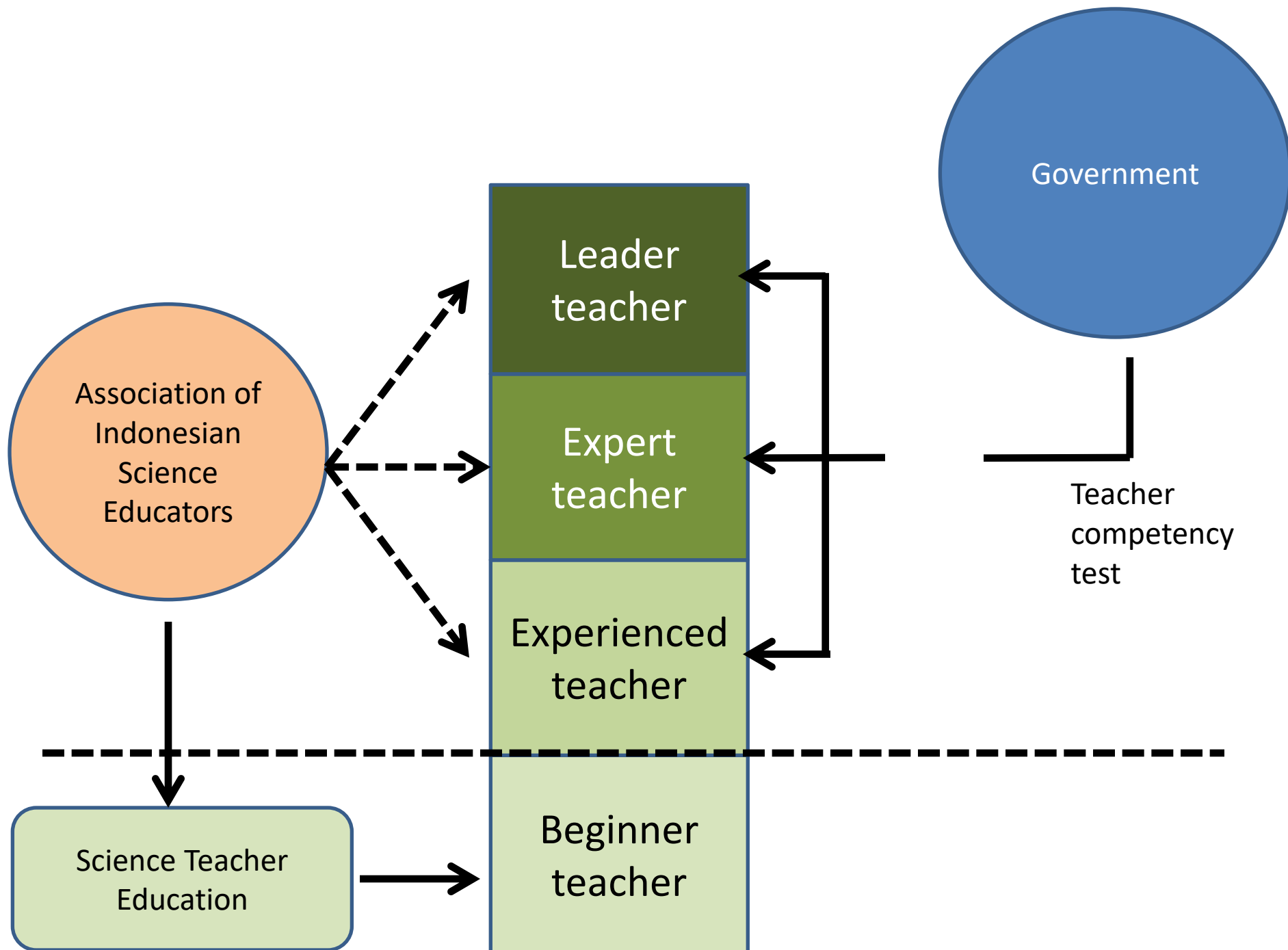




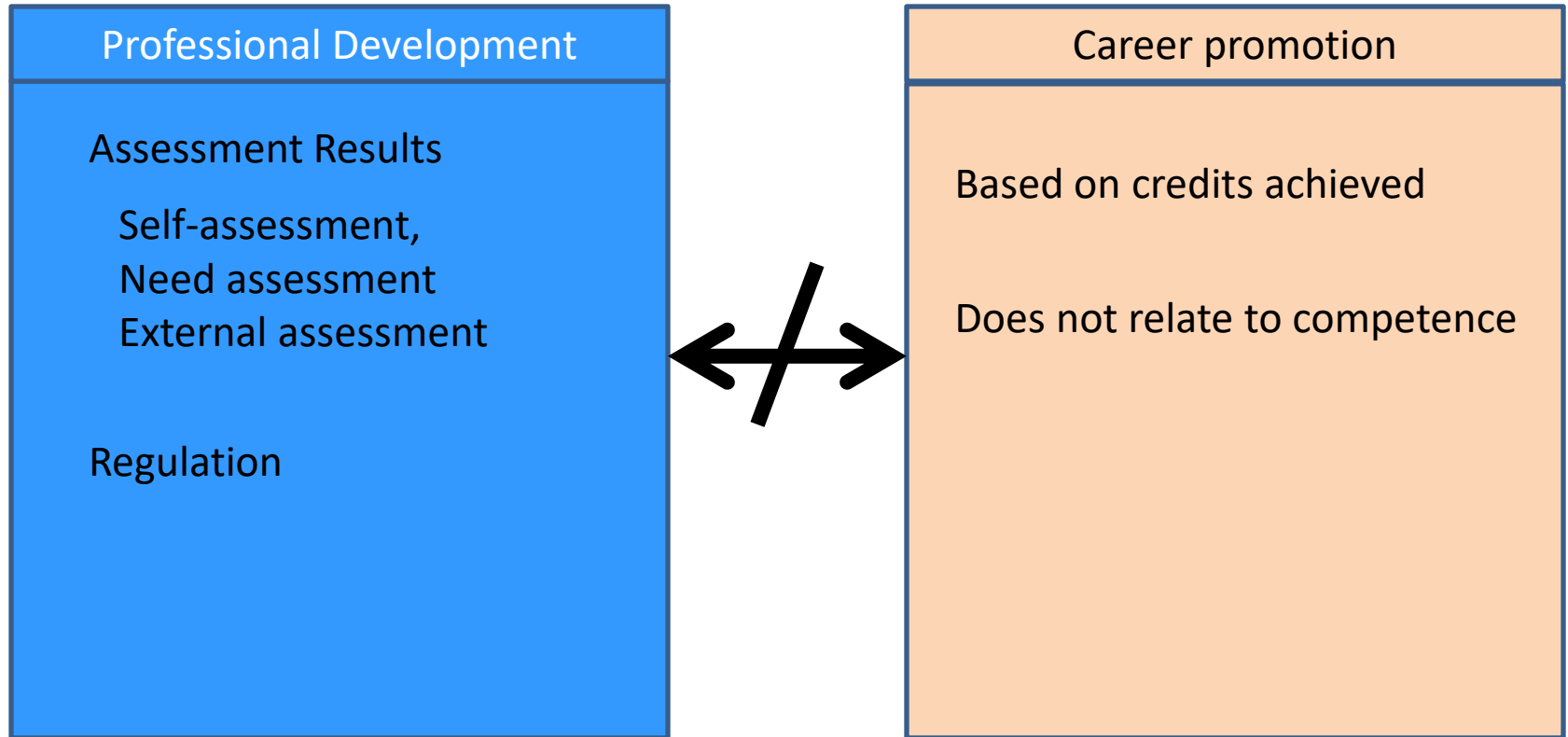
A PROPOSED FRAMEWORK FOR DEVELOPING AND ASSESSING SCIENCE TEACHERS' COMPETENCIES

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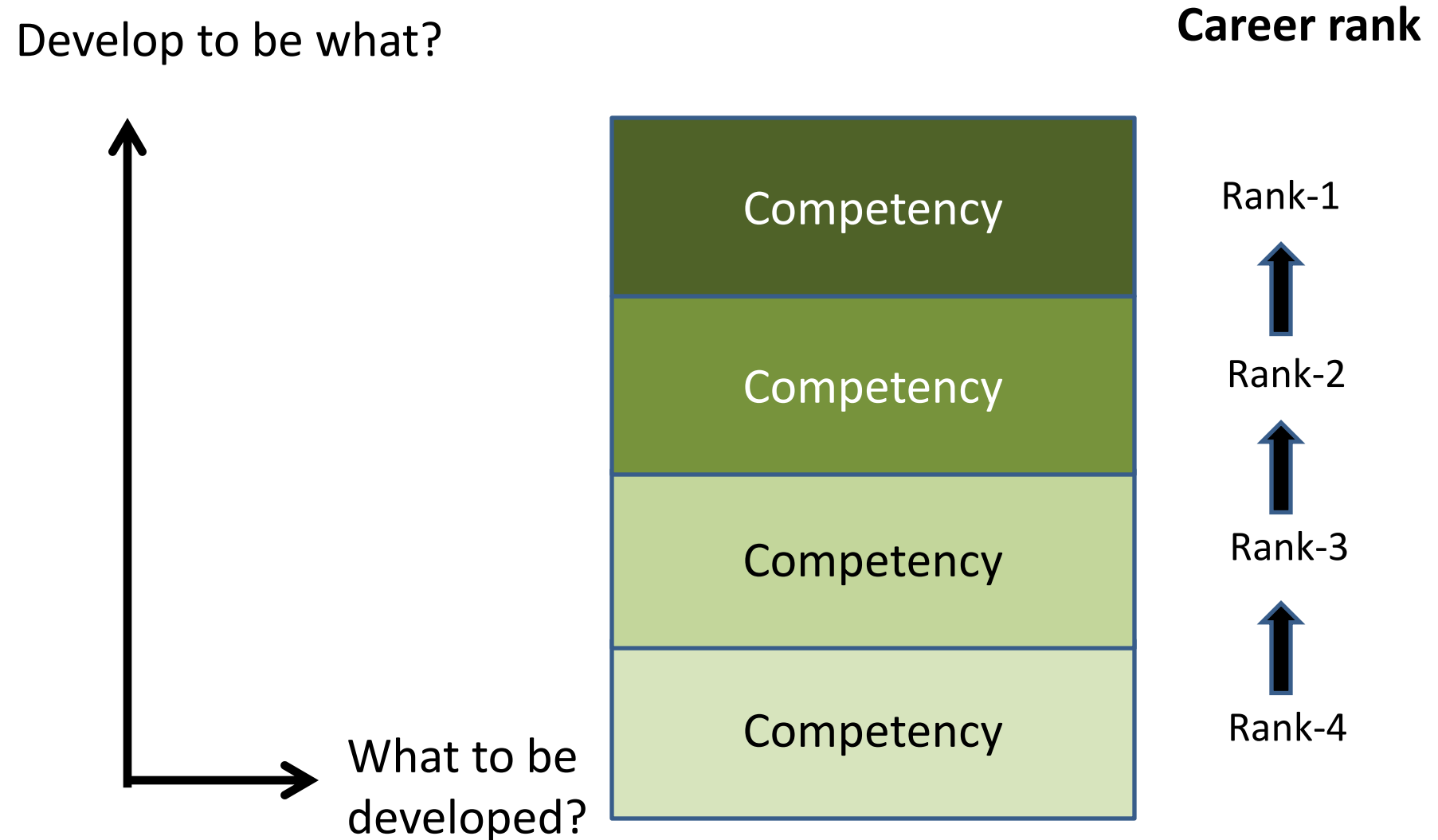


Background



Professional development and career promotion
do not closely link to each other

Teacher Professional Development



Method

Analyse documents on teacher competence standard issued in several countries



Formulate competency standard that integrate competency and career pathway



Testing the framework



Formalizing

Levels of teachers career/competencies (some examples)



Level	Korea and England	The Netherlands	New Zealand	Australia	Indonesia	Proposed
1	Qualified Teacher Status	Teaching assistant	Beginning	Graduate	Guru Pertama	Beginner teacher
2	Teachers on The Main Scale	Instructure	Classroom	Proficient	Guru Muda	Experienced teacher
3	Post Threshold Teacher	Teacher/ Trainer	Experience	Highly accomplished	Guru Madya	Expert teacher
4	Excellent Teacher			Lead	Guru Utama	Leader teacher
5	Advanced Skills Teachers					



Areas of teacher competencies

(summary of documents published by several countries)

Science teacher competencies are defined into five areas

1. Pedagogical content knowledge
2. Creating learning environment
3. Assessment and evaluation
4. Communication and collaboration
5. Professional development

Proposed Science Teacher Competencies and career ranks

Competency Area	Career Rank			
	Rank-1	Rank-2	Rank-3	Rank-4
1. Pedagogical content knowledge				
2. Professional practice				
3. Evaluation and assessment				
4. Communication and collaboration				
5. Professional development				

Defined and formulated in terms of areas as well as career ranks

Leader teacher				
Pedagogical content knowledge	Creating learning environment	Assessment &Evaluation	Communication & collaboration	Professional development



Expert teacher				
Pedagogical content knowledge	Creating learning environment	Assessment &Evaluation	Communication & collaboration	Professional development



Experienced teacher				
Pedagogical content knowledge	Creating learning environment	Assessment &Evaluation	Communication & collaboration	Professional development



Beginner teacher				
Pedagogical content knowledge	Creating learning environment	Assessment &Evaluation	Communication & collaboration	Professional development

Career promotion indicate improvement of competencies

Science teacher competencies

1. Pedagogical Content Knowledge

- a. Presenting science content using appropriate pedagogy
- b. Implementing scientific methods
- c. Engaging students

2. Learning environment

- a. Creating suitable physical and psychological learning environment
- b. Facilitating students' individual interest and capacity

3. Assessment and evaluation

- a. Using variety of assessment strategy
- b. Conducting and using assessment results

4. Communication and collaboration

- a. Communicating ideas effectively
- b. Collaborating with stakeholders

5. Professional development

- a. Assessing and improving competencies
- b. Implementing results of PD

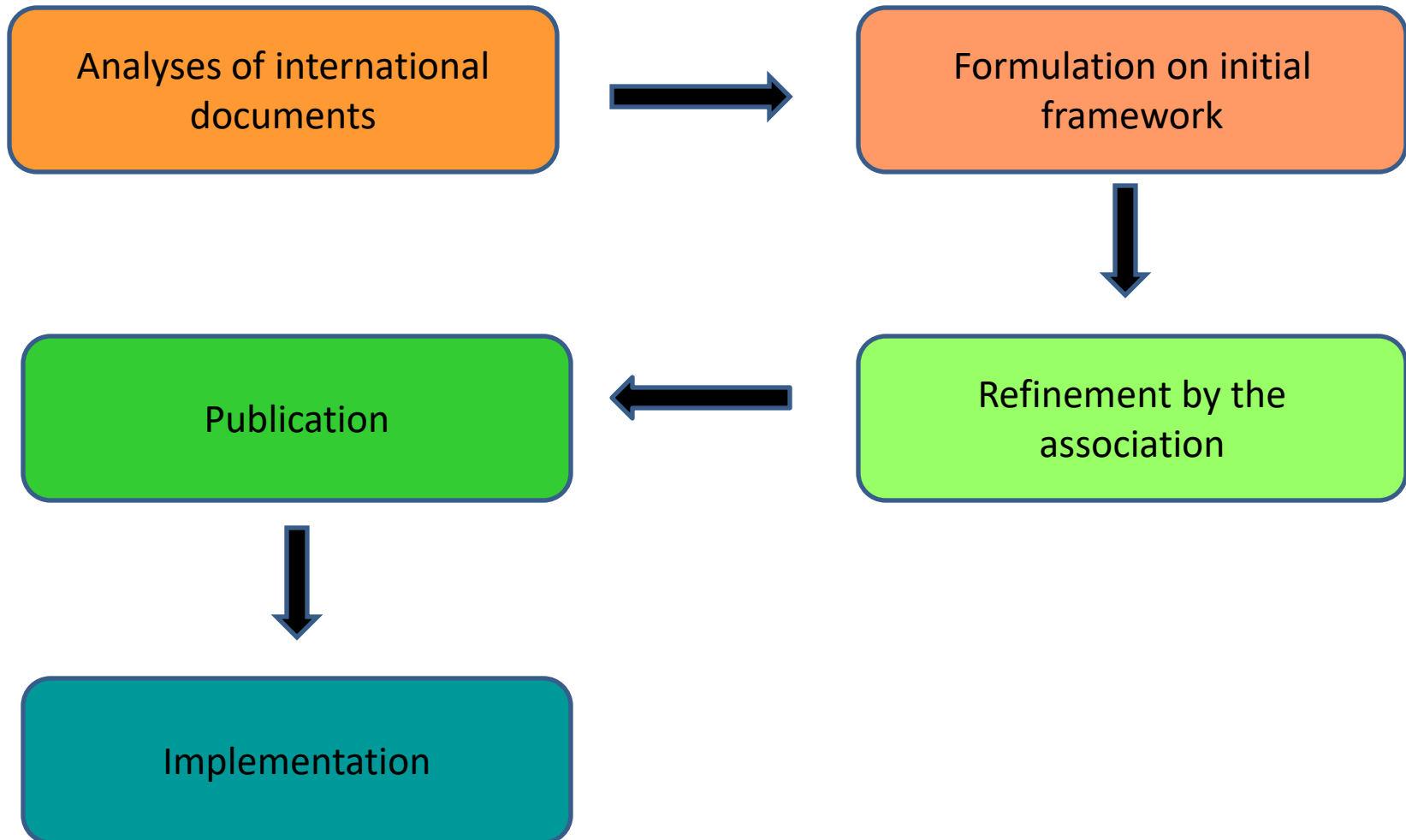
An example

1. Pedagogical Content Knowledge

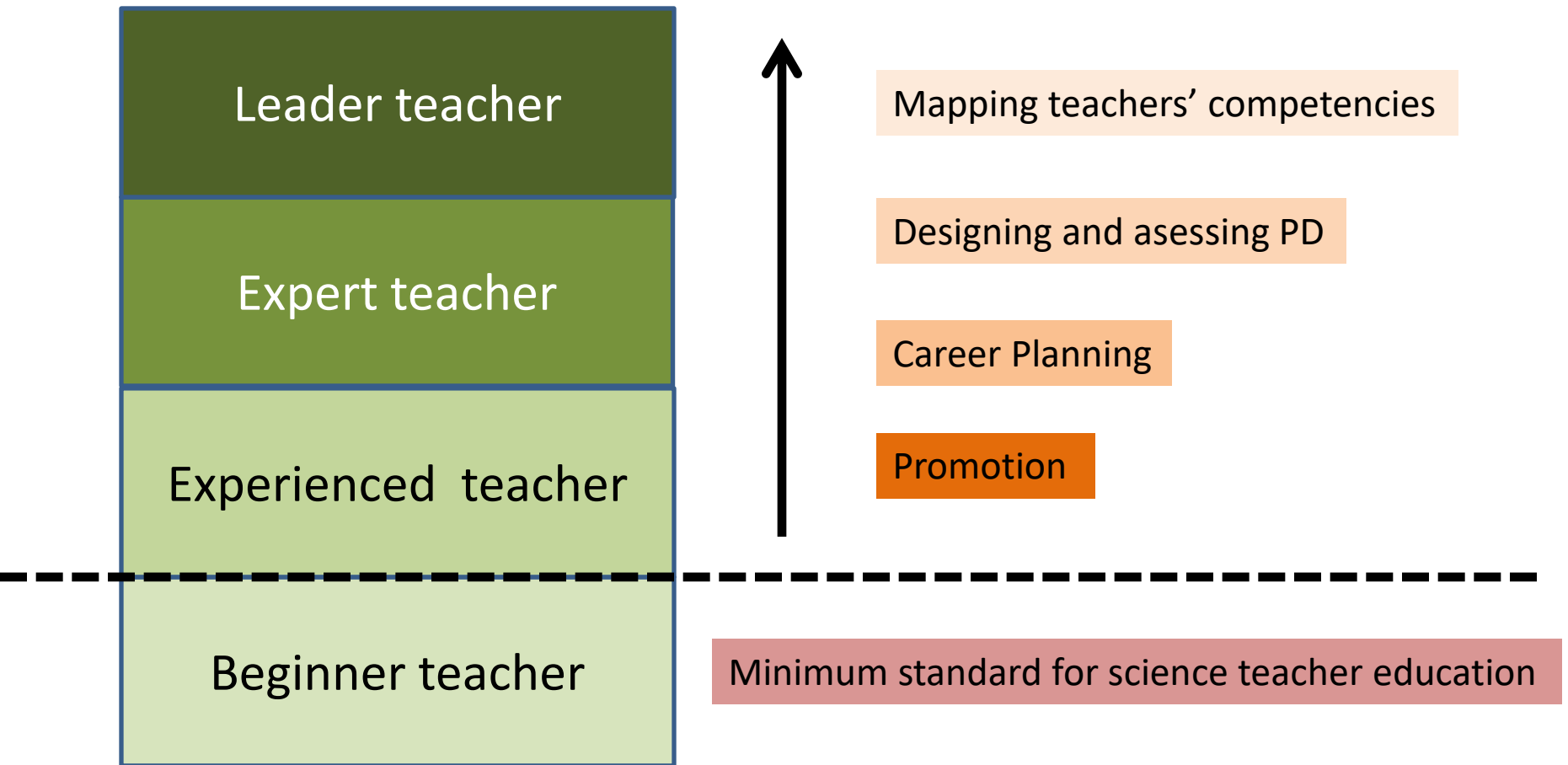
a. Presenting science content using appropriate pedagogy

Beginner teacher	Experienced teacher	Expert teacher	Leader teacher
Presenting science content accurately by adopting appropriate pedagogy that take into account students' prior knowledge and curriculum	Modifying content and pedagogy to meet students' prior knowledge and curriculum	Promoting effectiveness of teaching by innovating teaching strategies to fit students' prior knowledge and curriculum	Leading fellow teachers in implementing and developing innovative science teaching that take into account students' prior knowledge and curriculum

Current position and next steps to do



Application of the framework



Thanks for your attention