

# **INNOVATIVE TEACHING FOR EFFECTIVE LEARNING – PHASE II**

## **A Survey to Profile the Pedagogical Knowledge in the Teaching Profession (*ITEL Teacher Knowledge Survey*)**

### **Proposal and Project Plan**

Project Lead: Sonia Guerriero ([Sonia.Guerriero@oecd.org](mailto:Sonia.Guerriero@oecd.org))

## TABLE OF CONTENTS

Introduction.....	3
Policy Context.....	3
Research Objectives.....	5
Research Objective #1: What is the nature of teachers’ pedagogical knowledge and what are the knowledge dynamics in the teaching profession?.....	5
Research Objective #2: How does teachers’ pedagogical knowledge relate to learning opportunities?.....	6
Research Objective #3: How does teachers’ pedagogical knowledge relate to professional competence?.....	7
Assessment Framework .....	8
Target Survey Participants.....	9
Minimum Sampling Requirements .....	9
Instruments and Data .....	10
Teacher Instruments .....	10
Institutional Instruments.....	10
Cultural Sensitivity.....	11
Survey Implementation .....	11
Data Access and Ownership.....	11
Analysis Plan and Reporting.....	11
Publications .....	13
Activities, Timeline, and Method of Work.....	13
Project Governance and Management .....	14
Secretariat Responsibilities .....	15
Responsibilities of Participating Countries .....	15
Indicative Budget.....	16
Levels of Participation .....	17
Future Development Plans.....	17
REFERENCES .....	19
ANNEX A: TIMELINE OF ACTIVITIES .....	22
ANNEX B: FINANCIAL IMPLICATIONS.....	23
National and International Costs.....	23
Indicative Budget for International Costs .....	23

### Tables

Table 1. Assessment Framework.....	8
------------------------------------	---

## Introduction

1. At its meeting of the 90<sup>th</sup> Session, the CERI Governing Board (GB) adopted the draft 2015-16 Programme of Work and Budget (PWB) which included a proposal for a project entitled “Profiling Teachers’ Pedagogical Knowledge.” This proposed project, which was ranked first in the priority rating exercise [[EDU/CERI/CD\(2014\)1](#) and [EDU/CERI/CD/M\(2014\)1](#)] by the CERI GB, is a continuation of the Innovative Teaching for Effective Learning (ITEL) project, which in 2013-14 was focused on reviewing the conceptual and empirical research on teachers’ pedagogical knowledge, how it functions in the teaching-learning process, and its relationship to teacher professional competence.<sup>1</sup>

2. The ITEL project has now entered its Phase II programme of work and, building on the analytical work carried out in 2013-14, will be developing and implementing a survey in 2015-16, entitled “A Survey to Profile the Pedagogical Knowledge in the Teaching Profession (the *ITEL Teacher Knowledge Survey*).” A “Preliminary Project Plan” was shared with the CERI GB in November 2014 [[EDU/CERI/CD\(2014\)21](#)]. This document is a follow-up to the preliminary project plan. It presents a more detailed proposal for the work, highlights the main policy issues to be addressed, and links these to the research objectives. The project governance and management design are also described in more detail, and include a description of the activities and responsibilities to be undertaken by participating countries, and the methods of work between countries and the Secretariat.

3. This first implementation of the survey is purposefully designed to be small-scale and to focus resources on development and testing (i.e., validation) of the survey instruments in a few institutions per participating country. The next (and future) rounds of the survey will build on this first cycle and allow implementation on a larger scale. This is meant to keep implementation costs low while still maintaining a high degree of scientific rigor during development. As such, countries will still be able to gain valuable insights from participating in this first cycle because the study has been designed to include sufficient samples to permit technically-sound analyses that will allow for valid interpretations of the data.

4. The project is designed to meet two purposes: (1) to address relevant policy issues of immediate concern to countries; and (2) to test theoretical hypotheses that can help explain the observed relationships. In other words, this project is also a research study, in which the survey instruments will be used to test our underlying theories of teacher knowledge, with the purpose to further defining and developing our conceptual understanding with each subsequent implementation of the instruments. For example, our Research Question #3, which aims to investigate teachers’ professional competence, is meant to test a theory of teacher motivation that might help explain variations in teacher quality in terms of pedagogical knowledge. (These hypotheses will be described in more detail in our conceptual framework.) With each subsequent implementation cycle, various theoretical dimensions of teacher motivation can be measured against observed variations in pedagogical knowledge with the goal to building a more refined conceptual understanding of the factors that underlie competent teaching. In this way, we can better support countries with policy recommendations that are more likely to work.

## Policy Context

5. The imperative about improving student outcomes is also about improving the quality of the teaching workforce. As research shows, teacher quality is an important factor in determining gains in student achievement, even after accounting for prior student learning and family background characteristics (e.g., Darling-Hammond, 2000; Hanushek, Kain, & Rivkin, 1998; Muñoz, Prather, & Stronge, 2011; Wright, Horn, & Sanders, 1997). In recent years, however, recruiting and retaining quality teachers has become a challenge among some OECD countries. In addition to the ageing of the teaching

---

<sup>1</sup>This work will appear in the book publication planned for 2015. See the section on “Publications.”

workforce, some countries experience high rates of attrition among new teachers and a shortage of quality teachers in high-demand subject areas and disadvantaged schools. There is also concern about attracting high-achieving and motivated candidates into teacher education programmes (OECD, 2005). Issues such as these have an impact on the quality of the resulting teaching workforce that is tasked with improving student outcomes.

6. There is also concern about the quality of teacher education. Recent OECD reports indicate that the quality of student learning cannot exceed the quality of the teachers tasked with their learning (OECD, 2005). It stands to reason that an increase in the quality of teacher education can contribute to an increase in student achievement through more competent teaching. The **Innovative Teaching for Effective Learning – Phase II** project will study one facet of teacher quality: teachers’ pedagogical knowledge.

7. There is agreement that a high level of pedagogical knowledge is part of competent teaching, but there is still the need to assess teacher knowledge as an outcome of teacher education systems and as a predictor of effective teaching and student achievement. These questions are important for making policy improvements across the spectrum of the teaching workforce, from policies directed to pre-service teachers and teacher educators in initial teacher education, through to novice teachers undergoing induction and mentoring, and to in-service teachers participating in professional development.

8. This research project is founded on a conceptual basis that high-quality initial teacher education is just the first step in a continuous process of professionalization which also involves continuous professional development and the regular updating of teachers’ knowledge and skills. While initial teacher preparation is an important first step to help teachers acquire the right set of knowledge and skills through high-quality learning opportunities, equally important is to select individuals who not only show predispositions for the teaching profession, but who can also take responsibility for maintaining and updating their professional competencies throughout their career.

9. A better understanding of the nature of teachers’ pedagogical knowledge is the purpose of our **Survey to Profile the Pedagogical Knowledge in the Teaching Profession (ITEL Teacher Knowledge Survey)**. Only by understanding what the current state of knowledge looks like, can we know whether improvements are needed and how to implement changes (e.g., by identifying knowledge gaps). But in order to disentangle how pedagogical knowledge relates to teacher quality, we must also ask how knowledge relates to learning opportunities in teacher education and, equally, how teachers’ knowledge relates to professional competence.

10. The project has been designed to target current issues in teaching and teacher education<sup>2</sup> that can be addressed by policy. There are three main policy issues, and each is linked to a research objective that underpins the data collection. The three main policy issues are the following:

- Policy Issue #1: To what extent do teachers have the knowledge and skills for teaching 21<sup>st</sup> century skills?
- Policy Issue #2: To what extent are initial teacher education programmes providing teacher candidates with opportunities to learn the knowledge and skills for effectively teaching students for the 21<sup>st</sup> century labour market?
- Policy Issue #3: Can the quality of the teaching workforce be improved by having a better understanding of the factors that drive teacher professional competence?

---

<sup>2</sup>Unless specified otherwise, the term ‘teacher education’ in this document is broadly defined to mean both initial preparation of pre-service teacher candidates and continued professional development of in-service teachers.

## Research Objectives

### *Research Objective #1: What is the nature of teachers' pedagogical knowledge and what are the knowledge dynamics in the teaching profession?*

11. Teaching is a knowledge-rich profession and teachers possess highly-specialised knowledge. **Pedagogical knowledge**, that is, knowledge of teaching and learning, refers to the specialised body of knowledge of teachers for creating effective teaching and learning environments for each and all students. This knowledge would include, for example, knowledge of how to structure learning objectives, how to plan a lesson, how to evaluate a lesson; knowledge of effective use of allocated time and strategies for differentiated instruction; as well as knowledge of how to design tasks for formative assessment. The knowledge base would also include specialized knowledge of 'learning,' such as knowing how to facilitate learning given student characteristics that impact on effective learning, such as students' prior knowledge, motivation, and ability levels (Blömeke, Paine, Houang, et al., 2008; König, Blömeke, Paine, Schmidt, & Hsieh, 2011; Shulman, 1986, 1987; Voss, Kunter, & Baumert, 2011). While it is acknowledged that pedagogical content knowledge is an important component of teacher knowledge, the specific focus of this phase of the ITEL project will be on **general pedagogical knowledge**, that is, knowledge that can be used across different subject domains (as opposed to pedagogical content knowledge, which refers to the knowledge required for teaching of a specific subject, such as mathematics or science).

12. The pedagogical knowledge base is not static – for example, new knowledge emerges from research or is shared through professional communities. As professionals, teachers are expected to process and evaluate new knowledge relevant for their core professional practice and to regularly update their profession's knowledge base. Investigating the **knowledge dynamics** in the profession is one way to measure how knowledge flows in and out of the profession, and especially, how new knowledge is incorporated into the profession through learning opportunities in initial teacher education and professional development.

13. This issue is especially relevant in the learning environments of today's schools where classrooms are becoming more diverse and where teachers are expected to teach '21<sup>st</sup> century skills.' For example, as education systems are tasked with preparing students for the 21<sup>st</sup> century labour market, teachers are expected to teach '21<sup>st</sup> century skills.' These skills, generally understood to include ill-defined competencies such as problem-solving, critical thinking, collaboration, communication, and creativity, might require teachers to deviate from traditional teaching methods and to employ innovative teaching practices. For some countries, this might entail a re-skilling of the current teaching workforce and upgrading of the profession's knowledge base within teacher education institutions and through professional communities. Understanding what the current knowledge base looks like will help determine whether and to what extent re-skilling is required.

14. New knowledge also emerges from research and this knowledge needs to be accessed, processed and evaluated, and transformed into knowledge for practice. For example, the interdisciplinary field of the 'Science of Learning,' which includes the field of Educational Neurosciences, has made huge progress in understanding how the human brain processes, encodes, and retrieves information. Understanding how the brain works can inform teachers' pedagogical practice, for example, by designing and structuring lessons that enable 'deep learning' (rather than surface learning) or by adapting lessons for individual students' prior knowledge, motivation, and ability levels. In this respect, teacher educators can be expected to have more current knowledge, and especially the capacity to transform research knowledge into practical knowledge, as this is how findings from learning research can best be incorporated into the profession. A measure of the knowledge dynamics will help determine how and to what extent the latest scientific research on learning has been incorporated into the profession.

15. The *ITEL Teacher Knowledge Survey* will be designed to develop such a ‘profile’ of teachers’ current pedagogical knowledge. Findings will be useful not only in identifying knowledge gaps in the current teaching workforce, but also among cohorts of pre-service teachers currently undergoing teacher preparation. How teachers’ pedagogical knowledge relates to quality will be further investigated by examining how variations in knowledge are related to learning opportunities in teacher education and aspects of professional competence, which are our second and third research objectives in the ITEL-Phase II project.

***Research Objective #2: How does teachers’ pedagogical knowledge relate to learning opportunities?***

16. Defining expert teaching and identifying expert teachers are complex issues given that conceptualisations of ‘expert teaching’ are culturally-dependent and often lack objective criteria (Berliner, 2001). Based on a review of the literature reported in Berliner (2001, 2004), expert teachers are characterised as having the following features: better use of knowledge; extensive pedagogical content knowledge, including deep representations of subject matter knowledge; better problem solving strategies; better adaptation and modification of goals for diverse learners; better skills for improvisation; better decision making; more challenging objectives; better classroom climate; better perception of classroom events; better ability to read cues from students; greater sensitivity to context; better monitoring of learning and providing feedback to students; more frequent testing of hypotheses; greater respect for students; and display of more passion for teaching.

17. Sternberg and Horvath (1995) used findings from psychological research on expert performance to characterize the features of the prototypical expert teacher and identified three basic ways in which experts differ from novices: (1) experts bring more knowledge to bear in solving problems than do novices, (2) experts are able to solve problems more efficiently than are novices, and (3) experts are more able to arrive at insightful solutions to problems than are novices. The main driver behind expert teachers’ ability to solve problems more efficiently and to arrive at more insightful solutions than novices is the knowledge they hold, which Sternberg and Horvath propose to be the most important feature of expertise. Westerman (1991) investigated development of teacher decision-making and reported that integration of knowledge (e.g., combining new subject content knowledge with prior knowledge) was one of the notable differences between novices and experts.

18. Empirical studies on the nature of expertise have revealed that teaching expertise is developed over time and that it takes about five to seven years for new teachers to learn the knowledge and skills to a sufficient degree where they can have an impact on student outcomes (e.g., Berliner, 2004). It has been proposed that learning to teach is more complex and different from other forms of learning, because the learning growth of student teachers goes beyond simply assimilating new academic knowledge. It must also incorporate the new knowledge derived from experiential and practical experiences in the classroom (Calderhead, 1991). The assumption here is that student teachers have access to learning opportunities, both academic and experiential, in order to begin building the foundation of a knowledge base that can develop into expertise. However, variations exist in the quality of those learning opportunities.

19. A new body of research is investigating precisely this issue by looking at student teachers’ ‘opportunities to learn’ during initial teacher education. This research examines the types of pedagogical content pre-service teachers are exposed to in teacher preparation programmes and the extent to which they have opportunities to learn the various content (Schmidt, Cogan, & Houang, 2011; Schmidt, Houang, Cogan, Blömeke, Tatto, Hsieh, Santillan, et al., 2008; Schmidt, Tatto, Bankov, Blömeke, Cedillo, Cogan, et al., 2007). These studies are beginning to show that variations in opportunities to learn in teacher preparation are related to differences in student achievement as assessed by international studies such as PISA (Programme for International Student Assessment) and TIMSS (Trends in International Mathematics and Science Study). More specifically, teachers from countries that are top performers in PISA and TIMSS

tend to have more opportunities to learn both content and pedagogy. This is confirmed by the TALIS 2013 survey where only 73% and 70% of teachers reported having received any formal education or training in content or pedagogy, respectively, in the subjects they teach (OECD, 2014).

20. Other, less-studied, factors that need better understanding in investigations of teacher quality have to do with teacher educators. Teacher educators play a key role in providing high-quality learning opportunities, not only to teacher candidates in initial teacher education, but also to in-service teachers in professional development. However, little is known about the professional profile of teacher educators. Several reports from the European Commission (2010, 2013) highlight that teacher educators in European countries are a heterogeneous group with large variations in level of qualifications (BA, MA, or PhD) and expertise (they can be school teachers, educational researchers, subject experts (e.g., mathematicians), or pedagogical experts). The profession of teacher educator is less well-developed, or under-developed, with a range of variability in hiring practices, roles, and competencies that are likely to affect the quality of teaching provided, and thus the ‘opportunities to learn’ for teacher candidates.

21. To examine variability in learning opportunities, the *ITEL Teacher Knowledge Survey* will also survey teacher educators in order to develop a ‘profile’ of the pedagogical knowledge among teacher educators. Supplemented with institutional- or school-level data (described below), analyses will investigate variability in teachers’ pedagogical knowledge by examining the learning opportunities available to teacher candidates in initial teacher education and to in-service teachers in professional development.

***Research Objective #3: How does teachers’ pedagogical knowledge relate to professional competence?***

22. Teachers’ pedagogical knowledge is a component of teacher professionalism, but professional competence involves more than just knowledge. Based on a review of various professions, including medical practice, Kunter, Klusmann, Baumert, Richter, Voss, and Hachfeld (2013) report that ‘competence’ can be defined as the “skills, knowledge, attitudes, and motivational variables that form the basis for mastery of specific situations” and that these characteristics are both learnable and teachable (p. 807). ‘Professional competence’ occurs when mastery of situations is dependent on the application of knowledge, skills, attitudes, and motivation to highly complex and demanding professions, such as teaching. It follows from this conceptualisation of professional competence that the ability to solve work-related problems requires having, not only the cognitive abilities for developing effective solutions (i.e., pedagogical knowledge), but also the right motivation and attitudes (Blömeke & Delaney, 2012).

23. Empirical studies on the personal indicators of teacher quality have shown that, in addition to profession-specific knowledge, teachers’ beliefs, work-related motivation, and professional self-regulation are related to successful teaching. For example, Kunter, Klusmann, Baumert, Richter, Voss, and Hachfeld (2013) reported a positive relationship to student achievement gains and better instructional quality because these teachers provided more cognitively activating instruction and better learning support and classroom management. This in turn influenced student achievement and student motivation, respectively. These findings demonstrate the importance of teacher motivation and self-regulation to instructional quality. In fact, research has shown that teacher self-regulation is related to occupational well-being and instructional quality, two issues highly relevant to teacher policy (Klusmann, Kunter, Trautwein, Lüdtke, & Baumert, 2008).

24. Another group of researchers (Blömeke & Delaney; 2012; Blömeke, Felbrich, Müller, Kaiser, & Lehmann, 2008) who are conducting empirical investigations of teachers’ professional competence propose a model in which professional competence is hypothesized to be comprised of: (1) cognitive abilities (i.e., professional knowledge, such as content knowledge, pedagogical content knowledge, and

general pedagogical knowledge) and (2) affective-motivational characteristics (defined as professional beliefs about teaching and learning and the subject content, motivation, and self-regulation).

25. The empirical investigation of teachers’ professional competence is in its early stages. The few studies thus far indicate that pedagogical knowledge is a critical component of teaching competence, but that knowledge alone is insufficient. Psychological factors, such as beliefs, motivation, and self-regulation, are also part of teaching competence. To better understand teachers’ professional competence, our ITEL-Phase II study will also investigate how teachers’ affective and motivational characteristics relate to variations in pedagogical knowledge. As much as possible, these factors will be examined in relation to learning opportunities in teacher education to better understand how policy improvements can be made to address issues such as teacher selection and retention.

### Assessment Framework

26. The three research objectives introduced above will form the basis of our conceptual and analytical framework. The conceptual framework is currently under development and is based on peer-reviewed theoretical and empirical literature. The assessment framework will be developed based on the conceptual framework. Assessment items will not be based on curriculum, but rather on empirical research on effective teaching. A preliminary version of the assessment framework is presented here.

27. Based on a review of the literature that included a critical analysis of previous studies designed to measure teachers’ pedagogical knowledge, there is consensus among the following dimensions of core knowledge required for teaching: (1) instructional process, (2) student learning, and (3) assessment (König, 2014). But a valid assessment of competence is more than just recall of facts (i.e., declarative knowledge). Research on teacher expertise shows that novice and expert teachers differ in ability to apply their knowledge (i.e., situated or procedural knowledge), suggesting differences in the quality of pedagogical knowledge based on opportunities to learn in practical situations. To capture these differences, a modified version of Anderson and Krathwohl’s (2001) model of cognitive processing can be adopted to capture variations in cognitive demands that typically differentiate between novice and expert teachers, ranging from simple recall of facts, to understanding/analysing information, to generating knowledge for solving or evaluating situational problems.<sup>3</sup> Combining the three dimensions of general pedagogical knowledge and three levels of cognitive demand, results in the following matrix:

**Table 1. Assessment Framework**

<b>Dimensions of Teachers’ General Pedagogical Knowledge</b>	<b>Recall</b>	<b>Understand/ Analyse</b>	<b>Generate/ Evaluate</b>
<b>Instructional Process:</b> teaching methods, didactics, structuring a lesson, classroom management			
<b>Student Learning:</b> cognitive, motivational, and emotional individual dispositions; learning processes and development; learning as a group taking therefore into account student heterogeneity and adaptive teaching strategies			
<b>Assessment:</b> diagnosing principles irrespective of the subject, evaluation procedures			

<sup>3</sup>Only the first two cognitive dimensions (recall and understand/analyse) will be captured in this first implementation cycle of the survey.

28. The assessment framework will continue to be defined as the conceptual framework is further developed. The finalized conceptual framework will bring together the various dimensions of general pedagogical knowledge, learning opportunities, and professional competence.

### **Target Survey Participants**

29. Target participants are pre-service teacher candidates, in-service teachers, and teacher educators. Teacher educators will be restricted to those who teach general pedagogy courses and pre-service teacher candidates will be restricted to those in their final year of studies. Although the purpose is not to examine variations in pedagogical content knowledge, in-service teachers will be restricted to those teaching mathematics classes in order to control for content. (Future implementations of the survey will be developed to examine pedagogical content knowledge; see the section on “Future Development Plans.”)

30. This first implementation cycle will target ISCED 2 (lower-secondary) level, that is, teachers who teach at ISCED 2 level, pre-service candidates studying to be ISCED 2 teachers, and teacher educators who prepare ISCED 2 future teachers. (Future implementations of the survey will be developed to include other ISCED levels, beginning with ISCED 0 and 1; see the section on “Future Development Plans”).

### ***Minimum Sampling Requirements***

31. The minimum requirements are convenience samples drawn at the sub-regional (e.g., one district) or regional level (e.g., one state or one province within a country) of each of the following:

- 100 in-service teachers who teach mathematics at ISCED 2 level;
- 100 pre-service teacher candidates in their final year of studies preparing to teach at ISCED 2 level;
- 100 teacher educators who are instructors of general pedagogy at ISCED 2 level;

32. The above are the ideal minimum sampling requirements for conducting statistical analyses with sufficient power. However, should some countries not be able to meet these minimum requirements, we will work with countries to develop alternatives. For example, countries may reduce the sample size or restrict the samples to only pre-service or in-service teachers, even though this will affect the range of analyses that can be conducted. Likewise, mathematics has been chosen to control for subject content, but this is not a strict requirement if removing this restriction will facilitate recruitment of participants. The full extent and scope of possible analyses will be developed in collaboration with participating countries given their final sample sizes and target groups. (See also the section on “Analysis Plan and Reporting” below.)

33. As the main goal of this first implementation cycle is to test the validity of the instruments, it is not required to have randomized and representative samples at the national or regional level. Findings will not be representative, and this is not a requirement as the purpose is not to rank or conduct cross-country analyses. A convenience sample of 300 participants will permit analyses to examine the extent and scope of pedagogical knowledge among pre-service teacher candidates, teacher educators, and in-service teachers at the country (or regional or sub-regional) level. Analyses of motivational factors and opportunity to learn will also be restricted to the country (regional, sub-regional) level.

34. It is nonetheless possible to increase the sample sizes for those countries that are interested in conducting comparative national- or regional-level analyses. For example, countries can opt to increase their sample size to allow for between-region or between-institution comparisons within the country by

implementing a randomized and representative sampling frame. The Secretariat will work with these countries to develop the sampling frame and methods to meet their analytical needs. (See also the section of “Levels of Participation.”)

## **Instruments and Data**

### ***Teacher Instruments***

35. The *ITEL Teacher Knowledge Survey* team is collaborating with the researchers who developed the items for assessing teachers’ general pedagogical knowledge as part of the TEDS-M (*Teacher Education and Development Study: Learning to Teach Mathematics*) study. TEDS-M was administered in 17 countries and designed to assess teachers’ mathematical (pedagogical and content) knowledge and to examine variations in teacher education programmes. Three countries (Germany, Taiwan, USA) implemented a small optional component for assessing general pedagogical knowledge. The complete set of items for assessing general pedagogical knowledge were developed by König & Blömeke (2007) and is currently being reviewed for their suitability in our ITEL-Phase II study. Items will be pre-selected by the Secretariat and countries will be asked to review for cultural sensitivity. Additional item development will depend on the outcomes of the initial pre-selection.

36. To better understand what drives variations in teacher competence, a review of the literature and critical analysis of previous studies that have assessed teacher motivation is currently underway (Lauermaun, forthcoming). The result of this work will be used to select from currently existing instruments for assessing various factors underlying teacher motivation.

37. The final Teacher Instrument will thus be comprised of two separate instruments: (1) instrument for the assessment of teachers’ general pedagogical knowledge; and (2) instrument for the assessment of teacher motivation and background characteristics. These instruments will be developed for online administration, which is expected to take about 60 minutes to complete.

### ***Institutional Instruments***

38. To capture variations in learning opportunities available to teacher candidates, a third set of instruments will be developed for collecting data at the institutional level in connection with the teacher education programme. Here, the purpose is to contextualize the results from the Teacher Instruments by relating them to how institutions prepare future teachers. These instruments will collect data such as type of programme (consecutive, concurrent), type of courses (pedagogy, academic, research), as well as type of practical field experience (and length of).

39. Data will also be collected on the selection and retention of teacher candidates, such as entrance requirements, number of applications submitted, number of candidates retained, factors that shape the selection process (e.g., grades, previous experience, interview results, etc.), as well as graduation rates. Institutional-level data will be collected via quantitative instruments mainly, but also qualitative instruments (through interviews with key staff) where it is not possible to obtain quantitative data. Where possible, these data will be examined in relation to the qualifications, background, and competencies of teacher education staff.

40. In this first implementation cycle, it will not be possible to assess the quality of learning opportunities undertaken by in-service teachers. However, in those regions where this will be possible, links will be made to the former initial teacher preparation institution of in-service teachers.

### ***Cultural Sensitivity***

41. The international nature of this study requires that our instruments be culturally sensitive, and it is thus important to assess our items for cross-cultural validity. As discussed in the “Introduction” section, this first implementation of the survey is purposefully designed to be small-scale in order to focus resources on development and testing (i.e., validation) of the survey instruments.

42. Before full implementation, the instruments will be assessed for cultural validity via focus groups and/or cognitive labs to be conducted in each participating country. These will bring together a group of experts comprised of teachers, researchers, and policy-makers to assess whether the items make sense in their local context (i.e., face validity). Items that do not meet cultural sensitivity will be modified (i.e., adapted), or dropped altogether if they cannot be modified.

43. In addition to face validity, construct validity will also need to be met through appropriate statistical testing (i.e., the degree to which operationalization of a construct actually measures what theory says). This and other measures of validity will be further developed in 2015 alongside development of our data analysis plan.

### ***Survey Implementation***

44. Teacher and Institutional Instruments will be implemented for online data collection in order to keep costs low. Data collection at the institutional level may need to be supplemented with interviews with key informants which will be conducted by phone. Whether this supplemental data collection will be necessary will be decided once it is known which institutions are participating and ease of access to the information required.

45. Several online survey tools currently exist which can be easily implemented for our purposes. These come with a range of features (e.g., which allow for various types of question formats) and functions (e.g., which allow export of data to Excel or SPSS), and are relatively inexpensive. The *ITEL Teacher Knowledge Survey* team will conduct a review of available survey programmes that fit our project needs in early 2015. For consideration will be features such as facility with languages other than English, security of data, assurance of anonymity for participants, ease of use, as well as cost for countries.

### ***Data Access and Ownership***

46. As this first implementation cycle is meant to focus on development, data will not be made public. All data and instruments will be kept confidential. All users of data, including Secretariat staff, will be asked to sign confidentiality agreements to safeguard against misuse, as well to protect the anonymity of survey participants.

47. As per OECD policy, the OECD will have ownership of the entire international dataset. Participating countries will have ownership of their country’s data. Where there is regional or sub-national participation, ownership of data will be at the regional or sub-national level. Where there will be a consortium of participating institutions within a region or country, but without any country-level participation, ownership will belong to the consortium. See below the section on “Project Governance and Management” for more details.

### ***Analysis Plan and Reporting***

48. The goal of analysis and reporting is to provide policy makers with information to assist them in formulating and implementing policies that can lead to improvements in teacher quality. The purpose is not to rank countries or institutions, but to provide explanatory interpretations of the data for a better

understanding of how and where policies can be directed. The analysis plan, to be formulated in early 2015, will be developed with this purpose in mind. It is important to note that because this first cycle does not require nationally-representative samples, it will not be possible to conduct system-level comparative analyses. Examples of policy questions that can be addressed within our research objectives include:

- Policy Issue #1: To what extent do teachers have the knowledge and skills for teaching 21<sup>st</sup> century skills?
  - What is the nature of teachers’ pedagogical knowledge? To what extent do pre-service teachers, teacher educators, and in-service teachers have knowledge of instructional processes, student learning, and assessment?
  - What is the nature of the knowledge dynamics in the teaching profession? To what extent are in-service teachers and teacher educators knowledgeable about new findings in learning research? Do in-service teachers and teacher educators have sufficient knowledge for transforming research evidence into knowledge for practice?
- Policy Issue #2: To what extent are teacher education programmes providing teacher candidates with opportunities to learn the knowledge and skills for effectively teaching students for the 21<sup>st</sup> century labour market?
  - How well are teacher education institutions preparing future teachers? What is the extent and scope of the learning opportunities available to teacher candidates? Is there a relationship between variations in teacher candidates’ pedagogical knowledge and learning opportunities? How do variations in pedagogical knowledge among teacher educators relate to variations in pedagogical knowledge among teacher candidates?
  - Is there a relationship between teachers’ pedagogical knowledge and type of teacher preparation programme (consecutive, concurrent), courses (pedagogy, academic, research), practical field experience (and length of), and qualifications of teacher education staff?
  - Is there a relationship between institutions’ graduation rates, entrance requirements, and factors that shape the selection process (e.g., grades, previous experience, interview results, etc.)? How do these factors relate to differences in pedagogical knowledge among teacher candidates, teacher educators, and in-service teachers?
- Policy Issue #3: Can teacher quality be improved by having a better understanding of the factors that drive teacher professional competence?
  - Can affective-motivational factors that drive teacher competence be identified? What is the relationship between pedagogical knowledge and affective-motivational characteristics hypothesized to underlie competent teaching? Can these relationships shed light on how to improve teacher quality?
  - How do teachers’ affective-motivational characteristics relate to institutions’ entrance requirements, selection criteria, and opportunities to learn? Can these relationships shed light on how to improve teacher recruitment, selection, and retention?

49. These are a few examples of the questions that can be addressed, and the full extent of all possible analyses will depend on the country’s final sample size and number of participating institutions within a country (or region).

## ***Publications***

50. The following publications are planned:

- A final “International Report” will be prepared towards the end of 2016 or early 2017 (with release of the publication in 2017). This publication will report on the purpose of the study, policy issues and research objectives, development and implementation of the survey, data analyses and interpretation of results, and recommendations for policy. The report will also include recommendations for further development of the instruments for scaling up and implementation at the national level, either as a self-sustaining survey or as an optional component as part of a larger OECD survey (e.g., PISA, TALIS).
- A “Technical Report” is also planned (for publication in 2017) which will bring together the technical papers (e.g., König, 2014; Lauermaun, forthcoming) that were commissioned as part of the ITEL-Phase II programme of work. This publication will describe in more depth the development and implementation of the survey, target samples, and operational procedures.
- Participating countries (regions, institutions) will have the option to produce country-specific reports that can focus on specific themes of particular relevance in their context. These publications will enable countries to undertake more in-depth analyses of their data than would be possible in the International Report.
- A book publication bringing together the theoretical and empirical work that was presented at the ITEL Symposium held in Brussels on 18 June 2014 (*Teachers as Learning Specialists – Implications for Teachers’ Pedagogical Knowledge and Professionalism*) is under development and planned for release in October/November 2015. This publication, to be entitled “Teachers Pedagogical Knowledge and the Teaching Profession,” will also include new analytical work that has contributed to the development of the conceptual framework underpinning the *ITEL Teacher Knowledge Survey*. As the purpose of this publication is to bring together the theoretical and empirical work underpinning the *ITEL Teacher Knowledge Survey*, the primary audience for this book will be educational researchers, teacher educators, researcher-practitioners, policy-makers with research responsibilities, etc. A shorter, non-technical version of this publication could be developed for teachers as an optional product.

## **Activities, Timeline, and Method of Work**

51. A timeline of activities is given in Annex A. Development activities (continuing from 2013-14) will take place in 2015, with implementation and data collection taking place in late 2015 and early 2016. Data analysis and reporting will take place in 2016. There are three main phases to the project:

- Development: Development of conceptual and assessment frameworks; development of teacher and institutional instruments; development of coding/scoring protocols and data analysis plan; review of the conceptual framework, instruments, coding/scoring protocols, and data analysis plan by participating countries.
- Implementation and Data Collection: Online implementation of master instruments; conducting focus groups and/or cognitive labs for validating items; translation, adaptation, and verification of instruments in languages other than English; data collection; data cleaning and database development.

- Data Analysis and Reporting: Main data analyses; development of international report in collaboration with participating countries.

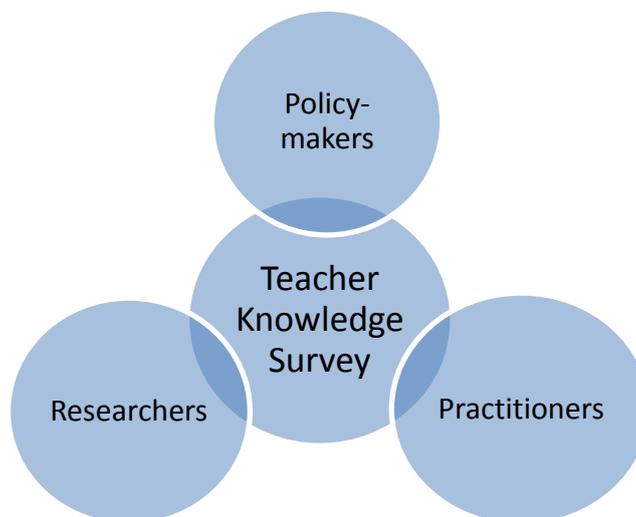
52. Two meetings will be scheduled: (1) to finalize the instruments and discuss countries’ review and feedback on survey materials and (2) for training of country participants on survey operations, procedures, coding/scoring, and data analysis (for those countries interested in producing country- or regional-level reports). As much as possible, such meetings will be conducted online via WebEx, unless there is an offer from a country wishing to host an event (see section on “Indicative Budget”).

53. The method of work will (as much as possible) be conducted online. An OECD.Communities (Clearspace) platform has been set-up for this purpose: <https://community.oecd.org/community/itel>. Due to the need to keep the instruments confidential, this will be a private community. Permission will be granted to project leads in each country (who will be asked to sign confidentiality agreements; see section on “Data Storage and Ownership”).

### **Project Governance and Management**

54. The working relationship proposed for this project will be based on a research-policy-practice collaborative model where researchers, teachers, and policy-makers (at local, national, or international levels) can together guide development, implementation, and reporting. This new collaborative design is being employed in an effort to begin to bridge the gap between research, practice, and policy. In principle, what this means is that researchers and teachers can both contribute to the development of a scientifically-grounded instrument with the potential to offer solutions for helping teachers to improve their practice in the classroom, as well as to provide policy-makers with valid information for improving teacher education and thus student learning in the long-term. For this reason, the research objectives are specifically linked to policy issues (see section on “Policy Context”).

**Figure 1. Research-Policy-Practice Collaborative Model**



55. The OECD.Communities project site will be used for project management and communication with participating countries across all phases of the project (through project leads; see below under “Responsibilities of Participating Countries”). This private online space will be used by participating countries to access project documents and draft instruments for their review and feedback. Members will

be able to hold discussions for sharing ideas and information, as well as for providing feedback or comments on materials.

### ***Secretariat Responsibilities***

56. Overall project governance and management at the international level will fall under the responsibility of the *ITEL Teacher Knowledge Survey* project team at the OECD. The *ITEL Teacher Knowledge Survey* team will liaise with project leads in each participating country, who will be responsible for implementing the survey in their context. The Secretariat will report to the CERI Governing Board on the project's progress. Activities falling under the responsibility of the Secretariat and participating countries are given in Annex B.

57. The *ITEL Teacher Knowledge Survey* project team will develop the first drafts of the conceptual and assessment frameworks and the Teacher and Institutional Instruments. These will undergo review by participating countries for applicability to their national or local context. The Secretariat will also be responsible for designing and managing focus groups and/or cognitive labs for item validation (to be designed in 2015 in collaboration with participating countries). The Secretariat will implement a master version of the English-language version of the instruments online. Verification of translations will be conducted by a qualified expert in consultation with the Secretariat and the country.

58. The Secretariat is responsible for developing all project protocols for data collection, coding/scoring of items, and operational procedures. This is meant to ensure consistency of survey operations across all participating countries. Developing training materials and providing training on all aspects of survey operations will also be the responsibility of the Secretariat.

59. Ensuring the ethical treatment of survey participants in terms of confidentiality and anonymity of their data, as well as ensuring the security of survey instruments against public release and misuse, is an important part of this research project, and this will be the responsibility of the Secretariat. The Secretariat will be responsible for developing guidelines for ensuring security, confidentiality, and anonymity at the international level, although participating countries will be responsible for addressing any specific requirements in their local context (see below for more details).

60. Development of the international database, data analyses at the international level, and preparation of the final international report (in collaboration with participating countries) will be the responsibility of the Secretariat.

### ***Responsibilities of Participating Countries***

61. Participating countries will be asked to nominate a researcher with expertise in pedagogical knowledge and assessment. Ideally, this would be a researcher affiliated with a teacher education institution, with the potential to collaborate with a teacher or teacher-researcher. This is meant to facilitate country review and adaptation of the instruments by qualified experts, as well as to facilitate recruitment of teacher samples. If it is not possible to establish such a relationship, the project lead at the country level can be affiliated with a government agency (e.g., a teacher licensing or registration agency) who can collaborate with a researcher with the required expertise.

62. The same collaborative relationship would apply if participation is at a sub-national level, for example, in cases where participation is with one or more institutions in a country (or region).

63. The lead researcher will be responsible for the following activities:

- Acting as main liaison with the *ITEL Teacher Knowledge Survey* project team at the OECD;

- Reviewing and providing feedback on the conceptual and assessment frameworks, Teacher and Institutional Instruments, coding/scoring protocols, and all materials related to survey operations and procedures;
- Translating and adapting the instruments into the national language(s) (where relevant);
- Conducting focus groups and/or cognitive labs for item validation in collaboration with the *ITEL Teacher Knowledge Survey* project team;
- Purchasing and installing the survey software, and implementing the instruments online;
- Obtaining national-, regional-, or district-level ethics clearance, as required in their context;
- Developing recruitment strategies and recruiting teacher candidates, teacher educators, and in-service teachers to participate in the survey;
- Overseeing the data collection in their country or region; and, if required, verifying and cleaning the data (e.g., if the language is not English);
- Submitting the data to the Secretariat for inclusion in the international dataset;
- Collaborating with the Secretariat in conducting data analyses and interpreting findings as they pertain to their country or region;
- Participating in trainings provided by the Secretariat and transmitting the training to their local staff;
- Optional: Analysis of national (or regional) data and production of a national (regional) report.

### **Indicative Budget**

64. Annex B provides a breakdown of activities falling under national and international costs and an indicative budget of costs at the international level. Countries will incur national costs for implementing the survey. The listing of activities falling under country responsibilities are meant to help countries estimate national costs. These costs are difficult for the Secretariat to estimate due to variations in the local arrangements for administering the survey. Countries should keep in mind, however, that this is a small-scale study (i.e., 100-300 survey respondents) and will not come close to the costs for implementing a large-scale survey such as PISA or TALIS.

65. The use of WebEx and OECD.Communities for hosting meetings and training sessions will greatly reduce travel costs. However, should it turn out to be necessary to hold in-person meetings, countries should estimate costs for travel to a maximum of two (2) meetings for the duration of 2015-16.

66. Participating countries will be asked for a voluntary contribution of EUR 35,000/year for contributing to the international costs. As this is an indicative budget at this time, the fee can be compressed in 2016 through discussions with participating countries.

67. Should in-person meetings turn out to be necessary, or should participating countries wish to have a final dissemination event at the end of the project, we will be looking for countries that are willing to host such events, expected to run for two or three days. Hosting a meeting would involve providing facilities, catering, and reimbursing experts and OECD staff for travel and accommodation costs. Costs for

hosting such events are estimated at about EUR 20,000 to 24,000 (open to negotiation). Hosting such events will allow the hosting country to have a larger delegation at the event and (within the limits of the international agenda) ensure that the event also serves national purposes.

### ***Levels of Participation***

68. Countries can contribute to participation at various levels:

- Development only: Voluntary contribution for development of instruments only; no data collection will be conducted.
  - This option does not necessitate any implementation, but allows the country to contribute to development of the survey. This is a good option for countries that need more time to secure funding for the data collection or that prefer to do the data collection in a second round of the survey.
- Development and small-scale data collection: Voluntary contribution for development of instruments, implementation, and reporting for 100-300 survey respondents in the country or region. This is the recommended level of participation for this first cycle. (See the section on “Minimum Sampling Requirements” above.)
  - This option necessitates costs for implementation, data collection, analysis, and reporting, albeit on a small scale. This is a good option for countries that would like to validate the instrument in their context, and depending on the how the samples are selected (e.g., regional, sub-regional), also be able to gain valuable insights at the national or sub-national level.
- Development and larger-scale data collection: Voluntary contribution for development of instruments, implementation, and reporting for a larger sample of teachers (pre-service, in-service, and teacher educators) in a region or country. The sample size will be defined in collaboration with the participating country and in consideration of their needs.
  - This is a good option for countries that would like to conduct a full-scale study that would permit comparative analyses at the regional- or national-level.

### **Future Development Plans**

69. Future cycles of the *ITEL Teacher Knowledge Survey* will build on this first cycle to refine our understandings and address new policy issues and research questions. For example, developing a conceptual framework of teachers’ professional competences will require refinement and re-testing of our motivation hypotheses.

70. Future cycles will also expand the scope of the survey by developing the instruments to examine specifically pedagogical content knowledge (e.g., pedagogical knowledge for teaching mathematics) and for other ISCED levels. For example, ISCED levels 0 (pre-primary or early childhood education and care) and 1 (primary) have become important topics for policy-makers in recent years. For a few decades now, researchers and policy-makers have made a convincing case that the early years are important to successful learning outcomes. Therefore, ensuring high-quality teaching at these early levels is becoming more and more relevant, and future cycles of the *ITEL Teacher Knowledge Survey* will begin to investigate the pedagogical knowledge of pre-primary and primary teachers.

71. This research project is part of a Directorate-wide and long-term programme of work on “Teachers, Teaching, and Pedagogy,” designed to create synergies among various projects and to strengthen the analytical capacity of our data. For example, in the long-term future rounds of PISA or TALIS may be able to incorporate the *ITEL Teacher Knowledge Survey* as an optional component. To account for this possibility, the *ITEL Teacher Knowledge Survey* is being designed as a modular and self-sustaining product that will allow countries to implement the survey within a larger survey, such as PISA or TALIS, or to implement the survey as a stand-alone programme.

## REFERENCES

- Anderson, L. W., and D. R. Krathwohl (Eds.). (2001), *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY: Longman.
- Berliner, D.C. (2001), Learning about and learning from expert teachers. *International Journal of Educational Research*, 35, 463-482.
- Berliner, D.C. (2004), Describing the behaviour and documenting the accomplishments of expert teachers. *Bulletin of Science, Technology, & Society*, 24, 200-212.
- Blömeke, S. and S. Delaney (2012), Assessment of teacher knowledge across countries: A review of the state of research. *ZDM Mathematics Education*, 44, 223-247.
- Blömeke, S., A. Felbrich, C. Müller, G. Kaiser and R. Lehmann (2008), Effectiveness of teacher education: State of research, measurement issues, and consequences for future studies. *ZDM Mathematics Education*, 40, 719-734.
- Blömeke, S., L. Paine, R.T. Houang, F. J. Hsieh, W.H. Schmidt, M.T. Tatto, K. Bankov, et al. (2008), Future teachers' competence to plan a lesson: First results of a six-country study on the efficiency of teacher education. *ZDM Mathematics Education*, 40, 749-762.
- Calderhead, J. (1991), The nature and growth of knowledge in student teaching. *Teaching and Teacher Education*, 7(5/6), 531-535.
- Carroll, J. (1963), A model for school learning. *Teachers College Record*, 64, 723-733.
- Darling-Hammond, L. (2000), Teacher quality and student achievement: A review of state policy evidence. *Education Policy Analysis Archives*, 8(1), 1-44.
- European Commission. (2010). *The profession of teacher educator in Europe. Report of a Peer Learning Activity in Reykjavik, Iceland, 21-24 June 2010*. Education and Training 2020 Programme.
- European Commission. (2013). *Supporting teacher educators for better learning outcomes*. Education and Training 2020 Programme.
- Hanushek, E.A., J. F. Kain, and S. G. Rivkin, (1998), Teachers, schools, and academic achievement. NBER Working Paper Series, No. 6691. Cambridge, MA: National Bureau of Economic Research.
- Hill, H.C., B. Rowan, and D.L. Ball (2005), Effects of teachers' mathematical knowledge for teaching on student achievement. *American Educational Research Journal*, 42(2), 371-406.
- Klusmann, U., M. Kunter, U. Trautwein, O. Lüdtke, and J. Baumert (2008), Teachers' occupational well-being and quality of instruction: The important role of self-regulatory patterns. *Journal of Educational Psychology*, 100(3), 702-715.

- Kunter, M., U. Klusmann, J. Baumert, D. Richter, T. Voss, and A. Hachfeld (2013), Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, 105(3), 805-820.
- König, J. (2014). Designing an International Instrument to Assess Teachers' General Pedagogical Knowledge (GPK): Review of Studies, Considerations, and Recommendations. Technical paper prepared for the Innovative Teaching for Effective Learning project.
- König, J. and S. Blömeke, (2007). *General Pedagogical Knowledge of Future Teachers – Test Items*. Berlin: Humboldt University.
- König, J., S. Blömeke, L. Paine, W.H. Schmidt, and F.J. Hsieh, (2011), General pedagogical knowledge of future middle school teachers: On the complex ecology of teacher education in the United States, Germany, and Taiwan. *Journal of Teacher Education*, 62(2), 188 -201.
- Lauermann, F. (forthcoming). *Teacher Motivation Research and its Implications for the Instructional Process: A Technical Report and Recommendations for an International Large-Scale Assessment of Teachers' Knowledge and Professional Competencies*. Technical paper under development for the Innovative Teaching for Effective Learning Project project.
- Muñoz, M.A., J. R. Prather, J.R., and J.H. Stronge, (2011), Exploring teacher effectiveness using hierarchical linear models: Student- and classroom-level predictors and cross-year stability in elementary school reading. *Planning and Changing*, 42(3/4), 241–273.
- OECD. (2005), *Teachers Matter: Attracting, Developing, and Retaining Effective Teachers*. Paris: OECD Publishing.
- OECD. (2014), *TALIS 2013 Results: An International Perspective on Teaching and Learning*. Paris: OECD Publishing.
- Schmidt, W.H, L. Cogan, and R. Houang, (2011), The role of opportunity to learn in teacher preparation: An international context. *Journal of Teacher Education*, 62(2), 138-153.
- Schmidt, W.H., R.T. Houang, L. Cogan, S. Blömeke, M.T. Tatto, F.J Hsieh, M. Santillan, et al. (2008), Opportunity to learn in the preparation of mathematics teachers: Its structure and how it varies across six countries. *ZDM Mathematics Education*, 40, 735-747.
- Schmidt, W. H., Tatto, M. T., Bankov, K., Blömeke, S., Cedillo, T., Cogan, L., et al. (2007), *The preparation gap: Teacher education for middle school mathematics in six countries*. East Lansing, MI: Michigan State University.
- Shavelson, R.J. and P. Stern, (1981), Research on teachers' pedagogical thoughts, judgments, decisions, and behaviour. *Review of Educational Research*, 51(4), 455-498.
- Shulman, L.S. (1986), Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.
- Shulman, L.S. (1987), Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1-22.
- Slavin, R.E. (1984), Quality, appropriateness, incentive, and time: A model of instructional effectiveness.

- Sternberg, R.J. and J.A. Horvath (1995), A prototype view of expert teaching. *Educational Researcher*, 24(6), 9-17.
- Tatto, M.T., J. Schwille, S.L. Senk, L. Ingvarson, G. Rowley, R. Peck, et al. (2012), *Policy, Practice, and Readiness to Teach in Primary and Secondary Mathematics in 17 Countries: Findings from the IEA Teacher Education and Development Study in Mathematics (TEDS-M)*. Amsterdam: International Association for the Evaluation of Educational Achievement (IEA).
- Voss, T., M. Kunter, J. Baumert, (2011), Assessing teacher candidates' general pedagogical/ psychological knowledge: Test construction and validation. *Journal of Educational Psychology*, 103(4), 952-969.
- Westerman, D.A. (1991), Expert and novice teacher decision making. *Journal of Teacher Education*, 42(4), 292-305.
- Wright, S.P., S.P. Horn, and W.L. Sanders, (1997), Teacher and classroom context effects on student achievement: Implications for teacher evaluation. *Journal of Personnel Evaluation in Education*, 11, 57-67.



## ANNEX B: FINANCIAL IMPLICATIONS

### National and International Costs

International Costs	National Costs
Overall project management and international coordination	Liaison with Secretariat via a lead researcher with expertise in pedagogical knowledge and assessment
Development of conceptual framework and Teacher and Institutional Instruments	Review of conceptual framework and Teacher and Institutional Instruments
Sampling design and data analysis plan	Recruitment of survey respondents (pre-service, in-service, teacher educators)
Design and management of focus groups and/or cognitive labs for item validation	Translation and adaptation of instruments
Verification of translations	Conducting focus groups and/or cognitive labs for item validation
Implementation of master instruments online	Obtaining national, regional, or district ethics clearance, as required
Development of protocols for data collection, coding/scoring, and operational procedures	Purchasing of survey software
Developing and providing training activities for national- or regional-level operations	Implementation of national (or regional) instruments online
Addressing ethics issues (confidentiality and anonymity) at international level	Travel to (maximum 2) project meetings or trainings (should WebEx not be feasible)
Development of international database	Optional: Analysis of national (or regional) data and production of national (regional) report
Data analyses at international level	Optional: Hosting of meetings for expert groups and training activities
Final international report	

### Indicative Budget for International Costs

	2015	2016	Total
Staff costs	289,734	289,734	579,469
Consultant and Expert fees	150,000	150,000	300,000
Travel (staff and experts)	54,150	54,150	108,300
Documentation, IT, and Publications	55,000	55,000	110,000
<i>Total direct costs</i>	<i>548,884</i>	<i>548,884</i>	<i>1,097,769</i>
Indirect costs (OECD overhead)	35,677	35,677	71,355
<b>Total costs</b>	<b>587,042</b>	<b>587,042</b>	<b>1,174,084</b>