



Annex A

TECHNICAL NOTES ON MEASURES DERIVED FROM THE TALIS 2013 TEACHER AND PRINCIPAL QUESTIONNAIRES

A note regarding Israel

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

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This Annex gives provides notes regarding the interpretability of the data, along with an overview of the indices, scales and other measures derived from the TALIS 2013 teacher and principal questionnaires used in the analyses. Information is given on how some new index measures were constructed and operationalised. More general technical details can be found in the *TALIS 2013 Technical Report* (OECD, 2014b).

Notes regarding the interpretation of the data

This section lists issues to be noted regarding the sampling or field operations that should be considered when interpreting the data reported for the following systems:

- Flanders (Belgium): The ISCED level 2 sampling was done based on “administrative units” rather than on schools; users should, therefore, be careful when comparing “school-level” estimates.
- Israel: The sampling excluded Ultra-Orthodox schools.
- Japan: In a number of schools, some teachers who should have been included were mistakenly excluded (e.g. part time, special educational needs).
- Korea: The data collection occurred in the early part of the year following the TALIS reference year.
- Malaysia: Many issues were discovered with coverage (established at about 90%), reconciliation of the sampled schools with the sampling frame, teacher sampling, data inconsistencies and deviations from the prescribed protocols of the survey. Schools where information could not be corrected or confirmed were rejected.
- Mexico: In the ISCED 3 sample, six schools were rejected because of unapproved teacher sampling procedures.
- Serbia: Users should use caution because not all school listings could be confirmed and differences between school listings and sampling frame information could not be explained.
- Portugal: Azores and Madeira were excluded from data collection.
- Singapore: The ISCED 2 and ISCED 3 coverage falls below 95% after the exclusion of 27 private schools.
- United States: Data from the United States are located below the line in selected tables in this report and not included in the calculations for the international average. This is because the United States did not meet the international standards for participation rates. To maintain a minimum level of reliability, the TALIS technical standards, which the United States was not able to meet, require that at least 75% of schools (after replacement) and at least 75% of teachers within the selected schools participate in the survey.

Operationalisation of the conceptual framework

Each aspect of the general conceptual framework (see Figure 1.1) is operationalised in one or more measures or indices. These are described below and sorted according to the numbering in the conceptual framework (A to E). Most of the indices are derived directly from the TALIS 2013 database and are used in the TALIS 2013 main report (OECD, 2014a). Others are constructed for the purpose

of this report. For the new indices, the items used from the principal or teacher questionnaire are described below.

A. School context indicators associated with professional community and learning climate

School location. The urbanisation grade of the school location is available in the TALIS database, being item TC2G09. It is recoded into three ordinal categories: 1 for “hamlet, village or small town (15 000 people or fewer)”, 2 for “town (15 000 to 100 000 people)”, and 3 for “city or large city (more than 100 000 people)”. Hamlet, village or small town (category 1) is considered as a reference category in the multilevel analyses.

School type. School type indicates whether the principal’s school is public, private dependent or private independent. Information about the school type comes from the principal item TC2G10 in combination with TC2G11A and TC2G11B. If the school is publicly managed, the school is coded public (school type = 1). If the school is privately managed, but at least 50% of the funding comes from the government or the teaching personnel is funded by the government, the school is coded private dependent (school type = 2). If the school is privately managed and less than 50% of the funding comes from the government and the teaching personnel is not funded by the government, the school is coded private independent (school type = 3). Public schools (category 1) are used as the reference in the multilevel analyses.

School size. The current school enrolment in all grades or ages in the principal’s school (TC2G14) is used in the analyses as school size. The number of students ranges from 1 to 4 335. For the multilevel analyses, school size is recoded into a ordinal variable with 1 for “< = 300 students”, 2 for “301-600 students”, 3 for “601-1 200 students” and 4 for “> = 1 200 students”.

Percentage of students who speak a foreign language. The percentage of students whose first language is different from the language of instruction is estimated by the principal (TC2G15A). The variable is coded by five ordinal categories, ranging from 1 for “none”, 2 for “1-10%”, 3 for “11-30%”, 4 for “31-60%”, and 5 for “more than 60%”. The first category is used as reference category in the multilevel analyses.

Percentage of students with special educational needs. The percentage of students with special educational needs is also estimated by the principal (TC2G15B). The five ordinal categories of this variable are similar to those for the percentage of students who speak a foreign language. The first category (“none”) is used as reference in the multilevel analyses.

Percentage of students with a low socio-economic status (SES). The percentage of students who come from socio-economically disadvantaged homes (TC2G15C) is estimated by the principal in the same way as the two latest variables. The variable consists of five ordinal categories, ranging from 1 for “none” to 5 for “more than 60%”. The first category (“none”) is used as reference in the multilevel analyses.

School autonomy. The principals were asked about the level of school autonomy. This is operationalised in the TALIS database by three indices: the degree to which the responsibility for decision making in budgeting (PBDGTAUT), staffing (PSTFFAUT) and instructional policies (PINSTAUT) is held at the school level, as opposed to at a local or national government level. Each school autonomy index was coded as 1 “no autonomy”, 2 for “mixed autonomy” and 3 for “autonomy”. School autonomy for budgeting contains items about establishing teachers’ starting salaries, determining teachers’ salary increases

and deciding on budget allocations within the school. School autonomy for staffing is constructed from items about appointing or hiring teachers and about dismissing or suspending teachers from employment. School autonomy for instructional policies is created using items about establishing student disciplinary policies and procedures, establishing student assessment policies, determining course content and which courses are offered. The first category (“no autonomy”) of the three school autonomy indices is used as reference in the multilevel analyses.

B. School leadership indicators

Instructional leadership. PINSLEADS is the first of two scales in the TALIS 2013 database that are useful for measuring the school leadership of the principal. It reflects the main characteristics of effective school leaders. The following items of the principal questionnaire were included in the scale: taking actions to support co-operation among teachers to develop new teaching practices (TC2G21C), ensuring that teachers take responsibility for improving their teaching skills (TC2G21D), or feeling responsible for their students’ learning outcomes (TC2G21E). The coding of each item is ordinal and ranged from 1 “never or rarely” to 4 “very often”. The scale for instructional leadership is considered to be continuous.

Distributed leadership. PDISLEADS is the second scale in the TALIS 2013 database that measures aspects of the principal’s school leadership. The degree of distributed leadership is constructed from three statements: the staff of the school has opportunities to actively participate in school decisions (TC2G22A), parents or guardians have opportunities to actively participate in school decisions (TC2G22B), and students have opportunities to actively participate in school decisions (TC2G22C). The coding of each statement is ordinal and ranged from 1 “strongly disagree” to 4 “strongly agree”. Distributed leadership is scaled continuously.

Time spent on educational leadership. In the principal questionnaire of TALIS 2013, some items are available that measure practical aspects of the principal’s educational leadership. The first item is the percentage of time a principal spends throughout the school year on curriculum and teaching related tasks and meetings (TC2G19B). This percentage is considered as continuous.

Educational leadership practice policy. Another two items are available in the principal questionnaire that measure educational leadership in practice. They measure the principal’s engagement during the last 12 months in developing educational goals/programmes (TC2G20A) and a professional development plan for his or her school (TC2G20B). They are combined in a new summative ordinal scale called Educational leadership practice policy. The coding is 0 for “not engaged”, 1 for “engaged in either educational goals/programmes or a professional development plan”, and 2 for “engaged in both”.

B1. Principal characteristics associated with school leadership

Principal’s gender. Item TC2G1 of the TALIS 2013 principal questionnaire indicates whether the principal is male (1) or female (2).

Principal’s formal education. The principal’s highest level of completed formal education is asked by means of item TC2G03. The coding of this item is ordinal: 1 for “below ISCED level 5”, 2 for “ISCED level 5B”, 3 for “ISCED level 5A” and 4 for “ISCED level 6”.

Principal’s ability training programme. Three items in the principal questionnaire refer to relevant additional formal education of the principal. They are about completing a school administration or

principal training programme/course (TC2G06A), a teacher training/education programme or course (TC2G06B) and an instructional leadership training or course (TC2G06C). The three items of the principal's ability training programme are recoded into a three dummy variables with 0 for "never" and 1 for "yes".

Principal's developmental activities. The principal questionnaire asked about three different developmental activities undertaken during the last year. These are activities in a professional network, mentoring or research (TC2G07A1); in courses, conferences or observational visits (TC2G07B1); and in other professional development activities (TC2G07C1). The three items of the principal's development activities are recoded into three dummy variables with 0 for "never" and 1 for "yes".

Experience as a principal. The experience as a principal is expressed by the number of years the principal has worked as a principal in total (TC2G04B). The range for principals in lower secondary education is from 0 to 47 years.

Experience with other school management roles. The number of years the principal has worked in management roles other than as a principal is also requested in the TALIS 2013 principal questionnaire (TC2G04C). The actual range for principals in lower secondary education is 0 to 42 years.

Experience as a teacher. The principal's experience as a teacher was measured by the number of years the principal has worked as a teacher in total (TC2G04D). The observed range for principals in lower secondary education is 0 to 49 years.

Teaching obligation. Item TC2G05 of the principal questionnaire indicates whether the principal has a teaching obligation him- or herself. The response categories are recoded into a dummy variable that indicates whether the principal has current teaching obligations, irrespective of the size of his or her employment status: 0 for "no" and 1 for "yes".

C. Teacher characteristics associated with professional community and learning climate

Teacher's gender. Item TT2G01 of the TALIS 2013 teacher questionnaire indicates whether the teacher is male (1) or female (2).

Teacher's employment status. The employment status of the teacher, combining all of his or her current teaching jobs, is represented in the TALIS 2013 databases by item TT2G03. The original scaling is reversed to facilitate the interpretation of the variable: 1 for "part-time, less than 50% of full-time hours (fth)", 2 for "part-time, 50-70% fth", 3 for "part-time, 71-90% fth", and 4 for "full-time, more than 90% fth".

Science subjects. The subject(s) a teacher currently teaches to ISCED level 2 students is represented by the items TT2G15A to TT2G15L of the teacher questionnaire. The subject(s) are divided in two groups and recoded into two dummy variables. The first subject dummy variable indicates whether the teacher teaches science subjects in the current school year: 1 for "mathematics, science or technology" and 0 for "other subjects".

Humanities subjects. The second subject dummy variable indicates whether the teacher teaches language, humanities or an arts subject(s) in the current school year. The coding is 1 for "reading, writing or literature, social studies, modern foreign languages, ancient Greek or Latin, arts or religion", and 0 for "other subjects".

Teacher's number of years teaching. The teacher's working experience is represented by item TT2G05B of the TALIS 2013 teacher questionnaire. It indicates the total number of years the teacher has worked as a teacher so far. The actual teaching experience of teachers in the lower secondary education ranges from 0 to 58 years.

Teacher's formal education. The teacher's highest level of completed formal education is requested in the teacher questionnaire (TT2G10). The scaling corresponds with the indicator for the principal's formal education: from 1 for "below ISCED level 5" to 4 for "ISCED level 6".

Teacher's self-efficacy. This is measured by means of the TALIS 2013 scale for teacher self-efficacy. The scale combines three subscales: efficacy in classroom management (SECLSS), efficacy in instruction (SEINSS) and efficacy in student engagement (SEENGs). The three subscales are used in the multilevel analysis and originate from the items TT2G34A to TT2G34L in the teacher questionnaire.

Teacher autonomy. The scale for teacher autonomy is based on the following items of the principal's questionnaire: TC2G18F3, TC2G18G3, TC2G18I3, TC2G18J3, and TC2G18K3. The scale indicates the amount of educational content tasks in which teachers have an active role in decision making, according to the principal. Teachers may share this decision making responsibility with other stakeholders, like the principal, other members of the school management team, school governing board, local municipality or regional/national authority. For the construction of the scale, the factor scores obtained by an exploratory factor analyses are used. The Cronbach's alpha of the scale is 0.77 for teachers in lower secondary education.

D. Learning climate according to the teachers

Classroom disciplinary climate. This is measured by means of the TALIS scale for classroom disciplinary climate (TCDISCS). The scale indicates to what degree learning is hindered by noise and disruption in the classroom.

Collective focus on student learning. The collective focus on student learning is based on the items TT2G29A to TT2G29E of the teacher questionnaire. The items reflect the teacher's received feedback on student performance (TT2G29A), knowledge and understanding of the subjects fields (TT2G29B), pedagogical competencies in teaching the subject fields (TT2G29C), student assessment practices (TT2G29D) and student behaviour and classroom management (TT2G29E). For constructing the scale *collective focus on student learning*, the factor scores are used. The Cronbach's alpha of the scale is 0.83.

Positive teacher-student relationships. The TALIS scale for teacher student relationship (TSCTSTUDS) is used in the analyses. It measures to what extent the teacher is willing to listen to the needs of students and give some extra help and assistance.

E. Professional community according to the teachers

Collaborative professional activity. The collaborative activity of the teachers is best represented by a scale in the TALIS 2013 database: TCEXCHS. TCEXCHS is constructed by the items TT2G33D, TT2G33E, TT2G33F and TT2G33G of the teacher questionnaire. As the Cronbach's alpha of TCEXCHS is sufficiently high (0.73), it was decided to use TCEXCHS without any adaptation in the analyses of this project.

Reflective dialogue. Reflective dialogue refers to the extent to which teachers are engaged in professional conversations about specific educational issues. In the teacher questionnaire, items TT2G30H to TT2G30L refer to this issue. They indicate the teachers' perceived positive change on 1) feedback on classroom practice, 2) knowledge and understanding of the main subject field(s), 3) teaching practice, 4) methods for teaching students with special educational needs, and 5) use of student assessments to improve student learning. The five items are included in an exploratory factor analyses, and for constructing the scale *reflective dialogue*, the factor scores are used. The Cronbach's alpha is 0.89.

Collective focus on student learning. The collective focus on student learning is based on items TT2G29A to TT2G29E of the teacher questionnaire. The items reflect the teacher's received feedback on student performance (TT2G29A), knowledge and understanding of the subjects fields (TT2G29B), pedagogical competencies in teaching the subject fields (TT2G29C), student assessment practices (TT2G29D) and student behaviour and classroom management (TT2G29E). For constructing the scale *collective focus on student learning*, the factor scores are used. Cronbach's alpha of the scale is 0.83.

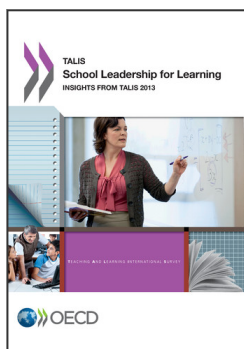
Deprivatised practice by classroom observation. Deprivatised practice refers to teachers observing other teachers' classes with the goal of providing feedback on their teaching. The item TT2G28A5 (feedback from other teachers following direct observation) reflects this issue well.

Deprivatised practice by feedback of another teacher. The other items of TT2G28 are also relevant with respect to deprivatised practice. Five items indicate the feedback on teaching by another teacher based on student surveys about the teacher's teaching (TT2G28B5), assessment of the teacher's content knowledge (TT2G28C5), analysis of the teacher's student's test scores (TT2G28D5), self assessment of the teacher's work (TT2G28E5), and surveys of discussions with parents or guardians (TT2G28F5). They are included into an exploratory factor analyses. The factor scores are used for construction of the scale. The factor score of these items make up the scale *deprivatised practice by feedback of another teacher*. Cronbach's alpha is 0.76.

Shared sense of purpose. A shared sense of purpose reflects the teachers' degree of agreement for the school's mission and its operational principles. Two items measure this issue: the school has a culture of shared responsibility for school issues (TT2G44D) and a collaborative culture which is characterised by mutual support (TT2G44E). Both items correlate well (Spearman's rho = 0,659, $p < 0.001$) and are used for a summative scale, called *shared sense of purpose*, that ranges from 2 to 8.

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