the subject-specific and subject-didactic knowledge and (subject-specific) skills that a starting teacher must master” (10Voordeleraar, 2018<sup>[7]</sup>).

Originally developed between 2008 and 2011, the knowledge bases were updated in 2017. The knowledge bases are peer reviewed by teacher educators, who were invited to develop and maintain these instruments, in consultation with a range of experts, such as school leaders and teacher candidates. Growing collaboration between schools and teacher education institutions in the Netherlands – and peer review discussions – drive the need to adjust and revise the knowledge bases. Roughly 90% of all teacher educators in the country

contributed to the revised knowledge bases. The Dutch Ministry of Education, Culture and Science invested EUR 25 million to support this initiative.

For teacher education institutions, these knowledge bases set the minimum requirements for the content of ITE programmes, but providers can make their own decisions about how to integrate the desired learning outcomes into their ITE programmes. The knowledge bases are also used for national student tests and peer-review sessions.

There are currently 61 knowledge bases in the Netherlands, covering different levels of education and subject areas (Table 1). The primary teaching bachelor programme consists of 13 topics (14 topics in the Frisian Province), of which 12 are subject specific. The general knowledge base describes the broad knowledge in the field of pedagogics, didactics, curriculum development, educational contexts, knowledge of learners, and specific educational priority subjects (citizenship, ICT skills, etc.). It forms a considerable part of the total programme of study. Similarly, 30 knowledge bases were developed for teacher candidates in the field of secondary (vocational) education leading to a bachelor's degree, 30 knowledge bases were developed at the bachelor's level and 16 at master's level (Table 1) (2018<sup>[8]</sup>).

**Table 1. Content of knowledge bases for teacher candidates, by level of education**

Primary education	Secondary (vocational) education	Master's
General knowledge base – pedagogical and educational knowledge and skills	General knowledge base – pedagogical and educational knowledge and skills	General knowledge base – Research methodology and skills
Dutch	Teacher education in Dutch	Teacher education in Dutch
Mathematics	Teacher education in English	Teacher education in Mathematics
Science and technology	Teacher education in mathematics	Teacher education in English
Geography	Teacher education in history	Teacher education in geography
History	Teacher education in geography	Teacher education in general economics
English	Teacher education in biology	Teacher education in finance and control
Music	Teacher education in catering and hospitality	Teacher education in biology
Visual arts and education	Teacher education in economics	Teacher education in German
Physical education	Teacher education and knowledge management in the land based sector	Teacher education in French
Dance and theatre	Teacher education in French	Teacher education in history
Skills in writing	Teacher education in Frisian	Teacher education in theology and religious Studies
Religion orientations	Teacher education in welfare and health care	Teacher education in social studies
Frisian language	Teacher education in German	Teacher education in physics
	Teacher education in religion	Teacher education in chemistry
	Teacher education in Islamic studies	Teacher education in Frisian
	Teacher education in physical education	
	Teacher education in social studies	
	Teacher education in technology and society	
	Teacher education in physics	
	Teacher education in social skills	
	Teacher education in educational theory: philosophy of education and child rearing	
	Teacher education in chemistry	
	Teacher education in Spanish	
	Teacher education in technology	
	Teacher education in secondary and tertiary	
	Teacher education fine art and design	
	Dance in education	
	Theatre in education	
	Music in education	

Source (translated and adapted from): 10voordeleraar (2018), [https://10voordeleraar.nl/publicaties?search=&category\\_id=244](https://10voordeleraar.nl/publicaties?search=&category_id=244) (accessed March 2018).

While primary ITE integrate all knowledge bases, secondary ITE programmes integrate two knowledge bases into a consistent study and evaluation programme: the general knowledge base and the subject-specific and didactic knowledge base. The general knowledge base forms a considerable part of the total programme. An example of a knowledge base is provided in Box 1 (10voordeleraar, 2017<sup>[9]</sup>).

### Why are the ITE knowledge bases a strength?

The OECD Review Team in its review of the Netherlands from 6-10 March 2017 considered that the ITE knowledge bases are a strength in that:

- *Knowledge bases help set system-wide minimum standards for quality.* The knowledge bases for ITE programmes in universities of applied sciences are widely accepted due to the involvement of many education stakeholders in the systematic development and revision of knowledge bases.
- *The content of teacher education is largely determined by teacher education institutions.* However, matching activities, content and delivery of the curriculum selection and training of teacher educators do vary across different teacher education institutions and ITE programmes. Thanks to the implementation of the national knowledge base, parts of the curriculum have become more aligned. The variability of the quality across teacher education institutions has, therefore, decreased.
- *Knowledge bases on both general pedagogy and didactics and, on specific subjects, are improving the attractiveness of ITE programmes.* There is a difference between the attractiveness of the profession and the attractiveness of programmes.

### How could it be improved?

The OECD Review team noted that:

- Although there is a strong culture of collaboration in the Dutch education system at the regional level – particularly between schools and universities and driven by such initiatives as the knowledge bases – *there are only a few national projects to share quality practices across the entire system.* Collaboration between school boards and among different regions could scale up and foster a more systemic way of sharing best practice in the use of knowledge bases.

### Box 1. Example of a knowledge base for teacher education in biology (secondary)

#### Domain 0: Using system concepts and biological thinking skills in educational design

- 0.1 Systems thinking
- 0.2 Evolutionary thinking
- 0.3 Ecological thinking
- 0.4 Form-function thinking
- 0.5 Understanding how knowledge is developed and applied
- 0.6 Experiencing

#### Domain 1: Atoms and molecules in biology

- 1.1 Atoms and “simple” molecules
- 1.2 Biological macromolecules
- 1.3 DNA and RNA
- 1.4 Proteins

#### Domain 2: Prokaryotic and eukaryotic cells

- 2.1 Cell anatomy
- 2.2 Cell physiology
- 2.3 Cell communication
- 2.4 Cell cycle
- 2.5 Cell death

#### Domain 3: Tissues, organs and organ systems

- 3.1 Plant anatomy and physiology
- 3.2 Animal anatomy and physiology

#### Domain 4: Organisms

- 4.1 Taxonomy, systematics and the species concept
- 4.2 Identification of animal and plant species
- 4.3 Life cycles and heredity
- 4.4 Evolution

#### Domain 5: Ecosystems

- 5.1 Ecology of organisms
- 5.2 Behavioural ecology
- 5.3 Populations
- 5.4 Communities
- 5.5 Ecosystems

#### Domain 6: System earth

- 6.1 Theories on the history of the earth, on life and on macro-evolution
- 6.2 Biosphere
- 6.3 Biodiversity
- 6.4 Sustainable development

#### Domain 7: Pedagogical content knowledge

- 7.1 The nature of biology as a science, a profession and a school subject
- 7.2 Structuring content, designing lessons and assessment
- 7.3 Learning progressions and coherence with other school subjects
- 7.4 Concept development
- 7.5 Nature of science and technology
- 7.6 Life style
- 7.7 The learning environment
- 7.8 ICT in biology education
- 7.9 Professional development and collaboration

#### Domain 8: Knowledge of related subjects

- 8.1 Mathematics
- 8.2 Chemistry
- 8.3 Physics
- 8.4 Geography
- 8.5 Scientific literature study

Source (translated and adapted from): <https://10voordeleraar.nl/> (2017), *Kennisbasis Biologie, Tweedegraadslerarenopleiding*.

[https://10voordeleraar.nl/publicaties?flags=publicaties&search=&search\\_documents\\_course\\_id=0&category\\_id=244&btnSubmit=Zoek\\_publicatie&opendoc=365, pp.11-12.](https://10voordeleraar.nl/publicaties?flags=publicaties&search=&search_documents_course_id=0&category_id=244&btnSubmit=Zoek_publicatie&opendoc=365, pp.11-12.)

## For more information

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