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Teaching and Learning International Survey (TALIS) 2018 Conceptual Framework

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Teaching and Learning International Survey (TALIS) 2018 Conceptual Framework

OECD Education Working Paper No. 187

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Abstract

The Teaching and Learning International Survey (TALIS) is an ongoing large-scale survey of teachers, school leaders and their learning environments, with the first survey taking place in 2008. The survey is administered in lower secondary schools (ISCED 2) and, as an option, is administered in primary (ISCED 1) and upper secondary (ISCED 3) schools. The survey is also optionally administered in PISA sampled schools, forming a TALIS-PISA link. Therefore, this TALIS 2018 conceptual framework builds on the previous two cycles in 2008 and 2013 and underpins the survey's focus on effective instructional and institutional conditions that enhance student learning, while describing how these vary both within and across countries, and over time.

The 2018 framework addresses enduring themes and priorities related to professional characteristics and pedagogical practices at the institutional and individual levels: teachers' educational background and initial preparation; their professional development, instructional and professional practices; self-efficacy and job satisfaction; and issues of school leadership, feedback systems, and school climate. It also addresses emerging policy and research interests related to innovation and teaching in diverse environments and settings. The document provides scientific foundations for each area, along with the major influences from related research in education at the OECD and beyond. Finally, the conceptual framework provides a general overview of the survey's operations and its implementation process through its different stages.

Résumé

L'Enquête internationale sur l'enseignement et l'apprentissage (TALIS) est une enquête en cours et à grande échelle sur les enseignants, les chefs d'établissement et leurs environnements d'apprentissage. La première enquête s'est déroulée en 2008. L'Enquête est administrée dans le premier cycle de l'enseignement secondaire (niveau 2 de la CITÉ). Le niveau primaire et le second cycle de l'enseignement secondaire (les niveaux 1 et 3 de la CITÉ) sont en option. La mise en œuvre de l'enquête se fait de manière optionnelle dans les écoles échantillonnées du PISA (lien TALIS-PISA). Ainsi, ce cadre conceptuel TALIS 2018 se fonde sur les deux cycles précédents de 2008 et 2013 et met l'accent sur les conditions pédagogiques et institutionnelles efficaces qui favorisent l'apprentissage des élèves, qui sont au cœur de l'enquête, tout en décrivant leur variation au sein des pays et entre eux, et dans le temps.

Le cadre de 2018 aborde des thèmes et des priorités durables liés aux caractéristiques professionnelles et aux pratiques pédagogiques aux niveaux institutionnel et individuel : les antécédents scolaires des enseignants et leur préparation initiale ; leur développement professionnel, les pratiques pédagogiques et professionnelles ; l'auto-efficacité et la satisfaction au travail ; et les problèmes de direction d'établissement, des systèmes de rétroaction et de climat scolaire. Il aborde également les intérêts émergents en matière de politiques et de recherche liés à l'innovation et à l'enseignement dans divers environnements et contextes. Ce document fournit une base scientifique à chaque domaine, ainsi que les principales influences de la recherche connexe en lien avec l'éducation à l'OCDE et au-delà. Enfin, le cadre conceptuel fournit un aperçu général des opérations de l'enquête et de son processus de mise en œuvre à travers ses différentes étapes.

Table of contents

Acknowledgements **3**

Abstract **4**

Résumé **5**

Introduction **8**

Section I: General Purpose and Policy Relevance of TALIS **12**

Selected TALIS findings 12
Objectives and purposes 13
Indicators for system monitoring 14
Policy considerations 16
Prioritising themes for TALIS 2018 20
Mapping TALIS 2018 themes to policy issues 24
ISCED 1 and ISCED 3 international options 25
TALIS 2018 links to related studies 25
PISA 2018 25
The TALIS Starting Strong Survey 26
The TALIS Video Study 26
The TALIS Initial Teacher Preparation Study 27
Summary 27

Section II – Knowledge Relevant to Themes and Main Indicators **28**

A conceptual map of the TALIS 2018 themes 28
Themes concerned with the teacher level 29
Themes at the institutional level 30
Themes at both institutional and teacher levels 30
Relationships between themes 30
Relating the conceptual map to policy areas 31
TALIS and PISA 32
TALIS themes and indicators 32
Themes mainly concerned with the institutional environment 32
Theme: Human resource issues and stakeholder relations 33
Theme: School leadership 34
Theme: School climate 37
Themes mainly concerned with teacher characteristics 40
Theme: Teacher education and initial preparation 41
Theme: Teacher job satisfaction and motivation 43
Theme: Teacher feedback and development 47
Theme: Teacher self-efficacy 50
Themes concerned with teachers' practices 53
Theme: Teachers' instructional practices 53
Theme: Teachers' professional practices 57
Themes that intersect with other themes and apply to both the institutional and teacher levels 60
Theme: Innovation 61
Theme: Equity and diversity 64
Background information for teachers, principals, and schools 66

Teacher background 67
School and classroom context 67
Analyses 69
Comparison of indicators across countries or over time 70
Comparison of measures of association 70
Conclusion 72

Section III – Design of TALIS 2018 73

Defining teachers in TALIS 73
Overview of the sample design 74
Overview of survey instruments and their development 77
Overview of survey operations 80

References 83

Annexe A. Questionnaire constructs and themes 106

Tables

Table 1. Global and thematic indicators for target 4.c of the United Nations Sustainable Development Goals 19
Table 2. Country priority ratings of themes for inclusion in TALIS 2018 ISCED level 2 questionnaires 21
Table 3. School climate framework 39

Figures

Figure 1. Map of TALIS 2018 themes to policy issues 24
Figure 2. Conceptual mapping of themes in TALIS 2018 29
Figure 3. Correspondence between the quadrants of the TALIS 2018 conceptual map and the TALIS policy areas 31
Figure 4. TALIS 2018 international and national target and survey populations 76
Figure 5. Abstract design for the TALIS 2018 field trial teacher questionnaire 80

Boxes

Box 1. Examples of TALIS data and indicators in *Education at a Glance* 15
Box 2. Definition of a “teacher” 73
Box 3. The TALIS design in brief 75

Introduction

More than a decade ago, the report titled *Teachers Matter* (OECD, 2005[1]) emphasised attracting, developing and retaining effective teachers as a priority for school systems worldwide. The report also documented examples of policies that appeared to contribute to achieving these priorities. The cyclical Teaching and Learning International Survey (TALIS) stemming from this work monitors trends in the quality of the teaching workforce by generating data across education levels and across time.

TALIS is an international large-scale survey providing the perspectives of teachers and school leaders on their teaching and learning environments, as well as contextual information, for schools in participating OECD countries, partner countries, and economies (jointly referred to as "TALIS participants"). TALIS addresses five broad policy areas: school policies supporting effectiveness; developing teachers within the profession; effective teachers and teaching; attracting teachers to the profession; and retaining teachers in the profession.

The first two cycles of TALIS produced many policy-relevant findings concerning (among other important outcomes) teacher education, continuing professional development, and the extent to which school environments encourage collaborations with colleagues and greater job satisfaction. The first cycle – TALIS 2008 – focused on lower secondary education (Level 2 of the International Standard Classification of Education, ISCED)[1] and involved 24 countries and economies. The second cycle, five years later – TALIS 2013 – included additional countries and economies, bringing the total to 34 participants. The following year, in 2014, four additional countries/economies decided to participate, bringing the total to 38 participants. Although TALIS surveys staff in lower secondary education (ISCED level 2), TALIS 2013 broadened its scope to include options for participants to survey teachers and leaders in primary schools (ISCED level 1) and upper secondary schools (ISCED level 3). In addition, eight countries participating in TALIS 2013 conducted the survey in schools that had participated in the 2012 cycle of the Programme for International Student Assessment (PISA), an option referred to as the TALIS-PISA link.

TALIS 2018 is the third cycle of the TALIS programme. It involves a larger number of participants than previously, but retains its core focus on lower secondary education and the same range of options implemented in TALIS 2013. Therefore, TALIS 2018 continues to emphasise collecting useful and relevant information about teachers, teaching conditions, and learning environments. Consequently, it will generate data covering issues that have endured over the ten-year period encompassing the three cycles. It will also collect data on issues that have emerged since 2008 and, therefore, combines aspects from 2013 and 2008 with new aspects developed for 2018.

[1] UNESCO designed ISCED (International Standard Classification of Education) levels "…in the early 1970s to 'serve as an instrument suitable for assembling, compiling and presenting statistics of education both within individual countries and internationally'." (UNESCO, 1997, p. 1[292]). The most recent classification of educational levels references 2011 data and was published in 2012 (ISCED-2011) (UNESCO-UIS, 2012[291]).

The 2018 cycle refines rather than redevelops the survey. The themes that the TALIS Governing Board (TGB)[2] agreed upon provide the basis for this refinement; TALIS 2018 will retain the majority of themes from the two earlier cycles and will maintain a relatively consistent blend of indicators (items and characteristics of a system that direct our attention to facts, occurrences, and trends of interest). The changes centre on reorienting and re-scoping some themes and indicators, and include several additional aspects. These changes take into account developments not only in the contexts of teaching and learning that have occurred over the past five years but also in the academic and public debate about teaching and education policies, as evidenced, in particular, by the emerging policy discourse during recent annual meetings of the International Summit of the Teaching Profession (ISTP). Research evidence and thinking about teaching practices has also developed since TALIS 2013; and TALIS 2018 findings should support reflection on those developments. Thus, the TALIS 2018 survey instrument development aims to ensure stability across TALIS cycles while including new elements that reflect trends in teacher education and efficacy, and contemporary issues in teaching.

The TALIS 2018 conceptual framework addresses themes and priorities related to professional characteristics and pedagogical practices at the institutional and individual levels. At the teacher level, these themes include instructional and professional practices that directly influence how students experience education. Teacher education background and initial preparation, teacher feedback and development, self-efficacy, and job satisfaction and motivation shape these practices. At the institutional level, where these practices are enacted, the themes include school leadership and climate, as well as human resource issues and stakeholder relations. The framework also incorporates emerging policy and research interests related to innovation and equity and diversity.

TALIS 2018 has also expanded the TALIS-PISA link that began in 2013 when some of the countries administered the TALIS 2013 survey in the schools that participated in PISA 2012. Work on TALIS 2018 includes a review of themes common to both surveys, and the development of several questions that will appear in both the TALIS 2018 and PISA 2018 teacher and principal questionnaires (OECD, 2015[2]; OECD, 2015[3]). The questions include, among others, questions about initial teacher education, teacher self-efficacy, school climate and job satisfaction, as well as questions about aspects of teaching and learning in diverse settings specifically targeted in PISA 2018 as part of the notion of global competence (OECD, 2015[3])).

Although TALIS 2018 focuses on ISCED level 2, this latest cycle again provides international options for ISCED level 1 and ISCED level 3, an inclusion that is shaping the development of the survey's conceptual framework and its instruments. Although TALIS 2018 is intentionally keeping themes constant across the ISCED levels, questionnaire items will be tailored to suit ISCED levels 1 and 3 where appropriate. Two examples in this regard are the organisation of ISCED level 1 curricula and upper-secondary specialisations such as vocational education and training (VET). This approach will maximise the opportunity to report and compare findings across levels.

TALIS 2018 also needs to reflect activities that are part of the larger TALIS programme of work. The most important of these activities concerns initial teacher preparation, inclusion of a teacher knowledge survey, and the ongoing development of a video study. Finally,

[2] Formerly known as the TALIS Board of Participating Countries (BPC), until the end of 2015.

TALIS 2018 incorporates links with the recent OECD TALIS Starting Strong Survey of early childhood education and care (ECEC) staff, also scheduled to collect data in 2018.

The TALIS 2018 conceptual framework will guide the development of the study's survey instruments and operations and identify the methods used. The framework's primary purpose is to provide TALIS 2018 with an integrated theoretical and policy underpinning that articulates the study's research focus and its links to existing knowledge and evidence. Therefore, TALIS 2018 will gather information about teacher characteristics, conditions, practices, and learning environments that research evidence and practitioner experience suggest contribute to positive student learning. The framework recognises that positive student learning may also be influenced by factors that surveys such as TALIS cannot examine because information relating to these factors generally needs to be collected through teacher self-report instruments. The framework also includes descriptions of some current limitations, for example, with respect to the valid, reliable and comparable measurement of teaching beliefs, or the need for a deeper look into initial teacher preparation and induction than can be included by TALIS, but which may be covered by related work at the OECD and elsewhere. TALIS has the advantage of providing insights based on large volumes of respondents but the obvious limitation of generating analyses from self-reports. It is, therefore, advisable to also compare and contrast results with those from, among other sources, the TALIS Video Study in nine countries (OECD, 2018[4]), small-scale observational studies and other methods.

TALIS is especially important in capturing how individual teachers and principals implement and react to institutional-level educational policies and standards. For example, it is through self-reports such as TALIS that we can see how, while system-level policies may mandate professional education to certify teachers, the experience of practicing teachers may be that this formal training did not prepare them enough for their classroom teaching. Consequently, they may report a desire for additional professional development (OECD, 2014[5]). These varied experiences with system policies by individual teachers has led researchers like Price and Weatherby (2017[6]) to explain why teachers may feel undervalued as professionals and eventually leave teaching.

A joint taskforce comprised of experts from the OECD Indicators of Education Systems (INES) Network A (learning outcomes) and Network C (learning environment and school organisation) developed the original conceptual framework for TALIS 2008. The taskforce responsible for developing the TALIS 2013 conceptual framework drew on current theories and research on teaching and learning environments to further develop the dimensions, themes, and indicators underpinning the framework.

The TALIS 2018 conceptual framework is, therefore, the result of an iterative process in which the study's Questionnaire Expert Group (QEG) formulated concepts and then discussed them with relevant stakeholders, a process that led to some revision and reformulation of the concepts. When developing the concepts, the QEG took into account country priorities, theoretical background, key developments and discussions in the area, and the analytical potential of indicators.

The QEG includes education, policy, and survey experts. It also includes *ex-officio* members from the TALIS International Research Consortium, the OECD Secretariat, and the OECD Technical Advisory Group (TAG).

This document has three main sections, briefly detailed here:

- **Section I – General Purpose and Policy Relevance of TALIS:** TALIS has three main purposes. The first is to describe teaching and learning conditions; the second is to identify the relationships among components of those conditions. The third is to identify and describe how teaching and learning conditions and relationships vary within and across TALIS participants and over time. The teaching and learning conditions that TALIS addresses are those that education stakeholders consider educationally effective because they enhance student learning. TALIS's main goal is to provide information that education systems can use to guide their policies (principles, rules, and guidelines), or that they can adopt to support their long-term goals. This goal implies a focus on factors that are amenable and malleable to change at the system, school, and teacher levels.
- **Section II – Knowledge Relevant to Themes and Main Indicators** that TALIS participants identified as priorities: The nine key themes are:
    - teachers' instructional practices
    - school leadership
    - teachers' professional practices (including mobility)
    - teacher education and initial preparation
    - teacher feedback and development
    - school climate
    - job satisfaction
    - teacher human resource issues
    - teacher self-efficacy.
- **Section III – Design of TALIS 2018:** This section discusses the overarching sample and operational designs of the study's field trial and main survey. It also details what is meant by ISCED levels 1, 2, and 3 in relation to teachers. In the interests of establishing valid, reliable, and comparable cross-sectional indicators trend information, and effective use of that information, it also describes the relevance and quality of the measures used in TALIS.

Section I: General Purpose and Policy Relevance of TALIS

TALIS, a large-scale international survey of teachers, teaching, and learning environments, is one of a number of other activities and studies within the OECD's programme of assessing and monitoring the policies, practices, and outcomes of education systems worldwide. TALIS uses questionnaires administered to teachers and their school principals to gather data. Its main goal is to generate internationally comparable information relevant to developing and implementing policies focused on teachers and teaching, with an emphasis on those aspects that affect student learning.

TALIS 2008 and 2013 made a substantial contribution to international research on the teaching workforce and teaching conditions. TALIS 2008 resulted in the publication of a report titled *Creating Effective Teaching and Learning Environments: First Results from TALIS* in 2009 (OECD, 2009[7]), while TALIS 2013 produced a report titled *TALIS 2013 Results: An International Perspective on Teaching and Learning* (OECD, 2014[5]).

The two surveys also led to many other publications, including reports on specific and thematic issues. Among these titles were *Teaching Practices and Pedagogical Innovation* (Vieluf et al., 2012[8]), *The Experience of New Teachers* (Jensen et al., 2012[9]), and *Supporting Teacher Professionalism* (OECD, 2016[10]). The intention behind another publication, oriented to the teaching profession and titled *A Teacher's Guide to TALIS* (OECD, 2014[11]), sought to widen the reach of TALIS publications. A number of working papers on substantive matters, such as promoting positive student behaviour, and on methodological concerns, such as data comparability and measurement invariance, have also been produced over the years. Another type of publication, the *Teaching in Focus* briefs, provides succinct summaries of TALIS-based evidence on issues relating to teaching and learning environments in schools and teachers' working conditions.

Selected TALIS findings

Key findings from TALIS 2008 included the following:

- According to school leaders in approximately one third of the participating schools, a shortage of qualified, well-performing teachers hindered the schools' capacity to provide quality instruction.
- Teacher induction programmes were not available in all participating schools.
- Teachers indicated they needed more training in information and communication technology (ICT), special needs education, and teaching in diverse settings.
- School leaders regarded resources, regulatory frameworks, and school environments as critical factors with respect to effective school management.
- Experienced teachers were, on average, confident in their teaching ability but had lower levels of job satisfaction than teachers in the early stages of their careers.
- Teachers' self-efficacy and job satisfaction were associated with opportunities to participate in school decisions and collaborative learning.
- The teachers most likely to have lower levels of self-efficacy and job satisfaction were those working in challenging classroom environments.

TALIS 2013 also generated an array of policy-relevant findings. Some concerned initial teacher education and continuing professional learning. Although the majority of teachers had completed university (or equivalent) education and a programme of initial teacher

education, those whose formal training included the content, pedagogy, and classroom practice of the subjects they were teaching felt better prepared for teaching. In addition, participation in formal induction programmes appeared to be associated with participation in professional development in later years.

Other findings from TALIS 2013 concerned the extent to which school climates encouraged work-focused connections and collaborations with colleagues and school leaders. The study indicated that most teachers were teaching largely in isolation from their colleagues. More than half of the teachers surveyed rarely team-taught with colleagues, and two-thirds rarely observed their colleagues teach. Teachers who frequently worked with their colleagues or participated relatively often in collaborative professional learning had a stronger belief in their ability to teach than those who rarely or never worked in this way.

In addition, those teachers who said appraisal and feedback on their work focused on how they could improve their teaching practice reported greater job satisfaction and thought that teaching was valued in their society (even though less than one third of teachers thought that teaching was a valued profession in their country). However, almost half of the teachers surveyed considered that the reason for appraisal and feedback was mainly to fulfil administrative requirements (e.g., compliance and accountability). These teachers reported lower levels of job satisfaction.

Objectives and purposes

The overall objective of the TALIS surveys is to provide robust international indicators and policy-relevant analysis on teachers and teaching in order to help countries review and develop policies that promote conditions for effective teaching and learning. The principles guiding the TALIS surveys are:

- Policy relevance: A focus on the policy issues and on inclusion of the questions most relevant for participating countries is essential.
- Adding value: Opportunity for each participating country to compare its findings with those of the other participating countries must be a key benefit of study participation.
- Indicator-oriented: Study findings need to yield information that participating countries can use to develop indicators of the conditions of teaching and learning in their education systems.
- Validity, reliability, comparability, and rigour: In accordance with a rigorous review of relevant research, the survey should yield information that is as valid, reliable, and comparable as possible across participating countries.
- Interpretability: Participating countries need to be able to interpret the results in a way that is meaningful in their national or regional context.
- Efficiency and cost-effectiveness: All work relating to the study needs to be timely and cost-effective.

TALIS serves a variety of policy and research purposes, including the ongoing validation of TALIS indicators over successive cycles. This variety is captured in the following three statements:

- TALIS is a monitoring structure that provides reliable comparative information on teachers and schools in participating education systems. TALIS serves as a means of describing the conditions of teaching and learning, as well as the functioning of

education structures, thus offering a means of comparing approaches to teaching and school leadership.

- TALIS is an international survey that contributes to knowledge about conditions of teaching and learning. This knowledge helps contextualise the various ways countries develop educational outcomes at the different levels of their education systems. The information also helps develop valid tools for comparing these contexts cross-culturally. Large, carefully selected representative samples of survey respondents and modern quantitative methods of data collection and analysis enable formulation of broad inferences about the surveyed populations. They also allow the development of conclusions about important relationships between and among factors of interest within and across countries. Use of the same data collection instruments across countries allows TALIS to validly document the variation in teacher practice and development that exists among countries and within each country.
- TALIS provides a means of collecting data across time (time-series data), making it possible to generate reliable information about changes in key matters relating to teachers and teaching. TALIS can, therefore, report changes over time in relevant indicators, and in the relationships between indicators, for each country and across countries. The addition of data from TALIS 2018 will enable analysis of these changes over ten years.

TALIS has produced, and will continue to produce, three types of output:

- *indicators* that countries can use to monitor their education systems at the levels of teachers and schools (including school principals)
- *information* about the factors that characterise teaching and learning environments nationally and internationally
- a reliable, comparative *database* that researchers worldwide can use to conduct secondary analyses of the data, with these analyses encompassing a variety of basic and policy-oriented lines of inquiry at national and international levels and over time.

Indicators for system monitoring

One of TALIS's central goals is to monitor and compare education systems in terms of the conditions of teaching and learning. In order to understand the contexts and correlates of teaching and learning environments within and across education systems, TALIS uses reliable and valid scales that summarise beliefs, attitudes and practices and items to describe the components of these systems. This process allows TALIS to provide indicators of school context variables, management variables, teacher professional development, appraisal and feedback systems, and pedagogical approaches, among other elements. Most importantly, TALIS results provide a source of information for the OECD's education indicators programme, which in turn provides substance for public debate, shapes public policy internationally, and informs decision making at multiple levels of participating education systems.

TALIS data and indicators are also used in the OECD's *Education at a Glance* reports, especially those concerned with instructional settings and learning environments (OECD, 2015, pp. 15-16[12]). Two examples of TALIS indicators in the 2015 edition of *Education at a Glance* (OECD, 2015[12]) appear in Box 1.

Box 1. Examples of TALIS data and indicators in *Education at a Glance*

To what extent is information and communication technology used in teaching and learning? (D8)

"Teachers who participated in the 2013 OECD Teaching and Learning International Survey (TALIS) reported that the areas in which they most need professional development are in teaching students with special needs and developing ICT skills for teaching."

"An average of only 40% of lower secondary teachers who participated in TALIS reported that students frequently use ICT for projects or class work." (OECD, 2015, p. 515[12]).

What is the student–teacher ratio and how big are classes? (D2)

Larger classes are correlated with less time spent on teaching and learning, and more time spent on keeping order in the classroom. One additional student added to a class of average size is associated with a 0.5 percentage-point decrease in time spent on teaching and learning activities (OECD, 2015, pp. 418-419[12]).

One of the priorities for countries participating in TALIS is that the surveys allow comparison of some indicators across the TALIS cycles. For TALIS 2018, this means finding a balance between maintaining existing questions in light of the growing legacy of TALIS 2008 and TALIS 2013. It also means not only revising questions in order to improve or expand the measurement of existing constructs but also introducing questions addressing topics that have emerged within the nominated themes.

The need to improve the measurement of existing constructs will mainly be an outcome of reflections on the analyses of TALIS 2013 data. Decisions on introducing questions that address new topics within themes will be informed by reflections on recent research literature, or by interests expressed by TALIS participants, often in relation to prior TALIS findings. The inclusion of core questions held constant for the purpose of time-series analyses will reflect the indicators that education systems still prioritise as key indicators of how well they are functioning. The TALIS conceptual framework serves to structure the constructs and instruments in a way that facilitates decisions on which constructs and measures to include in TALIS 2018.

In summary, the policy-based relevance of this enterprise is assured through the following:

- Use of well-established research to define and operationalise the relevant constructs of interest. These constructs are based on the participating countries' educational priorities and goals.
- Careful examination and reporting of those factors subject to control through policy edicts and standards of professional practice.
- Provision of international benchmarks that allow policy makers in each participating country to identify those aspects of the teaching and learning environments in the other participating countries that might inform their own policies.

As noted in the introduction of this document, indicators serve to direct attention to facts, occurrences, and trends of interest. In one sense, indicators are descriptive. It is, therefore, important that they provide information about the unit of interest (e.g. the school system)

in terms of central tendency (e.g. mean or median), the precision of the estimate (e.g. the standard error), and the variability (e.g. the standard deviation) of the value of the indicator within the unit of interest. However, descriptive information about the state of education systems and teaching and learning environments is useful only when the data for any one system can be compared with data for other systems and over time. These comparisons, in turn, only become useful when the policy maker or policy analyst concludes that any apparent difference was unlikely to have arisen by chance. This is the point at which the policy maker or analyst can feasibly seek reasons for the observed differences.

Policy makers are also interested in the conditions that explain variability in teaching and learning environments within and across education systems. Therefore, the TALIS instruments need to cover the most important inputs and processes of teaching and learning at the teacher and school levels. An important goal of a high-quality indicator is to provide information that can help policy makers set priorities and make policy-based decisions. Statistical models that account for the inherent multilevel (system, school, teacher) structure of the TALIS data provide a useful means of understanding and explaining differences within and across schools and within and across countries.

Although analysis of TALIS data has the potential to make important contributions to the knowledge base for educational policy and practice, several limitations exist. First, TALIS is primarily a cross-sectional study (i.e. a study across different countries in one single period) that examines the context and conditions of teaching and learning environments. Examination of changes in conditions over time strictly depends on using the same instruments to measure the same variables of interest over successive cycles. Even then, it is not possible to make inferences about what impact changes in individual teachers' environments have on those teachers. These sorts of inference require a longitudinal study in which the same teachers are followed over time to track changes in variables of interest.

Second, because TALIS does not currently offer a means of directly linking teacher and teaching indices to student outcomes (except through the link at school level provided by the TALIS-PISA link), it is not possible to judge teacher quality and its relationship to student performance. In order to analyse relationships between teacher characteristics and student outcomes, TALIS would need to link data about teaching practices and related variables with data on individual student outcomes.[3]

Finally, because TALIS is a self-report survey and does not engage in direct observation of teaching practices, inferences are also limited to the degree that teachers' responses may vary from what teachers actually do in practice. However, the survey method does provide information about issues (especially perceptions) that could not be obtained through other methods. In addition, the TALIS Video Study will provide important perspectives on the validity of self-report data because it will collect both survey and video data.

Policy considerations

TALIS was developed as part of the OECD Indicators of Education Systems (INES) project, the aim of which was to "create a coherent set of indicators" to enable comparisons of education systems in OECD and partner countries. TALIS's focus was strongly

[3] The TALIS-PISA link presents limitations of its own, however, regarding the associations between teachers' practices and student outcomes. Because the database does not allow identification of classrooms, it is not possible to link teachers with their class students. Student outcomes can, therefore, be associated only with the school-aggregated indicator of teachers.

influenced by the OECD review of teacher policy, which generated the report *Teachers Matter: Attracting, Developing and Retaining Effective Teachers* (OECD, 2005[1]). That review argued for better national and international information on teachers.

The original conceptual framework for TALIS was based on the policy issues that were studied during the OECD teacher policy review. These were attracting, developing, and retaining effective teachers; school policies and effectiveness; and quality teachers and teaching. Over successive cycles of TALIS (i.e. 2008, 2013 and 2018), the framework has been developed to include elements such as innovation, equity and diversity, teacher motivation, and teacher self-efficacy.

The original framework (OECD, 2005, pp. 12-15[13]) identified five main policy issues together with broad indicator domains for each:

1. *Attracting teachers to the profession:*
   a. adequacy of teacher supply and teacher shortages
   b. profile of new teachers
   c. motivations and early career experience of new teachers
   d. effectiveness of recruitment and selection procedures and incentives.
2. *Developing teachers within the profession:*
   a. profile of teachers' education and training
   b. frequency and distribution of education and training
   c. satisfaction with and effectiveness of education and training.
3. *Retaining teachers in the profession:*
   a. teacher attrition and turnover
   b. job satisfaction and human resource measures
   c. recognition and evaluation of teachers, including feedback and rewards.
4. *School policies and effectiveness:*
   a. school leadership
   b. school climate.
5. *Quality teachers and teaching:*[4]
   a. teaching practices, beliefs and attitudes
   b. quality of teachers (experience, qualifications, responsibilities)
   c. division of working time.

To provide guidance for developing the initial TALIS survey in 2008, the TALIS International Research Consortium conducted a priority rating exercise with TALIS participants. A similar exercise was conducted with OECD countries as part of TALIS 2013. Countries were asked to assign priorities to the proposed themes (a term that superseded the term "indicator domain") and associated indicators across the five policy areas (OECD, 2013, pp. 23-37[14]). Also, because TALIS 2013 was the second cycle of TALIS, participants were also asked to indicate which of the indicators from TALIS 2008 should be carried forward into TALIS 2013. Thus, each cycle of TALIS addresses the five policy areas determined initially, but the selection of themes and indicators for any cycle is shaped by current priorities based on inputs from TALIS participants. A description of the TALIS 2018 priority rating exercise appears below.

The development of TALIS 2018's priority themes is described in a document titled "Guiding the Policy and Content Focus of TALIS 2018", prepared for the TALIS Board of Participating Countries (BPC), now called the TALIS Governing Board (TGB), by the

[4] This is now referred to as "effective teachers and teaching" (OECD, 2015, p. 16[3]).

OECD Secretariat (OECD, 2015[3]). That document was based on BPC deliberations, additional input from ongoing policy dialogues and networks, and a priority rating exercise conducted in 2015. During the rating exercise, TALIS countries answered questions and gave priority ratings to listed issues. This exercise helped determine the structure of the TALIS 2018 questionnaires and the themes and indicators included in them.

Deliberations during the 2014 OECD Informal Meeting of Ministers of Education provided further guidance on the issues that education systems deem a high priority. The deliberations focused on "…how to reflect changes in the demand for skills in the design of educational systems and teacher professional development, how to raise teacher effectiveness, and how to build rewarding career structures that advance the profession and attract the most talented teachers into the most challenging classrooms." (OECD, 2015, p. 4[3]).

The summary section of "Guiding the Policy and Content Focus of TALIS 2018" highlighted the role of innovation in fostering more effective learning environments and creating the environments in which innovation can take place. The summary also identified the need for greater effort to be put into fostering effective pedagogical practices and generating collaborative practices as well as mobilising resources to ensure that every student benefits from excellent teaching. Similar needs were identified in the fourth International Summit on the Teaching Profession (ISTP), held in 2014. Three of these needs were fostering the conditions for innovation, fostering deeper forms of collaboration, and strengthening relationships between stakeholders.

Recent discussions at the ministerial level have highlighted several questions that TALIS and related studies (OECD, 2015, p. 5[3]) could readily address. One such concerns teachers' preferences regarding the resources they think education systems should provide to support effective teaching and learning in schools; another focuses on the types of career-related incentives (including horizontal and vertical career structures) that teachers value. Other potential questions relate to teachers' views on the following: the conditions that enable innovation in the classroom and in schools; the role teachers should play in educational reforms and the extent of their involvement in educational reforms; the mechanisms essential to ensuring the professionalism of teaching; and the ingredients needed to foster collaboration in schools, between and across schools, and between schools and the wider community.

Another policy consideration is the contribution of TALIS to the United Nations (UN) Sustainable Development Goals (SDGs). In 2015, the United Nations adopted the SDGs as a framework for continuous and sustainable progress in social areas considered fundamental for the improvement of nations. The SDGs establish a universal agenda; they do not differentiate between rich and poor countries. The UN has challenged every country worldwide to achieve the SDGs (OECD, 2016[15]).

The SDGs defines 17 goals to be achieved by 2030, among which Goal 4 seeks to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, 2015[16]). Goal 4 requires education systems to monitor the actual learning outcomes of their young people, and it identifies seven targets, three means of

implementation, and 43 indicators (divided into global and thematic indicators[5]) for monitoring achievement of and the sustainability of this goal.

The OECD, through its large-scale international studies, is committed to helping countries monitor and report their work towards achieving and sustaining the SDGs (OECD, 2016[15]). TALIS is well positioned to assist in this endeavour, because Goal 4's Target 4.c specifically addresses the role of teachers in ensuring quality education: "By 2030, substantially increase the supply of qualified teachers, including through international co-operation for teacher training in developing countries, especially least developed countries and small island developing States" (United Nations, 2015, p. 17[16]). Target 4.c consists of one global indicator and six thematic indicators (see Table 1).

Table 1. Global and thematic indicators for target 4.c of the United Nations Sustainable Development Goals

Global indicators	4.c.1 Proportion of teachers in: (a) pre-primary education (b) primary education (c) lower secondary education (d) upper secondary education who have received at least the minimum organised teacher training (e.g. pedagogical training) preservice or in-service required for teaching at the relevant level in a given country, by sex.
Thematic indicators	4.c.2 Pupil-trained teacher ratio by education level
	4.c.3 Proportion of teachers qualified according to national standards, by education level and type of institution
	4.c.4 Pupil–qualified teacher ratio, by education level
	4.c.5 Average teacher salary relative to other professions requiring a comparable level of qualification
	4.c.6 Teacher attrition rate, by education level
	4.c.7 Percentage of teachers who received in-service training in the last 12 months, by type of training

Source: Adapted from UNESCO (2016[17]), *Education 2030 Incheon Declaration and Framework for Action for the Implementation of Sustainable Development Goal 4*, UNESCO, Paris, http://uis.unesco.org/sites/default/files/documents/education-2030-incheon-framework-for-action-implementation-of-sdg4-2016-en_2.pdf, p. 81.

At present, the TALIS indicators do not provide a perfect fit for all the indicators listed in Table 1. For example, with respect to Indicator 4.c.1, although TALIS collects data on teacher certification and the highest level of education attained, these data cannot determine whether these two measures correspond to "…the minimum organized teacher training (e.g. pedagogical training) preservice or in-service required for teaching at the relevant level in a given country" (UNESCO, 2016[17]) without additional information. However, TALIS data on professional development do fit well with Indicator 4.c.7 for primary, lower secondary, and upper secondary teachers.

[5] "Global indicators" are compulsory for UN member states. As such, every country should commit to achieving this indicator by 2030. "Thematic indicators" seek to provide a wide framework of indicators that can assist completion of the global indicator. These indicators are not compulsory for every country or region. From the total of 43 indicators for Goal 4, 11 are global indicators and 32 are thematic indicators.

Although discussion on how TALIS can contribute to the SDG continues, three possible areas of development are:

- *Improving, expanding and enriching TALIS based on the 4.c guidelines:* While it is not possible to modify the TALIS 2018 design and indicators to perfectly match the 4.c indicators, the SDGs will be an important input for future cycles of TALIS. It is possible, however, to consider some of the current TALIS indicators as "proxy measures" for the SDGs, particularly if no other internationally comparable indicator is currently available. For example, although TALIS does not have an indicator that aligns perfectly with 4.c.1, data on teacher certification and highest educational level attained can still be a proxy for qualified teachers and, thus, provide some information on the extent to which countries have achieved Goal 4. In addition, because the TALIS indicator on professional development aligns very well with Indicator 4.c.7, we can consider it a major contribution of TALIS 2018 to the SDGs.
- *Contribute to the indicators of other Goal 4 targets:* TALIS's contribution to the SDGs does not need to be limited to the 4.c indicators. Other targets, means of implementation, and indicators of Goal 4 indirectly address the contribution of teachers to a quality education system. For example, the intent underlying Indicator 4.7.1 is to monitor the "Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment" (UNESCO, 2016, p. 73[17]). The information that TALIS 2018 collects in regard to whether the school has local policies on human rights and citizenship and whether its teachers teach about equity and diversity can be considered relevant to this indicator.
- *Engage in thematic and methodological discussions regarding the design and monitoring of the SDGs:* Although TALIS's global and thematic indicators have been defined and established, the OECD Secretariat considers that the TALIS project can advise on and recommend additional thematic indicators crucial for monitoring Goal 4. For example, TALIS themes such as school leadership, school climate, and equity and diversity could contribute to deliberations about how educational quality is measured.

Prioritising themes for TALIS 2018

In order to further guide the policy focus of TALIS 2018, the OECD Secretariat invited not only those OECD member countries, partner countries, and economies that had expressed interest in taking part in the survey but also the European Commission to complete a priority rating exercise (see Table 2). Twenty OECD countries and five partner countries and economies completed the exercise, which was conducted between February and April 2015. The participating countries answered questions and provided ratings that would help determine the following:

- the structure of the TALIS 2018 questionnaires
- which themes and indicators to include in TALIS 2018
- which repeated indicators from the first two cycles of the survey to include in TALIS 2018 in order to develop trend data
- the preferred cycle frequency for future TALIS cycles.

Responses to these issues were sought in relation to ISCED levels 1, 2, and 3. All participating countries provided ratings for ISCED level 2. Six countries completed this exercise for ISCED level 1, and five countries completed it for ISCED level 3.

Overall, participants indicated a preference for maximising international comparability and, therefore, minimising optional modules for individual countries or groups of countries. Respondents also wanted TALIS 2018 to have fewer themes than TALIS 2013 and TALIS 2008 had (the two earlier iterations encompassed approximately 15 themes). The highest rating was for the proposition that the 2018 questionnaires should cover between 10 and 13 themes.

The priority rating exercise involved three steps. During the first step, countries were asked to allocate 100 rating points among 20 proposed themes, with higher points representing a higher priority. Ratings were generated by aggregating the points the countries allocated to each theme.

Table 2 presents the results of the thematic priority rating exercise. Here it can be seen that the participating countries regarded some themes as very high priorities (e.g. school leadership and teachers' instructional practices), and other themes as less important (e.g. teacher attrition and turnover rates and the sociological composition of teachers). Substantial cross-country variation was evident in these rankings. In general, the highest-rated themes were those that most closely matched the countries' priorities. For example, one third of countries gave a relatively low rating to the theme of teachers' professional practices.

During the second step, countries were asked to consider the themes to which they had assigned points, and to state which indicators they thought should be assigned to each theme. The themes attracted a total of 94 indicators, divided across the 20 themes. The third step asked countries to indicate which of the indicators used in TALIS 2013 they thought should be maintained in TALIS 2018 to permit analysis of change between these two cycles.

Because of the intention to lower the number of themes in TALIS 2018, a decision was made to proceed with no more than ten themes that, in combination, would inform all five, identified policy issues, namely: school policies supporting effectiveness, developing teachers within the profession, effective teachers and teaching, attracting teachers to the profession, and retaining teachers in the profession. Another decision was to place a slight emphasis on those themes among the 20 addressing policies related to school and teacher effectiveness. This decision reflected the fact that themes attracting the highest ratings were those concerned with "school policies supporting effectiveness".

Table 2. Country priority ratings of themes for inclusion in TALIS 2018 ISCED level 2 questionnaires

Theme	Average (OECD)	Average (all countries)
School leadership	6.9	6.3
Teachers' instructional practices	6.7	9.0
Teachers' professional practices	6.7	6.7
Job satisfaction and teacher human resource measures	6.5	6.4
Profile of teachers' continuing learning and training	6.2	6.5
School climate and ethos	6.1	6.4
Attracting good students into teaching	5.5	5.0
Frequency of in-service education and training	5.3	5.3

Theme	Average (OECD)	Average (all countries)
Recognition, rewards and evaluation of teachers	5.3	5.3
Motivations and early career experience of teachers	5.2	4.3
Satisfaction and effectiveness of in-service education and training	5.1	5.3
Teachers' working time	4.6	4.5
Education and qualifications of teachers	4.5	4.0
Initial teacher education and pathways into the profession	4.2	3.8
Teacher self-efficacy	4.2	4.8
Innovation	4.1	4.3
ICT in teaching	3.9	4.0
Adequacy of teacher supply, teacher shortages	3.7	3.2
Teacher attrition and turnover rates	2.9	2.8
Sociological composition of teachers	2.5	2.3

Source: OECD (2015[3]), "Guiding the Policy and Content Focus of TALIS 2018", No. EDU/INES/TALIS(2015)3 (internal document), Directorate for Education and Skills, OECD, Paris, p. 14-15.

In addition to the policy rating exercise, ministers of education in the participating countries were invited to highlight the themes they considered to be key areas of interest. During this part of the exercise, some of the themes proposed initially were combined with others to result in variations to the initial list. For example, Theme 5 incorporated the two elements of teacher feedback and teacher development from the original list.

In the end, nine themes were agreed to, even though the relative importance accorded to each of them varied across the participating countries. Those nine themes, together with the most frequently nominated indicators from TALIS 2013 within those themes, were as follows:

1. Teachers' instructional practices:
   a. beliefs about teaching
   b. classroom climate in target class
   c. pedagogical practices in target class
   d. classroom management in target class
   e. individualised/differentiated teaching (including gifted students) in target class
   f. teachers' views regarding barriers to implementing a variety of practices
   g. classroom composition and class size in target class
   h. lesson time distribution in target class.
2. School leadership:
   a. role and function of the school leader (administrative and pedagogical leadership)
   b. distributed leadership (team leadership in the school)
   c. qualifications and experience of school leaders
   d. principal job satisfaction
   e. perception of school leadership (teacher responses)
   f. principal workload
   g. principal working hours
   h. principal autonomy in key areas (hiring and dismissing teachers, career ladders, pay, etc.)
   i. training and development of school leaders
   j. principal self-efficacy.
3. Teachers' professional practices:
   a. collaboration among staff in school

   b. teachers' participation in decision making at the school
   c. role, profile, and participation in wider professional community
   d. teacher mobility across and within countries.
4. Teacher education and initial preparation:
   a. characteristics of initial teacher education and training: content (e.g. pedagogy, subject matter, practice, teaching students with special needs), length, providers
   b. perceived effectiveness of training.
5. Teacher feedback and development:
   a. support for in-service education and training
   b. barriers for further engagement in in-service education and training
   c. types of in-service education and training, including collaborative forms of professional development (PD)
   d. types of formal forms of PD
   e. content of formal forms of PD (new teaching practices and emerging innovations)
   f. types of informal forms of PD (including teacher-initiated networks, online learning)
   g. content of informal forms of PD (new teaching practices and emerging innovations).
6. School climate:
   a. student–teacher relations (including supportive environment for learning)
   b. parental and community relations/participation with the school
   c. disciplinary climate (including tolerant climate)
   d. teachers' beliefs about how student-teacher relations can be improved
   e. factors hindering instruction
   f. teachers' readiness for and openness to diversity
   g. school ethos (e.g. goal driven, high aspirations, community engagement).
7. Job satisfaction:
   a. overall job satisfaction (with school and with profession)
   b. teacher perception of the value of the profession
   c. teacher perceptions of national and local education policies
   d. satisfaction with salary and working conditions
   e. teacher opinions about priorities for education policies and reform.
8. Teacher human resource issues and stakeholder relations:
   a. school policies that recognise, reward, and evaluate teachers
   b. career ladder and prospects of teachers
   c. perceptions of the impact of policies that recognise, reward, and evaluate teachers
   d. recognition for being innovative in pedagogical practices
   e. interventions to address underperformance.
9. Teacher self-efficacy:
   a. teacher self-assessment of general pedagogical knowledge (instructional processes, student learning, formative assessment)
   b. teacher self-efficacy in general
   c. teacher self-assessment of non-cognitive skills/patience/motivation.

The countries initially saw innovation as a cross-cutting issue closely related to teachers' instructional practices and also school climate. However, it emerged from discussions in the TGB and QEG as an explicit theme (Theme 10) and was assigned these indicators:

- teachers' openness to adopting innovative practices

- types of innovation in school in past year
- types of innovation in the target classroom in the current or past school year
- perceptions regarding the barriers and incentives for the adoption of innovation
- evaluation and dissemination of innovative practices in the school.

Equity and diversity were originally considered to be encapsulated in the substance of each of the nine themes but consultation with TALIS participants and policy stakeholders led to this theme (Theme 11) emerging as a theme of high contemporary importance.

One further decision resulting from the priority exercise established that, although there might be a need to adapt specific questionnaire items to suit respondents at different levels of education, the questionnaires for ISCED levels 1, 2, and 3 should all address the same themes.

Figure 1. Map of TALIS 2018 themes to policy issues

TALIS 2018 theme		Policy issue				
		Attracting teachers	Developing teachers	Retaining teachers	School effectiveness	Effective teaching
1	Teachers' instructional practices					●
2	School leadership				●	
3	Teachers' professional practices					●
4	Teacher education and initial preparation		●			
5	Teacher feedback and development		●	●		
6	School climate				●	
7	Job satisfaction (including motivation)	●		●		
8	Teacher human resource measures and stakeholder relations	●		●	●	
9	Teacher self-efficacy		●			●
10	Innovation				●	●
11	Equity and diversity				●	

Source: Based on information from OECD (2015[3]), "Guiding the Policy and Content Focus of TALIS 2018", No. EDU/INES/TALIS(2015)3 (internal document), Directorate for Education and Skills, OECD, Paris.

Mapping TALIS 2018 themes to policy issues

Figure 1 maps the TALIS 2018 themes to the five policy areas now defined for the ongoing programme of TALIS surveys. The figure shows only the main connections between themes and policy areas. The connections can arise either because the theme is, by definition, part of the policy area or because the theme encapsulates factors that could have potentially strong influences on the policy area. As is evident from the figure, the themes collectively represent all five policy areas. Also, because there are more themes than policy areas, more than one theme necessarily addresses the policy areas. For example, four of the TALIS 2018 themes inform the policy area of effective teachers and teaching. Similarly, some themes inform more than one policy area. For example, the theme "teacher human resource measures and stakeholder relations" connects to both attracting teachers and retaining teachers. For simplicity's sake, however, TALIS 2018 will keep the number of multiple connections to a minimum.

ISCED 1 and ISCED 3 international options

Although the core focus of TALIS 2018 is ISCED level 2, this current iteration of the TALIS surveys provides international options for ISCED levels 1 and 3, as did TALIS 2013. Development of the 2018 conceptual framework maintains the firm belief that, while themes should be held constant across ISCED levels, the option to tailor items to ISCED levels 1 and 3 should be maintained, where appropriate. For example, questions and items for ISCED level 1 would recognise such factors as the organisation of primary school curricula and have links to the proposed OECD staff survey in early childhood education and care (known as the TALIS Starting Strong Survey). Questions and items for ISCED level 3 should recognise such factors as specialisation of study programmes at the upper secondary level.

More recently (February 2016), several countries have expressed interest in the field of vocational education and training (VET), especially given the 2015 *Riga Conclusions*.[6] Although this interest emanates primarily from the European Union and is unlikely to have a substantial impact on the framework and instrument development, the TALIS Questionnaire Expert Group will endeavour to cover VET schools and teachers teaching VET related subjects in the 2018 instruments.

TALIS 2018 links to related studies

TALIS 2018 links into a number of OECD surveys that focus on student achievement (PISA), children before they commence formal school (the TALIS Starting Strong Survey), or make use of different methods of studying teaching (e.g. video recording in the TALIS Video Study). Another link is the use of TALIS data in the OECD Initial Teacher Preparation Study.

PISA 2018

The fact that TALIS 2018 and PISA 2018 are being implemented in the same year makes it possible to harmonise the two surveys (OECD, 2013[18]), as does the fact that PISA includes questionnaires for teachers and principals. Planning for TALIS 2018 has, therefore, taken into account reports centred on the feasibility of aligning and developing joint conceptual frameworks for the two surveys (OECD, 2015[2]) and on comparisons of survey themes, indicators, and questions not only from TALIS and PISA but also from the Programme for the International Assessment of Adult Competence, or PIAAC.

More specifically, TALIS could benefit from PISA-contributed information and micro-data, such as that on the socio-economic composition of schools – data that are difficult to measure unless the survey instruments contain a more in-depth student or home context component. Similarly, the concurrent measurement of teacher-reported and student-reported aspects of the instructional context is likely to enrich analytical possibilities.

The synergies between TALIS 2018 and the relevant aspects of PISA 2018 need to take into account the differences in the survey populations: PISA targets teachers eligible to teach 15-year-old students whereas TALIS focuses on teachers teaching at any grade level within ISCED level 2. There is also the need to acknowledge that the PISA 2018 teacher

[6] In June 2015, ministers from European member states and candidate countries met in Riga, Iceland to renew their commitment to raising the quality and status of VET.

questionnaires include one for teachers of the major domain of reading (or the subject most related to reading), and one for teachers in general. The decision to ensure the TALIS 2018 materials include formats similar to those used in TALIS 2013 also needs to be taken into account. In addition, because the timelines for developing the frameworks for the two studies are not synchronised, PISA 2018 includes only limited efforts to pre-emptively align with TALIS. Finally, more than 40 countries will be participating in TALIS 2018 whereas the number of countries agreeing to include the PISA teacher questionnaires is likely to be lower.

Similarities and differences exist between the TALIS and PISA teacher questionnaires. Some constructs are common to both questionnaires, such as teachers' backgrounds or job satisfaction, but other topics are unique to only one of the surveys. Our approach to the intended alignment between TALIS 2018 and PISA 2018 has been to review the themes and those questions that are common to the TALIS and PISA teacher and principal questionnaires.

In addition, discussion on operational matters and the sequencing of sample selection between the TALIS 2018 International Research Consortium, the TALIS and PISA teams at the OECD Secretariat, and the PISA 2018 contractors undertaking the conceptual and instrument, resulted in agreement that TALIS and PISA should include the same questions with respect to, for example, job satisfaction, self-efficacy, and school climate. Specific questions concerned with initial teacher education and teaching in diverse settings (in terms of both equity and diversity) will also be the same in both surveys.

The TALIS Starting Strong Survey

The first cycle of the TALIS Starting Strong Survey, the OECD's survey on early childhood and care (ECEC) staff, will be implemented in 2018 in nine countries. The aim of the study is to generate data on which to base international comparisons of ECEC learning environments, the well-being of staff and children within those environments, staff pedagogical practices, staff professional development, issues related to equity and diversity, and staff and centre characteristics. The survey has two target populations. The first is ISCED level 0.2 staff, that is, staff working in "pre-primary education" and, therefore, with children typically three years of age up to school age. The second is staff in settings serving children under the age of three years; only a few countries intend implementing this part of the study. Links are presently being developed between the TALIS framework and instrument development (especially TALIS's ISCED level 1 option) and the Starting Strong Survey. A conceptual and instrument overlap between both surveys of approximately 70% is envisaged.

The TALIS Video Study

The TALIS Video Study, which began in 2017 and is continuing into 2018, is video-recording two mathematics lessons taught by a representative sample of 85 lower secondary teachers in each participating country and economy. The lessons chosen cover the same specified subject content – quadratic equations – and the study includes pre-tests and post-tests of student achievement. Some of the assessment items cover students' general knowledge of mathematics and others relate directly to the lesson content.

Teacher and student surveys are being administered before and after the lessons. The teacher surveys include questions about teacher background and teaching quality and practice (as in the TALIS main survey), as well as questions that ask teachers for their perceptions of the lessons and the unit of work. The student surveys cover family-related

and peer-related conditions, and aspects of student cognitive, motivational, and emotional learning traits. As with the teacher survey, the student survey asks students for their perceptions of the lessons and the unit of work. Lesson artefacts (such as lesson plans, homework, and assessments) are also being gathered from teachers.

In addition to generating an international comparative report focused on teaching practices and cultures, the OECD Secretariat anticipates assembling a video library of teaching practices.

The TALIS Initial Teacher Preparation Study

During development of the TALIS 2018 conceptual framework and instruments, consideration was given to policy and analysis-based findings from the OECD Initial Teacher Preparation (ITP) Study, which includes secondary analyses of TALIS 2013 data. (It is important to note at this point that, because newly trained teachers make up only a small part of the TALIS target populations, the information that ITP collects on initial teacher education tends to reference programmes completed decades earlier.) However, in order to effectively examine possible effects of initial teacher education on teaching, TALIS 2018 will ask respondents to state when they received their teaching qualifications and to provide details on the nature of their respective initial teacher education programmes. The study will also collect data on the support available for new teachers, given they tend to be the teachers at the greatest risk of teacher attrition (OECD, 2005[1]).

Summary

OECD studies have relevance well beyond the sphere of education policy and practice. The studies enable researchers from a range of disciplines to investigate patterns and relationships among variables of interest. These investigations are documented in thematic reports commissioned by the OECD, as well as in research papers that report researcher-initiated analyses. These texts not only foster ongoing and increased use of TALIS data but also add to the body of research on the cross-cultural conditions of teaching and learning.

Broadening the scope of TALIS as a database for policy-relevant research in the area of teaching and learning makes it imperative to operationalise general constructs such as teacher professional development and teaching practices in a rigorous way. To that end, TALIS is committed to drawing on both current and well-established literature, as well as empirical evidence from previous cycles of TALIS, to ensure that these conceptualisations prove useful for researchers and provide a basis for further development.

As TALIS enters its third cycle, it has begun offering the opportunity for policy makers and researchers to examine changes over time within and across the participating education systems. Cross-national data tends to provide limited perspectives on patterns of teaching and learning. These perspectives can be enhanced, however, through time-series data, but this process relies on preserving the integrity of sets of variables from cycle to cycle so that changes in education system inputs and processes can be related to changes in outcomes over time. Because achieving this goal is particularly challenging, new methods of reliably and validly measuring the constructs of interest are under continual development. The need to weigh the value of trend preservation against the value of incorporating new methods for instrument development and measurement is therefore also of ongoing and vital importance.

Section II – Knowledge Relevant to Themes and Main Indicators

As described in Section I, the TALIS 2018 expert members of the Questionnaire Expert Group (QEG) are elaborating the content of the themes[7] and developing associated indicators. This work is focused on developing the survey questionnaires, the utility of which will be tested during the TALIS 2018 pilot study (field trial) conducted in all participating countries. As described in greater detail in Section III, the field trial will use a rotated design during administration of the questionnaires, so that more questionnaire items can be tested than will be included in the main survey. The TALIS International Research Consortium, the OECD Secretariat, and country representatives are all involved in shaping the final questionnaires for the main survey. The TALIS Governing Board (TGB) will approve the final questionnaires and the themes and indicators included in the main survey.

In this section, we describe the conceptual framework that informs the TALIS 2018 questionnaires. We also provide an overview of research related to each of the TALIS 2018 themes. It begins with a conceptual map that presents those themes that attracted the highest priority ratings from the countries participating in TALIS. The map also shows diagrammatically how the themes relate to and interact with one another.

The three main components of the TALIS conceptual framework are themes, indicators, and an analytic schema. The conceptual framework provides a relatively detailed account of each in this section. The description of each theme is accompanied by a short literature review of research relevant to it and a listing of the indicators that the research suggests best suits it, especially in terms of education policy, practice, and research. The section ends with a description of the analytic schema.

The TALIS 2018 conceptual framework builds on the framework used in TALIS 2013. It also draws on what is known about effective teaching and learning conditions. In broad terms, effectiveness refers to the extent to which a given activity's stated objectives are met (OECD, 2007[19]). For TALIS, effective teaching and learning environments are elements that contribute to student cognitive and affective learning. TALIS gathers information about aspects of the teaching and learning environment that other research suggests contributes to positive student learning. However, effective teaching and learning embraces many factors not included in TALIS, including factors that need to be investigated by methods other than the self-report questionnaires completed by school teachers and principals.

A conceptual map of the TALIS 2018 themes

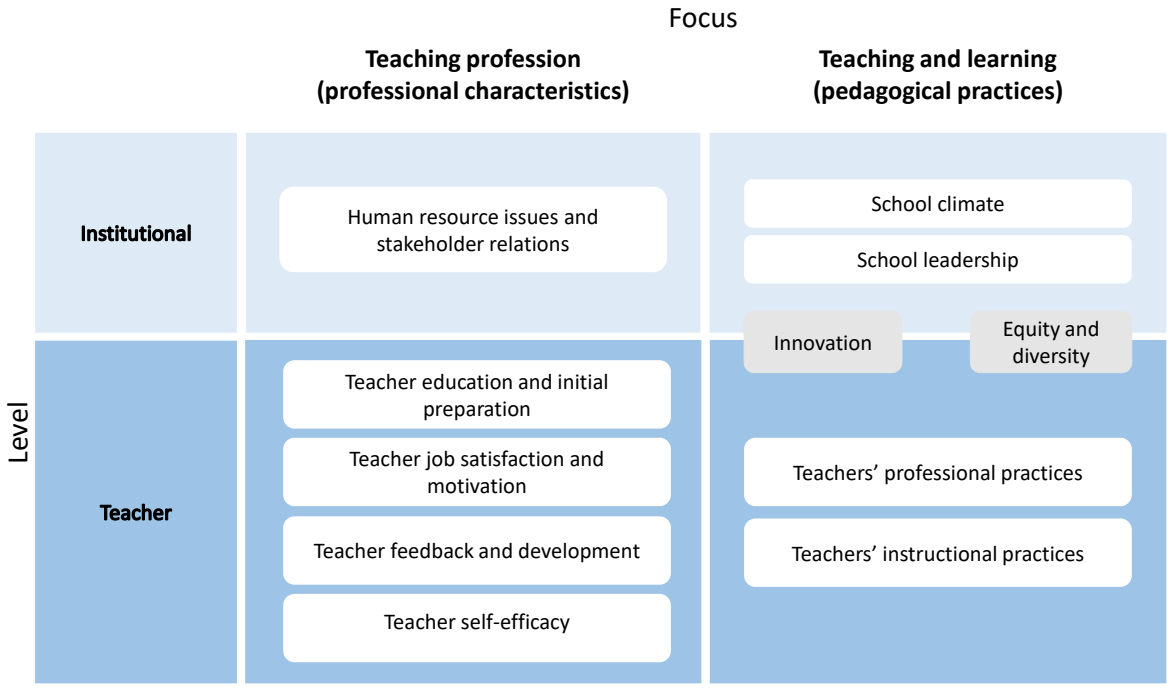
The conceptual map of the TALIS 2018 themes is the first of the three components of the conceptual framework. The TALIS 2018 themes can be considered in terms of two dimensions: focus and level. The first of the two dimensions (focus) is based on the extent to which a theme is mainly concerned with professional characteristics or pedagogical practices of institutions or teachers. The second of the two dimensions (level) refers to

[7] This framework uses the term themes so as to be consistent with TALIS 2013. In PISA, the content units are called modules. Themes will be taken to refer to the organisation of the main ideas for the survey; modules or sections will be used for the organisational units for the instruments.

whether the theme mainly operates and references institutions or teachers. Institutional level could be the school, or it could be the national or regional system the school is part of. Note that the conceptual map combines school and system because human resource policies and practices can be enacted by either a school or a system, or they can be enacted by both school and system, depending on the school governance arrangements that are in place.

Figure 2 maps the TALIS 2018 themes in relation to the two dimensions of focus and level. The themes could be related to other dimensions as well, but because the purpose at this time is to describe the basic structure of the conceptual framework, the mapping in Figure 2 is limited to the two dimensions.

Figure 2. Conceptual mapping of themes in TALIS 2018



Themes concerned with the teacher level

The results of many studies of influences on school-based student learning emphasise the importance of teacher and classroom-level influences. However, these studies also show that school-level influences tend to operate mainly indirectly through their effects on teacher and classroom influences (Hattie and Yates, 2014[20]). The teacher-level themes are those TALIS seeks to explain. In line with the aforementioned body of research, TALIS considers institution-level factors to have a critical but exogenous influence on these core aspects. Policy initiatives directed towards improving conditions for student learning differ, therefore, according to the level of the education system they address.

The lower-right quadrant of the conceptual map in Figure 2 refers to teaching and learning in classrooms, as influenced by each individual teacher. It includes two themes – *teachers' instructional practices and teachers' professional practices*. These themes, which can be thought of as central to the pedagogical core of schooling, are similar to the characteristics that form the concept of "instructional quality" initially invoked in analyses of the Third

Mathematics and Science Video Study (TIMSS Video) conducted in 1999 (Hiebert et al., 2003[21]) and PISA (especially its 2003 and 2012 cycles) and later applied to other studies (Decristan et al., 2015[22]). The two themes also reference aspects of teachers' practices established as predictors of student achievement and motivation (e.g. cognitive activation, clarity of instruction, and classroom management).

The lower-left quadrant of the conceptual map features teacher characteristics thought to be associated with student learning outcomes. These themes capture factors that constitute the concept of "teacher quality", as elaborated by Goe (2007[23]). They include *teacher education and initial preparation, teacher feedback and development*, and *teacher self-efficacy*, as well as *teacher job satisfaction and motivation*.

Themes at the institutional level

In the conceptual map, the theme human resource issues and stakeholder relations appears in the upper-left quadrant because it is concerned mainly with teacher characteristics (through recruitment, reward, and retention) and because it is part of the institutional level. Initial teacher education is located in the lower-left quadrant because it mainly references the credentials that each teacher brings to the classroom and which are, therefore, independent of the school in which he or she works. The two themes – school climate and school leadership – are located in the upper-right quadrant because they are concerned mainly with the school-level contributors to teaching and learning and, so, are part of the institutional level.

Themes at both institutional and teacher levels

In Figure 2, the themes of innovation and equity and diversity straddle the teacher and institutional levels. Both focus on teaching and learning because they are personal to the teacher and are fostered by his or her colleagues. For example, innovation applies to both the school environment and teaching practices. Some aspects of innovation and equity and diversity are associated with professional characteristics as well as with pedagogical practices (e.g. individual innovativeness or openness to innovation). The placement on the map represents a focus on what happens in practice, even though professional characteristics may influence that practice.

Relationships between themes

The conceptual map shown in Figure 2 does not include paths of influence, partly because the intention behind the map is to represent broad themes rather than defined indicators and partly because of the large number of potential relationships across the themes. In addition, the relationships among the themes (or indicators within themes) could be unidirectional or reciprocal.

Unidirectional relationships are those that have no feedback influence. An example is the influence of "teacher education and initial preparation" on "teachers' instructional practices". While we can expect a strong forward influence, we are unlikely to see an influence in the reverse direction. Similarly, we can expect "human resource issues and stakeholder relations" to have an influence on "teacher education and initial preparation" (possibly through accreditation requirements), but not vice versa.

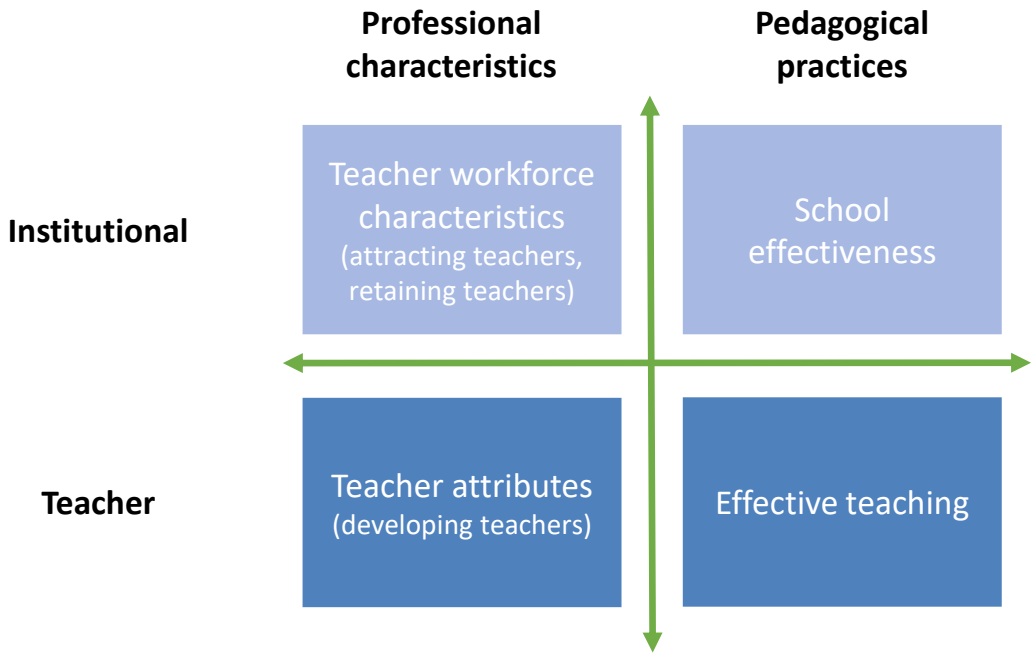
An important development in educational effectiveness research has been the adoption of dynamic models of school effects (Creemers and Kyriakides, 2015[24]). These models recognise that some relationships between variables can operate in both directions (are

reciprocal). Some of the TALIS themes at the teacher level that are concerned with teaching and learning and teacher quality can be considered reciprocal. "Teacher instructional practices" and "teacher professional practices" (the pedagogical core) are likely not only to be shaped by but also to dynamically shape "teacher affect", "teacher feedback and development", and "teacher self-efficacy". For example, teacher feedback and development influences teachers' practices, but those practices also influence the type of feedback and development required and given, as is evident during appraisal processes. Similar reciprocal influences occur across levels. "School climate" both shapes and is shaped by "teacher professional practices". "School leadership" might be seen as largely influencing teacher practices (of both sorts): teachers' professional practices at the school can condition the form leadership takes in that school.

Relating the conceptual map to policy areas

The four quadrants of the conceptual map shown in Figure 2 correspond to the five TALIS policy areas. The two themes in the lower-right quadrant – teachers' instructional practices and teacher professional practices – correspond with the policy area concerned with effective teaching. The four themes in the lower-left quadrant – teacher education and initial preparation, teacher feedback and development, teacher self-efficacy, and teacher job satisfaction and motivation – can be linked to developing the attributes of teachers (developing teachers). The two themes in the upper-right quadrant – school leadership and school climate – have ties with aspects of school effectiveness, while the theme in the upper-left quadrant – human resource issues and stakeholder relations – is concerned with the two policy areas of "attracting teachers" and "retaining teachers". Figure 3 presents a diagrammatic mapping of the Figure 2 quadrants against the five policy areas.

Figure 3. Correspondence between the quadrants of the TALIS 2018 conceptual map and the TALIS policy areas



TALIS and PISA

A number of forums have discussed possible synergies between TALIS 2018 and PISA 2018, particularly synergies relating to the questionnaires for teachers (which is an international option) and the questionnaires for the school principal questionnaires. Some commentators have even suggested the development of a joint conceptual framework (OECD, 2015[2]). Some alignment is definitely relevant, both generally and with respect to the TALIS-PISA international option. Even though the TALIS themes and PISA modules are different in their articulation, they do have elements in common. Consequently, an overall model, however preliminary in form, could inform the specific model developed for TALIS 2018. The areas of closest alignment between the TALIS 2018 and the PISA 2018 field trial teacher questionnaires include job satisfaction, self-efficacy, professional development, and initial teacher education. Weaker alignments apply to the notion of equity and diversity in each study as well as to some of the two studies' background questions.

The TALIS-PISA conceptual framework developed by Ben Jensen and Samara Cooper (OECD, 2015[2]) has five levels: education system, school, principal, classroom, and student. Jensen and Cooper's framework distinguishes between the indicators PISA measures and the ones that TALIS measures. It also identifies the indicators that both surveys measure. The framework also makes it possible to identify interrelationships between elements of the system within each level and across levels. Important to remember at this point is the fact that TALIS does not collect or analyse information at the student level (such as individual background or cognitive and affective outcomes); nor does it collect or analyse data concerned with curricula.

TALIS themes and indicators

As mentioned in Section I, the countries participating in TALIS 2018 chose its themes and indicators via a collaborative rating exercise. In this section, these themes are discussed in more detail by drawing on the evidence stemming from current research in teaching and schooling. The themes are grouped into the major domains of the conceptual map (i.e. the institutional level and the teacher level), with teacher level encompassing teacher characteristics and teacher practices. A third grouping looks at those themes that apply to both the institutional and teacher levels.

Themes mainly concerned with the institutional environment

This sub-section considers research evidence regarding three of the nominated themes. One of these – "human resource policies and practices" – relates mainly to teacher characteristics. The other two, namely, "school leadership" and "school climate", relate more directly to teaching and learning. In each case, it can be assumed that the main effects on student learning outcomes are transmitted through what teachers do and how they do it. School leadership and school climate can be seen as having reciprocal relationships with teachers' professional practices (especially collaboration) and teachers' instructional practices. These institutional factors influence the teacher factors and are, in turn, influenced by them.

Theme: Human resource issues and stakeholder relations

Introduction

Human resource issues and interpersonal and collegial relationships between and among stakeholders form an integral part of the TALIS framework. Located at the institutional level, these elements form the key set of professional characteristics at this level. Compared to the previous TALIS iterations, TALIS 2018 provides a more explicit framing of these elements. "Human resources and stakeholder issues" was not presented as a separate section in the TALIS 2013 surveys. Rather, the various aspects of each were addressed at different places in the questionnaires. TALIS 2018 adds to the TALIS 2013 items in this area by addressing the following main aspects of the theme:

- attracting good students into teaching
- recognition, reward and evaluation of teachers
- teachers' working time.

TALIS 2018 will also link this theme to the theme of "teachers' professional practices".

Theoretical background

While teacher human resource issues and stakeholder relations are generally found to have only an indirect association with student outcomes, they can significantly affect recruiting teachers to the profession and retaining them once there. They can also significantly affect teachers' job satisfaction and teachers' teaching and learning conditions. As such, they form a part of the school context that creates conditions for educational effectiveness, as shown in various educational effectiveness models (see, for example, Reynolds et al., (2014[25])).

Teasing apart professional characteristics from stakeholder beliefs should give us a better understanding of why teachers in most of the TALIS countries believe their societies accord low-value status to teaching. TALIS 2013 found that the only participating countries/economies in which the majority of teachers felt society valued them and their profession were Abu Dhabi (United Arab Emirates), Finland and Singapore (OECD, 2014[5]). Determining the source of this sentiment can guide policy to influence it, with the expectation that improving the perceived value of teaching will improve the recruitment and retention of capable citizens to the teaching profession.

Researchers and policy makers need to place greater emphasis on the characteristics of teaching as a profession. Existing literature provides various descriptions of these characteristics. However, these descriptions typically include practice underpinned by an established body of knowledge, the relatively long time that practitioners spend training, the existence of a code of ethics for the profession, the relatively high degree of autonomy that teaching involves, and responsibility for admitting new members to the profession (Hoyle, 1980[26]). The problematic nature of a number of these elements in teaching has led some commentators to describe teaching as a "semi-profession" (Mausethagen and Granlund, 2012[27]).

A related issue in many countries, and one not shared to the same extent by most other professions, is that of attracting high-quality applicants. According to a number of researchers (e.g. Sahlberg (2011[28])), this factor distinguishes some high-performing education systems from those systems that do not perform as well. Both intrinsic and extrinsic value (e.g. rewards) and both personal and social utility appear to influence a

person's motivation for choosing teaching as a career, as do social factors, such as the esteem in which the profession is held. However, the balance of these factors shows some cross-country variation (Watt and Richardson, 2008[29]; Watt et al., 2012[30]). TALIS 2018, therefore, intends to explore teachers' own perceptions of some of these issues.

Analytical potential and indicators

With respect to human resources, policy makers have put considerable effort into developing more effective systems of teacher reward and appraisal. These include formal systems of performance appraisal at both the school and system level and the development (in some countries) of performance-related reward systems (Flores, 2012[31]; Fullan et al., 2015[32]; Schleicher, 2011[33]). Teacher reward and appraisal is a contested area in both research and practice, with much ongoing discussion on the relative importance of intrinsic and extrinsic motivators and summative and formative appraisal approaches (Atkinson et al., 2009[34]; Darling-Hammond, 2010[35]).

New material in TALIS 2018 on recognition, reward, and appraisal will include recognition of innovative pedagogical practices, interventions that target underperformance, career advancement prospects for teachers, teachers' perceptions of the practice of linking pay to achievement, and determining whether current appraisal and feedback processes identify and provide a basis for addressing teachers' unmet professional needs. Because the amount of time that teachers are required to engage in classroom-based teaching (work-time allocation) also defines the professional state of teaching, TALIS will collect information on this matter.

The role of teachers and their representative organisations in the areas of educational policy making and resource allocation is also an area of increased interest with respect to teacher professionalism. TALIS 2018 will, therefore, bring in new material designed to address teachers' participation in policy making and to explore teachers' views (and those of principals) on their educational policy priorities, particularly with regard to resource allocation within education systems. This matter also aligns with teachers' contributions to school and system leadership.

Theme: School leadership

Introduction

Leadership remains a key concern for the countries participating in TALIS and the world of education more generally. As stated in the report documenting and discussing the main findings of TALIS 2008, "…effective school leadership is increasingly viewed as key to large-scale education reform and to improved educational outcomes." (OECD, 2009, p. 191[7]).

Instructional leadership is a particular and ongoing interest for TALIS. This type of leadership refers to supporting and developing high-quality instructional practices, developing and implementing policies that support student achievement, developing learning communities, providing feedback on instruction, modelling effective instruction, and supporting the use of assessment data.

The field of educational leadership in general is currently evolving rather than experiencing major change. The main evolutionary trend is the greater emphasis on distributed and, in particular, teacher leadership and leadership beyond the school, known as "system leadership". This form of leadership encompasses innovative collaboration with other

schools and with the local community, as well as relationships with policy makers and other agencies (such as social services). A growing emphasis in leadership research is that of linking leadership to student outcomes.

Theoretical background

A key finding from recent studies on school leadership concerns the relationship between leadership and student outcomes. The relationship has been shown as indirect because effective leadership creates the conditions under which teachers can optimise their effectiveness (Hallinger, 2011[36]; Reynolds and Muijs, 2016[37]). In their review of research, Day et al. (2010[38]) identified eight key components of successful school leadership: defining vision and values, improving conditions for teaching and learning, redesigning and enriching the curriculum, restructuring the organisation, enhancing teacher quality, building relationships outside the school community, enhancing teaching and learning, and building relationships inside the school community. Research into educational effectiveness has identified leadership as the most important school-level factor in relation to student outcomes (Chapman et al., 2016[39]).

While the emphasis in earlier leadership research was firmly on the person of the principal, interest in and emphasis on distributed forms of leadership in education is increasing and has led to specific policy actions in several countries (Harris, 2014[40]). These forms of leadership, in which leadership is deemed a property of the school rather than of an individual leader, and where leadership can be exercised collaboratively and collectively, have attracted significant research support, particularly because of their associations with improved student learning and school improvement (Hallinger and Heck, 2010[41]). The relationship between distributed leadership and school improvement also draws attention to increased teacher self-efficacy and the ways in which that efficacy fosters collaborative school cultures and unlocks teacher potential (Bangs and Frost, 2012[42]).

In keeping with this developing interest in the literature, TALIS 2018 will increase its emphasis on this component of leadership. This emphasis does not mean that the principal is no longer important in distributed leadership systems. Even in distributed contexts, it is still typically the principal who instigates any distribution of leadership and who continues to occupy a steering role in both instructional leadership and administrative management.

Instructional leadership is typically defined as the actions that a principal takes to promote growth in student learning (Flath, 1989[43]). Principals who take a strong role in instructional leadership emphasise high-quality instruction and develop policies that support student achievement, such as encouraging the development of learning communities, giving instructional feedback to teachers, modelling effective instruction, and supporting the use of assessment data in the classroom (Blase and Blase, 2000[44]; Kerr et al., 2006[45]; NAESP, 2008[46]). A number of studies have found associations between instructional leadership and student outcomes (Goddard et al., 2015[47]; Hallinger, 2015[48]; Muijs, West and Ainscow, 2010[49]).

If leadership is central to creating the school conditions under which teachers can be effective, then it is clearly important to collect data on what school leadership entails, from the perspective of both principals and teachers. TALIS, therefore, conceptualises school leadership in terms of five key dimensions:

1. who principals are: qualifications, recruitment and development of principals
2. what principals do: role, function and work of the principal, instructional leadership, terms and conditions, workload, hours, autonomy, function, and actions

3. distributed leadership and teacher leadership and teachers' perceptions of these types of leadership
4. principal job satisfaction
5. system leadership and leadership in networks of schools.

Analytical potential and indicators

As the research summarised above shows, principals' roles and their recruitment and retention are key elements of school effectiveness. The leadership factors surveyed in TALIS will allow policy makers to benchmark leadership in their countries and should also aid the development of policies on leadership training and continuing development. The leadership components in TALIS 2018 reference the above five key characteristics of effective leadership.

- *Qualifications, recruitment and development of principals:* The information that TALIS 2018 collects on principals' characteristics, including age, gender, and previous experience and training, will enable development and analysis of principal profiles across countries, as well as exploration of how these profiles relate to leadership styles and teaching and learning environments. Evidence exists for associations between some aspects of their profiles, such as experience, with student outcomes (Clark, Rand and Rockoff, 2009[50]). For other aspects, such as gender, the associations are less clear. However, because the distribution of principal characteristics has important equity dimensions, such as gender and ethnicity, this consideration remains important to any study of educational leadership.

  A key question, currently unresolved, concerns the associations between and among principal qualifications, leadership development, and student outcomes. This question was an important one for TALIS 2013 and remains so for TALIS 2018, especially given evidence of the differential distribution of highly qualified principals across schools (Boyd et al., 2011[51]), the relationship between this factor and student drop-out rates (Burkhauser et al., 2012[52]), and the growing – although, to date, inconclusive – studies on the impact of different types of leadership development (Bush, 2008[53]).

  An important emerging issue across many countries is the growing challenge of recruiting people willing to work as school principals. This challenge is likely to make it harder to develop effective leadership at the school level. TALIS 2018 will, therefore, include items that ask teachers and principals for their perceptions of the factors that facilitate or hinder principal recruitment.

- *Role, function, and actions of principals:* As identified in TALIS 2013, the extent of autonomy that principals exercise in their role can vary significantly across schools and education systems. What appears to matter more, though, in terms of school improvement and student outcomes is what principals actually do (Muijs, 2011[54]), particularly with regard to exercising instructional leadership.

  Instructional leadership itself needs to be more clearly defined in terms of principals' actions, and it is here that the work of Day et al. (2010[38]) provides value. TALIS 2018 will consequently explore the key components of successful school leadership that Day and colleagues identified: defining vision and values, improving conditions for teaching and learning, redesigning and enriching the curriculum, restructuring the organisation, enhancing teacher quality, building

relationships outside the school community, enhancing teaching and learning, and building relationships inside the school community.

- *Distributed leadership and teacher leadership:* As was identified in TALIS 2013, and as is apparent in current developments in educational leadership theory and research, effective leadership appears to be vested not only in the person of the principal but also in other staff in the school (Harris, 2014[40]; Sergiovanni et al., 2009[55]; OECD, 2013[56]). Distributed leadership focuses on leadership practices, including interactions with other leaders, teachers, staff, parents, and students, rather than on formal leaders' traits, roles and functions, or on organisational structures (Grubb and Flessa, 2006[57]; Spillane, 2006[58]). Three specific aspects of distributed leadership are: making collaborative decisions; emphasising school governance that empowers staff and students and encourages shared accountability for student learning; and emphasising school-wide participation in efforts to evaluate the school's academic development (Hallinger and Heck, 2010[41]).
  While distributed leadership generally takes the form of extended senior leadership teams or greater involvement of middle-level leaders such as year or departmental heads, the value of harnessing the leadership potential of teachers more generally has attracted greater recognition. Conceptualised as "teacher leadership", this form of teacher involvement presupposes flatter management structures within the school, with the teachers themselves taking on leadership roles both within and outside the classroom. These roles require teachers to work collaboratively with colleagues on school improvement and pedagogy and to have a clear voice in the development of school vision and goals (Harris and Muijs, 2004[59]; Gonzales and Lambert, 2001[60]; Portin et al., 2013[61]). Teacher leadership presupposes, of course, that teachers have the skills and support needed to lead and develop school improvement initiatives and thereby exercise genuine influence (Bangs and Frost, 2012[42]).
- *System leadership and leadership in networks of schools:* Today, many education systems are asking principals to exercise leadership not just within but beyond the school. This development can be attributed to two main factors. The first is our greater appreciation of the importance of how schools relate to their communities, contexts, and other social services, such as those that exist in extended or full-service schools (Cummings et al., 2007[62]). The second is the need for schools to be interconnected and to collaborate in order to maximise positive outcomes across communities and enhance social justice (Hadfield and Chapman, 2009[63]). There is, however, growing – though contested – evidence of the relationship between collaboration and school improvement (Chapman and Muijs, 2014[64]; Croft, 2015[65]), and of the challenges collaboration poses for school leaders, not least in moving from hierarchical to equal peer leadership relationships (Muijs, West and Ainscow, 2010[49]). The increasing call for leadership across systems and networks of schools provides impetus to include items on this new topic in TALIS 2018.

Theme: School climate

Introduction

Researchers and educators agree that school climate has important influences on teaching and learning. School climate is a multi-faceted concept that includes safety, relationships, engagement with teaching and learning, institutional environment, and school

improvement activities (Thapa et al., 2013[66]). School climate is sometimes equated with overall school culture. As Thapa et al. (2013[66]) concluded from their review of relevant research, school climate has an influence on student affect and behaviour, as well as on approaches to learning.

In accordance with the TALIS Governing Board's preferences, TALIS 2018 will repeat and improve the study's indicators of teacher-student relationships and classroom disciplinary climate, add new material designed to capture teachers' views on the school climate conditions that foster effective teaching and learning (e.g. teacher leadership structure), and integrate aspects of equity, diversity, and innovation into the existing instruments. Questions concerned with teacher mobility and attrition (which were part of this theme in TALIS 2013) will be considered as part of other themes. TALIS 2018 will assess classroom climate from the teachers' perspective and school climate from the perspectives of both teachers and principals.

Theoretical background

Research shows that a positive school climate is a powerful influence on many of the elements that affect both students and teachers. School climate relates not only to student learning and social well-being ((Battistich et al., 1997[67]; Bryk and Schneider, 2002[68]; Cohen et al., 2009[69]; Engel, Rutkowski and Rutkowski, 2009[70]; Hoy, Tarter and Hoy, 2006[71]; Martin et al., 2013[72]; Nilsen and Gustafsson, 2014[73]) but also to teacher effectiveness, confidence, and commitment to teaching (Carroll et al., 2005[74]; Hoy and Woolfolk, 1993[75]; Weiss, 1999[76]). A study by Eliot et al. (2010[77]), for example, found associations between a safe environment free of bullying and high-quality relationships between students and teachers (Eliot et al., 2010[77]).

As discussed in the TALIS 2013 conceptual framework (p. 32[14]), the most commonly discussed elements of school climate are teaching and learning practices, disciplinary norms, decision-making processes, organisational structures, safety, a sense of community, and interpersonal relationships (Allodi, 2010[78]; Anderson, 1982[79]; Battistich et al., 1997[67]; Brophy, 1988[80]; Cohen et al., 2009[69]). The community and interpersonal relations elements of school climate, including relationships between students and teachers, schools and parents, and principals and teachers, are burgeoning areas of "effective schools" studies (Wubbels et al., 2012[81]).

Indicators used in TALIS 2008 and 2013 of teacher-parent and teacher-teacher relationships were identified as predictors of student achievement (see, for example, Cornelius-White, (2007[82])). Three findings from other studies show that high levels of teachers supporting one another relates to higher student self-concept and less likelihood of students exhibiting symptoms of depression (Reddy, Rhodes and Mulhall, 2003[83]); collegial collaboration among teachers and between teachers and school leaders enhances school climate (Rutter, 2000[84]; Rutter and Maughan, 2002[85]); and strong school-parent relationships improve student attendance (Epstein and Sheldon, 2002[86]).

In a recent review of school climate, Wang and Degol (2016[87]) synthesised the many indicators of school climate into four dimensions – academic, community, safety, and institutional (see Table 3). Academic school climate focuses on the overall quality of the academic atmosphere, including the "academic press" in the school, the nature and quality of leadership in the school, the quality of teachers' instruction, and teachers' professional development (Hoy, Tarter and Hoy, 2006[71]; Martin et al., 2013[72]; Nilsen and Gustafsson, 2014[73]; Wang and Degol, 2016, p. 3[87]). Community emphasises the quality of interpersonal relationships between and among stakeholders (Barth, 2006[88]; Bryk and

Schneider, 2002[68]; Thapa et al., 2013[66]; Wang and Degol, 2016, p. 3[87]). Safety refers to the degree of physical and emotional security in the school, and to an orderly disciplinary climate (Goldstein, Young and Boyd, 2008[89]; Gregory, Cornell and Fan, 2012[90]; Wang and Degol, 2016, p. 3[87]). Institutional reflects the organisational and structural features of the school environment associated with effective teaching and learning (Thapa et al., 2013[66]; Wang and Degol, 2016, p. 3[87]).

Although classroom climate is not a direct subset of school climate, many measures (other than pedagogical practices) operationalise this variable in a similar manner. They link student learning to classroom climates that emphasise high academic standards, provide a safe learning environment, develop and maintain interpersonal relationships, and maintain adequate learning resources (Bryk and Schneider, 2002[68]; Fraser and Rentoul, 1982[91]; Koth, Bradshaw and Leaf, 2008[92]; Mitchell and Bradshaw, 2013[93]; Peter and Dalbert, 2010[94]).

Because school climate appears to create conditions for effective teacher instruction and motivates student learning and success, and because it is an area of school policy that lies within the power of policy makers to adjust and revise to improve educational outcomes, it is important that TALIS collects data on the four dimensions of school climate from the teacher perspective. TALIS explores the link between school climate and teachers' instructional practices, self-efficacy, and job satisfaction, while PISA examines the link between school climate and student outcomes from the student perspective.

Table 3. School climate framework

Academic			
Leadership Principals and administration support, teachers, openness of communication	Academic press Quality of instruction, assessments, teacher expectations of students, achievement goal structure	Professional development Opportunities and programmes for growth and development	
Community			
Partnership Role of community members and parents in schooling, stakeholder involvement	Relationships Trust, interpersonal relationships between staff and students	Connectedness Cohesion, sense of belonging, student activities	Respect diversity Fairness, autonomy, stakeholders' opportunities for decision making, cultural awareness
Safety			
Social and emotional Bullying, accessible counselling	Discipline and order Clarity, fairness and consistency of rules, belief in school rules, conflict resolution	Physical Level of violence or aggression, students and staff feel safe, security measures	
Institutional			
Environmental Heating, lighting, air conditioning, acoustical control, cleanliness, upkeep of maintenance, quality of building	Structural organisation Class size, school size, ability tracking, time use	Availability of resources Adequacy of supplies, resources, and materials, technology, sharing of resources	

Source: Wang, M. and J. Degol (2016[87]) "School climate: A review of the construct, measurement, and impact on student outcomes", *Educational Psychology Review*, Vol. 28/2, pp. 315-352, http://dx.doi.org/10.1007/s10648-015-9319-1.

Given the priorities for TALIS 2018 and the burgeoning research on school climate, the TALIS 2018 teacher questionnaire will include items concerned with teachers' perceptions of leadership, teachers' relationships with parents, and trust and equity. Questions concerned with assessing the school climate for innovation and cultural diversity will be part of questions that cut across the themes on these issues. We are confident that

continuing two-tiered questions assessing school and classroom climate will maximise potential for multiple perspectives and offer triangulation opportunities.

Analytical potential and indicators

The questions on the four school climate dimensions should produce information likely to inform answers to questions on the following matters:

- *School and classroom climate variation within and between countries:*
  - To what extent does school and classroom climate vary within and across countries?
  - What is the extent of interrelationships between the four dimensions of school climate? Does this extent vary across countries?
  - How varied are classroom climates within schools?
  - To what extent do school climate dimensions explain classroom climate as compared to teachers' pedagogical practices?
- *The relationships between school and classroom climate and teacher and school outcomes:*
  - What relationships are evident between each of academic, community, safety, and institutional climate and the following variables:
    - school composition
    - school leadership practices
    - teachers' instructional practices, self-efficacy, and job satisfaction
    - appraisal and feedback
    - innovative pedagogical practice among teachers
    - levels of tolerance, equity and diversity in schools
    - teacher turnover, absentee rates, and attrition?

Unlike relatively fixed school demographic and economic conditions, school climate is a more dynamic condition that stakeholders can potentially change. Therefore, it has relevance for shaping teachers' preservice training and ongoing professional development. In the interests of maintaining the consistency needed to enable cross-study comparisons and trend analyses, the wording of the questions on school climate in TALIS and PISA will remain identical wherever possible, while the questions on classroom climate will stay the same. Other well-established surveys, such as TIMSS and the US Schools and Staffing Survey (SaSS), provide established indices to assess aspects of academic climate. These should prove useful during development of the TALIS 2018 questions on this aspect.

Themes mainly concerned with teacher characteristics

In this sub-section, we consider research evidence regarding four of the nominated themes. Initial teacher education is, potentially, influenced by policy at the aggregate level but is a relatively fixed attribute for individual teachers. Once teachers are in the profession, their initial teacher education characteristics cannot change, but they may influence other professional development characteristics, as well as teachers' professional and instructional practices. In contrast, the other three themes represent teacher characteristics and processes that are likely to change during teachers' careers and even in response to immediate experiences. These are *teacher affect* (which is made up of teacher job satisfaction and teacher motivation), *teacher self-efficacy*, and *teacher feedback and development*.

Theme: Teacher education and initial preparation

Introduction

Teacher education featured as a topic in TALIS 2013 and covered indicators concerned with initial teacher education (ITE), notably education in subject content areas and pedagogy, as well as practical experience in schools, along with indicators of professional development and its impact on teachers. TALIS 2018 will collect information that should enable construction of initial teacher education (ITE) profiles and allow in-depth analyses of the effects of these profiles on outcomes such as teacher self-efficacy and job satisfaction among lower secondary school teachers. The link between ITE and continuous professional development is of particular interest. Understanding the different ITE profiles that lead into teaching and their association with these outcomes is highly relevant because countries need to recruit the best teachers. Many countries struggle not only to recruit highly proficient teachers but also to retain them in the profession.

Teacher education changes substantially over time and its effects probably diminish the longer a teacher is in the profession, partly because other characteristics come into play and partly because the competencies acquired during teacher education become more integrated so that it is no longer possible to disentangle effects of specific teacher education characteristics on specific competencies. A question that takes into account the differences among teacher cohorts by asking teachers if they finished their ITE programme is, thus, an important one.

Although discussion in this sub-section focuses on ISCED level 2, several TALIS 2018 questionnaire items will provide response categories appropriate for ISCED levels 1 and 3. Because achieving full measurement invariance of teacher education indicators will probably be difficult, it may be necessary to apply advanced techniques (e.g. Bayesian elastic constraints) that can address this problem. In addition to allowing analysts to model relationships at the country level, the teacher education data the study elicits should enable analysts to study the data relating to sub-groups (e.g. latent profiles of opportunity to learn), in a manner similar to that employed by Vieluf and colleagues (2012[8]) but with profiles used as the predictors of outcomes.

Theoretical background

The opportunities to learn (OTL) provided during teacher education contribute to specific types of teacher knowledge. That knowledge, in turn, is significantly related to student achievement (Baumert et al., 2010[95]; Hill, Rowan and Ball, 2005[96]; Kersting et al., 2012[97]) through the mediating effect of differences in the instructional quality delivered (Blömeke, Gustafsson and Shavelson, 2015[98]). A closer look at teacher education OTL can help us understand how the outcomes of education are achieved and where potential starting points for reforms may lie. We can regard OTL in teacher education as opportunities intentionally developed by educational policy makers and teacher education institutions (Stark and Lattuca, 1997[99]). As such, the specifications underpinning OTL reflect particular visions of the knowledge and skills that a country (education system) and its teacher education institutions expect lower secondary teachers to have (Blömeke and Kaiser, 2012[100]; Schmidt, Blömeke and Tatto, 2011[101]).

The Teacher Education and Development Study in Mathematics (TEDS-M), carried out in 2008 in 15 countries under the supervision of the International Association for the Evaluation of Educational Achievement (IEA), offered the first chance to examine OTL in teacher education cross-nationally (Tatto et al., 2012[102]). Prior to TEDS-M, the only

available data on teacher education was poor, which made for inconsistent and unreliable conclusions about its effectiveness (Cochran-Smith and Zeichner, 2005[103]). In many studies, the type of teaching licence or the number of courses taken were the only indices used to define OTL. These quantitative measures provided information about the amount of content coverage but did not take into account what content was being offered and how it was being offered, thereby ignoring qualitative similarities or differences across countries and teacher education programmes. As various studies make clear, features that are purely structural do not necessarily have significant effects on the outcomes of teacher education, such as teacher knowledge, teacher retention, and student achievement (Bruns and Luque, 2015[104]; Goldhaber and Liddle, 2011[105]). In contrast, evidence suggests that the quality of ITE programmes does influence teacher education outcomes (Boyd et al., 2009[106]; Constantine et al., 2009[107]).

TEDS-M followed the IEA tradition of connecting educational opportunity and educational achievement to determine whether differences in teachers' OTL could account for cross-national differences in teacher knowledge (McDonnell, 1995[108]). TEDS-M framed OTL in terms of content coverage and the relative importance given to elements within the content (Travers and Westbury, 1989[109]), and in terms of the professional preparation and teaching methods experienced in ITE programmes. TEDS-M collected this information via the participating future teachers' self-reports, and categorised that information according to Shulman's (1986) distinction between teachers' content knowledge, pedagogical content knowledge, and general pedagogical knowledge, as well as practical experiences. By closely linking these indicators to the daily work of teachers in the classroom, TEDS-M acknowledged that effective professional education is grounded in the practices of the profession (Ball and Cohen, 1999[110]).

Teacher education programmes can vary greatly from teacher education institution to teacher education institution and from country to country (Blömeke, Kaiser and Lehmann, 2010[111]; Tatto et al., 2012[102]). TEDS-M looked at how teacher education programmes in the participating countries were preparing teachers to teach in the lower secondary level of schooling, which in most of the countries was Grades 7 to 9. However, in some countries, as the above-mentioned studies show, preparation for teaching at the lower secondary level covers lower or higher grades, and sometimes both. In most countries, one teacher education programme suffices for future lower secondary teachers. However, in other countries, several programmes exist in parallel to one another. Furthermore, teacher education can be organised in a concurrent or consecutive way. The length of teacher education programmes can also vary, and likewise the number of subjects and the extent of OTL about how to teach them. The entrance requirement for teacher education is typically a high-school exit examination, but exceptions exist. In addition, only a few countries seem able to attract students performing in the upper half of the school achievement distribution into teaching.

Content courses deliver the body of deep knowledge that teachers need in order to present content to learners in a meaningful way and to connect learning topics to one another as well as to each learner's prior knowledge and future learning objectives (Cochran-Smith and Zeichner, 2005[103]; Wilson, Floden and Ferrini-Mundy, 2001[112]); Wilson et al., 2001). However, knowing the content provides only a foundation for teaching: student achievement is higher when a strong content background is combined with strong education credentials (Clotfelter, Ladd and Vigdor, 2007[113]). Pedagogical content knowledge links general pedagogical knowledge and content knowledge (Shulman, 1986[114]). Professional preparation that links content knowledge to an understanding of how learners acquire knowledge, how to teach students who are diverse with respect to achievement, motivation,

socio-economic background, or language background, and how to use a wide array of instructional strategies represents a robust finding in this context (Constantine et al., 2009[107]; National Research Council, 2010[115]). Another robust finding regarding the impact of OTL on the outcomes of teacher education is the quality of the teaching methods the future teacher experiences – in particular, the opportunity to engage in actual teaching practices, such as planning a lesson or analysing student work, rather than just listening to lectures (Boyd et al., 2009[106]).

Analytical potential and indicators

Research identifies the following indicators of initial teacher education (ITE) as potentially important with respect to TALIS 2018:

- year when ITE was completed
- level of formal degree (tertiary/post-secondary or secondary level)
- alternative pathways into teaching
- type of institution (university, pedagogical college)
- duration of teacher education
- attendance in a concurrent, consecutive, or alternative programme
- grade range at which the ITE prepares teachers to teach (e.g. 1-8, 7-9, 5-10, 5-12)
- type(s) of school at which the ITE prepares teachers to teach
- teacher education entrance requirements (school examination, university examination, practical experience)
- the type and content of degree held in relation to the subject the future teacher intends teaching (number of majors and minors, training as generalists)
- whether the degree includes a major in the subject of teaching (pedagogy)
- relative emphasis on learning content knowledge, pedagogical content knowledge, and general pedagogical knowledge, as well as practical (field) experiences, as measured by the OTL the programme provides
- sense of preparedness for different teaching tasks, such as teaching content, classroom management, accommodating student heterogeneity, and responding effectively to individual learning needs
- teaching as a lifelong career (can also be positioned as an outcome variable).

Theme: Teacher job satisfaction and motivation

Introduction

TALIS 2018 combines the theme of "teacher job satisfaction" with motivation (as aspects of "teacher affect"). Job satisfaction refers to the sense of fulfilment and gratification that teachers experience through their work as a teacher (Locke, 1969[116]). Teacher motivation refers to the extrinsic and intrinsic factors that influence people to become and remain a teacher (Watt and Richardson, 2008[29]). TALIS 2018 aims to accomplish the following:

- repeat and improve the indicators of overall job satisfaction and teacher perceptions of the value of the teaching profession
- add new material on teachers' views on the factors that would increase their job satisfaction and societal perception of the value of the profession
- improve the existing collection of information on teacher attrition
- improve TALIS questions on teacher well-being and stress.

During instrument development for TALIS 2018, consideration was given to the benefits of moving teacher motivation from the initial teacher education section of the teacher questionnaire to the theme of teachers' satisfaction with their job. Like job satisfaction, but unlike initial teacher education, motivation is not static and can vary in response to teaching environments and, thus, the learning environment for students.

The PISA teacher questionnaire contains identical items on teacher job satisfaction, an inclusion that allows for triangulation of PISA and TALIS data. Unlike PISA, TALIS provides opportunity for analysis and comparison of job satisfaction at the teacher level in relation to school climate, teaching practices, leadership, and relationships with stakeholders. In addition, the questions that TALIS asks principals about satisfaction with their job can be related to questions concerning leadership.

Theoretical background

Research, such as that conducted by Butt et al. (2005[117]), Crossman and Harris (2006[118]), and Dinham and Scott (1998[119]), shows that teachers are generally satisfied with those aspects of their job that concern their teaching work (e.g. work tasks, professional growth), but tend to be dissatisfied with the aspects surrounding the performance of their job (e.g. working conditions, stress, interpersonal relationships, salary). This mixture of satisfaction and dissatisfaction creates a tension in teacher affect that has multiple implications for teaching and student learning.

Positive teacher job satisfaction has a positive impact on teachers, schools, and students. Research shows a positive relationship between teacher job satisfaction and teacher performance (Lortie, 1975[120]; Renzulli, Macpherson Parrott and Beattie, 2011[121]). Job satisfaction also plays a key role in teachers' attitudes, efforts, and confidence (self-efficacy) in their daily work with children (Caprara et al., 2003[122]; Klassen et al., 2009[123]; Tschannen-Moran and Woolfolk Hoy, 2007[124]). Exploring teachers' job satisfaction is important because it has strong implications for teachers' retention, attrition, absenteeism, burnout, commitment to education goals, job performance, and, by extension, students' academic achievement (Brief and Weiss, 2002[125]; Ingersoll, 2001[126]; Kardos and Johnson, 2007[127]; Klassen et al., 2009[123]; Lee, Carswell and Allen, 2000[128]; Lortie, 1975[120]; Price and Collett, 2012[129]; Renzulli, Macpherson Parrott and Beattie, 2011[121]; Somech and Bogler, 2002[130]). Well-being and stress, whether classroom or workload based, is integral to these relationships (Boyle et al., 1995[131]; Collie, Shapka and Perry, 2012[132]; Klassen and Chiu, 2010[133]).

Recent research suggests factors related to school organisation can improve and sustain teachers' job satisfaction. In particular, job satisfaction appears to vary according to the extent to which a professional community exists in the school, the extent to which teachers engage in collegial collaboration, and how much autonomy the teacher can exercise in the school (Stearns et al., 2015[134]). Teachers' relationships with their principals, in socio-emotional and in organisational terms with regard to leadership opportunities and professional discretion over classroom policies, influence teachers' job satisfaction and commitment (Price, 2012[135]; Rosenholtz, 1989[136]; Stearns et al., 2015[134]; Weiss, 1999[76]).

The environmental factors of school climate can magnify or lessen teachers' stress levels (Collie, Shapka and Perry, 2012[132]), while at the resource level, lack of proper classroom support for students with special needs and lack of basic classroom materials tend to heighten dissatisfaction (National Academy of Education, 2008[137]; OECD, 2013[14]). As discussed in the TALIS 2013 reports, teachers who work in organisational climates

characterised by collegiality and collaboration are the teachers most likely to report commitment to and involvement in their work, whereas teachers who work in climates of isolation and partition are the teachers most likely to express dissatisfaction (Hargreaves, 1994[138]; Ma and Macmillan, 1999[139]). Other studies suggest that a positive school climate also has a positive impact on teacher retention (Miller, Brownell and Smith, 1999[140]; Weiss, 1999[76]).

The types of motivators to join the teaching profession strongly correlates with the extent of satisfaction he or she reports once on the job, although it is important to remember that satisfaction can be mediated by school climate. Whether teachers are "highly engaged persisters", "highly engaged switchers", or "lower engaged desisters" can predict the expected length of time teachers remain in the profession, their perceptions about the profession, and whether intrinsic or extrinsic motivators will be the most effective ways to promote teacher growth and development (Watt and Richardson, 2008[29]). These different motivations are quite stable across a teacher's first five years (Richardson and Watt, 2010[141]). They also contribute to the effectiveness of teacher-retention policies (Müller, Alliata and Benninghoff, 2009[142]). As Richardson and Watt (2010, p. 139[141]) point out, the "…centrality of teacher motivations is integral to teachers' goals, beliefs, perceptions, aspirations, and behaviours, and thereby to student motivations and learning.".

The empirical findings from TALIS 2013 pertaining to teacher job satisfaction generated strong interest among the participating countries. Results from regression-based models accounting for school and teacher demographics were stated in the TALIS 2013 international report (OECD, 2014, pp. 200-201[5]) as follows:

- Positive relationships exist between job satisfaction and self-efficacy, teachers' opportunities to participate in decision making at a school, teachers' perception that appraisal and feedback leads to changes in their teaching practice, and collaborative professional development or engaging in collaborative practices five times a year or more.
- Negative relationships exist between job satisfaction and classroom disciplinary climate and teachers' perception that appraisal and feedback is performed merely for administrative purposes.
- Interpersonal school relationships have a mediating effect on some of the challenging classroom circumstances that affect job satisfaction.

Analytical potential and indicators

Because of the important consequences of teacher job satisfaction, TALIS 2018 will retain the TALIS 2013 questionnaire items on job satisfaction. These items, which align with PISA items, assess two dimensions of job satisfaction: school and general professional. Although these indicators worked well in TALIS 2013, a notable omission was satisfaction with the target classroom. The TALIS Governing Board requested the inclusion of this indicator in TALIS 2018, where it will be measured in terms of satisfaction with classroom autonomy.

The TALIS Governing Board also concluded from their deliberations on the TALIS 2013 findings that teachers' well-being (stress) in the workplace is a measure that needed to be improved before it could be included in TALIS 2018. Workplace stress is sometimes used as an indicator of one aspect of well-being and reflects negative emotions associated with work (Kyriacou, 2001[143]). The research literature identifies many aspects of teacher workplace well-being and stress. Two particular sources of stress in the workplace appear to be student behaviour in classrooms, and various aspects of workload, including lesson

preparation and marking, having to meet requirements beyond regular teaching, completing administrative work, and undertaking management duties (Boyle et al., 1995[131]; Collie, Shapka and Perry, 2012[132]; Klassen and Chiu, 2010[133]). These two types of stress are those that teachers most commonly identify and that, not surprisingly, affect job satisfaction. Consequently, the TALIS 2018 teacher questionnaire will contain questions on these matters.

Other aspects of teacher job satisfaction that may also be of interest, such as dissatisfaction with the lack of teacher voice in school governance or with poor interpersonal relationships with school leaders, are addressed elsewhere in the teacher questionnaire. However, these aspects can be considered and discussed as mediating effects on the workplace stressors influencing job satisfaction. The principal questionnaire could also address the issue of teacher attrition and turnover rates through questions about the frequency of teacher attrition, absenteeism, and turnover, as this information would provide a basis from which to investigate relationships between school climate and these outcomes.

Teacher job satisfaction and motivation can, thus, be linked to school climate, school leadership, human resources, self-efficacy, and other factors relevant to teachers' job commitment and satisfaction. In response to the TALIS Governing Board's request that close attention be paid to the factors associated with overall job satisfaction, TALS 2018 will include new items that encompass school leadership, leadership opportunities, terms of contracts, the influence of education policy on teaching (autonomy), and stakeholder appreciation of teachers and teaching. The inclusion of items designed to provide information about teacher turnover, retention, and attrition at the school level will provide a context from which to understand the ramifications of job satisfaction.

Teacher affect is a term that embraces a range of attributes, including job satisfaction, motivation, and stress. The importance of teacher affect is critical with respect to attracting and retaining quality teachers and, thus, for the quality of teaching and learning. The areas and items suggested would allow us to answer questions on the following matters:

- *Variation in teacher affect within and across countries:*
  - What variation is evident in teachers' job satisfaction, motivation, and stress within schools, within countries, and across countries?
  - What are the relationships between teachers' job satisfaction, motivation, and stress with their classroom, school, and the profession?
- *Relationship of teacher affect to other educational factors:*
  - To what extent is the variation in teachers' job satisfaction, motivation, and stress explained by:
    - terms of employment contracts and other education policies
    - material resources (as reported by principals)
    - school climate
    - principal leadership
    - teacher autonomy
    - extent of appreciation that stakeholders and society in general accord teachers and teaching?
- *Relationship of teacher affect to other teacher attributes and behaviours:*
  - To what extent does teachers' job satisfaction, motivation, and stress relate to:
    - teachers' self-efficacy and commitment to teaching
    - teacher attrition, absenteeism, and turnover, at the school level?

Theme: Teacher feedback and development

Introduction

Research literature shows a strong association between teaching quality and student learning outcomes (see, for example, Darling-Hammond (2000[144]); Hattie (2009[145]); Jensen et al. (2016[146]); Rowe (2003[147]); Wenglinsky (2002[148])). Consequently, every level of the education community expresses interest in the ways that teachers' professional development and feedback can contribute to teacher learning and improved instruction.

TALIS 2008 and 2013 accorded high priority to professional development and feedback, represented in both studies as two separate themes, expressed as "teacher education, from initial education through induction to in-service professional development" and "teacher appraisal and feedback". While both areas remain high priority for TALIS 2018, they will be combined into one theme, "teacher feedback and development". Combining the two acknowledges their relationship and connectedness to each other and to their role in teachers' ongoing professional learning.

In line with the guiding policy and content focus provided by the TALIS Governing Board in May 2015 (when the group was still known as the Board of Participating Countries), TALIS 2018 will include the indicators related to sources, types, and perceived impact of feedback and professional development activities used previously in TALIS, but now in improved form. New material will encompass teachers' views about effective forms of feedback and professional development, links between professional development and innovation, and links between feedback and professional development.

When recommending greater synergies between TALIS 2018 and PISA 2018, Jensen and Cooper (OECD, 2015[2]) suggested possible areas of convergence related to feedback. They also promoted the idea of comparing the professional development measures in the two surveys in order to identify relevant associations with student outcomes. Furthermore, Jensen and Cooper pointed out ways that TALIS-PISA link schools might be able to provide rich data. Discussions between the OECD Secretariat, the TALIS International Research Consortium, and the PISA contractors have facilitated negotiations related to potential synergies between the 2018 TALIS and PISA surveys.

Theoretical background

As noted above, education communities throughout the world are keenly interested in the areas of teacher feedback and development because of the impact of teaching quality on student learning outcomes. From policy makers to practitioners, instructional improvement is typically a key priority, with teacher feedback and development seen as levers to achieving quality teaching.

The comprehensive discussion of the theoretical underpinnings of the TALIS 2013 conceptual framework and the consequent justification for the focus on teacher feedback and development in that survey has relevance to the development of material for TALIS 2018. Because teachers' professional development seems to have the strongest impact on changes in teachers' learning (Hattie, 2009[145]), TALIS 2018 will again examine how schools implement professional development for teachers. It will also extend the TALIS 2013 examination of specific characteristics of professional development.

Furthermore, because providing teachers with constructive feedback based on teaching and learning in their classrooms has the largest impact of any school intervention on student performance (Hattie, 2009[145]), feedback will continue to be an important focus in

TALIS 2018. TALIS 2013 allowed researchers to consider the possibilities that schools provide for their teachers' professional development and for adequate feedback on teachers' work. TALIS 2018, too, will provide the opportunity for researchers to obtain richer detail about the quality and impact of teacher professional development and feedback at both teacher and institutional levels.

As we noted in Section I, a number of concepts evident in the last two TALIS surveys appeared to have greater relevance, or importance, to some countries than to others. TALIS 2018 will retain many of these concepts because much can be learned by considering both the presence and the absence of the concepts across countries and across analyses. An example of one such concept in the teacher feedback and development theme is induction. The definition of induction in TALIS 2018 is a refinement of the definition used in the 2013 survey. It now reads as follows:

- Induction activities are designed to support new teachers' introduction into the teaching profession and to support experienced teachers who are new to a school.
- Induction activities might be presented in formal structured programmes (for example, regular supervision by the principal, reduced teaching load, formal mentoring by experienced teachers), or they might be informally arranged as separate activities available to support new teachers (for example, informal peer work with other new teachers, a welcome handbook for new teachers).

During the pilot for TALIS 2018, a small number of countries reported that provision of induction activities for teachers at the system or local school level, or both, was either absent or very limited. While teachers in these countries might find the concept of induction unfamiliar, this matter, in itself, is interesting. When considered with analyses of other related concepts, lack of or limited induction provision may reveal new understandings about the impact of induction on teaching quality and, from there, student learning.

As discussed in the TALIS 2013 conceptual framework (OECD, 2013, p. 30[14]), teacher feedback and appraisal processes that support effective teaching practices can be a vital characteristic of high-performing schools. TALIS 2013 treated feedback and appraisal as a single construct. However, TALIS 2018 will examine them separately. This decision recognises that teacher feedback can take various forms and be provided by different agents for different purposes. Consider the purpose of feedback, for example. Here, feedback can have an appraisal/accountability focus (e.g. for the purpose of career and salary advances), feedback can have a learning/professional growth focus (e.g. for the purpose of improving instruction), or it can juxtapose the two.

The ways that different types of feedback affect teaching and learning and other aspects of teachers' working lives (e.g. self-efficacy and job satisfaction at the teacher level, and school climate at the institutional level) are of particular interest. Important elements related to the impact of feedback include transparency and trust with respect to its purpose. In keeping with the TALIS Governing Board's recommendation that TALIS 2018 collect richer detail about different forms of feedback, the quality of feedback, and the impact of feedback, TALIS 2018 will seek more detailed information from teachers about the feedback they receive and also how they perceive the impact of that feedback. The study will also ask principals about the appraisal processes in their schools. Importantly, and again as requested by the TALIS Governing Board, the questions on feedback and appraisal in this latest iteration of the study will allow trend analyses.

According to Ingvarson, Meiers, and Beavis (2005, p. 18[149]), the inclusion of opportunities for professional development participants "to benefit from rich and frequent feedback" is a

key feature of effective professional development design. Jensen and Reichell (2011[150]) similarly emphasise that the process of seeking, receiving, and responding to feedback can be a rich source of professional learning for teachers. The links between feedback and teacher development are interesting in terms of their connectedness to one another and to their role in teachers' ongoing professional learning (Isoré, 2009[151]; OECD, 2005[1]). As noted in the TALIS 2013 conceptual framework (OECD, 2013, p. 32[14]), by investigating links between professional development and school development, TALIS 2013 provided policy-relevant information on how feedback and appraisal relates to teachers' working lives. TALIS 2018 will further examine the connections between teacher feedback and teacher development.

A growing body of research points to features common to effective professional development (Desimone, 2009[152]; Hattie, 2009[145]; Ingvarson, Meiers and Beavis, 2005[149]; Timperley et al., 2007[153]; Yoon et al., 2007[154]). While TALIS 2013 questions provided insight into the kinds of professional development content that enhance teaching practice, Jensen and Cooper (OECD, 2015, p. 22[2]) argued that the study missed an "… opportunity … to link particular forms of professional development with their perceived impact on teaching …". The two authors also pointed out that "… information about the form is equally important as the content." (OECD, 2015, p. 22[2]), and noted the potential for TALIS and PISA to co-ordinate their questions on form and content to enable comparisons and potential correlation to student outcomes. In response to this critique, TALIS 2018 will specifically target the professional development activities that teachers consider are effective in order to provide information that should provide us with a better understanding of the characteristic features of those activities.

Professional development experiences can motivate, inform, and support the development of teachers' instructional practices, and teachers' ability to implement innovation in teaching and learning. Areas of interest related to connections between professional development and these pedagogical characteristics include stimuli for new ideas and professional experimentation, as well as the contextual factors that facilitate or hinder the development of instructional practices and the ability to innovate (Clarke and Hollingsworth, 2002[155]). New material in TALIS 2018 will seek teachers' views on these different areas.

Analytical potential and indicators

Key research questions relating to the theme of teacher feedback and development additional to those examined in TALIS 2013 (OECD, 2014[5]) could include the following:

- What forms of feedback are available to teachers? What forms of feedback do teachers perceive as influential on their teaching and other aspects of their professional practice (e.g. job satisfaction, motivation, self-efficacy, instructional practices, school climate)?
- What forms of professional development do teachers perceive as having an impact on their teaching and other aspects of their professional practice (e.g. job satisfaction and motivation, self-efficacy, instructional practices, school climate)?
- What connections exist between teacher feedback and development? Do teachers perceive feedback to be a feature of effective professional development? Does feedback stimulate further teacher professional development?
- In what ways does professional development stimulate and support innovation in teaching and learning?

These questions also link into other themes, including:

- *Teaching profession (professional characteristics):*
  - teacher job satisfaction and motivation (confidence, professional reflection and analysis)
  - teacher self-efficacy (confidence, professional reflection and analysis).
- *Teaching and learning (pedagogical practices):*
  - school leadership (instructional leadership, support, resources)
  - school climate (learning community, fostering effective teaching and learning)
  - teachers' professional practices (collaboration)
  - teachers' instructional practices (professional experimentation, salient outcomes).

The links have high policy relevance – not only those between the proposed questions and other TALIS 2018 themes but also those to system, school, and teacher characteristics. As noted earlier, the associations between teaching quality and student learning outcomes are well documented in the literature, with teacher feedback and development acting as critical means of achieving quality teaching.

Theme: Teacher self-efficacy

Introduction

Today, the fields of teacher education and educational effectiveness are giving greater credence to the importance of teachers' self-beliefs (Klassen et al., 2011[156]; Klassen and Tze, 2014[157]; Tschannen-Moran and Hoy, 2001[158]). Several reasons may account for this increased attention. First, educational researchers, policy makers and practitioners generally agree that teacher self-efficacy is an essential teacher characteristic and that it is strongly associated with teachers' pedagogical practices and the quality of teachers' instruction (Holzberger, Philipp and Kunter, 2013[159]). Second, these teaching practices correlate, in turn, with students' achievement and motivation, both of which are essential educational outcomes (Caprara et al., 2006[160]; Muijs and Reynolds, 2002[161]; Woolfolk Hoy and Davis, 2006[162]). Third, teachers with high self-efficacy show higher job satisfaction and commitment, and are less likely to be affected by burnout, indicating the importance of the construct for their well-being (Avanzi et al., 2013[163]; Chesnut and Burley, 2015[164]; Klusmann et al., 2008[165]; Skaalvik and Skaalvik, 2010[166]). As a consequence, teacher self-efficacy has received much attention in both national and international assessments of educational achievement. For instance, in addition to investigating teachers' characteristics, professional development, appraisal and feedback, and teachers' perceptions of school leadership, TALIS 2013 emphasised the importance of assessing teachers' self-efficacy and related constructs such as their job satisfaction (Desa, 2014[167]; OECD, 2013[14]). In summary, teacher self-efficacy appears to be an essential construct with respect to shaping effective teaching and learning environments (OECD, 2009[7]).

Theoretical background

Drawing on social cognitive theory, Bandura (1997[168]) defined self-efficacy beliefs as individuals' perceptions of their capabilities to plan and execute specific behaviour. These perceptions consist of a person's personal beliefs about what he or she can do, rather than beliefs about what he or she will do (Bong and Skaalvik, 2003[169]). These beliefs, therefore, influence the person's goals, actions, and effort (Skaalvik and Skaalvik, 2007[170]).

Within the context of education, research clearly shows significant positive associations between student self-efficacy and students' academic achievement and behaviour (Honicke and Broadbent, 2016[171]; Pajares and Schunk, 2001[172]; Schunk, 1989[173]). As Bandura (1997[168]) pointed out, these beliefs are not merely perceptions of external factors and obstacles that might facilitate or inhibit the execution of behaviours, but self-referent, meaning they are subjective evaluations of one's own capability, even though they are formed and affected by external factors (Usher and Pajares, 2008[174]). Thus, individuals who experience the same environment or context, such as a school, country, or education system, may hold very different efficacy beliefs. Environments may also affect collective efficacy beliefs, leading to systematic differences across groups (e.g. teachers in different countries).

Teacher self-efficacy refers to the beliefs that teachers have of their ability to enact certain teaching behaviour that influences students' educational outcomes, such as achievement, interest, and motivation (Klassen et al., 2011[156]; Skaalvik and Skaalvik, 2010[166]; Tschannen-Moran and Hoy, 2001[158]). These beliefs, according to Tschannen-Moran and Woolfolk Hoy (2001[158]), are context-specific and connected to instructional capabilities and tasks. Different teaching environments and practices may, therefore, give rise to different beliefs (Klassen et al., 2011[156]; Malinen et al., 2013[175]). Because existing research aligns teacher self-efficacy with specific teaching practices and requirements that enhance student learning (Caprara et al., 2006[160]; Dellinger et al., 2008[176]; Ho and Hau, 2004[177]; Holzberger, Philipp and Kunter, 2013[159]; O'Neill and Stephenson, 2011[178]), the conceptualisation of the construct comprises elements of self-efficacy theory. Research on teaching quality that defines, operationalises, and uses specific criteria to evaluate the effectiveness of teaching practices also informs the construct.

In line with the assumption that teaching practices consist of several aspects and are, therefore, multidimensional, Tschannen-Moran and Woolfolk Hoy (2001[158]) proposed a multidimensional framework of teacher self-efficacy in teaching. The framework distinguishes three core factors of teacher self-efficacy: classroom management, instruction, and student engagement (Klassen et al., 2011[156]). Teacher self-efficacy in classroom management refers to teachers' beliefs about their ability to establish an orderly learning environment and, therefore, effectively manage disruptive student behaviour (Brouwers and Tomic, 2000[179]). Teacher self-efficacy in instruction refers to teachers' beliefs as to whether or not they can use alternative teaching practices, assessment strategies, and explanations. Finally, teacher self-efficacy in student engagement addresses teachers' beliefs about the emotional and cognitive support they can give their students and about their ability to motivate student learning. A large body of research supports the validity of measures based on this three-factor framework. That research also identifies and discusses the relationships between teacher self-efficacy and external constructs, such as job satisfaction and teachers' work-based experiences, and explores the generalisability of these associations across countries and cultures (Klassen et al., 2009[123]; Pfitzner-Eden, Thiel and Horsley, 2014[180]; Scherer et al., 2016[181]; Tschannen-Moran and Hoy, 2001[158]; Vieluf, Kunter and van de Vijver, 2013[182]).

The assessment of teacher self-efficacy in TALIS 2018 covers the three essential aspects of the construct (self-efficacy in classroom management, instruction, and student engagement). Because TALIS 2013 also covered these aspects, the TALIS 2018 data should allow us to study trends in these three aspects of teacher self-efficacy. TALIS 2018 will also address three other concepts relevant to teacher self-efficacy, namely, innovation, equity and diversity. Specifically, the questionnaire items encompassing these concepts will focus on teacher self-efficacy in terms of a) fostering student innovation and student

cross-curricular skills (e.g. creativity, critical thinking, and problem solving), b) using information and communication technology (ICT) to support student learning, and c) dealing with diverse classrooms. Inclusion of these items will extend the existing TALIS teacher self-efficacy framework to encompass the principles of 21st century education.

Analytical potential and indicators

Incorporation of teacher self-efficacy in TALIS 2018 provides opportunities for addressing several research questions, notably:

- the extent to which teachers feel capable of performing general teaching practices and specific instruction to foster cross-curricular skills
- relationships between and among teacher self-efficacy, job satisfaction, and further relevant teacher outcomes (Skaalvik and Skaalvik, 2010[166])
- differences in teacher self-efficacy across cultures, countries, and education systems (Vieluf, Kunter and van de Vijver, 2013[182])
- relationships between teacher self-efficacy and teaching practices (Holzberger, Philipp and Kunter, 2014[183])
- individual differences in teacher self-efficacy with respect to teacher age, education, gender, school environment, and other factors (Klassen and Chiu, 2010[133])
- the impact of school climate on innovation and teacher self-efficacy regarding innovative teaching practice (Yi et al., 2008[184]).

Identifying relationships between teacher self-efficacy and teaching practices may provide some ground for determining potential interventions to strengthen teacher self-efficacy. Some research indicates that strengthening teacher self-efficacy results in higher levels of reported instructional quality (Holzberger, Philipp and Kunter, 2013[159]). These considerations validate direct links between and among teacher self-efficacy and teacher job satisfaction, teacher self-efficacy, and teacher self-reported instructional practices.

As noted, teacher self-efficacy also links into the concepts of innovation (e.g. self-efficacy in fostering students' cross-curricular skills and using ICT to support student learning), and equity and diversity (e.g. self-efficacy in diverse environments). Consideration of self-efficacy in diverse environments is of particular importance, because this indicator may reveal specific needs in preparing teachers for education in changing societies. TALIS 2018 will, therefore, include a separate scale provisionally titled "Teacher self-efficacy in multicultural classrooms" (see also the theme on "equity and diversity" above).

In summary, TALIS 2018 will focus on the following indicators and dimensions of teacher self-efficacy:

- *The three core dimensions of teacher self-efficacy considered in TALIS 2013* (Tschannen-Moran and Hoy, 2001[158]):
  - classroom management
  - student engagement
  - instruction.

- *Teacher self-efficacy in terms of:*
  - fostering cross-curricular skills such as creativity, critical thinking, and problem solving
  - using information and communication technology to support student learning
  - accommodating student needs in multicultural learning environments.

Themes concerned with teachers' practices

This sub-section considers research evidence regarding the two nominated themes concerned with what teachers do. "Teachers' instructional practices" are central to any survey of teaching and learning because what teachers do is the strongest direct school-based influence on student learning outcomes (Hattie, 2009[145]). Most other factors influence student learning mainly because they influence teacher practices and, thereby, have a transmitted influence on student learning. "Teachers' professional practices" are also of considerable interest because these practices embody how teachers interact with one another and their institutions in pursuit of more effective student learning.

Theme: Teachers' instructional practices

Introduction

As noted above, there is substantial evidence that teaching practices are the most powerful school-based predictors of student learning. The TALIS 2018 questionnaires will also include new items on teachers' classroom practices. The following literature review provides background evidence to support the collection of both repeat and new indicators.

Theoretical background

Teachers' instructional practices embrace a number of aspects, some of which are highly important for students' learning outcomes, such as motivation to learn and achievement in subject areas such as mathematics and first-language learning (Baumert et al., 2010[95]; Creemers and Kyriakides, 2008[185]; Hattie, 2009[145]; Isac et al., 2015[186]; Kunter et al., 2013[187]; O'Dwyer, Wang and Shields, 2015[188]). Research consequently considers these practices to be indicators of what is often referred to as instructional quality.

Many studies on instructional practices or instructional quality rely on students' reports of classroom activities (Marsh et al., 2012[189]), classroom observations (Schlesinger and Jentsch, 2016[190]), and teacher reports (Wagner et al., 2016[191]). Using teachers' self-reports to measure instructional quality is particularly challenging because these reports frequently reflect responses that the teachers consider socially desirable (Little, Goe and Bell, 2009[192]; van de Vijver and He, 2014[193]). This measurement issue often occurs when respondents are asked to use a Likert response scale (ranging from high to low agreement) to indicate the importance they attribute to each instructional practice.

To avoid the issue of social desirability, TALIS uses frequency response scales. The relevant questionnaire items ask respondents to use a frequency scale to indicate how often a particular instructional practice (e.g. cognitive activation and clarity of instruction) occurs during lessons in a randomly selected target or reference class. This choice of response scale has at least two implications. First, teachers' self-reports on selected instructional practices no longer represent the quality of the instructional practices but the frequency of their occurrence. Second, because these self-reports provide a description of teachers' actions in the classroom, they also describe characteristics of the classroom. However,

TALIS uses a Likert scale with agreement response categories to measure classroom management (which is a component of a positive disciplinary climate) because most of the associated practices already reflect quality-based aspects of teaching.

Although TALIS refers to instructional practices, the corresponding measure draws on theory and research focused on instructional quality. Instructional quality is understood differently across the field of education, but commentators agree that the concept is multidimensional (Fauth et al., 2014[194]; Kane and Cantrell, 2010[195]; Kunter and Voss, 2013[196]; Wagner et al., 2013[197]). More specifically, effective instructional practices encompass, for example, classroom management, teacher support, clarity of instruction, and cognitive activation. A considerable body of research exists on the impact of teaching practices on students' learning outcomes and progress, with one study showing that the presence or absence of these teaching practices may mediate even the relationship between students' socio-economic status and their learning achievement (Rjosk et al., 2014[198]).

Numerous studies have identified classroom management as an important contributor to student learning and a strong predictor of student achievement (see, for instance, Baumert et al., (2010[95]); Klusmann et al., (2008[165]); van Tartwijk and Hammerness, (2011[199])). Classroom management is often described as the actions teachers take to ensure an orderly environment and effective use of time during lessons (van Tartwijk and Hammerness, 2011[199]). Large-scale international assessments of student achievement have found a positive relationship in several countries between a safe and orderly environment (as reported by teachers) and student achievement (Martin et al., 2013[72]; Wang and Degol, 2016[87]). A positive disciplinary climate in the target class will serve as an indicator of classroom management in TALIS 2018.

Teacher support is another important teaching practice influencing student achievement (Kane and Cantrell, 2010[195]; Klusmann et al., 2008[165]). This dimension often includes practices such as providing extra help when needed, listening to and respecting students' ideas and questions, caring about and encouraging students, and providing emotional support (Klieme, Pauli and Reusser, 2009[200]). In TALIS 2018, this construct is assessed by the scale measuring clarity of instruction. However, further aspects of the construct are not covered in TALIS 2018.

Researchers have also identified clarity of instruction as an important influence on student learning (Kyriakides, Campbell and Gagatsis, 2000[201]; Scherer and Gustafsson, 2015[202]; Seidel, Rimmele and Prenzel, 2005[203]). This dimension refers to clear and comprehensive instruction and learning goals, ability to connect new and old topics, and providing students with a summary of the lesson at its end (Hospel and Galand, 2016[204]; Kane and Cantrell, 2010[195]; Seidel, Rimmele and Prenzel, 2005[203]). While working on the Leibniz Institute for Science and Mathematics Education (IPN) Video Study of 2005, Seidel and colleagues (2005[203]) found that goal clarity and coherence had a positive influence on students' perceptions of supportive learning conditions. The two dimensions of clarity of instruction and teacher support may consequently be closely aligned.

Cognitive activation consists of instructional activities that require students to evaluate, integrate, and apply knowledge within the context of problem solving (Lipowsky et al., 2009[205]). It is, perhaps, the most demanding and complex of the four dimensions in terms of its operationalisation, possibly because it is more closely connected than the other three dimensions to subject domain (Baumert et al., 2010[95]; Hiebert and Grouws, 2007[206]; Klieme, Pauli and Reusser, 2009[200]). It may also be because of its strong dependence on variability in instructional quality across lessons (Praetorius et al., 2014[207]).

The focus of instructional practices in TALIS is on general rather than subject-specific instructional practices. TALIS also provides a teacher-centred perspective on instruction, thereby contributing to already documented understandings of instructional quality (Kunter et al., 2008[208]; Wagner et al., 2016[191]). Although this perspective might be subject to response bias, teachers' self-reports can provide valid information, particularly if that information is drawn from teachers' perceptions of classroom management, a factor that is significantly related to teachers' well-being and risk of burnout, and to students' academic, behavioural, emotional, and motivational outcomes (Aloe et al., 2014[209]; Korpershoek et al., 2016[210]; Holzberger, Philipp and Kunter, 2014[183]) have also identified a substantial relationship between teachers' instructional practices and teacher self-efficacy.

In addition to effectively employing the four instructional practices mentioned above, teachers need to provide feedback to students in the form of both formative and summative assessment (Hattie and Timperley, 2007[211]; Kyriakides and Creemers, 2008[212]; Scheerens, 2016[213]). Research shows that effective teachers provide constructive feedback, and that this type of feedback has positive implications for teaching and learning (Muijs and Reynolds, 2001[214]). Quality feedback motivates students because they need to know their strengths and weaknesses in order to improve their performance (Muijs et al., 2014[215]). Feedback from teachers may also enhance students' understanding of teachers' expectations and is an important contributor to effective self-regulated learning (Dignath, Buettner and Langfeldt, 2008[216]).

Among other assessment strategies that form the basis for teachers' feedback to students, homework appears to offer a rich source of information on learning (Cooper, Robinson and Patall, 2006[217]). Beyond the time students spend on their homework, the effort they put into it is a strong predictor of learning outcomes (Flunger et al., 2015[218]). TALIS 2018 will, therefore, include students' homework as another assessment strategy in classrooms.

Over the last two or so decades, many education systems have been intent on developing students' 21st century knowledge and skills. Today, helping students develop sets of knowledge and skills that they can transfer from learning domain to learning domain has become one of the main goals of education worldwide (Binkley et al., 2012[219]; Bohle Carbonell et al., 2014[220]). While facilitating the development of 21st century knowledge and skills has been a particular challenge for teachers (Dumont and Istance, 2010[221]), this task does not necessarily require novel forms of instructional practices and can be achieved within specific subject domains (Greiff et al., 2014[222]; Scherer and Beckmann, 2014[223]; Schwichow et al., 2016[224]). However, the current need for teachers to deal competently with equity and diversity in classrooms demands instructional practices that accommodate differences among students (Dumont and Istance, 2010[221]).

TALIS 2013 assessed the quality of teaching practices in terms of classroom management and aspects of teacher support. TALIS 2018 will address classroom management and add the dimensions of clarity of instruction and cognitive activation. This extension of the existing assessment will enhance the value of the TALIS-PISA link because PISA attempts to assess students' perceptions of classroom management, teacher support, and cognitive activation (OECD, 2013[225]). Moreover, with respect to the theme of "innovation, equity, and diversity", TALIS 2018 will enhance the assessment of teaching practices by focusing

on "teachers' instructional practices of fostering students' cross-curricular skills"[8] and "teachers' instructional practices to account for equity and diversity in classrooms".

Analytical potential and indicators

Assessing teachers' instructional practices provides grounds for research questions on the following:

- relations between teaching practices and teachers' background (e.g. teacher education)
- profiles of teaching practices and potential determinants at the teacher level
- relations between teachers' perceptions of their instructional practices and relevant teacher measures, such as self-efficacy and job satisfaction
- cultural differences in instructional practices
- profiles of general teaching practices (i.e. classroom management, cognitive activation, and clarity of instruction) and the specific practices that foster students' cross-curricular and innovation skills.

This potential for future analyses suggests that we can link concepts underpinning teaching practices to several indicators. These include teachers' self-efficacy (e.g. classroom management and fostering innovation as aspects common to both themes), school climate (e.g. teaching practices that feed into a school's academic climate), job satisfaction (e.g. classroom management as a potential determinant of job satisfaction), and innovation (e.g. establishing innovative teaching practices and/or fostering students' innovation skills).

From a policy perspective, assessment of teaching practices is highly relevant because it provides information about aspects of instructional quality (Klieme, Pauli and Reusser, 2009[200]). In addition, information on classroom management, cognitive activation, and clarity of instruction may reveal specific needs for preservice and in-service teacher education. Because assessment of teaching practices in TALIS 2018 will continue to be based only on teachers' self-reports, the inferences that we can make from the resultant information will be limited. Incorporating practices related to innovation and equity and diversity in TALIS 2018 should, however, provide us with information on the extent to which teachers are responding to crucial societal developments and whether they are fostering the development of the transferable knowledge and skills considered to be the main outcomes of 21st century education (Pellegrino and Hilton, 2012[226]).

The assessment of instructional practices in TALIS 2018 will also continue to be based on teachers' self-reports.

The dimensions and indicators concerned with teachers' instructional practices can be summarised as:

- *Profile of teaching practices with respect to the dimensions of instructional quality* (Decristan et al., 2015[22]; Fauth et al., 2014[194]; Klieme, Pauli and Reusser, 2009[200]):
  - classroom management as indicated by a positive disciplinary climate (as in TALIS 2008 and 2013)
  - clarity of instruction
  - cognitive activation

[8] A thorough definition of cross-curricular skills is included in the description of the "innovation" theme.

- feedback to students
- assessment strategies
- lesson time spent on teaching and learning.

- *Profile of teaching practices with respect to 21st century instruction:*
  - fostering students' cross-curricular skills
  - accounting for equity and diversity in classrooms.

Theme: Teachers' professional practices

Introduction

Interest in "teachers' professional practices" as a TALIS theme acknowledges the complex and multi-faceted dimensions of teaching as a profession. The theme encompasses a range of professional activities that teachers engage in within and beyond the classroom. Taken together, this theme and the theme of "teachers' instructional practices" can be thought of as central to the pedagogical core of schooling (see earlier discussion on the conceptual mapping of themes in TALIS 2018, Figure 2). The kinds of professional practices examined in this theme include collaboration, participation in school decision making (a topic that also forms part of the theme on human resource issues and stakeholder relations), and involvement in teaching activities outside teachers' own countries (i.e. academic mobility).

In line with the guiding policy and content focus provided by the Board of Participating Countries (now the TALIS Governing Board) in May 2015, the main focus for this theme in TALIS 2018 will be on collaboration. A key finding of TALIS 2013 highlighted the complex forms of collaboration in which teachers engage. Teachers' views on the school environment, conditions and resources that are needed to foster deep forms of collaboration in schools – and also between schools and external stakeholders – is a focus of considerable interest for TALIS 2018, as is the extent of alignment between teachers' views and principals' views on collaboration.

TALIS is also interested in exploring the role of collaboration in teacher professional development and in teachers' professional experimentation with innovative pedagogies. As Jensen and Cooper (OECD, 2015, p. 23[2]) reported, "… collaboration can support new ideas and challenge existing ones, which can be a powerful form of teacher learning." TALIS 2018 will, therefore, contain new material focusing on these areas. TALIS 2018 will repeat these TALIS 2013 indicators in an improved form. The repetition should enable comparisons between the two surveys.

Teacher involvement in school decision-making processes is another area of focus for this theme, and here the TALIS 2013 indicators will be repeated in TALIS 2018, but again in an improved form. Some of the countries participating in TALIS 2018 are interested in gaining a better understanding of the "new" emphases placed on teacher leadership in schools (see the discussion on the theme of "school leadership" below) and the extent to which synergies exist between teachers' and principals' views of decision-making processes in schools. Countries are also interested in looking at the opportunities afforded by the transnational mobility of teachers and in identifying potential links between teacher academic mobility and continuing professional development, collaboration, instructional practices, and innovation.

Theoretical background

Collaboration is a professional practice of high interest to teachers and policy makers alike. As noted in the TALIS 2013 conceptual framework (OECD, 2013, p. 36[14]), research has repeatedly found collaboration among teachers to be a particularly important professional practice because it appears to play a role in various elements of teachers' work, including teaching practice, learning, decision making, and satisfaction, as well as in school culture (Desimone, 2009[152]; Goddard, Goddard and Tschannen-Moran, 2007[227]; Timperley et al., 2007[153]). Collaboration can play a role in supporting teacher reflection (Tse, 2007[228]; Harris, 2002[229]) and help teachers develop a more purposeful knowledge base (Erickson et al., 2005[230]). It can also be valuable for supporting changes in teaching practice because it encourages professional communication and sharing among teachers (Garet et al., 2001[231]).

However, collaboration is a complex process, and researchers and other stakeholders have sometimes elevated its status without foundation. Little (1990, p. 508[232]) cautioned against simplistic interpretations of collaboration, arguing that "…the assumed link between increased collegial contact and improvement-oriented change does not seem to be warranted…". Other researchers have highlighted the interrelationship of collaboration and collegiality. According to Kelchtermans (2006, pp. 220-221[233]), for example, these terms are not identical, and that whereas "…collaboration is a descriptive term, referring to cooperative actions, collegiality refers to the quality of the relationships among staff members in a school."

Collaborative activities take different forms, including formal opportunities in the learning organisation and equally valuable informal and voluntary collaboration triggered by the situations or challenges teachers themselves collectively feel the need to address. However, not all collaborative activities benefit teachers' work.

TALIS 2013 asked teachers about the frequency of their involvement in different types of collaborative activity. However, none of the questions specifically focused on the impact of teachers' collaboration in terms of how collaborative activities support or hinder teachers' professional work and how collaborative activities shape teachers' attitudes about their professional work. As Kelchtermans (2006, p. 224[233]) has observed: "In order to properly understand and evaluate (value) collaboration and collegiality more, in particular one has to (a) distinguish between different forms of teacher collaboration, (b) develop a more balanced view on the value of both teachers' collaboration and autonomy, and (c) take into account the content or the agenda of teacher collaboration (collaboration for what?)."

Several researchers have endeavoured to develop a more balanced view of the value of teacher collaboration and teacher autonomy. Several key ideas can be identified from their findings. First, autonomy can take various forms and serve different purposes in schools. Hargreaves (1993[234]), for example, described three types of autonomy: constrained, strategic, and elective; Clement and Vanderberghe (2000[235]) described a fourth type: ascribed. Second, autonomy and collegiality can be conceptually and empirically linked to teacher professional learning. According to Clement and Vanderberghe (2000[235]), a balance between autonomy and collaboration strongly influences teacher learning opportunities in schools and the extent to which teachers are able to implement what they have learned. Third, autonomy is important to teachers. As Firestone and Pennell (1993[236]) found, autonomy is central to teachers' intrinsic motivation. These two researchers also reported that a reduction in teacher autonomy can lead to teachers becoming dissatisfied with teaching. Fourth, not all collaboration is educationally valuable. Hargreaves (1994[138])

described a type of collaboration that, because it is contrived, does not contribute to the development of teacher professionalism. For Kelchtermans (2006[233]), a strong balance between autonomy and collaboration seems to provide the most promising way ahead for the goals of teacher professional development and school improvement. TALIS 2018 will, therefore, explore the conditions in schools that enable both individualism and collaboration.

Other areas recommended for further consideration in TALIS 2018 include a focus on the conditions under which collaboration can (effectively) occur, the forms of collaboration that might influence teaching practices and student learning (e.g. collaboration that clearly sees teachers talking together about teaching), and the distinction between collaboration and co-operation. As Kelchtermans (2006, p. 222[233]) has observed, "…teacher collaboration is not new, but over the past 25 years its focus and ambitions have shifted remarkably. Early optimistic claims and hopes were outbalanced by empirical work. More recently the concepts of teacher collaboration and collegiality are often discussed as part of the idea of 'professional learning communities' or 'communities of practice' (see, for example, (Bolam and McMahon, 2004[237]))." Collaboration and collegiality as part of professional learning communities and communities of practice could also be usefully considered in TALIS 2018.

Teacher participation in school decision-making processes is another indicator of interest for TALIS 2018. As reported in the discussion of the school leadership theme, evolution in the field of educational leadership has seen a greater emphasis in schools on distributed leadership and teacher leadership. The growing interest in harnessing the leadership potential of teachers more generally means flatter management structures in schools, thus enabling teachers to be more involved in areas such as school improvement, pedagogy, school vision, and school goals. New material relevant to teacher leadership included in TALIS 2018 will gather information about teachers' perspectives of their involvement in school decision making and enable later comparison with principals' views in this area.

A particular area of interest for some participating countries relates to the opportunities teachers have with respect to academic mobility. The definition of academic mobility used in TALIS 2018 refers to a period of study, teaching, and/or research in a country other than the teacher's country of residence, which is of limited duration and assumes that the teacher will return to his or her country at the end of the designated period. These opportunities do not involve migration from one country to another, and teachers typically access them through exchange programmes set up for this purpose, or they make their own individual arrangements. Interest in teacher academic mobility is strong in some countries because of its perceived benefits, in particular those relating to teacher learning and teaching quality, as well as to teachers' professional characteristics, such as job satisfaction, job motivation, and self-efficacy. The TALIS 2018 questions on the purpose and duration of teacher academic mobility that we intend to include in TALIS 2018 will enable examination of links between these opportunities and the following areas: continuing professional development, collaboration, instructional practices, innovation in teaching and learning, job satisfaction and motivation, and self-efficacy.

Analytical potential and indicators

In addition to inclusion of the key TALIS 2013 research questions concerning teachers' professional practices, the types of questions that could be included in TALIS 2018, given the proposed directions and changes for this theme, are:

- What do teachers and principals perceive to be the conditions under which collaboration can effectively occur (including a balance with autonomy)?
- What forms of collaboration do teachers think influence their teaching practices and student learning?
- What connections exist between collaboration and development? Do teachers perceive collaboration to be a feature of effective professional development? Does collaboration stimulate further teacher professional development?
- In what ways does collaboration stimulate and support innovation in teaching practice?
- What do teachers and principals perceive to be teachers' roles in school decision making?
- What do teachers and principals perceive to be teachers' roles in leadership?
- In what ways does academic mobility stimulate and support teacher learning and teaching quality (e.g. in teacher development, collaboration, instructional practices, innovation) and other aspects of teachers' professional practice (e.g. job satisfaction and motivation, self-efficacy)?

These questions have relevance for other TALIS 2018 themes, including:

- *Teaching profession (professional characteristics):*
  - teacher job satisfaction and motivation (confidence, professional reflection and analysis)
  - teacher feedback and development (role of collaboration)
  - teacher self-efficacy (confidence, professional reflection and analysis).
- *Teaching and learning (pedagogical characteristics):*
  - school leadership (instructional leadership, support, resources)
  - school climate (learning community, fostering effective teaching and learning)
  - innovation (professional development, professional experimentation, collaboration)
  - teachers' instructional practices (professional experimentation, salient outcome).

The proposed questions and their links to other TALIS 2018 themes, as well as to system, school, and teacher characteristics, have high policy relevance. As we observed above, we can position teachers' professional practices together with teachers' instructional practices as the pedagogical core of the teaching and learning focus in TALIS 2018. We can also think of this dual construct as being shaped by and dynamically shaping the different areas of teachers' professional characteristics.

Themes that intersect with other themes and apply to both the institutional and teacher levels

This sub-section considers two themes that emerged during the TALIS 2018 planning process: "innovation" and "cultural diversity". These themes were cross-cutting not only because they involve elements and concepts that overlap with other themes (especially school climate and teachers' instructional practices) but also because they involve both the teacher and the institutional level. The TALIS Governing Board considers these themes as sufficiently important to warrant developing them as distinct themes rather than as aspects of other themes.

Theme: Innovation

Introduction

Rapidly changing societies, economies, and technologies have led to frequent calls for innovation in the field of education. The 2015 International Summit on the Teaching Profession lists encouraging innovation to create 21st century learning environments as one of three crucial criteria that need to be in place if an education system is to succeed. How to define innovation is not entirely clear though. A TALIS report published in 2012 defined innovation as "…a new idea or a further development of an existing product, process or method that is applied in a specific context with the intention to create a value added." (Vieluf et al., 2012, p. 39[8]). The authors of the report pointed out that incremental adaptations of existing characteristics are a feature more commonly seen in relation to innovation than to radical change.

Theoretical background

The literature on innovation in education discusses at least three perspectives on this matter. The first concerns innovative teaching practices that support students' acquisition of cross-curricular skills. In addition to acquiring well-established literacies, such as reading and mathematics, today's generation of students needs broader and more complex skills if they are to have a fair chance of succeeding in complex modern societies and in rapidly changing global labour markets. These skills encompass or refer to ways of thinking, ways of working, tools for working, and aspects of living in the 21st century (Binkley et al., 2012[219]). The skills of creativity and innovation, problem solving, critical thinking, and digital literacy are the skills mentioned most often in this context, but there are others (OECD, 2015[238]). Some of these skills have been essential for individuals over centuries, whereas others have just emerged because of recent societal changes and technological advances (Greiff, Niepel and Wüstenberg, 2015[239]).

If teachers are to meet societal need for developing these skills in their students, they need to be prepared to foster such skills in education. Because the integration of digital technologies into current teaching practices is one topic often mentioned in this context (Dumont, Istance and Benavides, 2010[240]), linking TALIS 2018 to studies conducted by the International Association for the Evaluation of Education (IEA) on the implementation of computer and information technology in education should be useful. These studies include the Second Information in Technology in Education Modules 1 and 2 (SITES-M1 and SITES-M2) and the International Computer and Information Literacy Study (ICILS 2013). Some of the scales implemented in those studies (see, for example, Fraillon et al., (2014[241])) could be used in TALIS 2018.

The integration of digital technologies into practice has an affective-motivational prerequisite, that is, a positive attitude toward technologies and technological innovativeness. Teachers with this type of positive attitude are more likely to integrate digital technologies into their teaching (Teo, 2011[242]) and to take risks (be innovative) in their use of those technologies (Yi, Fiedler and Park, 2006[243]). The concept of innovation in teaching practices is a domain-specific version of the more generic innovativeness of teachers (see the discussion of the third perspective below). The application of innovative teaching practices, which cross traditional subject borders and support interdisciplinary approaches, collaboration between students, and inquiry learning, is another topic relevant to this context (OECD, 2013[14]).

The second perspective of interest with regard to innovation concerns the general uptake by teachers, as core actors in educational processes, of innovative practice. For Rogers (2003[244]), innovative practice on the part of the individual teacher is an indispensable precondition for change in education systems. Rogers proposed that teachers could be classed into five innovation-based groups, with those groups classified according to when a teacher adopted an innovation. The five categories are innovator, early adopter, early majority, late majority, and laggard. Unless teachers are willing to be open to new experiences and are able to cope with the uncertainty that so often accompanies change, they are unlikely to embrace innovation, in part because they consider it breaks up classroom routines.

To date, efforts to assess individual teacher innovativeness have most often drawn on teachers' self-perceptions. One relevant tool in this regard is the Individual Innovativeness Scale designed by Hurt, Joseph and Cook (1977[245]). It shows good psychometric properties (Pallister and Foxall, 1998[246]; Simonson, 2000[247]) and many countries have used it (see, for instance, Celik, (2013[248])). The scale measures the general innovativeness of individuals using 20 items that reflect sub-constructs of innovativeness such as risk-taking, resistance to change, and opinion-leading. Although the use of self-ratings is often controversial, they do provide efficient measures that provide sufficient degrees of both reliability and validity with respect to innovativeness (see the references cited above).

Openness and extraversion are facets of plasticity, a personality trait that promotes adjustment to changing environments and is a prerequisite for innovativeness (DeYoung, Peterson and Higgins, 2002[249]). Hanfstingl and Mayr (2007[250])summarised the state of research on these facets and found both significantly related to teacher performance in the classroom as perceived by the teachers or rated by their students. Links are also evident between these teacher characteristics and teacher self-efficacy. Tschannen-Moran and Woolfolk Hoy (2001[158]) found that the teachers in their study with high self-efficacy were more open to new experiences and were more willing to implement innovations than the teachers with low self-efficacy. Other characteristics evident in the research literature concerning openness and extraversion refer to seeking novelty, which plays an essential role in the early stages of adopting new products (Manning, Bearden and Madden, 1995[251]; Schweizer, 2006[252])), and seeking diversity in order to decrease boredom or obtain a change of pace (Fishbach, Ratner and Zhang, 2011[253]; Steenkamp and Baumgartner, 1992[254]).

A teacher's general orientation towards innovation – understood as an individual, personality-related trait – thus plays an important role in facilitating innovation in his or her teaching practices. An intention for TALIS 2018 is to combine a psychological and a sociological perspective on teacher innovativeness. Here we need to remain mindful that, while this perspective has an individual (cognitive) component that can be addressed through an individual teacher innovativeness scale, it also has an organisational component that reflects shared perceptions of a group's innovativeness (Anderson and West, 1998[255]), in TALIS's case, the teachers in a school.

When in their schools, teachers tend to interact with one another relatively infrequently despite being in the same school environment, sharing a common goal (to foster students' abilities), and having experienced similar socialisation processes. However, as Anderson and West found (1998[255]), when teachers in a school do interact and share experiences, they are more likely than teachers who do not engage in this way to develop shared perceptions, of how to respond to change, for example. An instrument titled The Team Climate Inventory captures this facet of innovativeness as a collective characteristic rather

than an individual one. The inventory emphasises the nature of an organisation as an open system instead of a classic bureaucracy (Patterson et al., 2005[256]). Consequently, a school characterised as an open system is likely to take a flexible approach to change and innovation. It is also likely to encourage, adopt, and support the implementation of new ideas and innovative approaches.

The third literature-based perspective on innovation concerns school contexts that are open to innovation. Teachers work in an organisational context that mediates or moderates the influence of their cognitive and non-cognitive personality characteristics on their performance and well-being. Of utility here is the Job Demands-Resources or JD-R model developed by Bakker and Demerouti (2007[257]). Within the context of understanding what this model offers, it should be noted that "job resources" refers to school conditions that buffer potentially negative effects on teachers' classroom performance and health on the one hand, and enhance their work engagement, and well-being on the other (Bakker, 2011[258]). Typical barriers that work against innovation are lack of time and infrastructure needs (Andrews, 2007[259]). School leadership, as performed by principals, can play an important role, not only in terms of creating a culture of innovation in schools but also in terms of breaking down innovation barriers.

In addition to an innovation-friendly school climate, certain system characteristics are important preconditions of innovation because their presence makes it easier for schools to adapt to rapid developments. One such characteristic is documented in the TALIS report on pedagogical innovation (Vieluf et al., 2012[8]). The authors of the report pointed to the value that professional learning communities offer because they constantly provide feedback to teachers, thus supporting incremental change and positively affecting instructional quality and student achievement (Bolam et al., 2005[260]; Louis and Marks, 1998[261]).

Analytical potential and indicators

The concept of innovation feeds into different themes in TALIS 2018. As a consequence, this current iteration needs to include indicators pertaining to those themes. As a first attempt to capture the above-mentioned perspectives on innovation, TALIS 2018 will use two perspectives that, together, encompass six indicators.

- *Innovative teaching practices:*
  - teachers' preparedness for fostering innovative educational outcomes such as creativity, critical thinking, and problem solving (i.e. cross-curricular skills)
  - integration of information and communication technology in teaching practices
  - individual innovativeness (teacher level)
  - teachers' general innovativeness and openness towards innovation in teaching.
- *School climate for innovativeness (teacher and principal level):*
  - school climate for innovativeness at the organisational level
  - school climate for innovativeness with respect to professional learning communities (i.e. teacher teams).

TALIS 2018 will use an adapted version of the Team Climate Inventory (Patterson et al., 2005[256]) to collect information focused on the school climate for innovativeness. Principals will be asked about organisational innovativeness because teachers are rarely involved in considerable numbers in organisational decisions.

It can be noted that teaching practices aimed at fostering innovative educational outcomes (21st century skills) can be distinguished from innovative teaching practices. Whereas this

first set of practices considers the educational outcomes to be innovative (i.e. outcome orientation), the second set emphasises innovation in terms of the methods used to teach such skills (process orientation).

Theme: Equity and diversity

Introduction

Diversity of student background encompasses many factors, including cultural background, socio-economic background, and gender. The extent of diversity in cultural and socio-economic backgrounds differs greatly across education systems and schools. Some systems and schools are quite homogenous in terms of diversity, while others are heterogeneous. Many education systems and schools have developed diversity-related approaches to teaching and learning. TALIS 2018 will ask school principals and teachers about the approaches to teaching and learning in their schools that respond to cultural, socio-economic, and gender differences among students.

Issues concerned with school policies and teaching approaches in diverse cultural environments have become increasingly prevalent, notably in Europe. Cultural diversity is a feature of many countries in Europe, with migration a strong contributor to that diversity. In 2015, during a meeting of the TALIS Board of Participating Countries (now TALIS Governing Board), the European Commission highlighted cultural diversity as a topic requiring attention in the TALIS 2018 conceptual framework and questionnaires. The recent massive influx of refugees into Western Europe has placed cultural diversity even higher on some countries' education policy agendas.

Each of the sources of diversity that will be considered in TALIS 2018 (i.e. cultural diversity, socio-economic diversity, and gender) has a long history in education policy and practice, with many school systems having now adopted programmes that represent responses to the differences in each of these domains. These domains are also a source of ongoing interest in large-scale international assessments of educational achievement. OECD's PISA, for example, has, for some time, used information obtained through its student, teacher, and school questionnaires to assess responses to and the impact of student diversity. PISA has also addressed issues of equity in outcomes among students from different socio-economic backgrounds, as well as cultural backgrounds (OECD, 2015[3]).

A recent OECD report titled *Immigrant Students at School: Easing the Journey towards Integration* (OECD, 2015[262]) used PISA data to explore how education systems across the world manage to integrate a diverse student population, especially a population containing students from immigrant backgrounds, into their schools. PISA 2018 plans to continue inclusion of this theme and to accord it greater emphasis. This inclusion offers possibilities for harmonising, across TALIS and PISA, the collection and analysis of information on education policies and practices regarding cultural diversity.

Issues of equity and diversity cross a number of existing themes. Thorough investigation of each, however, requires the inclusion of specific questions about school policies, practices, and approaches to teaching. For this reason, TALIS 2018 considers equity and diversity to be a theme rather than just a cross-cutting issue.

Theoretical background

As noted, TALIS 2018 will address equity and diversity within the contexts of cultural background, socio-economic background, and gender. In the interests of alignment with PISA 2018, TALIS 2018 will place the strongest emphasis on cultural background.

School and teaching policies and practices regarding cultural diversity have important ramifications for immigrants (Banks and Banks, 2009[263]). PISA studies show that differences in school systems can affect outcomes for immigrant students (OECD, 2006[264]; 2010[265]; 2012[266]). According to PISA data, reading achievement among immigrant students is higher in countries with a more inclusive immigration policy than in countries with a less inclusive policy (Arikan, van de Vijver and Yagmur, 2016[267]). Greater proportions of immigrants in countries with more inclusive immigration policies use the majority language than in countries with more assimilation-oriented policies, such as France (Yagmur and van de Vijver, 2012[268]).

A dominant paradigm in studies on cultural diversity derives from work by Ely and Thomas (2001[269]). They identified two main perspectives in cultural diversity policies. The first perspective, often called equity, emphasises fostering equality and inclusion and valuing diversity. In policy terms, this perspective regards all children in a class as equals, avoids discrimination, and treats all students fairly (Schachner, 2014[270]). At the school level, this policy frequently resembles a "colour-blind" approach to diversity, in which the primary goal is to create and maintain homogeneity. This homogeneity often implicitly refers to the dominant culture of a country, and it tends to be associated with assimilation (Plaut, Thomas and Goren, 2009[271]). There is evidence that a policy such as this one helps students with an immigrant background adjust to their changed circumstances (Schachner, 2014[270]).

The principle behind the second perspective, called multiculturalism, is that diversity creates resources that can enrich the school and promote respect for and knowledge of other cultures. This approach acknowledges and recognises expressions of diversity. Diversity, according to this perspective, is a resource that can lead to more knowledge of other cultures, more openness to other cultures, and the enhancement of intercultural skills. Multicultural policies have been shown to promote student motivation and school belonging (Schachner, 2014[270]). Although the two policy streams of equity and multiculturalism may seem different, empirical studies show that schools often combine components of both (Schachner, 2014[270]; Schachner et al., 2016[272]).

The focus of education policy, practice, and research with regard to socio-economic background has been on equity of education provision and opportunity in an effort to minimise the well-documented association between socio-economic status and achievement outcomes (OECD, 2013[225]; Sirin, 2005[273]). Cross-national studies of educational achievement have contributed to deliberations about the effects of socio-economic background on achievement outcomes by showing that the strength of the relationship varies considerably across countries. This finding has increased interest in the policies and practices associated with those variations (Alegre and Ferrer, 2010[274]; Nilsen et al., 2016[275]). What is done in schools with high concentrations of students from low socio-economic backgrounds has attracted particular interest in this regard. Many countries now have special programmes in place in these schools, or have given them additional resources with the aim of ameliorating inequity in outcomes. In a few instances, policies and practices have recognised aspects of culture in the communities these schools serve.

Themes relating to gender embrace education policies and practices similar to those identified in relation to cultural diversity. Many countries now have a long tradition of policies and practices that promote equal education opportunities and equitable learning outcomes for both female and male students (Voyer and Voyer, 2014[276]). A particular emphasis has been on gender differences in achievement and participation in mathematics and science, where male students have traditionally out-performed females. Cross-national studies show that the extent to which participation and achievement by female and male students in these subjects differs across countries has shifted over time within countries. For example, the gap in mathematics performance has become much narrower, despite boys generally being more motivated to take up mathematics (Else-Quest, Hyde and Linn, 2010[277]). Some of those differences, and shifts across time in those differences, appear to be associated with emphases in policy and practice, such as gender equity in enrolment (Else-Quest, Hyde and Linn, 2010[277]). At the same time, many education systems and school practices (including those relating to curricula) are also intent on ensuring that differences in students' interests, perspectives and aspirations are accommodated.

Analytic potential and indicators

TALIS provides an opportunity to compare practices and policies concerned with aspects of equity and diversity across schools and across countries. In addressing cultural diversity, TALIS questions will refer to teachers' capacities to respond to differences in students' cultural backgrounds and school practices in relation to cultural diversity. The TALIS items on cultural diversity will derive partly from work by Schachner (2014[270]). In accordance with the theme of diversity, the items on gender and socio-economic status in TALIS 2018 will mainly feature equity issues.

Background information for teachers, principals, and schools

Administration of the TALIS 2018 questionnaires will follow the same procedure used in TALIS 2013 to collect key information about teachers', principals', and schools' backgrounds. The teacher questionnaire asks teachers to record key personal information (e.g. gender, age, employment status, work experience, initial teacher education, and teaching programme) as well as characteristics of their classrooms (e.g. the student composition of the class). The TALIS 2018 principal questionnaire will ask principals to provide key personal information, including their education and experience in schools. The principal questionnaire will also ask principals to provide information about the characteristics of their respective schools (e.g. location, school size, school type, funding model, and student composition). Having recourse to this personal, classroom, and school information is important contextually during analysis of teachers' work and the working conditions that teachers see as enabling them to function effectively in their role.

The background information collected should also reveal basic characteristics likely to be of interest in terms of their relationship to other indicators. This information may also be of value as purely descriptive information about schools and systems, and in providing understanding of the contexts in which data about TALIS themes and indicators are interpreted.

Teacher background

Introduction

Ability to describe and compare the composition of the teaching force across countries relies on having at hand information about teacher background in terms of age, gender, employment status, and job experience. This information is also important for anyone conducting complex analyses of the antecedents of outcomes, such as teacher self-efficacy or job satisfaction or when undertaking profile analyses. Because TALIS 2018 focuses mainly on ISCED 2, a few items require the development of specific response categories so the items are suitable for use at ISCED levels 1 and 3.

Theoretical background

The strong influence that teachers have on instructional quality and student achievement is widely accepted (Hattie, 2009[145]; Kyriakides, Christoforou and Charalambous, 2013[278]). Within-country variability in teacher background characteristics is generally large and usually reflects large differences in teacher profiles. These background characteristics are accepted as affecting student outcomes through transmitted effects (e.g. teaching practices) rather than direct effects. Because trend comparisons across time are an overarching objective for TALIS 2018, we are keeping as many items as possible consistent with those in the TALIS 2013 cycle. However, recent state-of-the-art literature and interest in more in-depth information, as well as alignment with PISA 2018, may require other or additional items. In the interest of consistency, we may consider some alignment in the sequencing of items and their response categories across TALIS and PISA.

Analytical potential and indicators

TALIS 2018 will include the following indicators of teacher background:

- gender, age, and language background
- employment status
- full-time or part-time teaching
- commitment in other schools
- experience (as a teacher and in other work).

School and classroom context

Introduction

Several aspects of school and classroom contexts aid understanding of the conditions under which teaching and learning takes place. School and classroom contextual data provides important information for anyone endeavouring to interpret data on teachers' work and working conditions. School and classroom context information is of interest because of its relationship to other indicators, and because it provides purely descriptive information about schools and education systems.

Theoretical background

A substantial body of research concerns the impact of school and classroom context (conceptualised either as the social composition of the school and classroom or as the neighbourhood in which the school is located) and school characteristics on student achievement. Debate continues on the extent to which the overall characteristics of the

student population have an effect on student learning outcomes after statistically allowing for the effects for individual students (Borman and Dowling, 2010[279]). Analyses of PISA results suggest that, in most of the participating countries, students, regardless of their own socio-economic background, are advantaged scholastically if they attend "…a school whose students are, on average, from more advantaged socio-economic backgrounds." (OECD, 2004, p. 189[280]). However, the strength of this advantage varies across countries in line with the extent to which schools differ in their social composition.

Of more direct concern to TALIS is the degree to which effects of school composition on student achievement are influenced by differences in the characteristics of teachers and differences in approaches to teaching that are associated with differences in the composition of the school population. In other words, do more affluent schools attract and retain more highly qualified and experienced teachers than less affluent schools? Another relevant question is whether the social circumstances of less affluent schools constrain approaches to teaching either because of limited access to resources or concerns with behaviour management? Students with migrant or refugee background and their education are currently a priority for many countries (OECD, 2015[262]). It is important to be able examine teaching and school practices in schools with varying percentages of students with an immigrant background.

There is also interest in the extent to which school structural characteristics and geographic location affect student achievement and other outcomes, with that influence mediated by the impact these characteristics and location have on how teaching takes place. One substantial review of the effects of school size suggested that smaller schools offer benefits for many aspects of teaching and learning (Leithwood and Jantzi, 2009[281]).

A number of countries appear to have experienced an increase in the percentages of teachers who work on a part-time basis. In Australia, in 2013, a large national survey of teachers established that 20% of teachers in secondary schools and 27% of teachers in primary schools were working part time (Weldon, 2015[282]). Sometimes, part-time work is a product of job sharing or of other employment arrangements. According to Weldon (2015[282]), part-time work is relatively more prevalent among women than men and among older teachers than younger teachers. Williamson, Cooper and Baird (2015[283]) documented variations in the incidence of part-time work across countries, with Ireland, the Netherlands, Switzerland and the United Kingdom having relatively high rates of part-time work. While many commentators see part-time work as beneficial for the individual in terms of balancing work requirements with the need to provide care to others or pursue studies, others argue that there can be potential negatives with regard to salary rewards, career progression, and work demands (Williamson, Cooper and Baird, 2015[283]). In the main, though, there appears to be relatively little research on the effects of part-time work on individual teachers.

In terms of organisational effects, part-time work can offer the benefits of enhanced performance and creativity, but the benefits can be tempered by the greater complexity associated with managing part-time and job-sharing roles (Williamson, Cooper and Baird, 2015[283]). Weldon (2015[282]) notes that, while part-time work and job sharing may make covering illness and holidays easier, they can make maintaining collaborative relationships with other staff and monitoring student progress more difficult. These arrangements also require having in place the administrative resources to support them. TALIS 2018 provides an opportunity to investigate the variations within and across countries in the percentages of teachers who are employed on a part-time basis and the extent to which these variations are associated with variations in other aspects of schooling.

For TALIS, school and classroom characteristics are typically of value in understanding the context in which data on the study's themes and indicators are interpreted. In particular, the composition of the student body of a school or classroom (in relation to the socio-economic, language, special needs, migrant and refugee backgrounds) and its teaching workforce (including the transience and attendance patterns of teachers), as well as characteristics such as school size, may relate to various approaches to teaching and aspects of school management.

Analytical potential and indicators

- *The TALIS 2018 principal questionnaire will collect data on the following indicators of school context*:
  - school location
  - school enrolment
  - percentages of teachers who are employed part time
  - types of programmes provided
  - school governance
  - school student composition in terms of language background, special needs, socio-economic disadvantage, immigrant background, and refugee status.
- *The TALIS 2018 teacher questionnaire will collect data on:*
  - target class student composition in terms of language background
  - previous low achievement
  - special needs
  - socio-economic disadvantage
  - immigrant background and refugee status.

Individuals analysing TALIS data will be able to use these indicators as context variables that potentially mediate or moderate relationships between and among other variables.

Analyses

Of the types of analyses conducted on TALIS 2018 survey data, three will form the bases of reporting (analyses for other purposes or reports are not discussed here). The first involves comparisons of indicators across countries. The second involves comparison of indicators over time, often referred to as trend analyses, and the third involves analyses of the relationships among indicators replicated across countries to establish general patterns. All three forms of analysis must establish measurement invariance. Measurement invariance refers to whether the same construct is being measured across countries, across other specified groups (e.g. gender, cultural background, socio-economic background), or over time. Measurement invariance is, therefore, an essential basis for valid interpretation of data. TALIS 2018 will conduct measurement invariance analyses in order to test the extent to which cross-country and cross-time comparisons of indicators and relationships are valid.

The TALIS 2018 questionnaire will be administered on line or in paper form to samples of teachers and their principals. The samples for the main survey will consist of approximately 200 schools per country and 20 teachers within each school. Schools will be sampled with a probability proportional to size; in some countries sampling rates will differ among strata. Response rates will also differ across schools. Survey weights will be computed to take into account the sample design and differences in participation. This process will allow the generation of population estimates and estimates of sampling error that are representative of the population of teachers. Applying survey weights is another essential part of

conducting analyses of TALIS data. Section III of this framework discusses sampling in greater detail.

To ensure that the samples are not biased by non-response, TALIS has specified a required response rate of 75% of sampled schools (after specified replacement), provided that each school included attains a minimum response rate of 50%. A minimum overall participation rate of 75% of teachers for each country is also required.

Comparison of indicators across countries or over time

A number of the tables included in the reports of TALIS 2018 findings will feature single indicators for each country or for each TALIS cycle (i.e. time). The statistics reported will depend on the nature of the indicator. For categorical indicators, the statistic reported will be the percentage of respondents (estimated for the relevant population of teachers) in each category (e.g. the percentage of female teachers or the percentage of class time spent on "administrative tasks", "keeping order in the classroom", and "actual teaching and learning"). For indicators based on continuous variables, the statistic reported will be the average (mean) on either a natural metric (e.g. average age) or a constructed scale (e.g. the average scores on scales of aspects of teacher self-efficacy or school climate). Standard errors will be reported for all of these statistics so we can determine the confidence with which it can be concluded that any apparent differences between and across countries or between TALIS cycles for each country are not simply the product of random fluctuations in the sample or the measurement instrument.

Comparison of measures of association

Some of the tables in the TALIS 2018 reports will be concerned with the strengths of relationships between indicators. The simplest involve bivariate measures of association between two indicators reported either as correlation coefficients (e.g. between "the participation among stakeholder's index" and the "teacher professional collaboration index") or regression coefficients. The regression coefficients will be derived from multiple regression analyses of the relationship of a common set of variables with a criterion. Use of these estimates will allow us to compare the strengths of relationships across countries or across TALIS cycles.

In TALIS 2013, many of these analyses were based on a model developed by the International Association for the Evaluation of Educational Achievement (IEA) (Purves, 1987[284]) and further articulated in the model of school effectiveness developed by Scheerens and Bosker (1997[285]). This model examined teaching and learning in terms of context, inputs, processes, and outcomes (CIPO). The framework used in TALIS 2013 was comprehensive in that it included a wide range of measures. It was also multi-level because it was structured around factors at the teacher or classroom, school, and education system level. The TALIS 2013 model indicated that the influences of some factors were relatively similar in a range of contexts (e.g. initial teacher education), while others varied to a greater extent (e.g. teacher job satisfaction). In general, those variables classified as process factors tended to be seen as more malleable, as they are the factors through which teachers, principals, and education system managers can influence the system and enact change.

TALIS 2013 also investigated influences on teacher self-efficacy and job satisfaction as the main outcomes (2014, p. 183[5]). The investigation included indicators concerned with teacher experience in schools, namely, teacher professional practices (collaborative practices), instructional practices (teaching practices), teacher feedback and development (appraisal and feedback, mentoring, professional development), as well as school climate

and school leadership. The study also included teacher background characteristics (gender, work experience as a teacher, and elements included in initial teacher education) and demographic characteristics of students in the teachers' classrooms.

TALIS 2013 acknowledged that outcomes can be the result of process and inputs and can then themselves influence inputs and processes. An example of this feedback loop concerns teacher feedback and development. Here, feedback influences the propensity of teachers to engage in desirable instructional processes, but then the teachers themselves are influenced by the experience of implementing those practices. Similarly, teacher self-efficacy can be considered an output of teacher development and the subsequent experience of adopting new pedagogical practices. Teacher self-efficacy can also be seen as an input that influences participation in professional development and the willingness to improve practice. Since 2013, adoption of dynamic models of school effectiveness has further influenced research (Creemers and Kyriakides, 2008[185]; 2015[24]). Creemers and Kyriakides (Creemers and Kyriakides, 2015[24]) show how the same factor can often be both an input and an output of schooling. Dynamic models have also been used in studies of teacher influences on student learning (Kyriakides, Christoforou and Charalambous, 2013[278]) and in studies on school improvement (Creemers, Kyriakides and Antoniou, 2013[286]; Muijs et al., 2014[215]).

Recent years have seen a number of other important developments in educational effectiveness research, including use of models that integrate system-level, school-level, and classroom-level factors (Scheerens, 2016[213]). Concomitant with these developments has been a wider application of the forms of analysis that we can use to explore indirect (as well as direct) effects on learning outcomes and reciprocal relationships among multiple influences on outcomes (van der Werf, Opdenakker and Kuyper, 2008[287]). Increasingly, studies are using composite indicators rather than single-item indicators to capture complex school and classroom constructs, thus providing more reliable measures of what happens in schools and classrooms. Researchers often prefer to use composite indicators instead of single-item indicators in situations where multiple factors contribute to the construct. For example, a single item on "the frequency of classroom disruption" would limit our understanding of the complex construct of "classroom disciplinary climate". A composite measure (or scale) can widen the scope of, and capture more appropriately, the underlying construct being investigated.

Our intention with respect to this TALIS 2018 conceptual framework is not to prescribe the analyses to be undertaken. Rather, our aim is to illustrate some possible analyses without being overly comprehensive or precluding others. One set of possible analyses of TALIS 2018 data could focus on influences on teacher self-efficacy. This construct was investigated in TALIS 2013 and remains a focus for TALIS 2018 because it represents a measure of enduring teacher quality. The relationships among various indicators and teacher self-efficacy could be direct (e.g. an aspect of initial teacher education directly influencing teacher self-efficacy) or indirect (e.g. an aspect of initial teacher education influencing teacher self-efficacy because an aspect of initial teacher education has influenced professional learning, which, in turn, has influenced teacher self-efficacy). Ultimately, the approach adopted for the analyses will depend on theories as to how various factors influence teacher self-efficacy.

In this hypothetical example, professional learning is a "moderator", which explains why there is an apparent relationship between initial teacher education and teacher self-efficacy. Other variables might influence the strength of the relationship between two variables. For example, the relationship between initial teacher education and teacher self-efficacy could

be stronger when there is a high level of collaboration than when there is a low level of collaboration. If this were the case, we could conclude that collaboration has mediated the relationship between initial teacher education and teacher self-efficacy. Such an investigation could incorporate indicators at both teacher (e.g. extent of feedback) and institutional (e.g. school climate or school leadership) levels, as well as of reciprocal relationships (e.g. between teacher collaboration and school climate).[9]

Conclusion

TALIS 2018 aims to gather quality indicators on each of the themes described in this section in order to provide participating countries with comparable data on the conditions of teaching and learning in their lower secondary schools (and, for some countries, their primary and upper secondary schools). TALIS does not measure how these themes influence or relate to teacher effectiveness or student learning. However, it does provide opportunities to investigate relationships and interrelationships between elements in those themes, such as between school climate and teachers' professional practices, between feedback and professional development and instructional practices, and between the factors that form part of institutional environments and teacher job satisfaction, motivation, and self-efficacy.

The breadth of academic and policy research in education that TALIS data make possible is extensive. The sample of literature included in this section featured country-specific and international research and has provided a foundation for the development of common indicators that appear to be relevant to an international survey such as TALIS. The aim of the priority ratings that TALIS participating countries gave to suggested TALIS themes, along with the literature review in this section, was to provide an overview that would help guide the creation of the TALIS 2018 survey. Therefore, each sub-section provided educational policy and research evidence in support of the indicators, and, thus, confirmed that the themes the TALIS participating countries requested are indeed important aspects of educational processes and may serve as potential avenues for educational improvement.

The next and final section of this conceptual framework, Section III, takes a turn away from a discussion of TALIS 2018 themes and indicators to focus on the study's design issues and survey operations.

[9] As a further example, TALIS 2018 could also investigate influences on teacher instructional practices by building on and extending the model articulated in the TALIS 2013 international report (OECD, 2014, p. 151[5]). An argument for investigating influences on instructional practices would centre on the well-established finding in the literature that teacher instructional practices form the variable most closely related to student learning outcomes.

Section III – Design of TALIS 2018

This final section of the conceptual framework covers key aspects of the TALIS 2018 survey design, including the field trial and main survey. It contains a description of the formal definition given to "teacher" within the context of TALIS and also the framing for the sample design provided by ISCED levels 1, 2, and 3. It also provides overviews of the study's sample design, survey instruments, and survey operations. To ensure a process of continuous improvement from cycle to cycle, we also discuss what was learned from the first and second TALIS cycles (2008 and 2013).

Defining teachers in TALIS

TALIS 2018 has adopted the definition of a teacher used in both TALIS 2013 and 2008. This definition is also congruent with the formal definition used in the OECD's Indicators of Education Systems (INES) project. The definition of a teacher as used for TALIS 2018 (and before) can be found in Box 2.

Box 2. Definition of a "teacher"

A teacher is defined as a person whose professional activity involves the transmission of knowledge, attitudes and skills to students enrolled in an education programme. This definition does not depend on the qualification held by the teacher or on the delivery mechanism. It is based on three concepts:

- *Activity*, thus excluding teachers who do not have active teaching duties, but including teachers temporarily not at work because of, for example, illness or injury, maternity or parental leave, holiday or vacation.
- *Profession*, thus excluding people who work occasionally or in a voluntary capacity in educational institutions.
- *Education programme*, thus excluding people who provide services other than formal instruction to students (e.g. supervisors, activity organisers).

Teaching staff refers to professional personnel directly involved in teaching students, thus including classroom teachers, special education teachers, and teachers who work with students as a whole class in a classroom, in small groups in a resource room, or in one-to-one teaching inside or outside a regular classroom.

Teaching staff also include chairpersons of departments whose duties include teaching, but it does not include non-professional personnel who support teachers in providing instruction to students, such as teachers' aides or other paraprofessional personnel.

Also, in general, school principals, vice-principals, and other administrators without teaching responsibilities in educational institutions, as well as teachers without active teaching responsibilities for students in educational institutions, are not classified as teachers.

The definition of teacher with regard to vocational and technical education includes teachers of the "school element" of apprenticeships in a dual system but excludes trainers in the "in-company element" of a dual system.

Full-time and part-time teachers

The classification of educational personnel as "full-time" or "part-time" is based on hours spent working. The stipulation of full-time employment is usually based on "statutory hours" or "normal or statutory working hours" (as opposed to actual or total working time or actual teaching time). Part-time employment refers to individuals employed to perform fewer than the statutory number of working hours required for a full-time employee.

A teacher who is employed for at least 90% of the normal or statutory number of hours of work for a full-time teacher over the period of a complete school year is classified as a full-time teacher. A teacher who is employed for less the 90% of the normal of statutory number of hours of work for a full-time teacher over the period of a complete school year is classified as a part-time teacher.

Source: Adapted from Box 2.1 in OECD (2005[1]), *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, OECD Publishing, Paris, https://doi.org/10.1787/9789264018044-en, p. 25.

Overview of the sample design

TALIS investigates the learning environment and working conditions of teachers in schools. Information is gathered via online questionnaires (main data collection mode) and paper questionnaires (substitute or fall-back mode) administered to a sample of teachers and their principals. The representative samples for the main data collection consist of approximately 200 schools per country[10] and ISCED level, and 20 teachers within each school. The nominal international sample size is set at 4 000 teachers. The minimum school participation rate is set at 75% after replacement, and the minimum teacher participation rate is set at 75% of the teachers. Box 3 describes the international sampling and operational parameters applied in TALIS.

[10] The term "country" is used here to refer to any TALIS "participant", which may be a country, an OECD partner economy, an education system, a region/jurisdiction, or a similar sub-national entity.

Box 3. The TALIS design in brief

- **International target population (core):** lower secondary education (ISCED level 2) teachers and the principals of their schools
- **International options:** primary (ISCED level 1) and/or upper secondary (ISCED level 3) education teachers and the principals of their schools; school-level link to PISA 2018 (aiming at teachers teaching 15-year olds in schools taking part in PISA 2018)
- **Sample size:**[11] 200 schools per country, 20 teachers in each school
- **Sampling:** probability samples of schools and of teachers within schools
- **Target response rates:** 75% of the sampled schools (school considered a responding school if 50% of sampled teachers respond), aiming for a 75% response from all sampled teachers in the country
- **Questionnaires:** separate, adaptable questionnaires for teachers and principals, each requiring around 45 minutes to complete
- **Modes of data collection:** self-administered on line or paper and pencil completion
- **Phases:** a pilot study (focus group pre-testing), a field trial, and the main data collection
- **Main data collection windows:** three-month period toward the end of the 2017/18 school year

The participating countries determined that the main focus of TALIS 2018 should be teachers of lower secondary education (Level 2 of the 2011 revision of the International Standard Classification of Education, ISCED 2011) and their school principals.

Countries that participated in TALIS 2013 (and similarly for TALIS 2008) successfully managed to keep the proportion of excluded teachers in the ISCED level 2 sample to less than 5% (OECD, 2010, pp. 61, Table 5.1[288]; OECD, 2014, pp. 315-320, Table 5.7[289]). Future rounds of TALIS, including 2018, will use the 5% threshold as the upper limit for the exclusion of teachers from the survey population. Schools devoted entirely to students with special needs, and schools offering exclusively adult education are considered out of scope for TALIS 2018. This exclusion maintains consistency with the earlier TALIS target populations. As in the earlier TALIS surveys, substitute and other emergency teachers are excluded from the international TALIS 2018 target population, as depicted in Figure 4.

[11] The "sample size", "sampling", and "target response rates" apply for each specific target population (i.e. Core, ISCED Level 1, ISCED Level 3, and the school-level link to PISA 2018).

Figure 4. TALIS 2018 international and national target and survey populations

<table>
<tr><td colspan="3">ISCED Level 2 universe</td></tr>
<tr><td>TALIS 2018 out of scope</td><td colspan="2">TALIS 2018 INTERNATIONAL target population
= TALIS 2018 INTERNATIONAL survey population</td></tr>
<tr><td>- schools exclusively for adult education</td><td colspan="2">NATIONAL target population</td></tr>
<tr><td>- schools exclusively for students with special needs</td><td>NATIONAL exclusions</td><td>NATIONAL survey population</td></tr>
<tr><td>- substitute or emergency teachers</td><td>- remote, small schools</td><td rowspan="2">Not sampled | In sample</td></tr>
<tr><td>- teachers exclusively for adult education in regular schools</td><td>- entire province, state, or sub-population</td></tr>
<tr><td></td><td>Not more than 5% of teachers</td><td>At least 95% of teachers</td></tr>
</table>

Source: Taken from the TALIS 2018 internal document "Survey Operations Procedures Unit 1: Sampling Schools (Main Survey)" (referred to as the "Sampling Manual"), intended for use by national project managers and national sampling managers.

As occurred during TALIS 2013, countries intending to participate in this latest cycle of TALIS expressed their interest in pursuing international options, that is, surveying ISCED levels 1 and 3, and implementing a school-level link to PISA 2018. TALIS 2018 will consequently survey four target populations:

- *Core:* ISCED level 2 teachers and school principals
- *International option:* primary school (ISCED level 1) teachers and school principals
- *International option:* upper secondary (ISCED level 3) teachers and school principals
- *International option:* school-level link to PISA 2018 (aimed at surveying teachers who are eligible to teach 15-year-olds in 2018 in schools taking part in PISA 2018).

Because an objective of the 2018 survey is to obtain unbiased estimates for each of these four target populations, the sampling strategy that is used needs to reflect this objective. The samples must yield sufficient data and indicators for use by policy makers at the classroom, school, and labour market/professional and system levels. The samples must also be sufficiently broad for policy analysts to use the labour market and system-wide indicators to draw valid inferences. The resultant data should also contain the detail needed to ensure that school-level data and indicators can facilitate policy discussion. These requirements apply to both the school principal and teacher questionnaires and to each target population.

A sampling strategy cannot be developed in isolation: it must work in symbiosis with the manner in which, and to whom, the survey instruments are distributed. It must also account, as much as possible, for response burden and practical field considerations. During TALIS 2013, the advantages and disadvantages of using a universal instrument (i.e. an instrument not specific to any ISCED level) across all three ISCED levels were carefully discussed. Although using a truly universal instrument may have been advantageous, adaptations were required to fully address the specificities of the optional ISCED levels, and especially those of the vocational tracks. Also, the use of specific references to condition teachers' answers (e.g. the use of a "reference" or "target" class to focus attention with regard to teaching practices) compelled the use of level-specific instruments under otherwise constant sets of themes and survey questions.

In those countries opting to survey more than the core population, some schools will cover more than one ISCED level, and the teachers themselves might teach at more than one ISCED level. Using schools sampled for one ISCED level to obtain a sample of teachers for a second ISCED level is a tempting strategy. Although details of the within-school sampling procedures under this scenario were developed during TALIS 2013, they proved to be too demanding from several perspectives: computer programming; the need to carefully instruct local school co-ordinators; reliance in some participating schools on manual labour; and the burden on selected teachers and principals. Hence, the Board of Participating Countries (now the TALIS Governing Board) decided that, to the greatest extent possible, samples of schools for each ISCED level should be distinct from one another (minimised sample overlap) (OECD, 2011, pp. 7-8[290]). Also, because the estimates for each population in TALIS are of similar statistical quality or precision, samples from each population need to be similar in size.

The "nominal" sampling plan for TALIS 2018 is a two-stage design, in which schools are the primary sampling units and teachers are the secondary sampling units. School principals are asked to respond on behalf of their school. The OECD's examination of the response rates and design effects evident during TALIS 2008 and 2013 has resulted in the sample sizes for TALIS 2018 being set at 200 schools and 20 teachers per school for each population (or ISCED level) in which a country participates. To give an example: in a country opting to survey all three ISCED levels and where each school offers education at only one ISCED level, as many as 600 schools and 12 000 teachers would be asked to participate in TALIS 2018.

Acceptable participation rates have been fixed at 75% of schools (after replacement of non-responding schools) and 75% of teachers from participating schools, on the understanding that a school is deemed to have participated if at least 50% of its sampled teachers participate. This requirement is similar to that of the previous TALIS, which almost all participating countries managed to meet.

Requirements for the school-level link to PISA 2018 cannot be set in the same manner for several reasons. First, the sample of PISA schools represents a universe somewhat different from the TALIS 2018 universe. Second, the PISA 2018 main data collection campaign determines the sample of schools and the set of participating schools. Third, the nominal sample size for PISA 2018 is 150 schools. However, the within-school sample size for the school-level link to PISA 2018 is set at 20 teachers.

Overview of survey instruments and their development

TALIS 2018 collected information on the themes and indicator domains described in this document from teachers and school principals working at the ISCED 2 level of education (the same level as in TALIS 2008 and 2013). In addition, and as occurred in TALIS 2013, countries were given the option to survey their ISCED level 1 and ISCED level 3 teacher and school principal populations as well as teachers and principals in schools selected for participation in PISA 2018. The instruments used to collect this information consisted (as was the case in TALIS 2008 and 2013) of two questionnaires, one for teachers and one for school principals. The questionnaires included an array of questions across all thematic areas, with these covering aspects related to contexts, inputs, processes, and outcomes at the school, classroom, and (notably) personal levels (e.g. personal beliefs or perceptions). Because TALIS requires individual teachers and principals to complete the questionnaires, these instruments could not be administered to substitutes or other members of the school

staff who might be knowledgeable only about structural or administrative characteristics of a school.

Both questionnaires were organised in sections that loosely, but not strictly, matched a thematic area of interest in TALIS. In some cases, questions relating to the same theme appeared in multiple sections, or a section combined questions from multiple themes. Questionnaire sections also included information that introduced a topic or provided definitions and guidance relevant to some, many, or all of the questions in the respective section. Some topics and constructs within and across the two instruments used identical or highly similar lists of items (e.g. with respect to professional development activities and needs). Other types of triangulation, including between teachers' and principals' perspectives on particular topics, were implemented.

The main responsibility for the development of the teacher and principal questionnaires rested with the TALIS Questionnaire Expert Group (QEG), convened and chaired by the TALIS International Research Consortium (see also the introduction to this document). The QEG's work involved multiple phases encompassing an iterative process of desk work, virtual meetings, and face-to-face meetings at key stages of the survey (inception, before the pilot, before the field trial, and before the main survey). An extended QEG assisted the main QEG and the consortium by providing scholarly reviews of the conceptual framework and the questionnaires from specific perspectives relating to regions (e.g. Latin-America), levels (e.g. ISCED level 1), and other contexts (e.g. low-income countries). At the end of each key stage, the QEG presented an account of its work to the OECD Secretariat, the TALIS Governing Board, and the TALIS Technical Advisory Group for their comment, or approval, or both.

Questionnaire development began with consideration of universal template questionnaires. Adaptations were then made to the local and also the level-specific contexts for the core TALIS population and all optional populations. As in TALIS 2013, the themes and indicators in the 2018 questionnaires overlapped across the core and optional populations to allow for analyses across levels. Some questions and items targeted a particular level only (e.g. elements of initial teacher preparation of particular relevance or interest for ISCED level 1). Comparative analyses of the information collected via the TALIS questionnaires and the TALIS Starting Strong Survey can only be possible if certain questions and items are included in both TALIS 2018 and TALIS Starting Strong. The glossary of terms accompanying the TALIS 2018 questionnaires provided important guidance for the survey's national project managers (NPMs) in terms of terminology, interpretation, and intended adaptation and translation to the local context.

An important part of the questionnaire development process was trialling how well new, revised, and trend items in the questionnaires work (e.g. in terms of comprehensibility). Therefore, a trial of new material took place in some of the TALIS participating countries (pilot stage). The pilot was followed by a trial of all survey materials in all countries (field trial stage). While the pilot is of lesser concern in terms of scope, the limitations in the field trial and the main survey apply in terms of feasible response time. The terms of reference for TALIS 2018 state that respondents should spend no more than a maximum of 45 minutes on average for the English version of either questionnaire. In the context of TALIS, this limitation primarily concerns the population of teachers (ISCED 2) for whom most of the survey questions apply. Of relevance here is the average response time for the teacher questionnaires in TALIS 2013. It was closer to 60 minutes than 45. This time consideration raised another limitation of the TALIS 2018 questionnaire development process (a limitation evident in the previous TALIS surveys) – the fact that only a finite number of

questions can be administered to any one respondent and, hence, accommodated by the survey in general.

This limitation was addressed through survey administration designs that used overlapping (or rotated) forms and, thus, allowed for more materials to be trialled despite time constraints. These overlapping forms are routinely used in the assessment of cognitive domains and recently also in the context of background questionnaires for large-scale assessments such as OECD PISA. During the development of TALIS 2013, this approach was discussed but rejected because of the operational complexities and corresponding error sources likely to occur throughout the national instrument production process. In several countries, up to eight different questionnaires had to be produced and synchronised for the four target populations. Overlapping forms would have added to this complexity.

In TALIS 2018, the proportion of respondents using the already predominant online survey mode was larger than it had been for the 2013 survey. Therefore, using the advances in technology, the entire national instrument production process was handled via an electronic assessment system developed and operated by the TALIS International Research Consortium. Hence, TALIS 2018 employed a design for the field trial that used three forms for teachers for each target population and one common form (only) for principals because few related constraints existed there.

Each version of the teacher questionnaire included questions designed to collect information on general background characteristics, as well as on themes that the survey needed to collect from all teachers. These common elements provided for meaningful disaggregation and grouping during the field trial analysis and validation stage. All other sections, again loosely corresponding to themes, appeared in two out of the three forms. This design allowed for an estimated maximum of 75 minutes of questionnaire materials, as well as correlational analyses between all themes and the common materials in the field trial. A secondary benefit of the approach was that it facilitated the inclusion of experiments in which one of the two groups would receive a form with a variation from the one administered to the other group.

Finally, the electronic assessment system was accompanied by paper and pencil questionnaire templates for use by teachers and principals who were either not willing or not able to use the online delivery of instruments. Preference for paper and pencil may occur because of a lack of the necessary computer equipment or a lack of Internet connectivity. In some cases, the preference may be because the respondent refuses to complete the questionnaire on line.

Figure 5 provides an abstract representation of this approach (i.e. illustrating three example sections whereas the actual questionnaire included more sections). In this illustration, a common questionnaire section has been administered in all three forms in the same position. Sections 1, 2, and 3 are then included in two of three forms, and (a) and (b) denote variations in one section. The majority of questions in this section are identical, but some questions are presented in alternative forms in (a) and (b). Finally, one section (1) is presented in two different positions to allow study of the impact of ordering and position (e.g. with respect to effort, as manifested in response time, factorial comparability, and non-response).

Figure 5. Abstract design for the TALIS 2018 field trial teacher questionnaire

Form A	Form B	Form C
Common		
Section 1		
	Section 2a	Section 2b
Section 3a		Section 3b
	Section 1	

Given this instrument structure, the nominal field trial sample size for TALIS 2018 was slightly larger than the field trial sample size for TALIS 2013. Thirty schools and 20 teachers within each school were sampled for the field trial for each participant and each population. Attrition of survey participants aside, this structure made either 600 (common sections), 400 (materials used in two of three forms), or (as a minimum) 200 data points (for question alternatives/experiments) available per participant for field trial analyses.

The TALIS 2018 main survey did not use a rotational design because TALIS could not accommodate, in terms of time and budget, the operational, methodological, and analytical consequences arising from deployment of this design. The main survey therefore used a single, common teacher questionnaire per target population.

Overview of survey operations

Like the first two cycles of TALIS (2008 and 2013), the third cycle (2018) included the three major components of large-scale international comparative surveys: a pilot study, a field trial (FT), and the main survey (MS). The 2018 pilot study, which allows validation of the quality and content of the questionnaires, especially for new and improved item materials, was conducted in 11 countries. Three additional countries provided feedback to the questionnaires on a voluntary basis.

Because the TALIS 2013 pilot study proved to be a positive experience and produced useful information, the 2018 pilot study was a qualitative one. As part of this approach, feedback and comments were sought from teachers and principals of all ISCED levels through the medium of moderated focus group discussions. Feedback and other information collected at this time were then used to inform preparation of the field trial instruments. Reviews of the questionnaires by NPMs and experts in questionnaire design also fed into development of the field trial instruments. In addition, the TALIS Technical Advisory Group (TAG) advised on and validated the operations, standards, planning, and processes for the pilot, field trial, and main survey. The group's role provided an important element of quality assurance for TALIS 2018.

The objective of the field trial was to test the survey instruments and operational procedures in all participating countries in preparation for the main survey. Due to the larger amount of field trial survey material in TALIS 2018, a rotated questionnaire design was implemented that required a sample size per country of 600 teachers and 30 principals from 30 sampled schools for the ISCED level 2 core and each international option. Each participant was required to run this field trial, including administering all agreed upon language versions according to standardised procedures. Technical standards and corresponding quality control measures based on those implemented in TALIS 2013 were in place to ensure that the 2018 study implementation yields data comparable with the 2013 data.

The main survey data collection was conducted in two waves, each towards the end of the school year and taking into account the different timing of the school year in northern hemisphere and southern hemisphere countries. As discussed earlier in this document, TALIS 2018 selected a nominal sample of 4 000 teachers and their principals working in 200 sampled schools for the ISCED level 2 core and each international option. National study centres were responsible for preparing their own national survey operation schedules within the given international timeline. In keeping with the field trial, the main survey was carried out according to rigorous technical standards, information in manuals, and guidelines to ensure high response rates and high-quality data.

As noted, online delivery was the main mode of questionnaire administration in TALIS 2018. The decision to use this mode was based on the positive experience of using online delivery in TALIS 2008 and 2013 and on the increasing number of participants using this mode. Online delivery offers several operational benefits, including a significant reduction in paper-handling and data-capture costs for the study's national centres. Online data collection also helps improve questionnaire administration, primarily because it allows for greater flexibility and efficiency during this process. For example, filter questions can guide respondents through the questionnaire, inconsistencies in responses can be checked on line, and there is no need to enter data manually.

All questionnaires were made available to countries in English and French. For the field trial and the main survey, the national centres adapted and translated the questionnaires and then submitted them for international translation verification. National centres had received training in adapting and translating the instruments into their local language(s) in electronic form and by using National Adaptation Forms (NAF). They had also been shown how to deliver the questionnaires using the online delivery system. An online data monitor enabled national centres to monitor questionnaire return status at any time, as well as the level of questionnaire completion.

The traditional paper delivery mode was fully supported as a fall-back solution for all individual teachers and principals who requested it and for all participants for whom a full delivery of the questionnaires on line was not possible. A final layout verification step was applied to the paper instruments to ensure high questionnaire quality and comparability with the questionnaires delivered on line.

The TALIS standards, manuals, and guidelines define the rules national centres were asked to follow when preparing and implementing TALIS 2018 in the countries. The International Research Consortium took care to provide national project managers (NPMs) and their staff with the training they needed to enable them to fulfil all required tasks and activities to the highest possible quality. NPMs received thorough guidance with respect to identifying and liaising with co-ordinators in the local schools, as well as with individuals responsible for all local listing and logistics. The TALIS International Research Consortium provided training for national data managers, as well as software that allowed managers to list, select, and administer TALIS instruments in a standardised and controlled way.

International quality control monitoring is a central part of the TALIS 2018 quality control measures. The TALIS International Research Consortium developed and implemented an international quality control programme, which trained international quality observers (IQOs), who will operate in each country. In addition, the consortium provided NPMs with quality control training, a national quality control manual, and guidelines to help them prepare and implement national quality control measures.

In preparation for all tasks that take place after completion of data collection in each country, NPMs were obliged to follow a data management manual and to attend data management training. Those countries that used the paper delivery mode received data entry software together with codebooks that supported standardised data entry procedures and data processing. Partial double entry of data collected through the paper versions of the questionnaires by two key-entry operators was required as an effective means of detecting and reducing systematic or incidental data entry errors. Here, the advantage of the online data collection option becomes evident because data entry is already predefined in terms of value ranges and variable types. The data submitted by national centres was monitored closely by the TALIS 2018 International Research Consortium to verify the completeness and quality of the data received.

TALIS 2018 stresses the need for detailed attention to all aspects of survey quality and quality control measures in a total survey error perspective. The following areas of activity are, therefore, subject to quality control measures:

- standards, manuals, and guidelines
- sampling plan implementation
- instrument preparation, including national adaptations, translation, and translation verification
- survey implementation and data collection (online and paper mode)
- international and national quality control monitoring of the data collection
- data entry, processing, and products
- weighting
- data adjudication
- analysis and report production.

Finally, a fully documented international database containing the teacher and school principal responses, together with the survey weights to allow published estimates to be reproduced and original analyses to be conducted, were made available on the web. A technical report documenting the methods and procedures used to develop and implement TALIS 2018 will be prepared and published, along with a User Guide including analysis guidelines.

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Annexe A. Questionnaire constructs and themes

Table A A.1. Teacher questionnaire

Section	Number	Construct	Theme	Comment
Background and qualification	TQ-01	Gender	Background	
	TQ-02	Age	Background	
	TQ-03	Highest educational attainment	Teacher education and initial preparation	
	TQ-04	Qualification pathway	Teacher education and initial preparation	Co-ordinated National Option
	TQ-05	Qualification vintage	Teacher education and initial preparation	Co-ordinated National Option
	TQ-06	Qualification elements and preparedness	Teacher education and initial preparation	
	TQ-07	Motivation to join the profession	Teacher education and initial preparation	
	TQ-08	Career commitment to teaching	Teacher education and initial preparation	
Current work	TQ-09	Employment status tenure	Background	
	TQ-10	Employment status FTE	Background	
	TQ-11	Work experience	Background / Professional Development	
	TQ-12	Work commitment in multiple schools	Background	
	TQ-13	Work commitment in multiple schools	Background	
	TQ-14	Special needs teaching status	Background	
	TQ-15	Subjects taught	Teachers' instructional practices	
	TQ-16	Time distribution – total hours	Teachers' professional practices (including mobility)	
	TQ-17	Time distribution – teaching hours	Teachers' professional practices (including mobility)	
	TQ-18	Time distribution – non-teaching hours	Teachers' professional practices (including mobility)	
Professional development	TQ-19	Participation in induction activities	Teacher feedback and development	
	TQ-20	Induction at current school – types formats	Teacher feedback and development	
	TQ-21	Involvement in mentoring	Teacher feedback and development	
	TQ-22	Professional development types/formats	Teacher feedback and development	
	TQ-23	Professional development topics	Teacher feedback and development	
	TQ-24	Professional development incentives/support	Teacher feedback and development	Co-ordinated National Option
	TQ-25	Professional development impact	Teacher feedback and development	
	TQ-26	Professional development impact	Teacher feedback and development	
	TQ-27	Professional development needs	Teacher feedback and development	
	TQ-28	Professional development barriers	Teacher feedback and development	
Feedback	TQ-29	Feedback types and sources	Teacher feedback and development/teacher human resource issues and stakeholder relations	
	TQ-30	Feedback impact	Teacher feedback and development	

Section	Number	Construct	Theme	Comment
	TQ-31	Feedback impact	Teacher feedback and development/teacher human resource issues and stakeholder relations	
Teaching in general	TQ-32	School's team innovativeness	Innovation	
	TQ-33	Engagement in collaborative activities	Teachers' instructional practices/teachers' professional practices	
	TQ-34	Self-efficacy	Teacher self-efficacy	
Teaching in the target class	TQ-35	Target class student characteristics	Equity and diversity	
	TQ-36	Target class special needs focus	Equity and diversity	
	TQ-37	Target class subject focus	Teachers' instructional practices	
	TQ-38	Target class size	Teachers' instructional practices	
	TQ-39	Target class time distribution	Teachers' instructional practices	
	TQ-40	Satisfaction with classroom autonomy	Job satisfaction	
	TQ-41	Target class disciplinary climate	School climate	
	TQ-42	Core teaching practices in target class	Teachers' instructional practices	
	TQ-43	Teaching practices – assessment	Teachers' instructional practices	
Teaching in diverse environments	TQ-44	Self-efficacy in multicultural classrooms	Equity and diversity	
	TQ-45	Self-efficacy in multicultural environments	Equity and diversity	
	TQ-46	Diversity views and beliefs on this school	Equity and diversity	
	TQ-47	Diversity views and beliefs on this school	Equity and diversity	
School climate and job Satisfaction	TQ-48	School climate	School climate	
	TQ-49	Student-teacher relations	School climate	
	TQ-50	Job commitment/career plans	Job satisfaction	
	TQ-51	Workplace well-being and stress	Job satisfaction	
	TQ-52	Workload, student behaviour, and complex teaching demands stress	Job satisfaction	
	TQ-53	Satisfaction with the profession and this school	Job satisfaction	
	TQ-54	Perceptions of value and policy influence	Human resource issues	
	TQ-55	Teachers' spending priorities	Human resources	
Teacher mobility	TQ-56	Academic mobility	Teachers' professional practices (including mobility)	Co-ordinated National Option
	TQ-57	Academic mobility – purposes	Teachers' professional practices (including mobility)	Co-ordinated National Option
	TQ-58	Academic mobility – duration of time abroad	Teachers' professional practices (including mobility)	Co-ordinated National Option

Table A A.2. Principal questionnaire

Section	Number	Construct	Theme
Personal background information	PQ-01	Gender	Background
	PQ-02	Age	Background
	PQ-03	Highest qualification	School leadership
	PQ-04	Work experience	School leadership
	PQ-05	Employment status – working hours	School leadership
	PQ-06	Education and training	School leadership
	PQ-07	Professional development formats/types	School leadership/principal professional development
	PQ-08	Professional development needs	School leadership/principal professional development
	PQ-09	Professional development barriers	School leadership/principal professional development
School background information	PQ-10	School location	Background
	PQ-11	School funding	School leadership
	PQ-12	School management	School leadership
	PQ-13	School staff resources	Human resources
	PQ-14	Teacher attrition and turnover	School climate
	PQ-15	School programmes and competition	Human resources
	PQ-16	School total student enrolment	Human resources
	PQ-17	Student composition characteristics	School climate
School leadership	PQ-18	School management team (filter)	School leadership
	PQ-19	School management team composition	School leadership
	PQ-20	Distribution of responsibilities/leadership	School leadership
	PQ-21	Time distribution	School leadership
	PQ-22	Principals' responsibilities/activities	School leadership
Teacher formal appraisal	PQ-23	Formal teacher appraisals – agency/frequency	Teacher feedback and development
	PQ-24	Formal teacher appraisal – types/sources	Teacher feedback and development
	PQ-25	Formal teacher appraisal – frequency of actions	Teacher feedback and development
School climate	PQ-26	School climate dimensions	School climate/school leadership
	PQ-27	Academic and community dimensions of school climate	School climate
	PQ-28	Organisational innovativeness	Innovation/school climate
	PQ-29	Resource obstacles	School climate
	PQ-30	School safety	School climate
Teacher induction and mentoring	PQ-31	Induction activity availability for teachers	Teacher feedback and development
	PQ-32	Formal induction target group	Teacher feedback and development
	PQ-33	Formal induction provisions	Teacher feedback and development
	PQ-34	Mentoring availability for teachers	Teacher feedback and development
	PQ-35	Mentoring subject field matching	Teacher feedback and development
	PQ-36	Mentoring importance	Teacher feedback and development
Schooling in diverse environments	PQ-37	Self-efficacy in multicultural classrooms (filter)	Equity and diversity
	PQ-38	School multicultural practices	Equity and diversity
	PQ-39	School equity and other practices	Equity and diversity
	PQ-40	Diversity beliefs	Equity and diversity
	PQ-41	Equity beliefs	Equity and diversity
Job satisfaction	PQ-42	Job commitment/filter	Job satisfaction
	PQ-43	Stress sources	Job satisfaction
	PQ-44	Satisfaction with the profession and this school	Job satisfaction
	PQ-45	Satisfaction with school supports	Job satisfaction